

From Plato to Durkheim

This paper deals with the difference between religion and science. Émil Durkheim and other nineteenth century social philosophers thought that science was a child of religion and that the two belonged to the same family of collective representations. I would like to offer an opposing opinion from the point of view of cultural anthropology. The more you get into it, the more it appears that science is different than religion. Science is something new, but religion is as old as the hills. Religion is build into the human brain, but science is not. Yet, scientific ideas can be called beliefs when they are acquired from others without question. Like religion, science is a model of an external reality developed by a cultural group. When scientific ideas are acquired by imitation from the group they seem to be similar to religious beliefs. However, there is a difference in the way that ideas are constructed before they are shared by the group.

Often regarded as the founder of sociology, Émil Durkheim (1961[1912]) reached conclusions that affected the study of religion throughout the

twentieth century. In Durkheim's thought, religion and science were closely linked. Religion evolved first and then science split off from it (Durkheim 1912:101). Religion created the spirit of science, a logical, rational classification of the world. According to Durkheim, religion is fading away gradually and being replaced by science. Science is becoming a better at collective representation by rooting out the subjective elements. For Durkheim, science and religion did not clash, because they are actually the same thing. In Durkheim's view, the clash comes when religion claims to have universal knowledge. Science does a better job at creating this and seems to be winning this battle. However, Durkheim hypothesized that religion will last a long time because it directs social action, whereas science gets lost in philosophical purities. Religion can create action when science simply creates ideas.

Durkheim searched for the ``origins'' of religion. He defined them as the ``ever-present causes upon which the most essential forms of religious thought and practice depend.'' (1961:20-21). He felt that origins were more clearly revealed in the ``lower'' cultures that had not been ``complicated'' by contact with the civilized ones. He expected science to develop to a point where it could understand religion in a dispassionate and objective way. He set out on a path that made sociology into a science, in which *society* was an important concept. One could not see

society, one could just see its actions. However, other scientists could not see magnetic fields, but that did not mean that magnetic fields did not exist. The lack of a visible object to study was no impediment to the development of physical science. Why should it be so for a social science? However, Durkheim's (1938[1895]) method did not link the social sciences closely with other sciences. His concept of society ignored the biological brain and the influence that natural selection had on that brain. Now at the beginning of a new century, the social sciences can go beyond the insular approach developed by Durkheim and can link up with other sciences such as evolutionary biology to enrich their understanding of human behavior, including religion (Barrett, Dunbar, and Lycett 2002).

To understand the clash between religious belief and scientific belief, we first have to understand the difference between belief and knowledge. When does an idea cease to be belief and become knowledge? Plato (1999) discussed this long ago in his *Theaetetus*. He pointed out that knowledge is not simply truth, it is provable truth. Knowledge comes into existence when it is proved by experience. Science proves its knowledge by empirical observation and experiment, a type of experience. It requires that people leave the world of ideas and have experiences independent of those ideas. If the knowledge reveals itself to be true in these experiments, then it is accepted

by science. If it reveals itself to be false, it is rejected.

Religious belief also has some proofs of a different kind, the wonderment of nature, the sense of salvation from sin, etc. Religion turns belief into religious knowledge by experiencing the workings of the emotions, an internal reality, that tells one that a religious truth has been spoken. Religious belief is created by persons who inspire us to the point that we accept their message as truth. The proof of religious knowledge is through inspiration. Religious truths also have a practical value for daily living. Not only must they be inspirational but they must help us to live better lives. So religious belief can be called religious knowledge when it is proven in one of these ways.

Science has explicit rules for proving its knowledge. The proof is always available to others because it is explicit. Religious proofs are not so explicit. They can be personal, implicit, and not available to anyone. They can be challenged because they are subjective and often require a type of personal inspiration that is not available to everyone. Therefore they are suspect, and most people are more comfortable calling religious truths beliefs rather than knowledge. Finding truth in religion is far more complex than in science. We cannot see into its verification well. Religious

truths are often proven by an irrational unconscious mental process. They are far more in touch with hidden unconscious than science. They draw on mental processes structured by evolution and lying well beyond reason.

