THEOLOGY:
AN EXPERIMENTAL SCIENCE?

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1. Introduction

The purpose of this paper is to explore parallels between theological and scientific reasoning. I shall consider here three important features of science: the form and logic of its theoretical structures, the means by which its facts come into being, and the objectivity of those facts. We shall see that church doctrines can be construed as *theories* to explain *facts* of the Christian life, and that these facts are not so different in status from scientific facts.

Although it has been common in our era to hold that theology and science are radically different kinds of intellectual endeavors, I do not stand alone in arguing for close parallels between theology and science. One thinks immediately of D. C. Macintosh early in this century, and of Ian Barbour today.[1] The weaknesses of my predecessors' accounts, I believe, have to do mainly with failure to provide a convincing account of the facts or data for theology. I suggest that *church practices* informed by *communal discernment* provide a major, and often overlooked, source of confirmation for theological theories. I shall argue that such data differ only in degree from those of the hard

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[1] See Macintosh, *Theology as an Empirical Science* (New York: Macmillan, 1919); Barbour, *Myths, Models and Paradigms* (New York: Harper and Row, 1974).

sciences. Thus it is incorrect to contrast "objective" scientific fact with "subjective" religion.

My account of the scientific character of theology is by no means complete. A more adequate account would have to pay more attention to the theoretical structure of Christian doctrine than I shall be able to do here. It could also be amplified by giving further attention to other sorts of data such as Scripture and historical events.[2]

2. Doctrines as Theories

Doctrines, as the etymology of the word suggests, are the *teachings* of the church. There are a number of interrelated topics about which the church has traditionally taught: the trinitarian nature of God, christology, atonement, salvation and sin, the kingdom of God, creation, the Holy Spirit, the church, eschatology. Two of the theologian's tasks are to propose reformulations of these doctrines and to consider their justification. I suggest that in this age of empiricism the theologian's task is very much like that of the scientist, who modifies the received theoretical structure and seeks to show its justification relative to the appropriate facts. I do not mean to suggest that all theologians are self-conscious empiricists, although many are. Rather, I suggest that a "rational reconstruction" of theology is possible, showing that its conclusions (its doctrines) *can* be supported by empirical evidence of various sorts.

Let us consider a simplified version of a Christian doctrine to see if it can be understood as a *theory* developed to explain a particular set of facts, and supported by its ability to do so. Christian orthodoxy teaches that Christ is both fully human (like us in all things save sin) and fully divine. In early New Testament times there was no question of Jesus' humanity. However, his divinity could not have been a matter of observation, since we know of no observable characteristics of God. Christ's divinity could therefore be construed as a theory—something the early Christians could infer about him on the basis of evidence.

2.1 Evidence for Christ's Divinity

I suggest that there are at least three kinds of evidence for Christ's divinity or, put differently, there are three sorts of facts that this theory serves to explain:

(1) the church's worship of Christ, (2) Jesus' own claims about himself, and
(3) the church's obedience to Christ.

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[2]For a fuller account see my Graduate Theological Union dissertation, "Theology in the Age of Probable Reasoning," 1987, University Microfilms.

New Testament evidence suggests that worship of Jesus began quite early in Christian history. For instance Philippians 2:5-11 is taken by scholars to be a pre-Pauline hymn. If it is, Jesus' claim to Christian worship was recognized even before the date of that letter.[3] The hymn proclaims that,

> at the name of Jesus every knee should bow, in heaven and on earth and under the earth, and every tongue confess that Jesus Christ is Lord. (Phil 5:10-11)

However, it is only later that Jesus is specifically referred to as God. For example, consider Titus 2:13: "the appearing in glory of our great God and Savior, Jesus Christ." We can assume that the practice of worshiping Christ, especially in a Jewish monotheistic setting, called for an *explanation*; in that setting it is difficult to imagine a suitable explanation other than the identification of Jesus with God.[4]

To our knowledge Jesus never referred to himself as divine, but he is pictured in the Gospels as acting and speaking in ways that would be outrageous if he were not. In fact, many of his utterances were apparently considered blasphemous by his contemporaries. Consider these examples:

(1) Jesus called God "Abba," a pet name equivalent to "Daddy" or "Papa" (Mark 14:36).

(2) Jesus placed himself above God's law. For instance in Matthew 5:21: "You have heard it was said to men of old, 'you shall not kill' and whoever kills shall be liable to judgment. But I say to you that everyone who is angry with his brother shall be liable to judgment."

