LOGICAL ARGUMENT IN THE WRITINGS

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While studying geometry in tenth grade, I was also reading *Divine Providence* and was struck by and thrilled with the way the Writings used the same pattern of reasoning as that which delighted me in geometry — a statement of a theorem and then a step by step "proof" based on previously stated axioms and previously "proved" statements. I got deep satisfaction both from the geometry and from the Writings. In an adolescent way I felt I knew what was meant by *"nunc licet intellectualiter...."* I was thankful for the privilege of being born into a church with doctrines that are logical.

At Columbia some years later I took a course with Nathan Lazar in the teaching of geometry. He talked a lot about inductive and deductive proof and the fact that a deductive proof is based on axioms and definitions that are accepted without proof. He emphasized his belief that we should never never lead students to doubt the axioms of their religion. (He did not think we should lead them to doubt the axioms of Euclidian geometry either.) It struck me somewhere along the line that a common saying in the New Church that "you cannot prove that there is a God" is in a sense not true. If by "proof" we mean "deductive proof," cannot one, by choosing appropriate axioms and definitions produce such a proof?

In teaching geometry to tenth grade girls, I have emphasized the point that logical thinking is based on axioms. Mathematicians and other scientists like to choose axioms that are fruitful and lead to the simplest, most coherent body of conclusions. We should not allow ourselves to be embarrassed by anyone who asks us to prove any of our religious beliefs. Our religious beliefs, like all beliefs, are based on axioms. I recommend to the girls that when we talk about the New Church to others not in the church, we first find a common basis of agreement, at least one axiom on which to base discussion. If both parties to the discussion agree that there is a God who is Love Itself, we can proceed with the discussion in one way, whereas if the only agreement we can reach is that the physical world exists, we start from there. If we have *no* common axioms, we should be aware that the discussion will get nowhere.

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I have attempted to pass on to my students the thrill I got from seeing deductive reasoning in the Writings, but I have never been satisfied with my examples. I have tried to put statements into the standard two column form of a tenth grade geometry proof with a given set of axioms and definitions. None of these has come out well. My thought has been that I just have not worked at it hard enough and long enough; that, as is so often the case in every day reasoning, the system is too big and complicated to fit on one page. Recently I have wondered whether perhaps this kind of thing is not *meant* to be done, whether the results would be so convincing that they would take away man's freedom. I am inclined to reject this thought since anyone would be free to reject the axioms and therefore the consequent conclusions. But there might be the danger that such proofs might enable the zealous proselytizer to trap his prey by getting him to agree to certain axioms.

In preparing this paper, I found some interesting items in my geometry file under "proof." The following are attempts at theorems and proofs from the Writings. (Unsatisfactory, as I said.)

A. Theorem: One who loves the whole human race would not predestine anyone to hell.

The Lord loves the whole human race.

The Lord would not predestine anyone to hell.

B. Theorem: The Lord is Love Itself.

Love is life. (DLW 1)

The Lord is Life Itself. (DLW 4)

The Lord is Love Itself.

C. Theorem: Man must be in freedom.

1. Man cannot love the Lord unless he is in freedom.	1. Otherwise he is an automaton.
2. Man cannot come into heaven unless he loves the Lord.	2. Definition of heaven.
3. The end of creation is a heaven from the human race.	3. Previously proved theorem.
4. Man must be in freedom.	4. Otherwise he would not come into heaven.

D. Corollary: Man is not permitted to know the future.

1. Man must be in freedom.	1. Proved above.
2. Man would not be in freedom if he were permitted to know the future.	2. would either rebel or be like a puppet.
3. Man is not permitted to know the future.	

E. Theorem: It is a law of the Divine Providence that the operation of Divine Providence should not be evident to man.

1. The end of creation is a heaven from the human race.
2. Man must be reformed and regenerated in order to come into heaven.
3. Man cannot be reformed except in freedom.
4. Man would not be in freedom if he saw the operation of Divine Providence in the face.
5. The operation of Providence should not be evident to man.

F. There are myriads of earths in the Universe with men living on them. (EU 3, 4).

Given: Planets of our solar system resembling our earth.
Stars resembling our sun.
Prove: Planets circling our sun and other stars are inhabited.

1. Planets and stars must have a use.	1. Everything is created for a use (axiom or theorem previously proved).
2. God is Love.	2. Axiom.
3. God created the Universe in order that the human race may exist and thence a heaven wherein the Divine may dwell with men.	3. Love is the desire to make others happy.
4. God is infinite	4. Axiom.
5. Our sun has planets resembling our earth.	5. Given.

6. These planets must have people living on them.	6. Every created thing looks to the end in creation (The planets' use must be more than to shine with their scanty light for the people of our earth.)
7. The stars are suns.	7. Given.
8. These suns must have planets with men upon them, of whom must be formed a heavenly kingdom.	8. Statement 3 & 4. They cannot be for the sake of inhabitants of our earth only, "for what would this be to the Divine, which is infinite, and to which thousands, yea ten thousands of earths all full of inhabitants would be small and scarce anything."

G. Theorem: Man can go to heaven but animals cannot.

1. Man has a spiritual mind as well as a natural mind whereas animals have only a natural mind (DLW 66).
2. The spiritual mind gives man the ability to think about heaven and the Lord and to love Him and thus be conjoined with Him (AC 3747:1-2).
3. Heaven is conjunction with the Lord.
4. Man can go to heaven but animals cannot.

