
Much has been written about the great Alexandrian scientist, Claudius Ptolemy. Astronomer, geographer, mathematician, he was one of the most important of all Hellenic scientists. But most students of Ptolemy have concentrated on the results of his researches, not on their philosophical foundations, or his motives.

Dr. Taub remedies this lack in masterly fashion. She has two goals. One is to examine Ptolemy's place in the philosophy of Greek science, particularly in relationship to Aristotle. The second is to examine the religious and ethical motives to Ptolemy's research.

Appropriately, the book opens with the epigram attributed to Ptolemy in The Greek Anthology, in which he says that contemplating the stars made him feel one of the immortalsCan important theme throughout the book.

An introduction outlines the work. Chapter one discusses how historians of science have usually placed Ptolemy among Aristotle's followers. It emphasizes that, while Ptolemy's theories about physics and mathematics had similarities with those of other Hellenic scientists, over-all his ideas were distinctive. Chapter two follows this theme in more detail, looking at the ideas in the philosophical preface to Syntaxis Mathematike (or Almagest), Ptolemy's most famous work. Here we learn that while Aristotle says that theology is the most important science, Ptolemy gives that honor to mathematics (pp. 26, 29). "Mathematics is the surest road to that which divine and eternal," (p. 29) and to study mathematics can make one virtuous and beautiful (p. 31). This last statement is evidence of Plato's influence, Taub believes.

Chapter three discusses very thoroughly the Syntaxis's seven basic assumptions about the earth and the universe. These include: that the universe moves spherically; that the earth is a sphere; that the earth is in the center of the universe; that the earth has the size of a geometric point compared to the size of the universe; that the earth itself does not move; and that the sky has two primary motions. All are common assumptions in Greek astronomy, but Taub is particularly concerned to demonstrate how Ptolemy's justifications for these hypotheses differ from Aristotle's. Usually, where Aristotle appeals to his physical theory, Ptolemy prefers to rely on observation and mathematics (pp. 71, 74).

Chapter four, "Ptolemy's Cosmology," discusses Ptolemy's works other than Syntaxis, particularly Planetary Hypotheses and Tetrabiblos, and how they portray the universe. A particular focus is on the order of the planets, and why they move. As in earlier chapters, Taub emphasizes Ptolemy's differences with Aristotle. Thus, Ptolemy supports the so-called Chaldaean order (from outside in): Saturn, Jupiter, Mars, Sun, Venus, Mercury, Moon. Other thinkers, such as Plato, used other orders. The relative position of Sun, Mercury, and Venus was the issue, since all three have the same period.

Ptolemy also emphasized that a planet moves in the same way an animal moves, that is, by an effort of individual will. He rejected the mechanism of spheres transferring force from an external source, which Aristotle preferred (pp. 113-118, passim).

Ptolemy believed that the planets were made of elements similar to the earth's, and that the planets had noticeable effects upon terrestrial events. This he discusses in his Harmonics and especially in Tetrabiblos, which is as important to the study of astrology as Syntaxis is to astronomy. All this is in strong contrast to Aristotle, who thought the sky and the earth had completely different elements and different laws, and who never mentions astrology (pp. 123-124, 126, 129-133).

Chapter five is perhaps the most interesting, for it discusses Ptolemy's religious motives for studying astronomy. Not only did he believe that the planets were immortal gods, as most Greeks did. Ptolemy thought that the study of the heavenly gods was a spiritual and ethical discipline. As his epigram says, Ptolemy thought the astronomer could imitate the calm unchanging planets, and thus achieve peace of mind for himself. Astrology, in particular, could help one be reconciled to the inevitable without grief (pp. 135-138).

The work is illustrated with twelve woodcuts from Renaissance astronomical textbooks, and has itself a handsome Renaissance format, with stars flanking the page numbers, and headlines beneath them. Endnotes, a useful ten page bibliography and a four page index end the volume. The style is not difficult, but assumes readers who are already acquainted with the history of Greek science and philosophy. It is probably best suited to graduate students as well as their mentors.

Reviewed by Dr. Lester J. Ness, 309 E. Third St. #4, Bloomington, IN 47401-3595.


The editor is a faculty member of School of Education, University of New South Wales, Kensington, Australia. This book is a collection of essays on the teaching of history, philosophy, and science...
Coverage is generally excellent. Both large cities and smaller towns are listed. Personal favorites not included were the Science
editions to arrive at Derham's value (see Westfall's
involved an accurate measurement of the speed of sound which disagreed with both the
influenced the thought of 18th century evangelicals such as William Paley and John Wesley. Derham's claim to scientific fame
note for this reader was the account of William Derham, Rector of Upminister for nearly 50 years. Derham's
jargon and reflects the things that have impressed one who has both a geographic and a historical perspective. One interesting
which sets the stage for a description of points of interest in specific cities and towns. The rhetoric flows smoothly, avoids technical
"Mitteleuropa," Scandinavia and the Baltic. The scientific history of individual nations in the regions is discussed in a broad fashion
provide some orientation for the novice."

Articles are grouped by theme. In Part One, the interplay of the history and philosophy of science and science teaching in the past
history is outlined, and some of the fundamental questions about the role of the former in the science classroom are laid out. In the
article, Ernst Mach's genetic approach about science educationCthat the narrow curricula should be presented historicallyCis explained. Every young student could come into living contact with and pursue to their ultimate logical consequences merely a few mathematical or scientific discoveries. In the second article, the author takes a critical realist position regarding the philosophy of
and proposes that it be adopted in science curriculum design. This position understands that scientists aim at a true
description of the world and a true explanation of observable events, but cannot know for certain that their findings are true.

In Part Two, the major contention of recent, post-Kuhnian philosophy of science is addressed: Is theoretical change in science a rational process? And the curriculum implications of the debate are developed. Papers also address the critical issue of ethics and
and the classroom ramifications. In the first article, the author affirms the rationality of science, and explains the scientific
method not as a particular set of procedures or techniques but rather as a general commitment to evidence. The second article
states that controversies over moral education and over the teaching of evolution are linked in the concept of rationality. The author
argues that the creationist theory should be allowed in the classroom since the new philosophy of science considers that just as
morals are, science is not totally objective. This argument was debated in the third article. It counters that the occurrence of
scientific revolutions do not justify relativism, but a doctrine of successive approximations to the truth.