(3) Jesus claimed that all will be judged on the basis of their response to him: "And I tell you, everyone who acknowledges me before men, the Son of Man will acknowledge before the angels of God" (Luke 12:8; see Matt 25:31-46).

Now, if Jesus had been condemned to death (for blasphemy?) and that had simply been the end of him we might agree with his Gospel accusers. However, Christians early and late have seen the resurrection as evidence of God's vindication of Jesus. And what could excuse him from the charge of blasphemy better than the actual possession of a status of equality with God? These ideas converge in Romans 1:4 where Paul says that Jesus is "designated Son of God in power according to the Spirit of holiness by his resurrection from the dead."[5]

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[3]Philippians may have been written during Paul's imprisonment in Rome in A.D. 62-63.

[4]See Geoffrey Wainwright, *Doxology: The Praise of God in Doctrine, Worship, and Life* (New York: Oxford University Press, 1980) 47-48.

[5]See Wolfhart Pannenberg, *Jesus—God and Man* (Philadelphia: Westminster Press, 1968) 56-88.

A third sort of evidence for Jesus' divinity is the fact that his moral teaching was accepted as absolutely authoritative. Jesus made ultimate claims on his disciples' obedience, and the community recognized his legitimate lordship over them. The communal practice of taking Jesus' word as the last word in ethical matters again cries out for explanation, and again this explanation involves the identification of the Lord Jesus with Israel's LORD, Yahweh.

So, in sum, if we ask what *theory* about Jesus could rightly account for this collection of facts, including his own outrageous behavior, his resurrection, his followers' obedience and even worship, one hypothesis from which all of these facts would follow is that of his divinity.

2.2 Complications

So far I have presented an account that is oversimplified in a number of respects. First, my use of the New Testament here does not do justice to the complexities of scriptural interpretation, nor to important debates about how the texts are to be used in theology and the life of the church.[6] Second, I have assumed the simplest possible model of the relation between fact and theory. So far I have used what C. S. Peirce called abductive reasoning and the neo-positivist philosophers of science called the hypothetico-deductive model of theory confirmation,[7] concentrating on one hypothesis and a few facts. According to the neo-positivists, hypotheses are invented to account for a known fact and then confirmed by deducing further testable implications from them. My account of the support for Christ's divinity falls short both because it fails to reflect the dynamics of conjecture and further test (which might or might not be found in the actual history of the development of the doctrine), and also because this rather simple model of scientific reasoning has itself been found to be inadequate.

Most recent philosophers of science have emphasized that theories are seldom accepted or rejected individually. It is rather a complex "research program" involving a number of related theories that faces the test of experience. According to philosopher of science Imre Lakatos, a research program consists of a "core" theory, which is usually too abstract to yield empirical consequences standing alone. The core is surrounded by a "protective belt" of auxiliary hypotheses that allow for logical connections with the data. These auxiliaries include lower level theories that apply the main

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[6]See Hans Frei, *The Eclipse of Biblical Narrative* (New Haven: Yale University Press, 1974).

[7]See Carl Hempel, *Philosophy of Natural Science* (Englewood Cliffs NJ: Prentice-Hall, 1966).
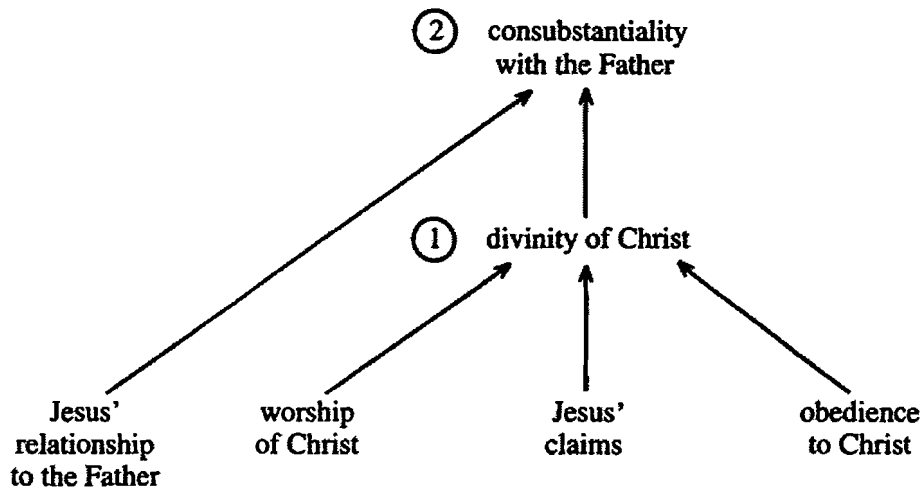
theory to specific cases, theories of instrumentation, and others. The research program is modified in the face of anomalous data by changing or adding auxiliary hypotheses. Lakatos claims that scientists choose between competing research programs according to the extent to which the theoretical modifications lead to new empirical discoveries.[8]

