

# **Ignoring the Apocalypse: Why Planning to Prevent Environmental Catastrophe Goes Astray**

*David Howard Davis*

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# **IGNORING THE APOCALYPSE**

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**Why Planning to Prevent  
Environmental Catastrophe Goes Astray**

**DAVID HOWARD DAVIS**

**Politics and the Environment**

P. H. Liotta, Series Editor

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*This book is dedicated to  
Thomas R. Lopez, PhD*



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## Series Foreword

The key focus of the Praeger Politics and Environment series is to explore the interstices between environmental, political, and security impacts in the twenty-first century. To those intimately involved with these issues, their immediacy and importance are obvious. What is not obvious to many, nonetheless—including those involved in making decisions that affect our collective future—is how these three critical issues are in constant conflict and frequently clash. Yet today, more than ever before in history, intersecting environmental, political, and security issues have an impact on our lives and the lives of those who are to come.

In examining the complex interdependence of these three impact effects, the study of environmental and security issues should recognize several distinct and pragmatic truths: First, international organizations today are established for and focus best on security issues; thus while it remains difficult for these organizations to address environmental threats, challenges, and vulnerabilities, it makes imminently better sense to reform what we have rather than constantly invent the new organization that may be no better equipped to handle current and future challenges. Second, the new protocols must continue to be created, worked into signature, and managed under the leadership of states through international organizations and cooperative regimes. Third, and incorporating the reality of these previous two truths, we should honestly recognize that environmental challenges can

best be presented in terms that relate to security issues. To that end, it is sensible to depict environmental challenges in language that is understandable to decision makers most familiar with security impacts and issues.

There is benefit and danger in this approach, of course. Not all security issues involve direct threats; some security issues, as with some political processes, are far more nuanced, more subtle, and less clearly evident. I would argue further—as I have been arguing for several decades now—that it remains a tragic mistake to couch all security issues in terms of threat. To the contrary, what I term “creeping vulnerabilities”—population growth, disease, climate change, scarcity of water and other natural resources, decline in food production, access, and availability, soil erosion and desertification, urbanization and pollution, and the lack of effective warning systems—can come to have a far more devastating impact if such issues are ignored and left unchecked over time. In the worst possible outcomes, vulnerabilities left unchecked over time *will* manifest themselves as threats.

In its most direct, effective, and encompassing assessment, environmental security centers on a focus that seeks the best response to changing environmental conditions that have the potential to reduce stability and affect peaceful relationships and—if left unchecked—could lead to the outbreak of conflict. This working definition, therefore, represents the vital core of the Praeger Politics and the Environment series.

Environmental security emphasizes the sustained viability of the ecosystem, while recognizing that the ecosystem itself is perhaps the ultimate weapon of mass destruction. In 1556 in Shensi province, for example, tectonic plates shifted, and by the time they settled back into place, 800,000 Chinese were dead. Roughly 73,500 years ago, a volcanic eruption in what is today Sumatra was so violent that ash circled the earth for several years, photosynthesis essentially stopped, and the precursors to what is today the human race amounted to only several thousand survivors worldwide. The earth itself, there can be little doubt, is the ultimate weapon of mass destruction. Yet from an alternate point of view, mankind itself is the ultimate threat to the earth and the earth's ecosystem.

Three decades ago, the environmentalist Norman Myers wrote that national security is about far more than fighting forces and weaponry. National security must also include issues of environment and environmental impact—from watersheds to climate impact—and these factors must figure in the minds of military experts and political leaders. Myers's words today remain as prophetic, and deadly accurate, as ever.

In this volume of the Politics and Environment series, David Howard Davis's *Ignoring the Apocalypse: Why Planning to Prevent Environmental*

*Catastrophe Goes Astray* centers on four “apocalyptic” threats that face us: the increase in greenhouse gases leading to global warming, the presence and growing likelihood in use of nuclear weapons, significant population and demographic shifts, and an energy crisis that is no longer looming but is now well underway.

Davis asks whether strategic planning, in the United States in particular, is different for dangers that are truly apocalyptic—ones that could end life on the planet or at least modern economic prosperity. Moreover, he illustrates how policy makers tend to ignore challenges such as oil shortages, nuclear war, and environmental change—despite the warning signs—and, when planning does take place, shows how these plans often go astray.