H. Theorem: The purpose of all created things is that there shall be a heaven from the human race.

The stars are created things.

The stars were created for the sake of a heaven from the human race. (i.e. They have planets with inhabitants.) "A rational man must needs be led to conceive that so immense a means...was not constituted for a race of men...from one earth only; for what would this be to the Divine, which is infinite, and to which thousands of earths all full of inhabitants would be small and scarce anything." (EU 3,4)

I. Theorem: The life of religion is to do good.

All good is from the Lord.

Man cannot receive good unless he shuns evils.

Man's first duty is to shun evils.

Conclusion?

L. The Writings are the Internal Sense of the Word.
The Divinity of the Word resides in its internal sense.
The Divinity of the Word is in the Writings.

(W. H. Benade in letter to member of Convention)

I also found a reprint of an address by David Eugene Smith given to the Mathematical Association of America in 1920.[1] This contains material that any New Church mathematics teacher would find useful in developing the "New Church" aspects of his course. Smith was not a New Churchman, but I recognize in his address some of the ideas I got through Dr. C. E. Doering. Pertinent to the present topic are the following paragraphs:

> We lay down certain postulates in geometry; they may, as in the case of parallels, be true or false; mathematics simply says, "if A, then B," — if these postulates are sound, then these conclusions are true. I have often wondered mildly why religion did not do the same, postulating certain statements and then proceeding precisely as in mathematics, — "if A, then B." The postulates, like those of Euclid, might be true or false, but the deductions would be absolute...it seems entirely scientific to assume at least a few that are reasonable. We do not, in elementary mathematics, feel that our postulates must be independent or that they must cover all possible needs; we simply assume what seems to be necessary for the mind of youth, and on that we build.
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> ...for example the theologian might phrase...postulates like this:
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> 1. God exists.
> 2. God's laws exist.

[1] David Eugene Smith, "Religio Mathematici," The *American Mathematical Monthly*, Vol. xxviii, Oct. 1921: 339-349.

3. God's laws are entirely different from ours.
4. There are spaces beyond ours.
5. The soul exists and is eternal.
6. God looks at time as a whole.

> After making out his list of postulates, the theologian might formulate his definitions...or if precise definitions were found unnecessary, as is the case with...mathematical terms, at least some reasonable limitations would be in order.
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> Given postulates and the definitions, I see no reason why a perfectly rigorous set of propositions should not be erected and religion put on a cold, scientific foundation. I should not wish to see this done; I think it would be about as sensible as to build up a scientific, deductive system of love or beauty; but what I mean to say is that if religion is unscientific, it is partly because the world wishes it to be so. [p. 346]

Smith then goes on to show a duality of mathematics and religion, which I think you will find interesting.

In conclusion Smith asks "Does mathematics make a man religious? Does it give him a basis for ethics?...Mathematics makes no such claim. What we may safely assert, however, is this, — that mathematics increases the faith of a man who has faith"(p. 348), and he gives examples to show how this comes about. Each example would make a good topic for this colloquium.

A third item in my file was a Nineteenth of June talk by Rev. Ormond Odhner printed in *New Church Education*, June, 1969.

Mr. Odhner's talk also should be read frequently by every mathematics teacher, as well as by every one who wants to "talk to people about the Church." He says,

> In the end, all religion must be accepted in simple faith. Not one of its tenets can be proved; the Lord has purposely provided that this shall be so, in order that man may enjoy that spiritual freedom on which heaven itself must be built. If it could be proved to you that there really is a God, the same way it can be proved to any sane mind that two and two make four, where would your spiritual freedom be? You would have to believe.[p. 244]

He then goes on to say that there *is* one proof.

> It is what the Writings call the self-evidencing reason of love — a love of believing, a desire to believe in the Lord so strong

that everywhere it finds its own evidence of His existence.

Cynics sneer at it and call it wishful thinking. But who does not indulge in that? It has been conclusively demonstrated, philosophically, that you cannot prove that the natural, physical world exists. Yet many people choose to assume that it does; and because of their "wishful thinking" they have achieved some truly remarkable results in it. Everyone's beliefs, be he scientist or theologian, start with certain basic assumptions, presuppositions, that cannot be proved. There is nothing to apologize for in that. Wishful thinking is ridiculuous only when it makes assumptions that are contrary to logic and rationality. [p. 244-45]

You must read the whole of this beautiful paper, in which Mr. Odhner "proves" on the basis of axioms accepted on the ground of the self-evidencing reason of love, the basic tenets of our beautiful New Church doctrines.

I once heard it said that a proof is any over-whelmingly convincing argument. My first reaction was that some cynic was poking fun at mathematics; but the more I think about it, the more I realize that this *is* the way we use the word "proof." I do not say that we *should* use it that way, but we do. At a mathematics meeting this year I heard about the Law of the Least Astonishment: "A theorem is true if anyone would be astonished if it were false." I thought about that one too, and I am not sure what it means, if anything, but it might have a bearing on the subject.

I would very much appreciate comments. Should we be working on theorems from the Writings? Has anyone examples with more clarity and rigor than mine? Should we use them even if not rigorous? ■

THINKING FROM CORRESPONDENCES

N. J. Berridge

IX. The Ears

1. Hearing and simple obedience

The spirits who correspond to the hearing constitute the province of the ear in the Grand Man. They are in simple obedience. They do not reason about things but believe and do what others tell them. Hence they may be called "obediences." There are many differences