

Bibliography of Christianity and Mathematics, 1st edition 1983

Messiah College PA

A Beka Book Publications

1980 The Christian approach to teaching elementary math

News release. Apr 15, 1980: 1.

A Beka Book Publications; Pensacola Christian College.

*

``Traditional mathematics is Christian mathematics"; ``accuracy is the only law of success in material things."

[GBC]

A Beka Book Publications

1983 Traditional arithmetic for Christian schools

News release. Jan 1983: 1.

A Beka Book Publications; Pensacola Christian College.

*

Stresses absolutes, concrete facts, drill for training; ``set theory has done to ... mathematics what the theory of evolution has done to ... science." [GBC]

Adey, Pamela

1977 Math and Christianity

* ms, Messiah College senior seminar, April 1977. 4p

Sometimes the simplicity of mathematics is obscured by the terminology; we use precise terms, deductive reasoning, and models; a good attitude toward mathematics can improve one's understanding; there is no unanimity among mathematicians about the essentials of mathematics. All of these observations can be made about Christianity as well. [GBC]

Alberda, Willis

1975 What is number?

Pro Rege 3, 3, Mar 1975:2-8, Dordt College

Professor of Mathematics, Dordt College(sa)

*

Number is an irreducible aspect of God's creation, subject to law, with existence independent of human thought, which we apprehend intuitively, and use to God's glory.

[GBC]

Alberda, Willis

1977 Existence in mathematics

In Brabenec [1977a]: 89-93. Revision in **Pro Rege** 7, 3, Mar 1979:11-15.

*

Existence questions in mathematics are answered either by objective construction or subjective idealism. But both of these are reductionistic. Instead, "doing mathematics is a matter of uncovering mathematical entities and the laws which hold for these entities."
[GBC]

Anderson, James F

1941 Mathematics and metaphysical analogy in St. Thomas

Thomist 3, Oct 1941: 564-579

St. Anselm's College, Manchester, NH

ø

Aquinas uses "proportion" and "analogy" interchangeably. The first emphasizes mathematics; the second, metaphysics. Proportions can express metaphysics: matter:form :: essence:existence :: potency:act; conversely, analogy can illuminate mathematics, but it cannot be understood mathematically because it is not univocal; e.g., God's essence is his existence (being, esse), but man's is not. In the face of the problem of the one and the many, metaphysics is "saved" by the principle of analogy. [GBC]

Anderson, Thomas Charles

1966 The object and nature of mathematical science in Aristotle and Thomas Aquinas: a comparison

Milwaukee: Marquette University, dissertation, May 1966, 334 pp

ø

Aquinas built upon Aristotle. The object of mathematics is categorial quantity, unchanging, "in physical matter" but only as perceived by a reasoning being, abstracted from notion and matter, intelligible matter but not sensible matter. Abstraction introduces no error if two criteria are met, which Anderson calls "dependent intelligibility" and "judgment existence" (210). As to the first, "concave" is mathematical but "snub" is not, since the latter, implying as it does a nose, is insufficiently abstracted from sensible matter. As to the second, mathematical objects exist as "imaginative constructions." This implies a radical freedom for the mathematician, subject only to imagination guided by intellect. Existence of mathematical objects is demonstrated by construction, except for those objects which are "supposed": they must be abstracted from sensible particulars. Aquinas would regard the greater universality of mathematics today as belonging not to mathematics but to metaphysics. (281) Applied mathematics like astronomy and music supplies no "ontological principles" so they are not as basic as physics or pure mathematics. Pure mathematics is both practical and speculative, both science and art. It is practical because construction is involved, even though only mental constructs. As Robert Smith says, in mathematics we construct in order to know; in the arts, we know in order to construct. The method of mathematics is abstraction. The continuous is more basic than the discrete because the discrete is gotten by the (possibly mental) act of dividing continuous matter. [GBC]

Anderson, Thomas Charles

1969 Intelligible matter and the objects of mathematics in Aquinas

The New Scholasticism 43, 1969: 555-576

ø

Summary of his arguments in [1966] about Aquinas on ontology of mathematical objects, for which see the above abstract. [GBC]

Anderson, Thomas Charles

1972 Aristotle and Aquinas on the freedom of the mathematician

The Thomist 36, 1972: 231-309

ø

Aquinas develops the radical freedom of mathematics in a way that Aristotle does not. A summary of some arguments from the first and second parts of [1966]. The abstract above of [1966] is only of Part II. [GBC]

Anonymous

1932 An excursion into the realm of mathematics

Fortnightly Review 39, 10, Oct 1932: 217-218

St. Louis, MO

*

In view of the beauty, exactness, and dispassionate judgment of mathematics, it has attracted many theologians, two of whom have recently claimed to have solved the angle trisection problem! [GBC]

Antonides, Harry

1982 Computers: are they conquering the world?

Calvinist Contact, Jul 23, 1982: 10-11.

Researcher, Christian Labour Association of Canada

ø

A balanced appreciation of the computer revolution; computers are neither saviors nor villains, but must be used in a conscientious manner for tasks for which they are suited. [CJ]

Arnold, Earl B

1971 Mathematics and the ministry

In **Mathematics and My Career**, ed. Nura Turner, vii+54p.

Washington, DC: NCTM, 1971: 40-44

Mathematician, Shell Development Co.

ø QA11.T88

Ashley: see Conway & Ashley

Ashton, John, S.J.