Environmentalists often predict an apocalypse is coming: The earth will heat up like a greenhouse. We will run out of energy. Overpopulation will lead to starvation and war. Nuclear winter will devastate all organic life. We have, of course, grown desensitized to many such prophecies of doom. Davis argues, nonetheless, that the time and the need for strategic disaster planning are more pressing than ever.

In *Ignoring the Apocalypse*, Davis shows that we need to be attentive to the environmental challenges before us. If we do not heed the warning signs, then we imperil ourselves and our future. As Davis notes, “An apocalypse predicts the end of an era.” In more ways than one, we have already entered a new era—one where we can no longer afford to be oblivious.

P. H. Liotta

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## Preface

During the 30 years I have been working in the environmental arena, I have pondered that some threats are greater than others. Some will actually end life on planet Earth, or at least end prosperous and democratic society. Greenhouse gases could cause the globe to warm up, destroying our agriculture so that we will not have food. A nuclear war with as few as two hundred bombs could generate so much smoke and dust that the summer weather would be like winter, too cold for plants to grow. Although overpopulation may seem to be the opposite of the extinction of the human species, it could lead to poverty, starvation, and border wars over farmland. The energy crisis also could reduce us to poverty and ignite wars; indeed, some say that these wars have already begun. I have labeled these four threats apocalyptic and thought it would be interesting to write a book solely about them.

Americans like to frame issues using the image of the biblical Apocalypse. Dating back to colonial New England, we have called for people to end their foolish ways and turn back to God or else he will destroy the world. Environmentalists have updated the message. Rachel Carson wrote that if we continued to spread pesticides, all the birds would die and none would be able to sing in the spring. Others have predicted an end to nature. Still others have foretold that the greenhouse effect would be apocalyptic. While few environmentalists are overtly religious, they often use this image.

As a nation we Americans have been concerned about these apocalyptic dangers, sometimes dating back for a century. For example, in 1908 President Theodore Roosevelt convened the White House Conference on Natural Resources, resulting in a warning that we faced a shortage of oil and other minerals. Oil shortages were predicted again in 1952 and 1956. With the advent of mainframe computers, scientists became able to make specific forecasts based on statistics. In 1972 the Club of Rome predicted that the entire world economy would “crash” in about the year 2020. Yet in spite of 65 years of projections, the 1973 oil crisis came as a surprise. Time after time we have ignored threats, even the most catastrophic ones.

As a nation we sometimes plan for a threat, and sometimes do nothing at all. Once the oil embargo began, presidents Nixon and Carter and Congress made many plans and passed many laws. However, the national energy plan did not actually help, and it withered away. Once it became obvious that carbon dioxide and other gases were causing warming, the United States and other countries developed a plan, embodied in the Kyoto Protocol, to control the problem. However, a new president, George W. Bush, decided that we would not sign the treaty. Once the risk of nuclear winter was understood in 1983, we did not even bother planning.

The book takes an American perspective, asking how the United States, in conjunction with our friends and allies, tries to confront potential catastrophes. It starts by discussing how environmentalists have adopted the apocalyptic rhetoric of the Bible and goes on to consider the popularity of the genre to Americans. It would be hard to find a more exciting image than the end of the world as described by John in his Revelation or by Daniel in his prophecy.

Modern predictions depend on scientists, statisticians, and econometricians, not ancient prophets. The first step is to believe that the future will be different from the present, a belief not accepted until the modern era. Sir Thomas More offered his vision in *Utopia* in 1516. Our founders like Franklin and Jefferson planned a new republic that would foster a new kind of citizen. The next step is to understand the science of the situation, hence geologists study potential oil fields, demographers analyze population trends, and physicists invent the atom bomb. Finally we need to get some real numbers about a problem. Statisticians examined the data and, since about 1970, have been able to calculate probable outcomes. The Club of Rome report was the pioneering effort, the first to use massive sets of statistics on mainframe computers. This was the brainchild of one man—Aurelio Peccei—a visionary Italian businessman who had been pondering the Predicament of Mankind for many years. It typifies planning as prediction.

The next four chapters look at apocalyptic threats. Chapter three examines the energy crisis, which arrived unexpectedly on October 17, 1973 (in spite of many warning over the years). The Nixon administration's response was to pull out wartime plans based on command and control. These dated to the first and second World Wars, as well as to the New Deal. This was often called central planning, meaning planning from Washington, and was embodied in the national energy plan of President Jimmy Carter. The strategy was totally rejected by Ronald Reagan, who favored the free market. Although the market largely solved the problem, presidents and Congress cannot let go entirely of central planning. Even George W. Bush issued a national energy plan, created by Vice President Cheney.