Part Three takes up the question of what the history of conceptual change and development in science tells us about the history of
conceptual development in individuals. One working hypothesis is that there should be a single cognitive model for conceptual
change in science and in learning science; therefore, laboratory work should be directed explicitly towards conceptual instruction
and expose areas of conflict with preconceptions. In Part Four, the recent feminist critiques of the epistemology of science are
examined, and suggestions for appropriate responses by science teachers are made.

In the final section of the book, Part Five, papers deal with some representative curricula and classroom implications of the history
and philosophy of science for teaching physics, chemistry, and biology. One paper deals with the metaphysics conveyed in science
teaching. Another paper discusses the question of the religious motivation and the theologically informed philosophy of the great
scientists when science is taught in its context. A third paper also addresses the importance of thought experiments in the history of
science and in the teaching of science.

The conviction underlying this book, and the international project from which it derives, is that science teachers who know
something of the history and philosophy of their subject will be able to teach it in a manner that is more engaging, critical, and
cohherent. They will be able to convey something of richness and importance of the scientific endeavor.

I am totally in agreement with the tenet of this book. As a student, I did not have the correct motivation in studying science. The
incorporation of the history and philosophy of science into science teaching would have definitely helped me to understand science
and to grow as a scientific researcher. This book is highly recommended for science teachers and scientists. It is also useful to
parents who care about their children's science education.

Reviewed by T. Timothy Chen, National Cancer Institute, Bethesda, MD 20892.

THE SCIENTIFIC TRAVELER: A Guide to the People, Places & Institutions of Europe by Charles Tanford and Jacqueline
PSCF 45 (December 1993): 274.

Scientists Tanford and Reynolds have ably met a long standing need. Guides to European art museums, WWII battle grounds,
cathedrals, gardens and other interests abound, but until now, the sciences have been neglected. This work offers "a framework
that would put each particular place into reasonable historical and scientific perspective, to jog the memory of the expert and to
provide some orientation for the novice."

The authors follow a distinctively hierarchical style. First, they consider the regions; the Mediterranean, Western Europe,
"Mitteleuropa," Scandinavia and the Baltic. The scientific history of individual nations in the regions is discussed in a broad fashion
which sets the stage for a description of points of interest in specific cities and towns. The rhetoric flows smoothly, avoids technical
jargon and reflects the things that have impressed one who has both a geographic and a historical perspective. One interesting
note for this reader was the account of William Derham, Rector of Upminister for nearly 50 years. Derham's Physico-Theology
influenced the thought of 18th century evangelicals such as William Paley and John Wesley. Derham's claim to scientific fame
involved an accurate measurement of the speed of sound which disagreed with both the experimental and predicted values of one
Isaac Newton. Newton had used his predicted value in the first edition of the Principia but "manipulated" the prediction in a later
edition to arrive at Derham's value (see Westfall's Never at Rest: "Biography of Isaac Newton).
and Natural History museums in Oxford and the "pothecary Museum housed in the castle above the old part of the university in Heidelberg. We can expect a more expanded coverage of Russia in a revision.

The Scientific Traveler would be an essential tool for scientists planning that "once in a lifetime" trip to Europe or for those who have time to "look around" in conjunction with a scientific meeting.

Reviewed by J. W. Haas, Jr., Gordon College, Wenham, MA 01984.

PSCF 45 (December 1993): 275.

Do you want to read a rigorous historical analysis of the development and structure of Darwin's theory? Well, perhaps the lucid prose and humanizing illustrations Richards employs will enable you to persevere and profit from this volume.

Darwin remains a venerable figure within the history of science. Consequently, biologists often attempt to demonstrate their historical continuity with Darwin. This becomes suspect when Marxist punctuationalists begin to bicker with capitalist gradualists or sociobiologists; both paint portraits of Darwin which curiously resemble themselves. Furthermore, biologists and biology texts show how Darwin's rigorous scientific method and acumen eventually triumphed over competing ideas which were steeped in German idealism or other metaphysical constructs which have now rightfully been discarded. History of science becomes a hymn to science.

In contrast, Richards a "historian of ideas" uses the term "evolution" as an "index to probe the vitality of a larger set of ideas...from the seventeenth century through Darwin's lifetime." Evolution once referred to embryological development; and it was used in arguments about preformationism, epigenesis and recapitulation. The meaning shifted decades before Darwin from the "notion of the embryo as a miniature adult of its own species to that of the embryo as a sequence of miniature adults of lower species." Soon both species progression was conjoined to this idea of embryological progression; this led to much research and theorizing by Von Baer, Lamarck, and eventually Haeckel.

These ideas crossed the English channel to Darwin via Lyell, Grant, Green and others. Richards painstakingly documents how Darwin's theorizing, despite modern pronouncements to the contrary, was integrally linked to both evolutionary progress and recapitulation. Species evolution itself was modelled on individual evolution (evolution or unfolding of the embryo), and thus the embryo must recapitulate the adult forms of its ancestors. Darwin's own experiments and the logic of his theorizing necessitates these conclusions.

Richards then bravely takes on Darwin's modern reinterpreters/hagiographers from Russell to Mayr, Gould, and Bowler. He incisively analyzes their claims and interpretations of Darwin's texts, and shows that, surprise, Darwin was a nineteenth century biologist after all; progress oriented, Lamarckian, and recapitulationist!

Why do modern scientists/historian remake Darwin? Richards replies:

"I think it can only be ideology...Gould and Mayr have a scientific interest in reading Darwin as they have. He is the patron saint of evolutionary biology C and for very good reason. To have his blessing on scientific positions one wishes to maintain in the late twentieth century can only advance their cause. Both... regard freely flowing variational possibilities as the juice of evolution; and suspect constraints (like recapitulation) that act to inhibit the flow can, they believe, only produce stagnation. But more fundamentally they reject any notion of guidance in evolution by teleological factors (and ideals of progress)... All of these unhappy changelings could be more easily buried if Darwin himself were to chant the obsequies.

This book exemplifies the challenge to perform good scholarship, to read texts carefully and to fruitfully question prevailing dogmas.


PSCF 45 (December 1993): 276.