1931 Mathematicians and the mysterious universe

Thought, a Quarterly Journal of the Science and Letters 6, Sep 1931: 258-274

ø

Critique of reductionism of James Jeans and Arthur Eddington. Insofar as quantum theory is equipped to deal mathematically with observational facts, it does so ``by abstracting from the more important factors of reality" (265). It abandons determinism, but not causality; physical causes are real, but secondary. Mathematics works best where

there is no life, mind, personality to deal with. Physical spontaneity is a remote analogy of personal freedom, not vice versa. God is a mathematician eminenter, not formally; His causality on atomic motions is indirect. [GBC]

Baker, Trudy: see Jongsma & Baker

Bakst, A

1952 What is mathematics?

Science Counselor 15, Dec 1952: 123-124+

Duquesne University, Pittsburgh, PA

∅

Bancroft, Stephen

1973 A testimony to the wonders of a life in Christ by a Christian mathematician

In: Christian College Consortium [1973]

Associate Professor, Mid-american Nazarene College(a)

* 9p ms

A mathematician who became a Christian after his doctoral work because of another mathematician shows ways in which mathematics was of help in his search and also a hindrance. [GBC]

Barnhart, Jefferson C

1977 **The Alephs**

Hershey, PA: Beta Books, 1977, 123p (850 E. Chocolate Ave)

Attorney at law

*

Extended analogy of [1977] between Christian theology, especially of Francis Schaeffer, and the finite/infinite distinction in mathematics. [GBC]

Barnhart, Jefferson C

1980a **Aleph-nought**

Hershey, PA: Beta Books, 1980, 107p

*

Further extends analogy of [1977] and [1980a], emphasizing Old and New Testament history. [GBC]

Barnhart, Jefferson C

1980b **Aleph-one**

Hershey, PA: Beta Books, 1980, 246p

*

Extends analogy of theology to physics and psychology. [GBC]

Barnhart, Jefferson C

t.a. The alephs

Bible Science Newsletter, to appear

* ms 20 p

Summarizes Barnhart [1977]. [GBC]

Barrett, Robert P

n.d. Math anxiety and the Bible

Assistant Professor of Mathematics and Physics, Messiah College

* ms, n.d.

A Christian teacher cares, helps, counsels, discovers talent, builds confidence, refuses to label or to allow self-defeating talk, provides adequate practice, states clear expectations, does not hide his own developmental processes. In this way he combats mathematics anxiety. [GBC]

Baylis, Bayard O Jr

1977 The foundations of mathematics and the mathematics curriculum

In Brabenec [1977a]: 151-160

Associate Professor of Mathematics, The King's College(sa)

*

A mathematics appreciation course at The King's College with four sections for majors, social sciences, natural science, and education and humanities meet with partial success; then the majors were given 5 credit hours of integrative courses instead; the change is too new to evaluate. [GBC]

Benson, Russell V

n.d. A discussion of Kuyk's Complementarity in Mathematics, Part II

Professor, Mathematics, California State, Fullerton, CA (sa)

* ms 5p

Treats Part II of Kuyk [1977]. Material included in Benson [1981]. [GBC]

Benson, Russell V

1978 Review of Lucas and Washburn [1977]

Journal of the American Scientific Affiliation 30, 4, Dec 1978: 189-191

*

Lucas and Washburn have done bad science and bad theology. [GBC]

Benson, Russell V

1981 Theology and the philosophy of mathematics

In Brabenec [1981]:113-118

*

Theology has taken from mathematics (e.g. process theology). It's time to allow a biblical theology to help

shape our philosophy of mathematics in its unity (a la Thomas F. Torrance) and diversity (a la Kuyk). [GBC]

Benzécri, Jean P

1968 Philosophie thomiste et connaissance mathématique de la nature [Thomistic philosophy and mathematical knowledge of nature]

Miscellanea André Combes 3, 1968: 547-565

Roma: Libreria editrice della pontificia università lateranæ, 1967-68. 3v: 191,497,571p (Lateranum, ns

vol 29-30)
or

Bernhart, Frank R

1979 Are mathematical objects ontologically real?: ideas and suggestions

In Brabenec [1979]:79-89

Professor of Mathematics, Rochester Institute of Technology

*

Argues for an empirical realism which is rooted in early learning, a mingling of the senses, and a personal knowing. Accepts "ritual" knowing. Thereby beats a path between formalism which only requires passive knowing and constructivism which requires in-principle constructions or active knowing. [GBC]

Boonstra, Paul H

1971 New mathematics curriculum guide

Grand Rapids: National Union of Christian Schools [now, Christian Schools International], 1971. 30p

Professor of Mathematics Education, Calvin College (a)

*

Update of Brondsema [1958]. Content that of the "new math." Same general outlook stated, though the expectation that the study of mathematics will enable children to develop concepts of the Christian life in other areas has been dropped. [CJ]

Boonstra, Paul H & Zwier, Paul J

1979 Mathematics: the science of number and space

Grand Rapids, MI: Christian Schools International, May 1, 1979, 14p

* ms

An outline of a Christian view of the nature of mathematics is used to arrive at some conclusions about the content and pedagogy of pre-college mathematics; parts similar to Zwier [1979]. Revised edition published as Boonstra et al. [1982]. [CJ]

Boonstra, Paul H; Zwier, Paul J; Van Brummelen, Harro W; Veldkamp, Arnold H;
& Triezenberg, Henry J

1982 Mathematics: the science of number and space

Principles to Practice, M1-M7

Grand Rapids, MI: Christian Schools International, 1982

*

Composite article drawn mainly from Boonstra & Zwier [1979] with additions and changes made to reflect the position of Van Brummelen [1978]. [CJ]

Brabenec, Robert L

1971 Is there a Christian approach to mathematics?

Chairman & Professor of Mathematics, Wheaton College(sa)

* ms 22p faith/learning 1971

Mathematics, although affected by sin, is congenial to "absolute truth." The creative

mathematician ``thinks God's thoughts after him." Relates parables to mathematical analogies, and infinity to eternity. [GBC]

Brabenec, Robert L, ed.

1977a A Christian perspective on the foundations of mathematics

Proceedings of a Conference Held at Wheaton College in April 1977 Wheaton, IL:
Wheaton College,

1977, 176p

* QA7.W53 1977

Proceedings of first biennial conference on mathematics and Christianity. Papers by Perciante, Spradley, Holmes, Hatfield, Meyer, Chase, Hampton, Alberda, Iverson, Warner, Heie, Baylis, A W Roberts cited here. Two others by Detlefsen.