Chapter four focuses on overpopulation. The risk of there being too many people in the world has been apparent since the 1950s. In 1965 President Johnson warned Congress of "the population explosion." At present the United States does not have an explicit population policy at home. Planning is absent. Yet since colonial days, we have been concerned with immigration. In the nineteenth century we welcomed people coming from Europe (with a few exceptions). In 1924 our policy shifted to stabilizing our population according to the existing ethnic mix of English, Irish, Germans, Italians, and so forth. Policy changed in 1965 to welcome immigrants from everywhere, and in 1986 to controlling the illegals and those from Mexico. We do have an explicit population policy abroad, but this has shifted from one administration to another. The crux is abortion and birth control. The one-child policy of China has been at the center of many debates. A final issue is eugenics, which shaped state laws during the first half of the twentieth century, but dropped out of discussion after the Nazi atrocities. Yet today our physicians perform 100,000 amniocentesis tests annually, and President Bush and Congress are clashing on stem cell research and prenatal testing.

Chapter five examines the environmental threat of nuclear war. In an all-out apocalypse, 50 to 100 million people would die of the blast and radiation. In the following weeks dust and soot would obscure the rays of the sun, so plants would die, then the animals that ate the plants, and finally humans as our supplies dwindled. The sunlight would only be as strong as on a winter day. After Hiroshima, the first nine years of the atomic arms race had no planning at all. We simply manufactured bombs until we had 2,000. At this point, key leaders recognized the danger, but it took another seven years until we were able to negotiate the first of about 10 treaties with the Soviet Union. These do not assure safety, but do decrease the risk a little. The demise of the Soviet Union has lessened the danger, yet many old warheads



are not accounted for. Rogue countries like North Korea and Iran are likely to possess warheads on missiles within a few years. A difficulty for political discussion is that most of the detailed scientific knowledge about nuclear weapons is secret.

Finally, chapter six analyzes planning to control global warming. The scientific phenomenon was discovered over a century ago, but was ignored until 1985. Even today many government and business leaders continue to deny the danger. Climate change is a subject that cannot be understood without scientific training. Gathering information requires international cooperation, and taking practical steps does too. We have a model to emulate in the Montreal Protocol to protect the ozone layer and have copied it for the Kyoto Protocol. While the United States cooperated with other countries on ozone, we have not done so on greenhouse gases. President Bush says that the Kyoto Protocol would hurt our economy and is not fair because it exempts China and India.

My book has evolved over six years, during which time I have had the opportunity to travel to Europe, China, Peru, and Australia, as well as around the United States, to talk to experts and observe the situation. Pieces of it come from my experiences teaching, writing other books, and working for the U.S. Environmental Protection Agency, the Department of the Interior, the Congressional Research Service, and as a business consultant. In my writing I have enjoyed the help of many colleagues who have read chapters and advised me. At the University of Toledo these are Larry Connin of the Honors Program, Michael Phillips and Donald Stierman of Environmental Science, Craig Hatfield of Geology, Constantine Theodosiou of Physics, Michael Jakobson of History, and David Wilson of Political Science. Lynn McCallum of St. Andrew's Church helped as well. I also appreciate critiques by Phyllis Piotrow of the Johns Hopkins School of Public Health, by Ralph Menning of Kent State University, and by Bruce Ogilvie.

# Abbreviations

This list does not include common abbreviations like EPA, NATO, NASA, and USSR.

ABM	Anti-ballistic missile
AEC	Atomic Energy Commission
AID	Agency for International Development
CFC	Chlorofluorocarbons
EI	Edison Electric Institute
FCCC	Framework Convention on Climate Change
FEA	Federal Energy Administration
IAEA	International Atomic Energy Agency
ICBM	Intercontinental ballistic missile
IEES	International Energy Evaluation System
IMF	International Monetary Fund
INF	Intermediate-Range Nuclear Forces
IPCC	Intergovernmental Panel on Climate Change
NIRA	National Industrial Recovery Act of 1933
NOAA	National Oceanic and Atmospheric Administration
NRA	National Recovery Administration
OMB	Office of Management and Budget
OPEC	Organization of Petroleum Exporting Countries
OWM	Office of War Mobilization
OWMR	Office of War Mobilization and Reconversion