Another, related, complication noted by recent philosophers of science is that often the facts upon which theories depend are themselves dependent upon theoretical assumptions. One's observations and one's judgments about what is relevant are both shaped by theoretical positions. Also, facts usually have to be *produced*, not simply observed, and the design of experiments involves, as Lakatos pointed out, a number of "theories of instrumentation."
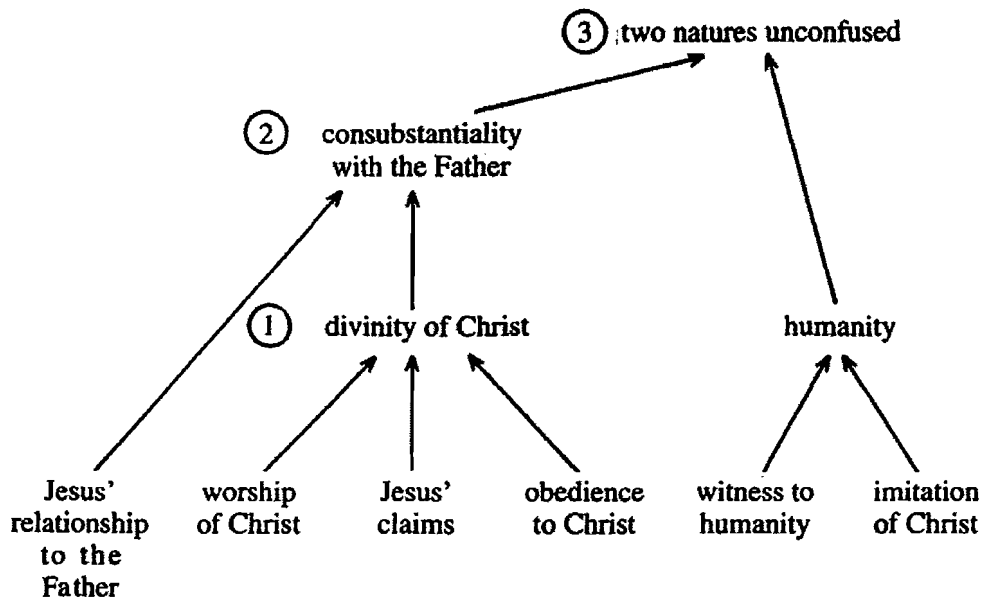
Returning to our theological example, this excursus on philosophy of science should lead us to expect that the theory of Christ's divinity will be part of a complex theoretical network, and that the data upon which it is based will be dependent upon some other theoretical elements. Let us consider the theoretical network first.

As I pointed out above, the theory of Jesus Christ's divinity was already accepted before the end of the New Testament period, 100 to 150 years after his birth. A great deal of theological development followed, with the Councils of Nicea (A.D. 325) and Chalcedon (A.D. 451) specifying in precise technical terminology the relation of Christ to the Father and the relation between Christ's divinity and humanity. This development can be *reconstructed* scientifically, representing it as the gradual construction of a research program. The Council of Nicea defined the relation of Christ the Son to the Father in terms of "consubstantiality"—the Father and the Son are of one substance. Chalcedon defined the doctrine of the two coexistent, unconfused natures of Christ, human and divine. These two theoretical moves helped to explain the original hypothesis of Christ's divinity, and at the same time took account of other problematic data. The problem solved by the Nicean formulation was this: Jesus must be "one with the Father" in some way if monotheists are to worship and obey him; yet Christ is not simply identical with God. This is evidenced, for example, by the fact that Jesus *related to God* in prayer. Schematically, we might represent this development as follows, where theories are placed above the facts they explain since the facts "support" the theories.

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[8]In "Falsification and the Methodology of Scientific Research Programmes," in *Philosophical Papers, Volume One* (Cambridge: The University Press, 1978) 8-101.