Brabenec, Robert L

1977b The historical shaping of the foundations of mathematics

In Brabenec [1977a]:3-14

*

Opening speech at first Wheaton conference on Christianity and mathematics; contains popular sketch of the development of mathematical foundations from ancient Greek times into the nineteenth century, focusing on the rise of non-Euclidean geometry and the rigorization of the calculus; several implications of these developments stated for later research in foundations of mathematics. [CJ]

Brabenec, Robert L

1978 The impact of three mathematical discoveries on human knowledge

Journal of the American Scientific Affiliation 30, 1, Mar 1978:2-6

*

Simplified exposition of three great mathematical developments during the last two centuries--non-Euclidean geometry, transfinite set theory, and Gödel's incompleteness theorem; draws several conclusions (following Kline) regarding the influence of these developments on mathematics, philosophy of mathematics, and intellectual thought in general; several paragraphs relate Christianity to these developments (infinity in mathematics vs. infinity and eternity in theology; the axiomatic structure of Christ's parables and of Paul's proofs that Jesus is the Christ). [CJ]

Brabenec, Robert L, ed.

1979 A Second Conference on the Foundations of Mathematics

Proceedings of the Conference Held at Wheaton College, May 30-June 2, 1979

* QA7.W53 1979

Papers by Heie, Chase, Bernhart, Verno (three), Laatsch, Zwier cited here. Others by Barker, Jongsma, Friewald, Cutland, Snook, Wood.

Brabenec, Robert L, ed.

1981 A Third Conference on Mathematics from a Christian Perspective

Proceedings of the Conference Held at Wheaton College, June 3-6, 1981, 189p

* QA7.W53 1981

Papers by Poythress (two), deVries (two), Zwier (two), Heie, Chase, Montzingo, Neuhauser, Benson, Snook, Hauger cited here. Others by Niver, Pereia, Stout.

Brabenec, Robert L, ed.

1983a **A Fourth Conference on Mathematics from a Christian Perspective**

Proceedings of the Conference Held at Wheaton College, May 25-28, 1983

ø QA7.W53 1983

Papers by Brabenec, Dubbey, Heie, Kuyk (two), Murdock, Thomas, Zwier cited here. Others by Jongsma, Van Iwaarden, and others.

Brabenec, Robert L

1983b Using mathematical concepts to illustrate Scriptural and spiritual ideas

In Brabenec [1983a]

* ms 8p

Addresses the following topics: infinite limits, models for axiom systems, paradoxes of set theory, properties of axiom systems, laws of logic, isomorphisms, and what constitutes a valid proof. [GBC]

Brams, Steven J

1980 **Biblical games: strategic analysis of stories in the Old Testament**

Cambridge, MA: M.I.T. Press, 1980

ø BS1171.2.B7 1980

Applications of game theory arranged in order of difficulty of analysis, some with God as one of the players.

[GBC]

Brink, Arnold

1949 Mathematics and Calvinism

The Banner 84, 2708, May 13, 1949: 591

*

Mathematical facts are religiously neutral; Christianity affects the broader context of mathematics, especially the outlook and attitude of the mathematician. Mathematics studies the "basic structure of the universe." Mathematical truths hold due to God's providence. [CJ]

Brondsema, John; Hoeksema, Klaas; Lanning, Arthur; Likkel, Gerrit; Vanden Hock, John

1958 Mathematics Curriculum Guide

Grand Rapids, MI: National Union of Christian Schools [now Christian Schools International], 38

p+biblio.

ø

Revised version of National Union of Christian Schools [1953], though still written from the perspective of "old math"; for later revisions see Boonstra [1971] and Boonstra et al. [1982]. "A deliberate attempt to help the teacher present mathematics from the Christian

viewpoint." Relates mathematical ideas to God as their source. Children should learn to praise the Creator through their study of mathematics. [CJ]

Brown, Robert McAfee
1981 Oral Roberts and the 900-foot Jesus
The Christian Century, Apr 22, 1981:450-452

*

Tongue-in-cheek use of Pythagorean Theorem and proportions to discredit "the credibility of a claim from the oral tradition." [GBC]

Brown, Stephen Ira & Lukinsky, Joseph Sandler
1970 Morality and the teaching of mathematics
Ethical Education 1, 2, Summer 1970: 2,4,5,12
Harvard & SUNY/Buffalo

*

Cautions against simplistic introduction of ethical concerns into mathematics, such as algebra word problems about ethical issues. Suggests some ways in which mathematics courses can broaden ethical perspectives. [GBC]

Bube, Richard H
1956 The relevance of the quantum principle of complementarity to apparent basic paradoxes in Christian theology
Journal of the American Scientific Affiliation 8, 4, Dec 1956:4-7
Crystallographer

*

Man's responsibility and God's sovereignty, justice and love, free will and predestination are complementary. Doubts that hidden variables will be discovered "which permit both a causal and a space-and-time description of nature, as Einstein had hoped." Meanwhile science and theology are on an equal footing of humility before the complexity of truth. [GBC]

Bube, Richard H
1968 **The encounter between Christianity and science**
Grand Rapids, MI: Wm Eerdmans, 1968, 318 pp.
ø BL240.2.B8

One section relevant to mathematics: pp. 191 ff. Does quantum theory call for a new logic? No. Does common language serve to describe physics? No. Two-valued logic and special language, with which we also describe our faith, are useful in physics. [GBC]

Burrell, David, C.S.C.
1966 Classification, mathematics, and metaphysics; a commentary on St. Thomas Aquinas's exposition of Boethius's
On the Trinity
Modern Schoolman 44, Nov 1966: 13-34, 47-48
University of Notre Dame

ø

Aquinas knows of two degrees of abstraction: mathematics (form from matter) and natural science (whole from part). Metaphysics has nothing to do with abstraction, but begins with a negative judgment of separation, and "answers to something of the divine in man," (34) is ineffable, beyond language. You gain nothing by using metaphor to move the imprecision from the metaphysics itself to the language used to describe it. Mathematical objects are known insofar as they can be constructed; mathematics must never transcend the imagination. This assures, not restricts, the freedom of mathematics. Cites Whitehead with approval: "the generality of mathematics is the most complete generality consistent with ... our metaphysical situation" (17). [GBC]