Marc Lappe is Professor of Health Policy and Ethics at the University of Illinois, College of Medicine. He has written three other books, Genetic Politics, Germs That Will Not Die, and Broken Code: The Exploitation of DNA.

Inserted in this book is a note from its publisher to the books editor that says "Do not review before publication date." I wish the book's editor had reviewed this book long before its publication, so that the author could have a chance to remove the many deficiencies in this book. I will mention only a few of these deficiencies in this review.

In this book, the author attempts to dispel ten common myths about toxic threat to our health and about environmental pollution. Although cases of deceptions using these myths are cited, in some other cases of toxic chemicals the author has not provided evidence to prove that the polluters have deliberately deceived us with these myths or otherwise. A case in point: on page 12, the author states that a viral agent associated with farming activities confounds the apparent association of leukemia with agricultural chemicals. Where is the evidence for chemical deception in this case?

Furthermore, I am not convinced that the ten myths presented in this book are genuine myths. These so-called myths include: environmental pollution is a local problem, human bodies have adequate detoxication mechanisms, effects not immediately
This book is important, not so much for its clear presentation of the Gap-flood theory but because it represents one man’s life-long tectonics, the age of the earth and the universe, the standard geologic column, and pre-Adamic hominids. Genesis, includes interesting sections such as Difficulties in Translating Scripture, Language Gaps and Discriminating Figurative

believe about Creation really does matter because it affects what we believe about the Bible and about God himself. (3.) He believes that the verified findings of the physical sciences are to be accepted if one is really interested in finding the truth. (2.) He says what it means. Professor Paine has made an intensive study of the Hebrew language to better understand that record. (2.) He

views of origins. I understand several of these as follows: (1.) He is convinced that the Bible deals with realities, not myth or fantasy. A reading of

that of Copernicus, who did not dare publish his work for fear of reprisals. Near to the time of his death his friends took a hand in

sciences, particularly geology, for the understanding of the events of creation. In his words: “My situation is somewhat similar to

from his extensive studies of the Bible, with special emphasis on Genesis, and from his teaching involvement with the earth

Paine majored in math and physics at Wheaton College and did his graduate study at the University of Chicago. After

working for several years as a process metallurgist at Bell Aircraft he returned to the University of Chicago where he became a

senior metallurgist at Argonne National Laboratory. There he spent fifteen years studying radiation damage to metals related to

nuclear reactors. In 1960 Professor Paine became head of the physics department at Houghton College where his brother, Stephen

Paine, served as president. He taught physics and earth science and began a serious study of Hebrew, until his retirement in 1976. The study of Hebrew was to gain an understanding with a sure translation basis of the critical passages of Genesis. Professor Paine recalls in the book’s introduction, “My introduction to the Gap theory, however, came through an intriguing volume from Dad’s uncle’s library, Pember’s Earth’s Earliest Ages (a volume I still treasure), which gave me my first taste of the Gap theory.” He taught the Gap-flood theory in essentially the form printed in this book for about ten years before his retirement.

At the urging of family, friends, and former students, Professor Paine has reluctantly agreed to record the insights he has gained

from his uncle’s library, Pember’s Earth’s Earliest Ages (a volume I still treasure), which gave me my first taste of the Gap theory.” He taught the Gap-flood theory in essentially the form printed in this book for about ten years before his retirement.

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from his extensive studies of the Bible, with special emphasis on Genesis, and from his teaching involvement with the earth

sciences, particularly geology, for the understanding of the events of creation. In his words: “My situation is somewhat similar to

that of Copernicus, who did not dare publish his work for fear of reprisals. Near to the time of his death his friends took a hand in

the matter. In the same way, my friends, are urging me to publish my studies of Genesis.” (p. 23)

A reading of Founded on the Floods reveals several guiding principles which were very important in shaping Professor Paine’s views of origins. I understand several of these as follows: (1.) He is convinced that the Bible deals with realities, not myth or fantasy. However, at times figurative language is used. In short, the Bible is the record of God’s historic dealings with mankind and the Bible says what it means. Professor Paine has made an intensive study of the Hebrew language to better understand that record. (2.) He believes that the verified findings of the physical sciences are to be accepted if one is really interested in finding the truth. (3.) He finds the “theory of naturalistic biological evolution cannot honestly be called anything but a faulted hypothesis.” (4.) What we believe about Creation really does matter because it affects what we believe about the Bible and about God himself.

After a prologue the book has two main parts; The Bible as the Ultimate Source (50 pages) and Science as a Reliable Source (45 pages). These are followed by an epilogue, 3 brief appendices and a postscript. The Bible: Ultimate Source, obviously a study of Genesis, includes interesting sections such as Difficulties in Translating Scripture, Language Gaps and Discriminating Figurative and Literal. Professor Paine’s thesis is that we must be very careful in interpreting clear statements of God’s inspired word as figurative, and further, that we should not depend on English versions or commentaries but should do the hard work of reading the original language. This part of the book concludes with a discussion of Noah’s flood as universal and placid. Science: Reliable Source, presents Professor Paine’s applications of the scientific method to creation theories. He favors the Gap-flood theory because “it is in complete harmony both with what the Bible says and the verified findings of Science.” This section includes flood tectonics, the age of the earth and the universe, the standard geologic column, and pre-Adamic hominids.

This book is important, not so much for its clear presentation of the Gap-flood theory but because it represents one man’s life-long
search to understand God through his revealed word by study in the original language and through his creation by application of the scientific method. I close with another thought from this book: "What we believe about the Bible influences what we believe about Creation, and what we believe about Creation influences what we believe about the Bible. It has to be that way."


Donald DeYoung is a Christian physicist, a member of the science faculty at Grace College in Indiana, editor of the Creation Research Society Quarterly, and adjunct professor at the Institute for Creation Research Graduate School of Science in San Diego.

Weather and the Bible covers an amazing range of topics. It is presented in a question and answer format, the questions being grouped into five chapters: "Weather basics", "Water, wind and clouds", "Stormy weather", "Past weather" and "Future weather." Some answers are illustrated with simple figures, charts, or formulas. DeYoung wrote a similar book titled Astronomy and the Bible.