② consubstantiality
with the Father

① divinity of Christ

Jesus'   worship   Jesus'   obedience
relationship   of Christ   claims   to Christ
to the Father

For the first Christians the humanity of Christ was an observable fact; by the time of these councils it was not, and there had by then been a number of formulations calling it into question. So now Christ's humanity had also to be inferred on the basis of evidence—the most important, of course, being the witness of earlier disciples. However, the fact that Christians are called to *imitate* Christ also presupposes his full humanity. Now, these two lower-level theories, Christ's divinity and his humanity, called for a higher-level theory to explain how both could be true of one individual. The Chalcedonian formulation may be seen as an attempt to solve this difficulty. Represented schematically, the system now looks something like this:

③ two natures unconfused

② consubstantiality
with the Father

① divinity of Christ   humanity

Jesus'   worship   Jesus'   obedience   witness to   imitation
relationship   of Christ   claims   to Christ   humanity   of Christ
to the
Father

This, of course, is still only a small part of the theoretical structure of conciliar doctrine. We could go on to add theories concerning the Holy Spirit and the Trinity; we could investigate links between Christology and doctrines regarding the work of Christ, and so on. And, of course, there have been numerous reformulations of the original Christological doctrines as language and concepts have changed in a changing Christian movement.

It is important to emphasize that the sketch I have given above is not intended to replace historical accounts of the development of doctrine. It is intended not as an historical record of the thoughts of the theologians involved, since they almost surely did not think in terms of theories and evidence. Rather it sets out to show the logical relations among the doctrines, and between doctrine and fact, in such a way that we today, with our different understanding of rationality modeled on the empirical sciences, can see that the facts adduced do give empirical support to the doctrinal theories.

3. A Closer Look at the Data

In my original example I suggested that the theory of the divinity of Christ is based on two kinds of data: the moral life and worship of the church are both forms of church *practice*; Jesus' sayings and resurrection are both *historical events*. It might be objected that neither of these categories of fact provides a suitable starting point for a scientific theology. After all, we are seeking the data, the "given." Most Christians today are aware of the intense debate concerning the resurrection—many claim that it could not be an historical event or that we could not know that it happened. Many are aware, also, that there is a continuing quest among scholars to distinguish between the authentic sayings of Jesus and other statements put into his mouth by the early church. So neither of the historical facts I have adduced is a simple "given."

Nor are the practices of the church (although easier to recover by historical inquiry) "given"; yet this is in a different sense. They are not given but made. One might ask, then, how such practices could have consequences for theology. Are they not arbitrary? How can they tell us anything *about God*?
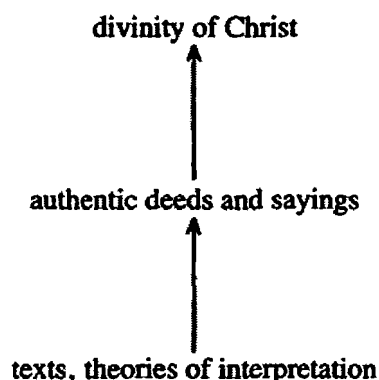
Objections to both sorts of data can be answered in a way consistent with the best current understanding of data in science. As I pointed out above, philosophers of science have come to recognize that scientific data are the product of selection, interpretation, and complex procedures involving significant theoretical components. Etymologically, "fact" is a much more appropriate term than "datum," suggesting that facts, although not mere fabrications, are in some sense *made*, and not simply *given* to experience. For example, in the debate over the heliocentric theory of planetary motion it was necessary to supply a theory of optics to explain why appearances through a telescope should be trusted as data for astronomy. Or consider a more homely example: a temperature reading seems to be a very straightforward sort of fact, but con-

struction of a thermometer and explanation of why its readings should be significant require a great deal of theory about heat transfer, expansion, and so forth.