Byrne, Herbert W

1961 Mathematics

In Chapter 11, The Christian philosophy of natural sciences, of

A Christian Approach to Education

Grand Rapids, MI: Zondervan, 1961: 305

* 377/b995/c

Brief statement of the classic position that mathematics "reveals the wisdom of God and that he is a God of order and system." Mathematical thought thinks God's thoughts after him. [CJ]

Campbell, Paul Jude

1973 The relation of my profession to my religious faith and moral concern

St. Olaf College Interim lecture series, Jan 16, 1973

Associate Professor, Beloit College (sa)

*

Even the mathematical order of the world is not a "bare fact." Modern education substitutes "facts" for values. Think of the ethical dimensions of the applications to which mathematics is put. Also, "active, autonomous learning" is different from that which is "externally coerced." "It's the difference between midwifery and abortion." [GBC]

Carnes, John R

1976 Metamathematics and dogmatic theology

Scottish Journal of Theology 29, 6, 1976:501-516

or

Dogmatic theology is a purely intellectual discipline, whose content is determined by official church creed, but the task as in mathematics is to work within that axiomatic framework--exploring the meanings of the terms, examining relationships among the axioms, and drawing inferences related to the substance of the faith. [GBC]

Cassel, D Wayne

1973 Are there any truths in mathematics?

In: Christian College Consortium [1973]

Chairman & Professor of Mathematics, Messiah College (sa)

* 7p ms

Formalism makes no truth claims about mathematics, hence realism seems to be a better view of mathematics for a Christian. Mathematics is meant for enjoyment, not just as a tool, even if as a tool it helps us to understand. [GBC]

Catalano, Joseph S

1969 Aristotle and Cantor: on the mathematical infinite

Modern Schoolman 46, Mar 1969: 264-267

Newark State College

ø

Infinity exists in sensible things (especially time) as potentially infinite divisibility and actually eternal past

time, but there is no actual infinite number, according to Aristotle, for whom potency

``refers to a real capacity

in matter ... never ... a logical possibility"; he ``did not either accept the potential infinite or reject the actual

infinite ...(since he) had no knowledge of the contemporary meaning of these terms"

(265). [GBC]

Chase, Gene Barry

197? A mathematician's psalm

Christian Poetry Journal

Associate Professor of Mathematics and Computer Science, Messiah College (a)

*

Marvels that continuity, exponential growth, and Weber-Fechner law model good as well as beautiful aspects of creation. [GBC]

Chase, Gene Barry

1977 Skolem's paradox and the predestination/free-will discussion

In Brabenec [1977a]:75-82

*

Draws analogy between the discussion within theology between predestination and free will and that within

mathematics between notions relativized to different models. Argues that both

theological positions are admissible because of man's limitations in modeling the reality

that both partially represent. [GBC]

Chase, Gene Barry

1979 On Kuyk's Complementarity in Mathematics

In Brabenec [1979]: 75-78

*

Relates Kuyk's notion of complementarity in mathematics to similar notions in

linguistics, in philosophy of science, and in information-processing models of cognition.

Adopts complementarist viewpoint. [GBC]

Chase, Gene Barry
1981 An integration of integrations of mathematics and Christianity
In Brabenec [1981]: 79-90
*

Response to Heie [1981]. Overview of approaches to integrate Christianity and mathematics. Further defense of complementarist viewpoint. [GBC]

Chase, Gene Barry
1987 Complementarity as a Christian philosophy of mathematics
In ...
* 18 pp

Suggests four postulates that shape a Christian philosophy of mathematics, postulates which in turn support a complementarist approach. Expansion of 1981 paper. [GBC]

Clarke, Christopher J S
1974 Eternal life
Theoria to Theory 8, 1974: 317-332
Lecturer in Mathematics, Univ. of York, England
*

Between determinism and free will ``I have attempted the first steps in constructing an intermediate status of 'spontaneity,' which exploits the mathematics of infinite vector spaces to allow the existence of a non-temporal causative factor which moulds the progress of events in time so that they acquire short-term significance but long-term randomness." (Quotation from Clark's ``The hinterland between large and small," in Encyclopedia of Ignorance.) [GBC]

Collingwood, Francis J
1964 Intelligible matter in contemporary science
American Catholic Philosophical Association Proceedings 38, 1964: 109-118
ø

Modern physics uses mathematics to explain physical laws, not as a metaphysical, atomistic foundation. A Scholastic's appreciation of the moderation of Pierre Duhem in the Aim and Structure of Physical Theory (Princeton University Press, 1954). [GBC]

Conway, A W
1945 Whither mathematics?
Studies 34, Jun 1945: 158-162
Educational Company of Ireland, Dublin, Ireland
ø

Conway, Pierre H, O.P. & Ashley, Benedict H, O.P.
1959 The liberal arts in St. Thomas Aquinas
The Thomist 22, Oct 1959: 460-532
Professors of Philosophy, Pontifical Athenium Angelicum, Rome, and College of St. Francis Xavier

ø

Defends the teaching sequence: logic, mathematics, natural science, moral science, metaphysics; defends axiomatic set theory as a pedagogical benefit; decries logicism, formalism, nominalism, and intuitionism. [GBC]

Crowley, Helen M & Hinchey, Margaret M
1929 Secondary mathematics and the cardinal principles
Catholic Educational Review 27, Dec 1929: 611-613

ø

The practical has overtaken the cultural and disciplinary functions of mathematics in the curriculum, but since so few use algebra and geometry in life, both should be electives. [GBC]

Dahlstrom, Daniel O; Ozar, David T; & Sweeny, Leo, S.J., ed.
1981 **Infinity**.
American Catholic Philosophical Association Proceedings 55, 1981 special issue

ø

Articles by Murdoch, Sweeney, and others are cited separately. [GBC]

DeSilva, N
1979 Mathematics and the physical world: a reconsideration
Laval Theologique et Philosophique 35, Feb 1979: 55-72

ø

DeVries, Paul
1981a A response to Professor Poythress's 'Science as allegory'
In Brabenec [1981]:25-28
Department of Philosophy, Wheaton College