This book starts with weather fundamentals such as atmospheric composition, pressure, temperature, etc., and world wide weather dynamics such as the water cycle, movement of major weather systems and the jet stream. It also discusses more localized phenomena such as Chinook winds, squall lines, and storms on the Sea of Galilee. Interspersed with the basics are discussions of everything from weather lore to odd weather phenomena like ball lightning and noctilucent clouds to recent findings about weather on other planets to controversial topics such as ozone layer depletion, the Gaia hypothesis and circles that appear in British fields.

The chapter on "Past weather" best reveals the book's recent creation viewpoint. It discusses things like pre-flood weather, evolution of the atmosphere, glaciation and the extinction of the dinosaurs. This chapter is not limited to presenting evidence for recent creation. It also deals with topics like the climate in Jesus' time and the dust bowl of the 1930s.

"Future weather" covers popular speculations about what will happen to the earth's climate such as nuclear winter, global warming or cooling and the effects of deforestation as well as what may be deduce about the future of the weather from the Bible and our understanding of climatic stability.

There are at least two motivations behind this book. One is to encourage those who view science as something evil to reevaluate their opinion. The other is to counter a recent weather book (The Weather Companion by Gary Lockhart) which is "critical of the Bible, creation and even of missionaries." Throughout his book DeYoung reflects on ideas like the intricacy and beauty of God's creation, the planning that must have gone into it and His continued participation in it. While he includes questions such as "Does God send deadly storms," and "Is it okay to pray for rain" don't look for powerful theological argument that you can lay on others. Instead, DeYoung approaches all with a respect for God's sovereignty and his majesty.

Weather and the Bible is not scientifically and theologically deep, but it covers such diverse weather, Bible and related subjects that even the well informed are bound to pick up some new tidbit. It is written at a level suitable for the high school student or the person with only a passing interest in the sciences. Yet, the author adheres to sound scientific principles in every topic with which I am familiar. He treats speculative areas so circumspectly that I find it worth considering his material favoring recent creation, even though I don't count myself among the adherents to recent creation. If you are a collector of diverse facts or want some light weight but very informative reading, try this book. Easily read in an evening, it's the sort of thing you might take along to read while sitting in a waiting room or riding public transportation.

Reviewed by E. Eugene Hartquist, Research Support Specialist, Mechanical and Aerospace Engineering, Cornell University, Ithaca, NY 14853.


This book is a compilation of essays by members of the Orthodox church - physicians, psychologists and theologians on matters concerning medical ethics and treatment of people who are ill.

Editor Chirban, professor of psychology at Hellenic College and Holy Cross School of Theology in Massachusetts, divides the book into five parts. The first part, perhaps the most instructive, lays the groundwork for the Orthodox approach to healing. There's a strong emphasis on the part of all three contributors on the interdependence of the body, mind and soul in determining a person's health and therefore the necessity for cooperation of physical, psychological and religious healing. This part contains also an exhortation by Bishop Nicholas for the professional care-giver to merge his faith with his practice. He furthermore encourages the Orthodox layperson to speak strongly on areas of public ethics such as abortion or watch the field become dominated by the secularists.

Part Two speaks of genetic engineering, describing it and then trying to decide what is permissible and at which point we begin to dehumanize people. Professor Breck would prohibit interventional eugenics but would focus on the integrity, humanity and freedom of the person. He suggests ethical oversight committees and increased training at the seminary and congregational level.

Part Three and Four describe what should be our approach to depression, AIDS and cancer, with emphasis on compassion and understanding.
To their credit, Hill and Shirley do devote a chapter to the voices of several major world religions. They recognize the pervasive autonomy seem conflated. The underlying philosophy is summarized in a preface written by Fenella Rouse, the executive director (a secular hospital) and total individual autonomy as a lauded personal goal. One is a call for toleration and cooperation in social between institutionally protecting people's autonomy to live and choose within their particular community (for example, Christians in to guide our deaths, whatever we choose for ourselves is, by definition, the right thing to do. This reflects an insidious confusion kind of existentialism, where the individual creates and is the final authority of life's meaning and end. We not only have a legal right can compete with his own loved one, nor can he be held accountable by hospital administration, courts, or others for not using an available technology. Not treating to the maximum requires greater reflection and consensus building than utilizing every option, and reflection and consensus are time-consuming processes. The authors of this book do not even mention two additional motivations for more intervention: this type of care can provide an opportunity to test new techniques too risky at first for patients with a better prognosis; and the fact that our system reinforces intervention with fee-for-service care. The incentives today are to treat the patient to the greatest possible extent. If that is not in the patient's best interest, how can the juggernaut be stopped, or even slowed down?

The time to think through and voice choices on these treatment decisions is when there is time to think, and no challenge to one's competency. Yet not only have most people not thought about or discussed the challenge of dying, "many of us will face our own death without ever having witnessed firsthand the death of someone else, even those closest to us." We tend to come without preparation to these decisions at one of life's most important transitions. That can lead to conflict between the unclear wishes of the patient, the current choices of the family, caregivers, institutions such as the hospital, and finally the courts. In response, many states now require an abbreviated discussion of living wills upon hospital admission. That is a potentially unnerving time to raise the subject, but at least this system provides an accessible bottleneck to enforce the requirement.

The authors of this book advise that a living will is helpful, but usually insufficient. Future circumstances usually cannot be predicted accurately enough to give precise treatment directions ahead of time. The value of such a document is in encouraging family and others that would be involved in such decisions to consider the issues involved while there is time and recognized competency. What the authors wisely recommend is that the patient choose a proxy, in some states called a "health care agent." This individual is appointed by the patient with power of attorney for health care matters. He or she can competently speak for the patient, with all the patient's rights, when the patient is unable to speak for him or herself.