Sometimes, religious groups may specify rules for proving their knowledge, but the door is always left open for inspiration. Successful religions contain escape clauses, myths of transformation that allow entirely new religious truths to appear. The Jews seek the Messiah, the Christians seek the Holy Spirit, and the Muslims await the Mahdi. These escape clauses allow new prophets to proclaim new truths and change a religion.

The anthropologist Anthony Wallace (1956, 1966) studied the appearance of new religious truths and developed a formal scheme to describe the process, which he called *cultural revitalization*. The revitalization process begins with a prophet who has a vision of a new order of things. He or she calls on people to see the world, natural and social, in a new way. The prophet communicates his or her vision, and a new movement may be founded. A revitalization movement can be religious or non religious; however most are religious, and all tend to become more religious as they intensify. A revitalization movement usually does not grow to the point where everyone joins the movement to totally transform the

culture. Most revitalization movements affect only a small groups of believers. When a revitalization movement does grow, its ideas become routinized and it loses its religious intensity. Many modern widespread religions such as Christianity, Islam, and Buddhism are the results of successful revitalization movements.

Once new religious truths are created, they pass from generation to generation through dialog. The religious dialog takes place between an elder and a novice. The truth of what is being said is determined (1) by the authority or charisma of the elder and (2) the personal validation of the novice. The novice relates the teaching of the elder to his or her own experiences with life. On the other hand, scientific dialog takes place within a group of people. No one person in the group has a particular claim to absolute authority. Because it is generated by a dialog between an elder and novice, religious knowledge is often personal but it can be widely shared. Scientific knowledge is cultural, available to everyone, although it may not be widely shared.

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Modern science depends on communication technology. It could not exist without written and graphical creations. It needs external memory. Science uses computers and the Internet to enhance its proofs. The

storing and circulation of scientific ideas allows their constant testing by persons other than those who originated them. This makes scientific truths open and vulnerable to refutation. They cannot become sacred no matter how well established they are, because the sacred is beyond refutation. With this sort of technology, modern science has developed very reliable knowledge.

Science is objective because it is valid for everyone who tests it. It refers to a reality that is the same for every person. Some people think that scientific knowledge refers to an ``external'' reality that is ``out-there'' in some way. However it is constructed by humans and would not exist without them. It is not out-there. It is in culture. It is supremely cultural. It is shared by everyone and belongs to no one. Some groups have created more science than other groups. Because it is extremely cultural, scientific knowledge tends to loose its attachment to particular groups and become part of a universal culture. People have been building universal culture since they first acquired the capacity to create culture, but only recently has it been possible to build it on a large scale.

Scientific knowledge is not available to everyone. It is very technical and complicated. It requires education to understand. Scientific truths are vast and no one person could know them all. Thus, science

is universal knowledge that is not universally known. It is universal knowledge in the sense that it is true for everyone. It is not universally known in the sense that it is not equally available to everyone. It is not learned easily and requires a technological and educational infrastructures to spread. It is not found equally in all cultures. Much confusion has been created in the social sciences by a failure to understand this difference between ``universal knowledge'' and ``universally known knowledge.'' This may sound silly, but it is very important. It is often said that because science is generated within one culture and part of that culture, its claim to be universal is false. This is not true. It can be both.

Scientific knowledge is so universal and objective that it does not attach well to groups. This is in line with its main moral objective to provide reliable enlightenment to every human being. It does not fit well into schemes for controlling social behavior unless it is used secretly. Applied science can move in that direction, but pure science resists group attachment. This is both its success and failure over religion. Movements to promote scientific epistemology in the social ``sciences'' seem to move sluggishly and peter out in comparison to philosophical fads that fuel moral crusades. The social sciences have been hosts to many fads over the last fifty years. Many have enjoyed great enthusiasm

at first and then have had to rely for their survival on a group of believers very much like a religion. Most scientifically oriented social scientists are disconcerted when they do their best work and it doesn't sell well as a pure ideology. Who cares if you just have discovered a new scientific truth about people. There are a million other quasi religious truths that are more exciting. If you draw from those you get an additional prize, an enthusiastic audience.