*

Raises questions about Poythress [1981]: is it the universe or science that is God's poem? Can everything be a metaphor? Science is descriptive, not allegorical, and scientific truth, though not gospel truth, is not merely fruitful analogies. Although scientific language imports personal terms, it is "methodologically limited to non-personal explanations." [GBC]

DeVries, Paul
1981b Some contributions of Stanley Jaki to an understanding of mathematics
In Brabenec [1981]:139-144

*

Jaki distinguishes between viewing the world as organism, as mechanism, or as mathematical patterns and laws. The last is most adequate. Elsewhere, science must assume structure and purpose exist. Scientific theory is the creation of the mind, but not solely of reason because the world is contingent on God, who is distinct from His creation. The success of science should lend credibility to its theological roots. [GBC]

Dilworth, Robert P

1956 The paradoxes of mathematics

Journal of the American Scientific Affiliation 8, 2, June 1956: 3-5

Professor of Mathematics, California Institute of Technology(sa)

*

Since the precise field of mathematics has paradoxes, it is likely that other fields like philosophy or theology will too. Everyone can learn from the standards of deduction that mathematics illustrates. Cites Andre Weil, "God exists since mathematics is consistent and the Devil exists since we cannot prove it." [GBC]

Dobbins, J Gregory

1972 The poetry of logical ideas in God's truth

ms 22p faith/learning 1972

Chairman & Professor of Mathematics, Nazarene College(ai)

*

Mathematics seen "as a single aspect of the whole of God's truth"; it has its own character, but it is related both to science and art, and may be considered a "scientific art." In its interconnections, mathematics shows "the unity of God's truth." Many analogies drawn to scripture. [CJ]

Donkin, C T B

1931 Mathematician's Eden

G. K.'s Weekly 12, Mar 7, 1931: 408-409

[later, **Weekly Review**, London, England]

ø

Dooyeweerd, Herman

1955 **A new critique of theoretical thought**

Philadelphia: Presbyterian & Reformed Pub., 1953, 1955, 1957, 1958. ii:62-66; 98-99n.

[on infinity]; 76-106;

163-165; 168-175; 337-354; 383-386; 425; 452-459; iv:154. ii:56-66 reprinted as "Logic as a meaningful structure"

in Readings in Logic, ed. Roland Joseph Leo Houde. Dubuque: Wm C Brown Co., 1958

ø BD168.D613x

Sees mathematics as dealing with several foundational aspects of created reality, the numerical, spatial, and kinematic dimensions. Each aspect has its own irreducible core meaning but in its fullest meaning also exhibits certain moments that reflect the other aspects. Denies reductionism without compartmentalizing mathematics. Philosophy of mathematics as integral part of his overall system of Christian philosophy. Seminal viewpoint underlying much later thinking by Reformed Christians on philosophy of mathematics. [CJ]

Doyle, John J

1953 John of St. Thomas and mathematical logic

New Scholasticism 27, 1, Jan 1953: 3-38

Professor of Philosophy, Marian College

∅

Argues that in the Ars Logica of John of St. Thomas implication is equated with disjunction ($p \rightarrow q = \sim p \vee q$), hence anticipating modern mathematical logic. As a consequence, a true proposition is implied by any proposition, and hence there need be no connection between premises and their conclusion beyond their truth values. [GBC]

Dreibelbis, Mary Lynne

1982 Mathematics versus Christianity: similarities/differences

* ms, Messiah College senior seminar, Mar 22, 1982, 8pp

``God has often been pushed out of the picture by brilliant men" with their ``earth-bound logic." A personal synthesis. [GBC]

Dubbey, John Michael

1980 A Christian theory of knowledge

Theological Renewal 15, June 1980:19-25

Ed. Thomas Smail, Foundation Trust, 3a High Street, Esher, Surrey, KT10 9RP England
Head, Dept. of Mathematical Sciences and Computing, Polytechnic of the South Bank,
London

*

The epistemology of Prov. 30:5 is consistent with the method of Lakatos in the philosophy of science: guesses successively improved by refutations. Faith, a willingness to act, complements reason. Knowledge and truth are revealed by the word of God.

[GBC]

Dubbey, John Michael

1983 The role of creativity in mathematics

In Brabenec [1983a]

* ms 10p

Creativity in mathematics shows man acting in the image of God, is essential for mathematics to develop, and has pedagogical implications which have spiritual counterparts in the development of devotional life. Creativity also provides social enrichment. [GBC]

Dumitriu, Antón

1974 The logico-mathematical antinomies: contemporary and Scholastic solutions

International Philosophical Quarterly 14, Sep 1974: 309-328

Center of Logic, Rumanian Academy

∅

Insofar as contemporary solutions to the paradoxes of self-reference are logical and not conventional, they are Scholastic solutions. Today they are solved by type theory for the logical/linguistic ones, and by metalanguage for semantic ones. The Scholastics resolved them by temporal logic, disallowing a part to be defined by the whole of which it is a part, claiming that mental propositions attribute truth to other things, but not to mental states, claiming that they say nothing. [GBC]

Dumitriu, Antón

1981 The logical mechanisms of mathematics

International Philosophical Quarterly 21, Dec 1981: 405-417

ø

Agrees with Hilary Putnam that mathematics doesn't need a foundation. Existence of mathematical objects is not a philosophical problem. In mathematics we invent/create objects by defining functions, and then prove things about those functions. [GBC]

Dunn, Samuel L

1972 Toward a Christian philosophy of probabilism

Professor of Mathematics, Seattle Pacific University(a)

* ms 8p 8/25/72

Dykes, Thomas E

1977 Mathematics and the Christian faith

* ms, Messiah College senior seminar, May 1977. 4p

Wanting a relationship between mathematics and religion is as old as mathematics itself. Mathematics the ideal is shown in symmetry and in deductive reasoning. Doing mathematics is a talent to use for Christ. [GBC]

Eves, Howard Whitley [1911-]

1969 **In Mathematical Circles**

Prindle, Weber & Schmidt: 1969

Christian vs. unchristian: i:105; Work unfit for a Christian: i:105

Mathematics and theology: ii:87-88

Retired Professor of Mathematics, University of Maine (a)

ø QA99.E83

Quotations drawn from various sources designed to spice up mathematics lectures. For example, cites F. de Sua (1956) on mathematics as the only religion which can prove that it is such. [GBC]

Eves, Howard Whitley [1911-]

1971 **Mathematical Circles Revisited**

Prindle, Weber & Schmidt: 1971

The mathematician and the fundamentalist: 126+; Hardy tries to outsmart God: 155+;

Another attempt by

Hardy to outsmart God: 156

ø QA99.E83 1971

Continuation of [1969] plan. For example, quotes G. H. Hardy in his comments on his approach to atheism.