In like manner, the crucial events of the life of Jesus and of the earliest years of the church can only be reconstructed for today's theologian by means of theories. Since the texts are the primary sources, most of the theories involved here are theories of interpretation. But other kinds of theory can become relevant. For example, some scripture scholars employ sociological models as an aid to interpretation, and this procedure involves sociological theories.[9]

Thus the theologian's data may be the biblical scholar's theory. The structure, therefore, has yet another layer:

The resurrection of Jesus is a problem of the same sort, yet more complicated in that a widely accepted *theory* for the past 200 to 300 years regarding the interpretation of historical texts has been the principle of analogy: one assigns probability to past events on the basis of one's observations in the present. Thus an event totally unknown today such as resurrection of the dead is considered highly improbable or even impossible. Nonetheless, some scholars argue that we can have satisfactory historical grounds for affirming that the resurrection took place, even if we cannot know in detail what it was like. Wolfhart Pannenberg, for example, rejects the principle of analogy in favor of a theory of historical method more in accord with contemporary scientific reasoning. A central part of his evidence is found in 1 Corinthians 15 where Paul reports his own experience and the appearances to Peter, to the

divinity of Christ

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authentic deeds and sayings

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texts, theories of interpretation

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[9]For example, see Norman Gottwald, *The Tribes of Yahweh* (Maryknoll NY: Orbis Books, 1979); or Bruce Malina, *The New Testament World* (Atlanta: John Knox Press, 1981).

Twelve, and then to more than 500. Pannenberg concludes that in view of the proximity of Paul to the events there is reason to believe that the appearances of the resurrected Lord were indeed experienced by a number of members in the primitive Christian community, and not invented in the course of later legendary developments.[10] The appearances could be interpreted by the disciples as appearances of a *resurrected* body because of the availability of the Jewish apocalyptic tradition that associated resurrection of the dead with the end times. Pannenberg may not have convinced everyone that there is adequate evidence for the resurrection, but he has shown clearly that the question is not immune to scientific investigation.

Recovery of the authentic sayings of Jesus also requires theories of interpretation. For example, sayings that were recorded even though they presented difficulties for the early church's self-understanding are often presumed to reflect actual memories of Jesus' teaching. Another principle used by some interpreters is to favor as authentic those utterances that differ from the prevalent thought world of Jesus' society. All such principles assume theories about Jesus, the church, first century Jewish society, and human behavior generally that may be questioned. Lakatos's methodology, mentioned above, would require that theories involved in interpretation be tested according to their ability to lead to the discovery of new facts.

3.1 Church Practices as Data

Recall the objection I mentioned above to the use of church practices as data for theology: they appear to be arbitrary, and it is not clear how they can tell us anything about God. This case is analogous to that in astronomy where a theory was needed to explain how appearances through the eyepiece of a strange new instrument could be trusted to yield information about the nature of the heavenly bodies. *I shall call the requisite theological theory the theory of Christian discernment.* This theory asserts that the Christian community, in virtue of the presence of the Holy Spirit, has the ability to judge whether or not practices, teachings, and prophecies are of the Spirit of Jesus. In the New Testament this was often referred to as testing or discerning the spirits.

In New Testament times people spoke easily of spirits—but not so today. Without settling the question of the existence of non-material, personal beings apart from God, I believe we can still use the term "spirit." Jesuit author David Fleming suggests that we understand a spirit as a movement of one's heart, a motion affecting one's spiritual life, an impetus in one's life, or a feeling for or against some course of action.[11] The New Testament assumes

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[10]*Jesus—God and Man*, 91. See also Richard R. Niebuhr, *Resurrection and Historical Reason* (New York: Scribner's Sons, 1957).

[11]In *The Spiritual Exercises of St. Ignatius: A Literal Translation and a Contemporary Reading* (St. Louis: Institute of Jesuit Sources, 1978) 202.

that these "movements" may come from the Holy Spirit, God's holy wind, or from other sources—our own selves, most notably.

New Testament authors called on the church to test the spirits to see whether or not they were from God (1 John 4:1; 1 Thess 5:20-21). However, it is only the Holy Spirit who understands the thoughts and deeds of God:

> For the Spirit searches everything, even the depths of God. For what person knows a man's thoughts except the spirit of the man which is in him? So also no one comprehends the thought of God except the Spirit of God. Now we have received not the spirit of the world, but the Spirit which is from God, that we might understand the gifts bestowed on us by God (1 Cor 2:10-13).

Therefore the Christian's ability to test the spirits is listed as one of the spiritual gifts in 1 Corinthians 12. Furthermore, the New Testament indicates that certain decisions were judged to have been made under the influence of the Holy Spirit. For example, in Acts 15 it was said of the decision not to impose the full Jewish law on Gentile converts, that it "seemed good to the Holy Spirit and to us." Such judgments might be made simply on the basis of the special sensitivity granted by the Spirit, but the New Testament also offers *criteria* for judgment. These criteria are both theological—"Every spirit which confesses that Jesus Christ has come in the flesh is of God" (1 John 4:2)—and practical: that which produces good fruit is of the Holy Spirit. According to Galatians 5 the fruits of the Spirit are love, joy, peace, patience, kindness, goodness, faithfulness, gentleness, and self-control.