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Religious knowledge is spread more easily than scientific knowledge. It relies on fundamental narratives, myths. Its myths are interesting stories containing basic information about the world and the moral precepts that guide proper behavior. Religion is also very cultural. Most people think of it as more cultural than science, because it is associated with particular groups. The traditional way of thinking about culture is to think of it as belonging to, and often defining a group of people. Religion identifies groups in a way that science does not. The scientific perspective tends to lose its group attachment as it builds universal knowledge. However religion goes in another direction and builds knowledge that is true only for a group of people. It requires people to commit themselves to the beliefs of the group. The commitment may seem small and easy to make, but it has wide social consequences.

Religion and science actually conflict only when they co-exist in the same cultural system. Michael Ruse (1997:*vii--ix*) points out four positions that have been taken on the relationship between religion and science in Western cultures.

1. Religion and science are opposed. There is a warfare of ideas between the two. Both make contradictory claims about reality.
2. Science and religion are separate. There is no clash between the two because they deal with entirely different areas of experience.
3. There is a dialogue between science and religion over different issues. There can be overlap and interaction.
4. Science and religion can be integrated. They are kept apart artificially. This was the position advocated by Teilhard de Chardin (1955).

The first position, that religion and science are at war, is the one that interests most people. It is particularly important in the United States where Christian Fundamentalists reject the scientifically proven theory of evolution.

The Moral Issues

An important distinction between religion and science is in the type of questions that they answer. Religion answers questions about right and wrong. Science does not. Religious knowledge contains a moral system, whereas, science does not. Religion supports a social order. It promulgates rules for behavior. It performs practical functions. In order to do this, it almost always develops its own particular concept of human nature. In some cases, it may have ceded its right to answer the "What is?" question to science; but it still is very much in the business of answering the "What is it to be human?" question. Religion must answer that question because the answer has implications for what the human being should do and should not to do.

So, both religion and science answer questions about human beings. Science searches for its what-is knowledge about human beings in a certain way. First it wants to know what human beings do and think. Then it considers the moral implications of this. Religion moves in the opposite direction. First it wants to understand the moral implications of human behavior. Then it considers what human beings actually do and think. Religion is much more embedded in the social system and is a necessary part of its orderly functioning.

The practical aspect of religion forces it to work with the everyday concepts that are encoded in culture. It needs to offer its morality to as many people as possible, and most people are not scientists. The complex intellectual structures of logic and fact that are part of science are not available to the vast majority of persons. To operate as a moral system guiding behavior, religion must transmit its view of the world to most of the members of a group.

Religion has a difficult time incorporating scientific knowledge into its framework. It can be done in the ways that Michael Ruse pointed out. Religion does not have to fight with science. It can back up and take the moral high ground, concern itself with divine destiny, and let science work on messy empirical problems. But, can science incorporate religion? Can science develop testable hypotheses about religion? Can religion be understood scientifically as human behavior? There are some some efforts moving in that direction. There is a society called the Society for the Scientific Study of Religion. Most of its members are sociologists, so they often work within the Durkheimian framework. They collect empirical data on what people believe and what religious organizations do.

On the other hand, anthropologists and psychologists are more likely to integrate their

study of religion with the other sciences. One of the most interesting developments is the treatment of religion as an biologically evolved human trait. The primary question here is how could religion have evolved as adaptive behavior for the human species, especially when it is so irrational. A religion that regulates the behavior of individuals in a group will likely develop an adaptation that increases the fitness of members of the group. Many studies have shown that religious people live longer, happier lives than non religious people (eg. Levin 1994; Hummer, Rogers, Nam, and Ellison 1999). These benefits are an indication of biological adaptation. The benefits of living in groups create two phenomena that have attracted interest: (1) the necessity of defending the system of religious realities against other models of an external world and (2) a false sense that religion is undergoing a group selection process.

Defense of the Faith

Let me first look at the necessity of defending the system of religious realities against other models of an external world. Leaving aside the question of how much religious behavior is determined by human nature and how much by culture, let us consider that a proportion of it that has been set up by biological evolution. A religious system confers

benefits on members of a group through its impact on social behavior. In order to maintain these benefits, whatever the system may be, a group image of the religious reality must be maintained. Both religion and science make use of rational argument to maintain their images. The philosophical clash between religion and science occurs primarily on this battlefield of rational argument. A person can be a dedicated scientist and still feel emotion in religious ritual. It is only when the two systems of rational thought, religious and scientific, are put side by side and compared logically that a conflict ensues. If science refutes a fact upon which religion has built a rational argument for moral action, then religious individuals will often defend their belief, rationally or irrationally. This can be seen as rational behavior in the sense of evolutionary adaptation because their ancestors reaped benefits by following some moral system promoted by religious belief. Religion will battle science over matters of commitment to a social order invested with sacred principles.