PIES	Project Independence Evaluation System
PUC	Public Utility Commission
SALT	Strategic Arms Limitation Treaty
SST	Supersonic Transport
START	Strategic Arms Reduction Treaty
TTAPS	Report by Turco, Toon, Ackerman, Pollack, and Sagan in 1983
TVA	Tennessee Valley Authority
WAES	Workshop on Alternative Energy Strategies at MIT

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## Introduction

Global warming threatens to destroy the world climate, turn the Midwest into a desert, flood Florida, Long Island, and much of the East Coast, and spawn hurricanes, fierce storms, and forest fires. Hurricane Katrina's destruction of New Orleans is just the beginning. Overseas, the ocean will flood Holland and Bangladesh, and fertile farmland in Europe and Asia will dry up. This is one apocalyptic future many environmentalists predict. Another apocalyptic danger is the population explosion, with the number of people growing from 6 billion to 8 or 10 or 20 billion, far outstripping arable farmland, oil supplies, and forest resources. A third is the shortage of energy. Even President George W. Bush has spoken of an energy crisis. The gravest danger, however, comes from nuclear warfare. The Americans and Russians have about 10,000 atomic missiles. Exploding even a few hundred could trigger nuclear winter, where dust and smoke would prevent sunlight from penetrating the atmosphere, leading to starvation and the death of the human race. A few atomic bombs from a rogue state like Iran or North Korea could trigger a final Armageddon.

Environmentalists have spoken in apocalyptic terms for many years. Rachel Carson warned, "Pesticides will mean that no birds will sing in the Spring."<sup>1</sup> Bill McKibbin predicted "the end of nature."<sup>2</sup> Others proclaim, "We are destroying the earth," "the population explosion will end civilization," and "global warming will make life impossible on the planet." In a cover

article, the *Atlantic Monthly* announced “The Great Climate Flip-flop,” predicting, “We could go back to ice-age temperatures within a decade....”<sup>3</sup> Al Gore wrote that the dangers were so great that the future of the earth “hangs in the balance,” and more recently produced and starred in a popular documentary film about global warming. Such rhetoric is a standard feature of the movement. Perhaps the most influential was the Club of Rome report issued in 1972, titled *The Limits to Growth*, which forecast that a combination of pollution, overpopulation, and energy shortages would cause the entire social and economic system of the world to “crash” about the year 2020.<sup>4</sup> Ominously, the very next year the energy crisis began, touched off by the Arab oil embargo.

Couching forecasts in apocalyptic terms derives, of course, from the Bible, particularly the Apocalypse of St. John, and earlier the Book of Daniel. Modern prophets of environmental doom are both shaped by the biblical tradition and fascinated by its persuasiveness. In terms of its narrative power, few stories can surpass the Revelation to John, to use its other name. Christ returns to destroy the old, sinful world, awakens the dead, establishes his heavenly kingdom, and in the climax, drowns forever the devil and his evil followers in a lake of fire. This concept of total destruction of the world appeals powerfully to environmentalists, who, like the biblical prophets, foresee the end of the earth. Though usually not accepting the religious concept itself, they like the doomsday rhetoric and images.

The Bible defines the Apocalypse as truly the end of the world. In this book the definition is slightly less devastating: an end to civilization, or a state of continuous warfare, or an end to the material prosperity of the industrial West. Common sense dictates special preparation to avert these apocalyptic threats. Regrettably, over the last 50 years and longer, Americans have typically ignored the dangers or have engaged in furious planning for a few months or few years but then fallen away from their good intentions.

On a lower level of threat, the United States and the world face many other dangers like the AIDS epidemic, extreme Muslim terrorism, racial conflict, and hazardous waste that—serious though they may be—do not threaten global destruction. They have less potential for total devastation and, presumably, can be reversed. Lower down this hierarchy of doom are dangers like bad schools, urban sprawl, or censorship that obviously can be corrected if people have the political will.

Threats of energy shortage, overpopulation, nuclear war, and global warming are all international. The Club of Rome forecast the crash of the world economy. The oil crisis harmed every industrial and semi-industrial country. Because oil is easily transported and is essentially the same everywhere, all

importers suffered and all exporters gained. For the same reason—the global scope of the economy—overpopulation in China, India, or Nigeria will put pressure on all countries. The destruction caused by nuclear war is obviously international. Global warming threatens all countries with drought and rising sea levels.