[GBC]

Faber, Roger

1969 In our own image

The Christian and Science; Proceedings of a Symposium Held at Calvin College, ed.

Vernon J

Ehlers & R D Griffioen.
Grand Rapids: Calvin College, Sept 1969; 65-74
Physicist, Lake Forest College, Lake Forest, IL
*

Discusses issue of artificial intelligence; muses about the possibility of creating computers or robots having certain levels of spiritual capacities. [CJ]

Fakkema, Mark
1940? The Christian way of teaching arithmetic
Christian Philosophy and its Educational Implications
Book 3, Chapter 5: 78-81
Chicago, IL: National Association of Christian Schools, ca. 1940
Educational Director of National Association of Christian Schools
*

True motivation for learning mathematics is man's desire to be God's image-bearer, to do as God "the Master Mathematician," to discover abstract concepts that God has thought before him. Mathematics reveals the eternal existence and various attributes of God. Redeemed man alone can honor God through mathematics. [CJ]

Faramelli, Norman J
1972 Computers and modeling; reflections on possibilities, limits and mythologies
Soundings 55, 2, Summer 1972: 178-199
*

There are dangers in modeling values: quantification can be a "category mistake." Mathematics does not allow for ambiguity and poetic symbolism. Cites examples of dangers to Christian ethics. [GBC]

Fay, Thomas A
1974 The metaphysical foundations of axiomatic mathematics: a Thomistic inquiry
Aquinas 18, 1974: 293-309
ø

Felton, Sandra
1978 Seeing God in math class
Christian Teacher 15, 5, Nov-Dec 1978: 16-17
Teacher, Miami Christian School, Miami, FL
*

Geometric and arithmetic patterns, and infinity are examples of how to show God's handiwork in mathematics. [GBC]

Fritz, Henry J
1955 Mathematics and the humanities
Catholic Educator 26, Oct 1955: 130-131, 144
Marycliffe Novitiate, Glencoe MO
ø

The content of mathematics is practical; its method is good mental training. It points to

the Creator in its orderly procedure, in its unitary principles, and in its clarity (clear because abstract). However, it is a danger to the brilliant: "The very light shed by mathematics makes them blind to any other light." (131) [GBC]

Gaebelein, Frank Ely

1954 The hardest subject to integrate?

The Pattern of God's Truth: Problems of Integration in Christian Education

Chicago: Moody Press, 1972: 57-64

* LC368.G3 (NY: Oxford U Pr, 1954)

Mathematics shows the order and predictability of nature. There is an epistemological tie with faith: the axioms of mathematics are to be clearer than argument could provide. Cites Pascal with approval. [GBC]

Garber, Steve

1979 Mathematics--meet your Maker!

* ms, Messiah College senior seminar, 1979. 6p

Mathematics is only a simple part of a complex world, but not an isolated part. The axiomatic method, for example, pervades all disciplines. "Mathematics is in no position to evaluate the Christian faith." Never force "Christianity to sink or swim in the ocean of what rational men call logic." [GBC]

Gauch, Hugh G Jr

1969 The structure and nature of mathematics

Ecology and Systematics, Cornell University

* ms 16p 11/4/69

Mathematics is the science of the abstract; it builds on a reality that is God-given, an ability to communicate between intelligent beings, and a metalanguage that gives meaning to the symbols. A formalist approach. [GBC]

Gaydos, Francis A, C.M.

1954 Survey course in mathematics for minor seminarians

National Catholic Educational Association Bulletin 51, Aug 1954: 146-148

Professor of Mathematics, St. Louis Preparatory Seminary, St. Louis MO

ø

Calculus should be used for a mathematics appreciation course for seminary students, for it is "the last, the broadest, the most significant branch of mathematics." (146) Based on classroom experience, a workbook should be used. [GBC]

Gilbert, P F

1956 Mathematics in the seminary

Nuntious Aulæ 38, Jul 1956: 116-127

St. Charles Seminary, Carthagena, Ohio

ø

Gill, H V

1934 Whither science?

Catholic Mind 32, Apr 22, 1934: 145-152

*

Sides with Planck against Jeans and Eddington: quantum theory does not eliminate causality. Experiments and logic are not enough to deal with metaphysical questions. [GBC]

Gitt, Werner

1980 Mathematik und Bibel

Factum, Feb 1980: 8-11

ø

Greenwood, Thomas

1956a L'esistence des concepts mathématiques

Gregorianum 37, 1956: 629-633

University of Montreal

ø

Greenwood, Thomas

1956b Orthodoxy of the transfinite numbers

The Thomist 19, Jul 1956: 368-379

ø

Aristotle's theses on number and quantity can be reinterpreted to agree with the notion of transfinite numbers because the notion need not be based on an actual infinite, if defined operationally, hence qualitatively. The arithmetic of transfinites is a consistent algebra which one can study as an uninterpreted system. Set theoretic paradoxes can be resolved or ignored. Aquinas says that the discrete essence of number is expressed by its relation to the unit. 1:1 correspondences needed in transfinites use the unit, but as a means of comparison, not as a term of comparison. Transfinites reflect possibilities of divine creation. [GBC]

Groen, P

1962 Enige opmerkingen over ruimte, tijd en dimensies [Some remarks about space, time, and dimensions]

Geloof en Wetenschap [Faith and Knowledge] 60, 1962: 209-215, 255-257

ø cit.:Kempff [1982]

Grove, Alan

1982 The relationship between mathematics and Christianity

* ms, Messiah College senior seminar, Mar 22, 1982, 6pp

Mathematics shows that there is more to reality than sense data. Mathematics can be a

tool to illuminate the
primary relationship of man and God. [GBC]