Religions are found everywhere, and each group has its peculiar religious moral code. There is a gene-culture issue here. Religious behavior may be biologically programmed, but the moral codes are as culture bound as language. Is there a single moral system in religion that appears in various forms as it is symbolized by different groups? Legal scholars

might agree and call it natural law. Different languages can arise based on an underlying common syntactic ability. Apparently somewhat contradictory moral systems can come into existence based on an underlying common moral ability. God is always on the side of your army and against the army of your enemy. How can we find what is really universal and what is different in religiously-based moral systems? A large cross-cultural study is needed to answer this question; however there is much of evidence that there is a tendency to defend a sacred principle no matter what that principle is. What is minimally universal is the the sacredness of a principle, not the principle itself. The surface manifestations of religious morality are different, but a deep structure of sacredness seems to be held in common.

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Common features of religion argue for a common structure to religious morality.

1. ritual respect for kins persons living and dead,
2. ritual respect for other people in the group,
3. ritual respect for life, human and otherwise,
4. rites of passage,
5. prayer,
6. mortification and sacrifice

7. counseling of deviants, etc.

Understanding the conflict between science and religion certainly needs a coevolutionary theory that includes both the biological evolution of religious behavior and processes of cultural adaptation.

Science also has a moral commitment based on the idea that good objective knowledge improves life. Writing about religious myths, Richard Alexander, an evolutionary biologist, puts it in the following terms

Only science, among human activities, comes close to being a self-correcting method of pursuing the truth. Ironically, we must be no less constrained, in ``scientific'' pursuits of self-understanding, to recognize self-fulfilling myths. [Alexander 1987:129]

Group Selection

Now let me look at the false sense that religion has evolved by group selection. The argument that evolution takes place through the survival of groups in competition with each other is known as group selection. There is very little support for it in evolutionary biology (Williams 1965). The group benefits of religious behavior create a sense that the religion has evolved because of its group successes.

A common exhortation of religious morality is to sacrifice for the benefit of the group, or for the benefit of all humanity. Because people commit themselves to the welfare of a religious group, it is a mistake to assume that religion must have evolved by group selection. In the animal world, group cooperation has evolved biologically by individual natural selection. Why must humans be the only species not to follow what seems to be a general pattern of evolution? Obviously genes are being passed on to future generations by individuals, the parents, not by groups. Therefore, individual differences in behavior must determine how the genome evolves. Arguments that whole groups are selected in evolution are very weak (Wilson 2000:106--129) .

Societies everywhere promote group cooperation, and religions support it. But what drives the evolution of group cooperation? Many evolutionists have suggested that group cooperation has evolved biologically through kin altruism or reciprocal altruism and that a sacrifice for the benefit of the group really benefits the individual and his or her kin more than it benefits the group (Barrett et al 2002:45-51). Cooperation can evolve by means of kin selection. However religion also promotes much human cooperation between unrelated individuals. We don't have to go as far as postulating kin selection to explain this as a product of biological evolution.

Punishing or policing behavior can evolve by individual selection and maintain group cooperation. Behavior that punishes individuals for deviating from group goals can explain the evolution of group cooperation in the absence of relatedness. Steven Frank (1995) has produced a generalized mathematical model that shows that ``policing'' can evolve biologically to maintain cooperation as the degree of relatedness between members of a group goes down. This kind of policing would manifest itself in humans primarily as shame, guilt, and a disgust of free-loaders. Making use of human group experiments, Fehr and Gächter (2002) show that altruistic punishment will actually develop in human groups in order to maintain cooperation. Boyd and Richerson also see punishment as process that maintains cooperation (Boyd and Richerson 1992). Thus, group selection is not necessary for a religiously mediated cooperative system to evolve.