Within the United States, policymaking for apocalyptic threats departs from the typical pattern. For ordinary domestic issues Congress plays a key role, but in international relations the president and the State Department dominate, and Congress and the courts defer. Apocalyptic threats also give a more prominent role to scientists and other experts. The Club of Rome report was entirely the creation of experts and could not be undertaken until the development of mainframe computers. The threats of overpopulation and high prices for oil and gasoline, on the other hand, can be appreciated by ordinary citizens, but understanding their timing and form depend on experts. Nuclear destruction is easy to understand, but knowledge of the technology and risk is limited to experts. Moreover, the experts in the Pentagon conducted much of their planning in secret and even misled the public. Global warming cannot be observed or measured by nonscientists and is a phenomenon many years in the future. Depletion of energy, minerals, and land, overpopulation, nuclear war, and global warming are all apocalyptic threats apparent at the present. They are apparent, however, only because modern people believe that the future will not necessarily be the same as the past, and because scientists and statisticians have gathered and analyzed information about the problems.

## PLANNING

The roots of societal planning date from the eighteenth-century Enlightenment. American founders like Franklin, Jefferson, and Madison were self-conscious in planning a national government and the country's orderly expansion into the Northwest Territory and beyond. The French revolutionaries planned a radically new society. Slightly later, Saint-Simon and Comte planned less radical societies. Starting in 1804 the general staff of the Prussian Army developed the techniques that continue to dominate war plans.

Within the United States, planning did not flourish until over a century later. In 1929 President Herbert Hoover appointed the Research Committee on Social Trends. Then in 1933, with Franklin Roosevelt's New Deal, the floodgates opened. The best example still in existence is the Tennessee Valley Authority, which included programs for agriculture, nutrition,

education, and recreation along with hydroelectricity, navigation, and flood control. The most sweeping central planning, however brief its sway, was the National Industrial Recovery Act, passed in 1933 and struck down by the Supreme Court two years later. The National Recovery Administration set the country on a course of detailed collective planning with similarities to the Soviet five-year plans and plans by the Fascists in Italy and Nazis in Germany. The NRA imposed control on virtually every sector of American economy, requiring each industry to establish management-labor teams that set production quotas and prices. But when the Supreme Court declared the law unconstitutional, Roosevelt abruptly reversed course and abandoned collectivism. With the outbreak of World War II in Europe, however, mobilization began, putting the economy and society under pervasive control from Washington.

After victory in Europe and the Pacific, President Truman and Congress rapidly terminated the war mobilization. But overseas, planning emerged again once the United States began the Marshall Plan of aid to Europe. The program required each country to create a central economic recovery plan. Later in the 1950s and 1960s, U.S. aid sent to underdeveloped countries also required them to engage in comprehensive planning. In this period the Agency for International Development began population control programs abroad. Lyndon Johnson's Great Society called for planning in its model cities programs and initiated federal regional councils to plan and coordinate.

Richard Nixon, often an enigma, embraced central planning, even though Republicans generally rejected it. Nixon's most dramatic intervention was his attempt to control all wages and prices in 1971. His legislative authority was the old World War II law on war mobilization, dusted off and revised early in his term. Within months of the wage and price freeze, it became obvious that the Treasury Department's predictions were completely erroneous, so Nixon, always a realist, abandoned the scheme. Two years later, however, when the Arab oil embargo and OPEC price rise brought shortages of gasoline and heating oil, Nixon quickly appointed an energy czar and established the emergency Federal Energy Office in the White House, which began planning and allocating petroleum products. Soon Congress passed the Petroleum Allocation Act to give it legal authority. Like the freeze, planning for petroleum soon showed its inadequacies. For the longer term Nixon established Project Energy Independence. In writing the Clean Air Act and Clean Water Act in 1970 and 1972, Congress embraced the New Deal heritage of central planning. The laws required state plans for air pollution and river basin and metropolitan-wide planning for

water pollution. The Coastal Zone Management Act and other laws passed during the 1970s required comprehensive planning as well.