So, to sum up, the New Testament theory of discernment asserts that by means of the gift or indwelling of the Holy Spirit, Christians possess an *inner witness* regarding what is or is not of God, as well as *public criteria* to test these judgments.

Although the theory of discernment has received less attention than its due in later years, it has not disappeared from the Christian scene. For example, the sixteenth century Anabaptists and their more direct descendants such as the Mennonites place great emphasis on communal judgment. Their criteria include consistency with Scripture and consensus of the community, on the assumption that the teachings and directions of the Holy Spirit cannot be self-contradictory.

Perhaps the most noted theological investigation of discernment is that of Jonathan Edwards, the eighteenth century Calvinist. Edwards wrote extensively about the signs of a work of the Spirit of God, emphasizing changes in the character of those genuinely converted, especially manifestations of the fruits of the Spirit.

A particularly important aspect of Edwards' work was his account of why the fruits of the Spirit, especially love, should be the criteria of a work of God. In brief, the Holy Spirit is the Spirit of God, and God's very nature is love.

Thus love manifested in the convert's life is a manifestation of the presence and action of God himself. This is significant for the projected scientific reconstruction of theology since it shows how the theory of discernment fits in as part of the whole of a systematic theological research program. Christian discernment criteria are a consequence of the Christian doctrine of God.

3.2 An Example

To sum up so far, I raised the question of the value of church practices as data for theology. I began to answer by noting first that all scientific data are theory-dependent, and second, by proposing a theory upon which I shall claim theological data, in the form of church practices, depend. I shall now illustrate how this may be.

My example comes from the life of Iulia de Beausobre, a Russian woman imprisoned and tortured under Stalin's regime.[12] In her several books she writes about that experience and the insights she gained regarding the Christian idea of redemption. The victim must try to respond to the tormentors, she says, in a "redemptive" manner. One does this by making oneself "invulnerable." This does not mean to dull oneself to the pain; rather, it is a refusal to be hurt, to be damaged by it. She asks:

> Can I experience the acuteness of all this sordidness without hating life and man? Can I possibly bear it with equanimity?
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> The effort of keeping a clear awareness of my surroundings makes me go cold with clammy sweat. I set my teeth hard so they will not chatter.[13]

The victim must attempt to understand the tormentors without becoming sentimental and concealing their responsibility. All passions such as fear, self-pity, and despair must be controlled. Not everyone can do this. But for those who do, such an effort, de Beausobre claims, has two results:

> You realize that you have been privileged to take part in nothing less than an act of redemption. And then you find that, incidentally and inevitably, you have reached a form of serenity which is, if anything, more potent to counteract sadistic lusts than any barren impassivity could be. But to your mind, now, that is a minor matter. The direct and positive work of an effort applied in this way towards redeeming the deed is far too big and too thrilling for anything else to matter to you very much at the moment.[14]

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[12]This account is found Diogenes Allen's *Traces of God* (npp: Cowley Publications, 1981). Quotations below are taken from de Beausobre's *Creative Suffering* (Westminster: Dacre Press, 1940), and *The Woman Who Could Not Die* (New York: Viking Press, 1938).

[13]*The Woman*, 178; 77.

[14]*Creative Suffering*, 40-41.

De Beausobre explains how this is an act of redemption in a passage where she imagines a conversation between herself and her "Leonardo"—the person she aspires to become.

> A great bond is formed, he says, between the man who is tortured day in, day out, and the man who day in, day out, tortures him. . . . If you ponder on this you may find the justification for your apparently absurd suffering.
>
> But, Leonardo, surely there is no justification for a crowd of well-fed, reasonably strong men bullying a weary, under-nourished, half-demented woman who doesn't even know what it is all about.
>
> If you want to understand, to know the truth about this sort of thing, you must rise higher and look deeper. If you do, you can transform the ghastly bond into that magic wand which changes horror into beauty. . . . It is unpardonable that anyone should be tortured, even you—if *you* merely leave it at that. But, surely, when you overcome the pain inflicted on you by them, you make *their* criminal record less villainous? Even more, you bring something new into it—a thing of precious beauty. But when, through weakness, cowardice, lack of balance, lack of serenity, you augment your pain, their crime becomes so much the darker, and it is darkened by you. If you could understand this, your making yourself invulnerable would not be *only* an act of self-preservation; it would be a kindness to *Them*. . . . Look right down into the depths of your heart and tell me—Is it not right for you to be kind to them? Even to them? Particularly to them, perhaps? Is it not right that those men who have no kindness within them should get a surplus of it flowing towards them from without?
>
> The whole of me responds with a "Yes!" like a throb of thundering music. It is so shattering that it makes me stagger. The jailer steadies me. . . . Drowsily I think: "Oh, Leonardo, what if we are both only mad after all, my dear?"[15]