While presented in a book format, the essay addresses the above more as an extended pamphlet than as a scholarly analysis. There are 139 pages of large print text. While the authors allude to views and arguments other than their own, the discussion is not even-handed. The purpose of the book, as of the organization, is to advocate self determination and society's obligation to carry out whatever those wishes may be. The short descriptive cases are chosen and described in a way to emotionally tug us to support a patient's right to directly and deliberately end his or her life. The discussion of physician-assisted suicide does not even mention complications for legal protection against murder, nor slippery slope concerns that one marginally acceptable step may lead to many unacceptable ones. Beyond advocating foresight and room for individual choice, the book tends to assume and encourage a kind of existentialism, where the individual creates and is the final authority of life's meaning and end. We not only have a legal right to guide our deaths, whatever we choose for ourselves is, by definition, the right thing to do. This reflects an insidious confusion between institutionally protecting people's autonomy to live and choose within their particular community (for example, Muslims in a secular hospital) and total individual autonomy as a lauded personal goal. One is a call for toleration and cooperation in social institution such as hospitals. The other is a relativistic claim about what matters. In the book, these two very different claims of autonomy seem conflated. The underlying philosophy is summarized in a preface written by Fenella Rouse, the executive director of Choice in Dying. "We are a central character in a story we write ourselves, and it is not so much what happens to us but how we feel about it that gives our life shape and meaning." Autonomy, interpreted as the individual as sole authority, is the final arbiter.

To their credit, Hill and Shirley do devote a chapter to the voices of several major world religions. They recognize the pervasive
In response, the authors feel that the public places (such as hospitals) where most of us now die should design their procedures to accept and support a range of different choices. Autonomy at this level is to allow each person to remain true to and strengthened by their particular tradition. It is important to note, however, that cooperating within political pluralism is not an affirmation of individualistic relativism. Respect for individuals should not be confused with an existentialist philosophy of each human being as the measure of all things. Also, political autonomy is not an absolute. Our society frequently restrains practices which are too harmful to the individual or others. Failing to do so too easily disguises and promotes apathy. The book offers a needed call to think ahead and to protect individual choice in institutions where caregivers may not share the patient's convictions. Voicing concerns and choices and designating a health care proxy while undoubtedly competent can help protect each patient. However, this book also tends to advocate not only institutional toleration, but further, the subjective individual as the final ultimate standard. As a Christian, I would affirm that we are not the final standard in and of ourselves, nor do we belong solely to ourselves. Our Lord is Lord as much in how we live through dying as he is in any other part of life.

Reviewed by James C. Peterson, C.C. Dickson Chair of Ethics, Director of the Program in Religion, Ethics, and Technology, Wingate College, Wingate, NC 28174


PSCF 45 (December 1993): 281.

The author was born and raised in India, and is actively involved with the Himalayan L'Abri Resources Centre and the Good Books Club in Mussoorie, U.P., India. In this book he offers a comprehensive look in nine chapters at the various elements of the New Age: astrology, spiritism, UFO's, tantric sex, ecological aberrations, vegetarianism, reincarnation, and spiritual healing, concluding with an Appendix on the New Physics and Hinduisms. In each case he describes in some detail the New Age view and its claims, then analyzes it from a Christian perspective to point out its excesses or pitfalls. He "accepts the New Age's rejection of the old 'secular, materialistic, rationalistic' age as both untrue and harmful," and sees the "despair of Western humanism as the source of the New Age." Yet he "is not convinced that what is called 'the New Age spirituality' is the answer." Therefore he "keeps comparing the New Age answers with the biblical world view (not necessarily the same as contemporary Christianity)," as a viable alternative.

Mangalwadi argues that "an essential feature of the New Age is its conscious rejection of reason as the means of discovery of truth." This shift involves three moves: (1) away from logical reason to feelings and intuition, (2) away from normal human consciousness to another mystical state of consciousness, and (3) away from human beings themselves to spirits and disembodied entities who live in a "spiritual dimension." "For the New Ager the biggest advantage of spiritism is that revelation from spirits finally frees the West from the restricting influence of logical reason."

New Age spirituality can be seen as "a process of privatising Eastern religious traditions," and "the current emphasis in some New Age circles on time as nowness reflects another attempt by the West to conquer Eastern pessimism, while bowing before its metaphysics and spirituality."

Sometimes the author states the case for certain phenomena so convincingly that the reader might be misled as to his intention. For example, in the chapter on "The Reincarnation of the Soul," he writes, "This suggests that the mind is not just a function of the body, but has an existence of its own....The simple fact is that millions of people have attested to direct experience of the spirit world C faith-healing, mediums (or channels), spirit-possession, exorcism, etc.... Even if one accepts the existence of the soul as a fact, that does not automatically prove that souls reincarnate." Then after a lengthy summary of the empirical evidence in favor of reincarnation and the apparent benefits of reincarnation, he comes some ten pages later to the case against reincarnation and why the Christian view is not reincarnation but resurrection.

Similarly, in the chapter entitled "My Course in Miracles," the author describes his own treatment by homeopathy and then states, "Hahnemann arrived at the above 'law of nature' through the scientific method of experiment, observation and deduction on the basis of observed data.... Homeopaths have not sought a scientific explanation of why shaking 'potentises' their otherwise ineffective medicines. They just know from their experience that it does." After discussions in the following pages of alternative therapies, psychic surgery, viewing sickness as illusion, the author comes finally to divine healing, human responsibility, and God's role in our healing.

The author makes several significant points in the Appendix.
"What is often missed by the readers of authors such as Capra is that when he is propounding a mystical world view, he is not speaking as a scientist at all, but as someone who is denying science and yet invoking his prestige as a scientist to make his readers accept an extra-scientific proposition."

Or again,

"Since there are compelling reasons why scientists who reject scientism turn to mysticism in search of a better philosophy of life, we need to examine whether their choice is in fact justified. Or would a return to the original world view which made science possible be a more sensible alternative?"

"It is naive to accept the viewpoint which says either that the conclusions of modern science point toward mysticism or that mystical, non-dualistic philosophy provides an intellectual framework for modern science."

Finally, the book can be summed up in a single sentence: "Scientism has failed to provide a satisfying philosophy of science, and mysticism is a blind alley which destroys the possibility of science."

Reviewed by Richard H. Bube, Professor Emeritus of Materials Science and Electrical Engineering, Stanford University, Stanford, CA 94305.


Hitchcock states:

"I once taught at a school where the students were "born again" Christians and good science students as well. They could cite evidence for scientific theories and could use their knowledge of atomic physics to explain, e.g., the physical properties of two forms of the element carbon, diamond and graphite. They even knew that their science conflicted with their fundamentalist Christianity, but they could hold these areas of their lives apart. The conflict was not felt at all" (p. 77).

These sentences show the danger which Christian students face when going to college. Also, it indicates that Christian scientists must show that Christianity does not need to create an inner conflict.