While the Carter administration marked a high point for central government planning not seen since World War II, Ronald Reagan was its sworn enemy and advocated free market solutions. Although the Reagan administration partially rolled back planning and central control, it did not eradicate it, and its supporters in Congress and the bureaucracy bided their time. The Bush (Senior) administration was more compatible with these approaches, and President Clinton was positively eager. By his own characterization, he was a “policy wonk,” enthusiastically debating detailed issues and proposals.

Because an apocalyptic threat is worldwide, domestic planning is inadequate without international cooperation. In negotiating treaties on population, disarmament, and global warming, the United States deals with countries with a stronger tradition of planning. The Europeans and Japan have long embraced planning and find it frustrating that the Americans are not so enthusiastic. To them it seems ironic that the country that demanded their formal planning in the Marshall Plan and Japanese recovery now is so chary.

## THE APOCALYPTIC TRADITION IN AMERICA

American political rhetoric has a powerful legacy from biblical prophecy, starting with the Pilgrims. Until well into the twentieth century, nearly everyone read the Bible regularly and heard it preached on Sunday. Even the humblest log cabin on the frontier had its copy, perhaps the only book the family owned. The prophetic tradition energized the Revolution and the antislavery movement. Abraham Lincoln was a master at biblical references. Later in the nineteenth century, orators like William Jennings Bryan roused their audiences with biblical allusions. Today public opinion polls show Americans to be the most religious people in the world. Seventy percent say that they are believing Christians, and 40 percent believe in an apocalypse. The *Left Behind* series has sold millions of books and inspired three feature films.

The Christian Bible ends with St. John’s dramatic vision of the destruction of the world. When writing in A.D. 90–95, John modeled his Revelation on the Book of Daniel. The *Cambridge Bible Commentary* defines an apocalypse as a particular form of prophesy that is written rather than oral and has a pseudonymous author, supposedly an ancient man of God. It claims to disclose secret information about the future known to God but hidden from man and uses symbols and fantastic figures. It claims that the end will



come soon. The predictions often come in a vision or dream that needs to be interpreted. An apocalypse predicts catastrophe; Daniel forecast the devastation of the Jewish people and their Temple, and John forecast the end of the earth. If it is not the absolute end of time, an apocalypse predicts the end of an era.

The Bible is filled with mini-apocalypses; indeed some are environmental. In Genesis 3, God expels Adam and Eve from the Garden of Eden. In Genesis 6, God tells Noah to build an ark to save his family and all the animals. Moses, Jeremiah, and Ezekiel are prophets of apocalyptic dramas. The apocalyptic masterpiece of the Old Testament is the Book of Daniel, which the author claims is set in about 600 B.C. and consists of predictions of the next four and a half centuries, which was much easier to do in the year 164 B.C., its actual date of composition, when its real purpose was to exhort and support the Jews in their struggles against the persecutions of Antiochus Epiphanes. Mark and Matthew tell how Jesus predicts the end of the world, preceded by war, famine, and earthquakes. Specifically referring to Daniel, he goes on to say that at its climax “the sun will be darkened, and the moon will not give its light, and the stars will fall from heaven...” Standing across the valley from Jerusalem, Jesus looks at the Temple to predict its destruction, saying, “there will not be left here one stone upon another, that will not be thrown down.”<sup>5</sup> Mark’s account is known as the Little Apocalypse. Like the author of Daniel, the authors of the Gospels had the advantage of hindsight, since the Book of Mark was written about A.D. 70 and Matthew was written in the 80s, after the Romans destroyed the Temple in A.D. 70 to punish the Jews for their rebellion. John reworks the Book of Daniel and the eschatological Gospel passages into the apocalyptic masterpiece that concludes the New Testament. The author reveals secret knowledge obtained in a vision, elucidates a battle between good and evil, foretells divine judgment, and predicts the end of the world.

Augustine, writing after Christianity became the official religion of the Roman Empire, treated Daniel and Revelation as allegories. Church doctrine during the Middle Ages followed Augustine in considering the Apocalypse as an allegory. Early Protestants, on the other hand, elevated the Apocalypse because it foretold a revolution. Although the growth of science during the Enlightenment undercut belief in the Apocalypse among intellectuals, it still appealed to conservative theologians. Joseph Mead, a seventeenth-century Anglican, took it literally and calculated the dates it seemed to predict. Other theologians joined this approach and combined it with elements of the Enlightenment to conclude that the millennium would not come as a single divine intervention, but with the gradual unfolding of history.