Hampton, Charles R
1977 Epistemology to ontology
In Brabenec [1977]: 83-88
Associate Professor, College of Wooster(sa)
*

Criticizes logicism, formalism, and intuitionism from a Christian perspective, suggesting
that we draw from
each; arrives at a modified Platonism. [GBC]

Hannum, Steven E
1973 Models in science and Christianity
Aurora College
ms 9p faith/learning 8/24/73
*

Cautions about the limitations of models in mathematics and in Christianity. The right
question for a model is
accuracy, not truth. [GBC]

Hartzler, H Harold
1949 The meaning of mathematics
American Scientific Affiliation Bulletin 1 , 1, 1949: 13-19 (now Journal of the
American Scientific Affiliation)
Retired Professor, Goshen College(sa)
*

Mathematics ``is an invention of the human mind" but ``even the thoughts of
mathematicians have their
ultimate source in God." To call God a mathematician is ``a serious blunder" which
``belittle[s] the idea of
God." [GBC]

Harvey, Jodie
1977 Math and Christianity: a fundamental approach
* ms, Messiah College senior seminar, May 1977, 4p
Deduction: axiomatic clarity in the use of terms can avoid disagreements based on words,
as Pascal claimed.
Christians should think through the consequences of their faith. Induction: experience
teaches. Both the
mathematician and the Christian grow in their comprehension, both using what they don't
know, however
paradoxical, to spur them on. [GBC]

Hatfield, Charles
1965 Probability and God's providence

Journal of the American Scientific Affiliation 17, 1, Mar 1965: 16-22

Professor of Mathematics, U. of Missouri at Rolla(sa)

*

Natural laws are created by God. Pollard [Chance and Providence] goes too far in saying that providence

requires probability. The a priori and a posteriori definitions of probability are typical of the complementarity

necessary in science. [GBC]

Hatfield, Charles

1972 Mathematics

Christ and the Modern Mind, ed. Robert W. Smith

Downers Grove, IL: Inter-varsity Press, 1972: 285-294

* BR115.C8 C44

Mathematics is a language, pursued for its beauty and its ability to solve problems--a wonderful gift to discern

the handiwork of God. [GBC]

Hatfield, Charles

1977 Of men, models, and mathematics

In Brabenec [1977a]: 49-61

*

Pure mathematics turns out to be useful. Mathematical imagination is an inexhaustible reservoir of models.

Models depend on likeness, not identity: not "is" but "as." Mathematics succeeds because its aims are

modest. The creation of man, the parables of Jesus, and the incarnation are examples of God as the great

modeler. [GBC]

Hatfield, Charles

n.d. Mathematics and Christian theology

* ms n.d.

Bases relationship on creation mandate, and is therefore not as surprised as a non-christian would be that

mathematics fits reality so well. Gives examples of modeling like the parables and the Old Testament

tabernacle to illustrate one aspect of the relationship. [GBC]

Hauger, Garnet

1981 Probabilistic ways of thinking

In Brabenec [1981]: 133-138

Mathematics professor, Spring Arbor College

*

How can probability model a world created by God? Because it only works macroscopically? Because God

intervenes to alter probabilities? A Christian should act responsibly even against the odds. [GBC]

Heidema, J

1973 Wetsidee en Wiskunde [Cosmomic Idea and Mathematics]

Suid-afrikaanse Vereniging vir die Bevordering van Christelike Wetenskap [South African Association for the

Advancement of Christian Scholarship]. **Bulletin** [van die SAVCW] **39**, 1973: 3-25.

ø

Attempts to prove views of Dooyeweerd and Strauss on nature of mathematics are nothing but an out-dated

quasi-Aristotelianism. Holds to the potential infinite. Written as a dialogue between 'Mathematician,'

'Dooyeweerd,' 'Aristotle,' and 'Strauss.' [DFMS]

Heie, Harold

1977 Getting their interest--initiating students into the study of foundational issues in mathematics

In Brabenec [1977a]: 141-149

Vice President, Academic Affairs, Messiah College (a)

*

Syllabus and rationale for integrative seminar, with the method being to initiate students into autonomous

learning, using as bait readings that begged the asking of more questions than they answered. [GBC]

Heie, Harold

1979 Implications of recent developments in philosophy of science for an axiological approach to foundations of mathematics

In Brabenec [1979]: 61-68

*

The Kuhn-Popper debate raises questions about criteria for criticizing a scientific paradigm, hence questions of

value. Aesthetic and problem-solving benefits ``reflect underlying value commitments."

Precursor to 1981

paper. [GBC]

Heie, Harold

1980? Philosophy of mathematics and interfaces with Christian belief

* 26p ms 1980?

Mathematics accommodates but does not necessitate ontological commitments; it does not need to

use language referentially but can have ``meaning as use" per Wittgenstein. Mathematics embraces two

values: the instrumental and the aesthetic (which for axioms includes completeness,

independence,
consistency)--which taken together define what mathematicians do and have done, and
shed light on
formalism, intuitionism and logicism. With values as a starting point, proposes a new
way of looking at the
relationship between mathematics and Christianity, developed further in his next paper.
[GBC]

Heie, Harold

1981 Mathematics: freedom within bounds

In Brabenec [1981]: 47-78

*

``Freedom within bounds" describes both how a working mathematician functions and
how ethics functions.

Thus the objectivity of mathematics rests, in Karl Popper's terms, ``upon the
criticizability of its arguments."