The impulse to commit one's self to a religious belief is an individual impulse. After commitment, people often become intolerant of non-believers.¹ Religious defenses against freeloaders exist precisely because individual selection is actively at work (Sosis 2003; Iannaccone 1992). Policing can develop through individual selection if there are

¹One can love the unconverted and still be intolerant of their misguided beliefs. The argument that Liberal Christianity is a tolerant religious movement needs to be tempered with the reality that it sometimes manifests a fierce intolerance of intolerance that is often not recognized as a type of intolerance itself.

benefits to be had from non-kin group cooperation. If religion evolved through group selection, then it is hard to explain the numerous religious rituals, such as initiations, baptisms, confirmations, etc. that keep cropping up in human society to protect religious groups from freeloaders. These boundary-keeping rules exist because the capacity for religious behavior has been developed in individuals not groups through individual selection, although we usually see its manifestation in the context of groups.

The idea that group selection is responsible for the evolution of religion is probably due to the way that people instinctively see the social world. The evolved brain leads people to think that well ordered social groups with few defectors are more successful. This is absolutely true, but individual selection is the mechanism that has made it true. What evolution has realized, and created, is not the the same thing as the mechanism by which evolution works. There is no reason to postulate benefits to a group as a whole when one can postulate benefits to individuals living in a group whose self-sacrificing members are well policed. Individual selection is a simpler, clearer, well-proven, basic Darwinian mechanism of natural selection.

Defending Science

What does the power of religion to organize groups have to do with science? Aiming a universal knowledge, science has detached itself from groups. It can be held by groups incidentally, but it does not define groups. This philosophical detachment from groups makes science is difficult to politicize. At the same time, it makes it vulnerable to attack. Habermas has labeled it instrumental. According to him scientific knowledge is aimed at controlling the material world, not at bettering society or the self. He sees it as amoral. He proposes that other types of knowledge contain the moral wisdom of human beings. The universality of scientific knowledge keeps is from being attached to a group with a politically oriented vision of human nature. Religion has no limitation in this regard.

Science has gained a following because it is verifiable and helps to solve human problems. Religious groups would like to feed on this success, but it is hard for them to do this. Religious knowledge and scientific knowledge could coexist if they occurred in separate individuals, separate cultures, or separate cultural domains of knowledge. Mostly they do coexist peacefully. However, at times, they are found in the same cultures where people insist that their knowledge be evaluated in the same

way. This is not just in the United States where Christian Fundamentalists want their teachings to be taught in science classes, but in places like India where the spiritual teachings of holy people are rejected by young science students.

Science often wins the battle to define the natural world. As it wins, it becomes more prestigious. The more prestigious it becomes, the more religious groups want to attach their doctrines to it. Religious groups have the advantage of committed followers who can use political power to impose their view of the world on others. School boards dominated by Fundamentalist Christians in the United States have been trying to get their ideas taught in science classes under the name of ``intelligent'' design; however they have met resistance from the American Civil Liberties Union and Americans United for Separation of Church and State and other groups (Economist 2005). The imposition of Fundamentalist Christian doctrine on school children studying evolution has been most fiercely resisted by other religious groups not by scientists. Teachers and scientists have been second string players this the conflict. However as evolutionary theory becomes more important in biology, medicine, anthropology, psychology, and other social sciences. Science teachers may have to fight these battles in the name of generations who will be denied their rights to a meaningful education.

It is hard to see how proponents of ``intelligent`` design can make a case for it when there are so many cases of dumb design in evolution, for example, the human appendix or the optic nerve.² _____ 8

This war between religion and science actually has been going on since science first emerged as a natural philosophy. Bertrand Russell (1997[1935]) admirably traces it across many disciplines of science and through several centuries of time. Religion battled against scientific enlightenment in Europe at every turn, against an astronomy which saw the earth as a small planet in a vast universe, against biologically informed medicine, against the understanding and treatment of mental illness, against the evolutionary origins of all living things, especially humans, and so forth. Russell gives religion failing grade on all counts.