As the end of the passage indicates, she fears for her sanity. Next she despairs. But it is then that Christ becomes present to her; she finds in him her security, her "invulnerability." She feels joy, serenity, and is empowered to love.

What I wish to examine here is "Leonardo's" suggestion that de Beausobre be kind to her tormentors and her response to the suggestion—her thundering "Yes." I believe that in this "movement" of her heart, this "impetus towards a particular course of action" we have an example of what New Testament authors would attribute to a spirit. De Beausobre took the impulse and the guidance implied in it to be from God, acted on it, and went on to reflect

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[15]*The Woman*, 86-87.

theologically on its implications for understanding God's redemptive purposes.

In order to evaluate de Beausobre's actions and reflections, the theologian needs to know whether or not she was correct in identifying this impulse as an act of God. The theory of Christian discernment sketched above indicates that such knowledge is ordinarily the province of the community, not of the solitary theologian. The "inner witness," the immediate heart-felt response that the reader may have experienced is not unimportant, I believe. But these individual responses need to be tested against those of others in conversation and against the biblical criteria.

The ideal setting for a test of de Beausobre's judgment would be a local church facing its own trials and persecution, for God has promised to guide his church in times of need, but not necessarily to answer all of its intellectual questions. If de Beausobre's response were presented as a model in such a setting the "witness of the Spirit" in each member would be quite important. Did any or all find something within saying "yes" to her yes? Or was there rather a feeling of unease? Or no response at all? Second, does her response meet the discernment criteria mentioned above? Does it give glory to Christ? Is it consistent with the apostolic witness? Is it productive of a Christ-like character? This last criterion was met in de Beausobre's case, as already recounted—her new-found serenity and ability to love. Her response also led to positive changes among her fellow prisoners and even affected her captors. Finally, if adopted by our hypothetical church, de Beausobre's strategy could be tested in the new situation to see whether it produced equally fitting fruits— *theological experimentation.*

I claim that a church practice, such as making oneself "invulnerable" to persecution, that has grown out of a process of discussion and testing something like the one I have just described is a suitable fact or datum for theological inquiry. My account is perhaps somewhat idealized, but we might presume that the central practices of the church (such as worship of Christ) have been tried and tested in a similar manner, and therefore have *prima facie* value as theological facts.

Returning to the objections raised above, church practices may indeed be arbitrary, but they should not be; the church has been charged with the task of testing the spirits to see whether they are of God. When such (admittedly fallible) discriminations are made, the church and its theologians have a growing knowledge of God based upon memory of God's words and deeds in human history. For instance, in the example cited here we learn a great deal about God's response to evil, about God's love for both victim and villain, and gain some small insight into the meaning of Jesus' death on the cross.

3.3 The Objectivity of Theological Data

Some have claimed that religious belief is supported by religious experience. Others would say that theology can never be supported in such a manner because religious experience is private and subjective. It is exactly to circumvent this dispute that I have chosen to speak of church practices (and other kinds of facts) rather than religious experiences such as de Beausobre's encounter with Christ.

"Objective" and "subjective" are used in a number of ways, most frequently, perhaps, merely to commend or condemn in the intellectual sphere. I suggest, however, that the import of the term "objective" can be captured by means of four concepts: (1) *intersubjectivity* of observations, (2) *validity* and (3) *reliability* of measurements, and (4) *replicability* of experiments. These features characterize the various sciences to various degrees. We shall see that theological facts in the form of church practices partake of these features, not to the same extent as do most of the observations and experiments in the "hard" sciences, but perhaps to the same extent as do those in the human sciences.