Faith shapes how we look at everything. Christians know that God is the Creator and wants to renew his creation to what he originally intended it to be. Man's fall into sin made redemption necessary. But it is not redemption in Hitchcock's sense, (p. 128) who states that the Brahmanic Rta and the Chinese Tao yield the same meaning of redemption. Hitchcock is not a Christian and this book is not a Christian book. Hitchcock places all religions on the same level.

Chapter 3 (about Job) uses Jung's book Answer to Job. God is both good and bad, and the cause of Job's misery. Therefore, God is "unconscious," (p. 91). God does not feel the conflict between good and bad as we do. Still, God wills that love overcome wrath; we have to challenge humans to justice. Nothing is said about Satan, a central person in the book of Job. In Hitchcock's (Jung's) view all misery is caused by God. The synopsis of the book of Job to which Hitchcock refers on p. 74 is missing. Clearly Jung's book is more important than the book of Job for the conclusion that opposites, including moral ones, originate in God. The chapter concludes that "behavior according to one's own deepest (contradictory) nature is moral behaviors, so long as it comes from a place as deep as we can reach, and embodies our essential convictions" (p. 93).

I think that it is worthwhile to study this book to get a feeling for the background of the New Age movement. Read the book to discover the dangers which our present generation experiences and be prepared for questions your pupils may have.

Reviewed by Jan de Koning, Instructor of Mathematics, Box 168, St. Michael's College (University of Toronto), 81 St. Mary Street, Toronto, Ont., M5S 1J4, Canada.


PSCF 45 (December 1993): 282.

Doctor Cameron is a British theologian whose interest is medical ethics. He has lectured internationally for several years in this area, including to the (American) Christian Medical and Dental Society. The premise of his book is that western medicine is moving away from its reverence for life and towards a position where relief of suffering is paramount. When this becomes the norm, abortion, infanticide and euthanasia are easy to justify. He describes this movement as abandoning the Hippocratic foundation for the practice of medicine, which is embodied in the Hippocratic Oath, sworn by most graduating medical classes in our country today.

The first two chapters deal with the Oath itself. Cameron describes it as having been revolutionary in its time, a time when physician was both healer and killer. He was the person in society who helped with suicide, euthanasia, and abortion, as well as the one who healed. Hippocrates called physicians to a three fold covenant: to his patients, his teachers, and his gods, and he specifically prohibited help with suicide and abortion. He described a two-fold obligation: philanthropy and sanctity of life and a single role for the physician-healer. When Christianity came along, it was easy to substitute the commitment to the one true God for the pagan gods of the Oath, thus making it acceptable for the Christian world. Cameron goes on to describe the eventual triumph of Hippocratism, aided by Christianity. In Chapter 3, he covers the terrible abuses during Nazism, when German psychiatrists killed
94,000 people who were mentally and physically ill and considered unrehabilittable. He describes the Nuremberg Code and the Geneva Declaration, offered as attempted correctives after World War II, but rejects them as "pallid," secular efforts that water down the Hippocratic Oath. They lose the transcendental character of the Oath no longer are physicians answerable to God, or gods. Therefore there are no absolutes, and in fact in 1960, the phrase in the Geneva Declaration, "utmost respect for human life from the time of conception" was amended to read, "utmost respect...from its beginning."

The fourth chapter, "The Margins of the Human Race" describes efforts to kill not only the unborn or the elderly who have incurable diseases, but handicapped infants and others who are powerless. Chapter 5 covers the subtle dichotomy between healing and relief of suffering, noting how an excess of the latter will interfere with a physician's commitment to heal. The final chapter discusses the future of medicine "Where are we headed and what should we do about it?" His appendix: "Towards a Theology of Medicine" should not be skipped. *mong other considerations, he says that healing should be looked upon as an image of the final conquering of death and that therefore it should be considered the physician's sacred responsibility.

I would consider this must reading for anyone interested in medical ethics. It covers numerous current headline topics, such as physician-assisted suicide, the use of fetal tissues in Parkinson's Disease research, and test-tube conception, as well as the more obvious issues of abortion and infanticide of newborns with disabilities. Rather than deal directly with those issues, this book lays the groundwork for us to consider them. I have problems with some of Cameron's points, however. Why his emphasis on the Hippocratic Oath with its swearing by all the pagan gods? In my medical school, the Oath was rarely mentioned. When I realized we were to stand and swear it at graduation, I read it, could not get past that first sentence about the gods, stood with my classmates but did not raise my hand to swear the Oath. Why not compose a whole new oath and commit ourselves to the sanctity of life because God gives it? The second area that bothers me is his concern over relief of suffering. In practice, it's hard to differentiate it from healing, and it is certainly the major concern of physician-patient interaction today. I'm sure we can deal with the philanthropic desire to relieve suffering without crossing the sanctity of life line. Nevertheless, this is an excellent, clearly-written book which I heartily recommend.

Reviewed by Edward M. Blight Jr., Professor of Surgery (Urology), Loma Linda University, Loma Linda, CA 92354


Watters is Professor Emeritus in psychiatry at McMaster University in Canada. For 25 years he was involved in clinical practice, which brought him into contact with individuals, couples, and families. Based upon his experiences, training, and insights, Watters has come to the conclusion that "Christian indoctrination is a form of mental and emotional abuse that can adversely affect bodily health in the same way a drug can" (p. 10), and that Christian doctrine is "incompatible with healthy human development" (p. 11). Watters was reared in the Anglican faith, and states that this book was difficult for him to write because he did not desire to alienate some of his Christian friends.

Nevertheless, Watters finds it difficult to understand how anyone who is familiar with the history of Christianity can remain a practicing Christian. That history, as Watters sees it, is full of horrible atrocities including the debauchery of the popes, the madness of the Crusades, the terror of the Inquisition, the censorship of scientists who challenged the Bible, and the burning at the stake of thousands during the witch-hunting mania. Watters rejects the Christian explanation of these events: that they were caused by Satan rather than God. If Watters thinks that religions, especially Christianity, are the enemy of human morality, what does he propose as an alternative? Not surprisingly, "...religion is not the only existential gem in town. The other one is humanism" (p. 182). However, writes Watters, to get people to switch from religion to humanism, education C not legislation C should be used. Humanity's best hope of survival, continues Watters, is for Homo religiosus (religious man) to evolve into Homo sapiens (wise man).