We have seen also that, where practical issues were involved, as in witchcraft and medicine, science has stood for the diminution of suffering, while theology has encouraged man's natural savagery.
[Russell1997[1935]:244]

It is often said that science has won the battle,

²The appendix seems to have no apparent physiological function in humans and collects bacteria that sometimes cause death. The optic nerve is in front of the retina where it interferes with vision. Both of these cases have explanations in the way that evolution works with preexisting anatomical forms. Intelligent design seems to be a new technique for introducing an old theological idea, the wonder of God's creations, into science classes.

but the battle gets fought over and over again. The modern argument that ``intelligent design'' is a valid scientific theory that should be taught to children studying evolutionary biology is just a new version of an old argument that science ignores the hand of God, whatever that may be, in the natural world. This particular complaint has been made since the time of Galileo. Galileo was declared a heretic because he believed then that the heavens were governed by the same natural laws as the earth. Why does this ``intelligent design'' argument appear over and over again across centuries? The answer is that an emotional wonderment of nature is the sort of emotional proof that religious knowledge needs. Science destroys this wonderment by turning mysteries into puzzles and solving them. It is not satisfied with the answer that God did it in his (or her) mysterious way. Religious people are expected to wonder at nature, not to study it. In Galileo's time, the ignorant were expected to turn to the theologians rather than to the scientists for their answers to life's mysteries. Because religious knowledge provides a source of power over people, and because the religious power holders are typically bound up with secular power holders, the threat of science can be more than purely intellectual.

The Costs of Science

The fact that religion still wins many battles, indicates that there are costs to science that prevent it from dominating. Intellectuals, like Russell, are dumbfounded by the emotional and often destructive side of religious behavior. It should disappear. Often the benefits to individuals and groups are trotted out to explain its survival; however one of the big problems is the costs that science has. I will end this paper by looking at some of these.

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In the first place, as Durkheim recognized, science cannot easily move people to action.

But howsoever important these facts taken from the constituted sciences may be, they are not enough; for faith is before all else an impetus to action, while science, no matter how far it may be pushed, always remains at a distance from this. Science is fragmentary and incomplete; it advances but slowly and is never finished; but life cannot wait. The theories which are destined to make men live and act are therefore obliged to pass science and complete it prematurely. [Durkheim 1961[1912]:479]

In the second place, science is not available to

everyone. Its logic and methods are too complicated for the average person to understand without study and training. The knowledge that science contains is not complete or comprehensible to the average person. There is too much brain work, too much education, and not enough common sense in science. There are media that popularize science for the average person, but this produces distortions upon distortions. These distortions become the image of science to the public. For example religious people are not fighting with the theory of evolution they are fighting with a popular conception of it that Ruse calls *evolutionism* which is based on an ideology of human progress as much as on scientific fact (Ruse 2005).

Science is difficult for the average person to understand. In the science news of today one can find headlines such as: ``Earth' Magnetic Pole Drifting Quickly'' --- clearly a cause for alarm --- and ``Seaworld Claims Dolphin Breeding Breakthrough.''' How can the average person check the validity of such claims to knowledge? Much extra reading and perhaps some research is needed to be certain of these claims. Science is not something that the average person can be sure of. Perhaps this is why American politicians have done nothing about global warming. Only a well educated public can be convinced of scientific claims to knowledge.

Scientific knowledge is also very fragmented.

Ideally it is true and knowable by everyone; however it leads to a large division of intellectual labor. Scientists in one field of knowledge often cannot communicate with those in another. The gap is even wider in the technological fields supported by pure science. The entire range of scientific and technological knowledge now cannot be known, even in a small part, by a single human being. Science has exceeded, by cultural means, the biological image-forming capacity of the single human brain by many orders of magnitude. It is supremely cultural and has little support from the early evolved modules of that brain, the modules that deal with basic survival. Science is laid down as a cultural artifact on a brain that is not well prepared for it, one that does not easily conceive of complex systems, mathematics, subatomic particles, force fields, DNA, and other fundamentals that science has found to be its most useful intellectual tools. Without the support of advanced technology for observation, the technology of symbolic communication, and a trained and devoted cadre, modern science would disappear.

As a means for developing and communicating models of an external world, science has costs that prevent it from superseding religion. It may be the pet of intellectuals, but it cannot move masses. The marginal costs of education increase with the number of people educated. Where religion and science clash, they eventually reach an equilibrium. Each has its

benefits and its costs.

Durkheim was wrong in thinking that science is the same sort of collective consciousness as religion. It does not emerge from the same brain structures. Religious knowledge is not created or refined in the same way as scientific knowledge. However, he was right about the nature of modern society with its wide distribution of information. Science lives in that matrix of minds, finely divided but organically powerful. This is its strength and its weakness.