1. Intersubjectivity. The problem with "religious experience" as usually understood is that it is private. The practices of the church, however, are public in the required sense; anyone who wishes may observe them. De Beausobre's *experience* of the presence of Christ could not be experienced by others, but her ensuing *practices* were observed by many and through her report have been made available for communal evaluation. The "private" experiences of the congregation contribute to the discernment process, of course, but through conversation and the application of public criteria, a great deal of intersubjective agreement can be reached in such judgments. This is usually not the same level of agreement as that of, say, a group of physicists reading a meter, but is comparable to that of a group of psychologists judging improvement in psychotherapy, or sociologists rating subjects' attitudes.

2. Reliability. The reliability of a measurement is the degree to which application of the measuring procedure yields the same result under similar circumstances. If we use a ruler to measure a desk we should get very nearly the same result each time; this is a highly reliable measurement procedure. However, measurement of intelligence with a standardized I.Q. test is less reliable; the same person may score as much as ten points higher or lower if tested again on a different day.

We might consider the discernment process described above as a "measurement" of the presence of the Holy Spirit. Reliability in this case would mean that different groups of Christians, or the same group at different times, would judge similar practices similarly—for example, worship of Christ (although not of Paul or Mary) is regularly judged to be appropriate and inspired

by the Holy Spirit. It is clear that our *individual* judgments in these matters are fairly unreliable; our sensitivity to the movements of the Spirit is often dulled by inattention, sin, absorption in personal matters. There are no statistics on the reliability of Christian *groups* in making judgments of this sort. Practices do vary considerably from one communion and congregation to another, in the same age, and over time. A case in point is the practice of addressing worship to the Holy Spirit—late to develop and now disappearing in some liturgies.[16] One is forced to conclude either that discernment is not a very reliable procedure, or else that it has not been employed faithfully enough. One fact that tips the scales in favor of the latter conclusion is that groups who practice it explicitly have not readily given it up. One may assume that if the results were highly erratic they would lose interest in the procedure.

3. Validity. The validity of a measurement is the extent to which the procedure actually measures what is intended, rather than some related variable. For example, does the I.Q. test really measure intelligence or only test-taking ability? Validity is not the sort of thing that can be assessed statistically, as can reliability. The judgment that a measure is valid is really a judgment that the theories behind it are sound.

I mentioned above that Jonathan Edwards' theology is important to the "scientific theologian" because he suggests a way in which the theory of discernment can be subsumed under the Christian doctrine of God, and thus become an auxiliary hypothesis in a theological research program. However, another way to describe his contribution is to say that he provides a theoretical justification of the validity of the signs as a measure of the presence of the Holy Spirit. To be (too) brief: love is a manifestation of the Spirit of God because God is love.

4. Replicability. The "standard account" of science for many years has held that the success of science is based on the possibility of repeating experiments. However, a recent study found that scientists only consider replication of others' experiments under unusual circumstances. They actually use the term "replication" to refer to different experiments that confirm earlier conclusions by independent means.[17] This finding suggests that the concept of replicability, as it is actually employed by scientists, is as applicable to theology as it is to any science. The conclusions of one community of Christians can be confirmed independently by others.

Thus I conclude that data for theology of the sort considered here differ in degree from those of the hard sciences in certain respects while matching

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[16]See Wainwright's *Doxology*, 95; 101-103.

[17]Michael Mulkay and G. Nigel Gilbert, "Replication and Mere Replication," *Philosophy of the Social Sciences* 16 (1986): 21-37.

them in others. It is incorrect, therefore, to contrast "objective" scientific facts with "subjective" religion.

I have concentrated in this paper on one type of data—church practices shaped by communal discernment. A more complete account would have to address other types, including historical events, the sacred texts, and so forth. The proper use of the Scriptures as data for theology and the relation between the text and the history behind it have not been addressed here. I suspect, however, that attention to the role of Scripture in shaping church practice will provide a valuable avenue toward the solution of the first problem. The concept of a scientific research program may also be of use in giving a scientific account of both scriptural interpretation and historical investigation.

4. Conclusion

I considered three broad features of science: the shape and logic of its theoretical structures, the means by which its facts come into being, and the objectivity of those facts. I suggested that a systematic presentation of the doctrines of the church could be reconstructed as a scientific research program, supported by its ability to explain facts of several sorts: texts, historical events, and church practices. I then examined the means for development of church practices, namely discernment, which renders them suitable as data for theology. Finally, I assessed the objectivity and (experimental) replicability of such data and found no great difference between theology and science in this regard.