What can be said about Watters' complaint against Christianity? Not much that has not been said before. Watters' error, from a scientific viewpoint, is to confuse correlation with causation. "Nother way of saying this is that the rooster who thinks he causes the sunrise by crowing early in morning engages in a non sequitur. Indeed, the name of Christianity has been associated and continues to be associated with malevolent acts. The question which must be considered is: are these acts based on the teachings of Christ?"

Furthermore, to argue that the doctrines of Christianity are deleterious to mental health is a rather strange position when a large body of research shows that religious people, when compared to religious people, show significantly more symptoms of mental disturbance and report significantly less satisfaction with life. Higher rates of psychological disturbance are found among people who shift from organized religion to no religion. Subjects report their lives as significantly more worthwhile to the degree that they view religious faith as extremely important. Watters quotes with approbation the infidel Robert G. Ingersoll's comment that if people were "a little more enlightened, religion would perish." How then do we explain the allegiance to Christianity of some of the enlightened and enlightening individuals in history, including the Apostle Paul, Martin Luther, Samuel Johnson and C.S. Lewis? It appears to me that Watters wants the world of religion to be more tidy than it is. Since religion stands for good, only good should flow from its stand. But in the real world, there is always a mixture of the good and the bad whether in government, industry, education, individual behavior, or religion. Because of this mixture, one will never be able to point to religion as an unmitigated source of the good. "buses will always be committed in the name of Christ by those who bear the name of Christ. As for mental health, people possess it to the extent that they have a grip on reality. Jesus' followers have an inside track to grasping this reality because it is contained in the truth that sets people free.


The legitimacy of Biblical archaeology as a field of study has been under severe attack, and at times one wonders which side Moorey is on. At the end he does provide at least some hints of a future for the discipline, along with viewpoints of some contemporary archaeologists that could be used for a defense of sorts. After he has lamented the influence of the Judeo-Christian faith on archaeology throughout most of the book, however, one is left wishing that he had devoted a few paragraphs to discussing the value a Biblical background might have for the archaeology of Palestine if, indeed, he sees any value. While Moorey nowhere explicitly treats his idea of the direction that Biblical archaeology should take, he does provide succinct and thoughtful evaluations of individual contributions and the contributions and disadvantages of various excavation and interpretation techniques. Furthermore, Moorey admits his bias because he is an archaeologist rather than a theologian, observing only that maybe that's not so bad since "Biblical" is only an adjective qualifying archaeology.

Moorey presents the strengths and weaknesses of individuals, schools, and methodologies within an evaluative history of the development of Biblical archaeology since 1800 as an interdisciplinary field relating primarily to the Old Testament. Very little is included for the New Testament, because only recently has archaeology been applied in any substantive way to the New Testament, according to Moorey.

The strictly period by period chronological format is good for the history of archaeology, but it is bad for understanding the sites involved. When the interpretations of a site during one period are radically reinterpreted in the next period, one may have to wait for the next chapter to find out about it. However, the indexes of personal names and place names will greatly facilitate obtaining an overview of one specific site or person.

The most irritating aspect of the book is the very regretful tones in which the Biblical orientation of virtually all but the most recent archaeologists is cited. The recent ones are considered superior for not having any theological orientation. Breasted, among the pioneers, is praised as a "remarkable exception ... in advance of his time" (p.51) because of his lack of Biblical orientation. To be fair to Moorey, the sins of the "proving the Bible" enthusiasts are many and flagrant, all too often in the same category as the Paluxy "human" footprints among the dinosaur tracks fiasco. In spite of the problems with the "Biblical bias," however, one must wonder if he has ever considered the problems occasioned by the present secular bias that we see seeping in everywhere. He gives us an indication of such an awareness. Late in the book, Moorey does provide us with the views of recent scholars supporting a difference in purpose between the Bible and archaeology and a difference in types of evidence that each presents. Nevertheless, it is surely not unfair to suggest that this evaluative history is a bit incomplete without at least a brief concluding chapter discussing the relationship between the Bible and archaeology and how the two might be melded into a legitimate discipline called Biblical archaeology.

Moorey has been in the thick of archaeological activity in the Holy Land and is well positioned to write a survey such as this. He is President of the British School of Archaeology in Jerusalem and Keeper of Antiquities at the Ashmolean Museum in Oxford, and author of several books on the subject, including a collaboration with Kathleen Kenyon on The Bible and Recent Archaeology.

A Century of Biblical Archaeology is well designed, with a rudimentary chronological table from 4,000 B.C. to the Roman Empire, three site maps, an index of personal names and an index of places. The "brief glossary" is, indeed, brief; but it will be valuable to those new to archaeology. The endnotes and the select bibliography will give novices a start into the literature.

It is difficult to present a chronological history of archaeology that is not as dry as the dust of Palestine and as boring as reading the telephone book. However, Moorey succeeded admirably. The prose is accessible to educated people and the explanations, comments and evaluations make it interesting and understandable.

All in all, this is an excellent book to peruse before beginning a detailed study of archaeology related to any part of the Bible. I would also recommend it to any student of the Bible who lacks a basic understanding of archaeology and its problems. It could have prevented some of the pain I have felt while listening to many a sermon. While Moorey's unquestioning acceptance of some of the prevailing interpretations, such as those of the Jericho digs, will cause problems for conservatives, all can profit from his book.


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The late Carl Lofmark, author of this book, also wrote Does God Exist? He was professor of German at the University of Wales and wrote many books and articles in the field of medieval literature. The Bible is the best selling book of all time. However, despite its popularity, most people have a superficial knowledge of its contents. In this book, the author presents in laymen's terms the basic structure, history and imbedded theological controversies of the Bible. Lofmark presents the basics of biblical scholarship and criticism, how the canon came to be, and a history of scriptural translations. In addition, Lofmark delivers a critique of the Bible in relationship to its self-contradictions, its mixture of fact and fiction, its questionable morality, and its inadequacy as a guide for living.

This is a short, simple book, and its 118 pages are divided into ten chapters plus an introduction, notes and brief bibliography. The tone of the book is set in the introduction where Lofmark writes that the Bible is "full of things which are very hard to believe." But
Lofmark's rationalism leads him to many positions which are at odds with conservative biblical understanding: the first Bible book was written about 600 B.C. (p. 11); no New Testament book was recognized as holy before "D. 200 (p. 15); the Pentateuch was not written by Moses and contains contradictions (p. 18); the Old Testament contains fantasy (p. 19); David probably wrote none of the Psalms (p. 20); Ecclesiastes does not agree with Jewish or Christian teaching (p. 22); the prophets prophecy after the event has occurred (p. 23); and Paul did not write many of the New Testament epistles ascribed to him (p. 32).

As is obvious, Lofmark has a low view of scripture. He writes: "the whole text of the Old Testament is so full of such absurdities that one feels it is bad sportsmanship to point them out....But when we turn to the New Testament the absurdities and contradictions do not cease" (p. 45).

Are these assertions by Lofmark supported by the evidence? Consider his claim that the New Testament never uses the term "scripture" to refer to the writings of the New Testament. Many conservative scholars think Peter is referring to Paul's writings as "scripture" (2 Peter 3:16) and Paul may be calling Luke 10:7 "scripture" (1 Timothy 5:18). Although I am not an expert in the field of Bible difficulties, it appears to me that most of the objections Lofmark raises were raised previously by Thomas Paine in his Age of Reason. There is a genre of biblical scholarship which deals with difficult or seemingly contradictory passages in the Bible. Lofmark seems to be unaware of it, or if he knows about it, gives it no space in this book. Lofmark thinks it bad sportsmanship to point out errors in the Bible. Actually, it becomes tiresome and frequently casts a bad reflection on the critic. The alleged errors in the Bible are actually not numerous compared to its length, and they have all been dealt with quite extensively by apologists.

The real point at issue here is one's view of inspiration. If a person goes to the Bible looking for errors, some problem passages will surface. On the other hand, if one goes to the Bible with an open mind and examines all of the evidence, the problem passages will fade into insignificance in the light of the overall good news which the Bible contains. This book would be a good one to read by neophyte Christians who want to test their faith. It might be a good one for a seminary class to examine in relationship to the doctrine of inspiration. And it might be a good one to look at if you want your faith to be challenged by a rationalist who writes lucidly if not always convincingly. (By the way, how is it that misspelled words continue to appear in books when computer spelling checks could easily eliminate them, i.e., "treatment" on p. 62.)

Reviewed by Richard Ruble, John Brown University, Siloam Springs, AR 72761.


_PSCF_ 45 (December 1993): 286.

I believe it was Harry Emerson Fosdick who told of a little boy who prayed, "Dear Lord, please make the bad people good and the good people nice." It is one of the scandals of Christian history that some of those most zealous in their quest for piety have been harsh, arrogant, and overbearing in their approach to those not sharing their view of things. In the secular political arena Christians have scorned the abusive language and uncivil tactics of various interest groups. Homosexual rights advocates, politically correct activists, and environmental crusaders have used tactics and rhetoric that do not contribute to a kinder and gentler America. But Richard J. Mouw charges that many Christians themselves have become part of the problem instead of part of the solution. The basic dilemma for Christians is how to show common decency to our fellow man and still speak the truth with a "passionate intensity." Mouw accepts the challenge to come up with what he calls a "convicted civility."

Richard Mouw, as a serious philosopher and ethicist, is well qualified to deal with the perplexities of this question. Mouw is the president of Fuller Theological Seminary and has also authored *Holy Worldliness and Distorted Truth*. At the outset it seems necessary to raise the question whether civility should occupy a prominent place in evangelical thinking. Obviously John the Baptist had not read any books on how to improve our relationships with those in the other camp: he called his opponents a brood of vipers! Mouw believes civility is a serious concern. Although he insists upon maintaining firm convictions, in a chapter on "Defending Christian Civility" he argues that Christians have failed to understand the gentleness in God's nature.

In the Christian's attempt to live at peace with all men, he is confronted by many difficult issues. Mouw wrestles with many of these situations. What should the Christian's attitude toward a pluralistic society be? How can we be civil in dealing with the sexual attitudes and values of modern society that so obviously clash with our own belief system? How shall we approach the issue of legislating on issues like obscenity or homosexuality? What kind of dialog can Christians have with other religions? How can evangelicals preach about hell without appearing to be uncivil? In dealing with these issues, Mouw calls on Christians to shun an unbecoming triumphalism, to maintain a humble spirit, a correct motivation, a willingness to wait upon God's providential plan to work its purposes rather than demanding instantaneous perfection.

This book offers needed counsel for modern evangelicals. It is time for reformers, crusaders, and pulpiteers to step back and ponder their tactics, rhetoric and most of all their heart attitude. There are sins such as abortion or sexual perversion that seem to cry out for prophetic condemnation C but have we confronted these evils with the kind of compassionate spirit that should characterize those who follow Jesus Christ?

Reviewed by Richard L. Niswonger, Professor of History, John Brown University, Siloam Springs, AR 72761.
Michael R. Matthews. History, Philosophy and Science Teaching argues that science teaching and science teacher education can be improved if teachers know something of the history and philosophy of science and if these topics are included in the science curriculum. The history and philosophy of science have important roles in many of the theoretical issues that science educators need to address: the goals of science education; what constitutes an appropriate science curriculum for all students; how science should be taught in traditional cultures; what integrated science is; how scientific lite Science & Education Contributions from History, Philosophy and Sociology of Science and Mathematics ISSN 0926-7220 Volume 21 Number 9 Sci & Educ (2012) 21:1233-1261 DOI 10.1007/s11191-010-9330-3. 1 23. Your article is protected by copyright and all rights are held exclusively by Springer Science+Business Media B.V.. This e-offprint is for personal use only and shall not be self-archived in electronic repositories.Â Teaching meth-ods comprise student-centered activities as creative writing for understanding science and scientists and role-play activities. Emphasis is laid on experimental work which is per-formed with the help of true-to-the-original replications of historical apparatus, especially built for this purpose. Request PDF on ResearchGate | History, Philosophy and Science Teaching: New Perspectives | This anthology opens new perspectives in the domain of history, philosophy, and science teaching research. Its four sections are: first, science, culture and education; second, the teaching and learning of science; third, curriculum development and justification; and fourth