Chase [1980, t.a.] responds. [GBC]

Heie, Harold

1983 One possible outline for a first undergraduate course in the philosophy of
mathematics

In Brabenec [1983a]

* ms 22p

Detailed elaboration of suggestion made in [1977]. [GBC]

Heisey, Stuart

1982 About mathematics and the Christian faith

* ms, Messiah College senior seminar, Mar 22, 1982, 6pp

Christianity does not need mathematics. Christianity contains truths; mathematics doesn't.
In Christianity,

there are values; in mathematics, none. Mathematics can illuminate Christianity in the
areas of reasoning and

modeling in ways that Christianity alone cannot do. [GBC]

Hengstman, Albert

1970 Mathematics in the Christian school

Christian Home and School, Jan 1970: 13,27

*

Christians can see God's greatness in mathematics. They know that mathematical results
are certain because

of God's laws and faithfulness to his creation. Doing mathematics Christianly focuses on
God's role and

adopts an attitude of humility. Mathematics, together with the rest of the curriculum,
must form one ``family

of knowledge." [CJ]

Henry, Granville C Jr

1965 Aspects of the influence of mathematics on contemporary theology

Ph.D. dissertation, Claremont Graduate School (Dissertation Abstracts 28, 10, p. 4251), 1965

Chairman, Claremont Men's College(a)

ø

Preliminary study that evolved into the 1976 book. Develops in more detail than any of the following the

influence of mathematics on the later positions of Husserl and Wittgenstein. Calls his position "mathematio-

existentialism" because mathematical relationships are objective objects grounded in human existence which is

"there." [GBC]

Henry, Granville C Jr

1966 Aspects of the influence of mathematics on contemporary philosophy

Philosophia Mathematica 3, 2, Dec 1966

ø

Husserl was a mathematician turned philosopher whose influence on contemporary theology came through

Sartre and Heidegger. Emphasizing method over subject matter gave rise to formalism in mathematics and

existentialism in philosophy. [GBC]

Henry, Granville C Jr

1967 Mathematics, phenomenology and language analysis in contemporary theology

Journal of the American Academy of Religion 35, 4, Dec 1967

ø

Contemporary mathematics (non-Euclidean geometries, number as basic rather than geometry) is created

(subjective), not discovered (objective). Contemporary theology has been influenced by that view; it draws on

phenomenology (see Tillich, Bultmann, and even neo-Thomistic thought), on existentialism, and on language

analysis (van Buren). [GBC]

Henry, Granville C Jr

1969a Mathematical objectification and common sense causality in science and religion

Journal of the Blaisdell Institute 4, 1, Jan 1969

ø

As science has become more mathematical, it has become less causal. Aristotle, Newton, Einstein, quantum

mechanics in its statistical interpretation represent diminished roles for efficient cause. In both Hebrew and

Greek thought, causality meant personal agency. We understand Newtonian mechanical

cause primarily by
analogy with the personal. [GBC]

Henry, Granville C Jr
1969b Whitehead's philosophical response to the new mathematics
The Southern Journal of Philosophy 7, 4, Winter 1969-70

ø

Because logicism proved inadequate, Whitehead became a formalist but looked for a meaningful content of mathematics in his doctrine of eternal objects, which are to be viewed as potential relationships for entities in the world. Whitehead was a realist, and a phenomenologist, but unlike Husserl, allowed metaphysics. [GBC]

Henry, Granville C Jr
1972 Mathematics and theology
Bucknell Review 20, 2, Fall 1972

ø

Hindsight allows us to see how philosophy influenced Greek mathematics: transcendent, non-empirical, discovered, not created, containing ontological structures, primarily geometrical, unified. Conversely, in Whitehead's process theology we have an example of how contemporary mathematics can influence theology. [GBC]

Henry, Granville C Jr
1973 Nonstandard mathematics and a doctrine of God
Process Studies 3, 1, Spring 1973

ø

Non-standard models and Gödel's incompleteness theorem point the way to God's freedom to change both the structure of knowing and the objects known. God and man are free to create possibilities, not merely to point them out, contra Aristotle, Aquinas. Thus any metaphysics is relative and incomplete; the cosmos has no essence in the traditional sense. [GBC]

Henry, Granville C Jr
1976 **Logos: Mathematics and Christian theology**
Lewisburg: Bucknell University Press, 361p, 1976

ø BL265.M3 H46

Revision and extension of above papers. Concludes that the unity of mathematics, and hence the unity of possibilities, is effected because of the substantial unity of God. Faith has reason as servant not as master.

Objects have existence if not essence; there are actual entities if not eternal objects.
[GBC]

Hexam, Irving
1980 Learning to live with robots
Christian Century 97, May 21, 1980: 574-578

ø

``Literature on robotics is nothing less than a debate on the meaning and purpose of existence." [GBC]

\computers

Hinchey: see Crowley & Hinchey

Hoeksema: see Brondesma et al.

Hoenen, P
1934 Field of research for Scholasticism
Modern Schoolman 12, Nov 1934: 15-18

ø

Holmes, Arthur F
1977 Wanted: Christian perspectives in the philosophy of mathematics
In Brabenec [1977a]: 39-47
Professor of Philosophy, Wheaton College

*

Suggests that a philosophically developed Christian world-view might hold some promise for generating a Christian philosophy of mathematics. General Christian perspectives on epistemology and ontology will help direct, even if they do not dictate, the development of a Christian philosophy of mathematics. [CJ]

Hooykaas, Reijer
1957 **Christian faith and the freedom of science**
London: The Tyndale Press, 1957. 24p.
Professor of History of Science, U. of Utrech

ø

Hopkins, Raymond F
1965 Game theory and generalization in ethics
Review of Politics 27, Oct 1965: 491-500

ø UD

Game theory is the mathematization of utilitarianism; when applied to ethics, it assumes the generalization principle ("What if everyone did it?"); it deals with prudence, not with morality. [GBC]

Iverson, Thomas E
1977 God: all sufficient or infinite
In Brabenec [1977a]: 121-125
Assistant Professor of Mathematics, Central College(a)
*

Infinite models in mathematics are useful in understanding and appreciating God: His triune nature, His incarnation, His sovereignty. [GBC]

Jager, Edward
1983 Redeeming the computer world
The Christian Educators Journal, Feb 1983: 16-19.
*

The human and inhuman uses of computers in Christian perspective: a time-saving feature in education, but a problem with job displacement and storage of sensitive information. [GBC]

Jaki, Stanley L, O.B.
1966 The world as a pattern of numbers
The Relevance of Physics, Chapter 3
Chicago, IL: University of Chicago Press, 1966, 604p
Distinguished University Professor of Philosophy and History of Science, Seton Hall University, South Orange, NJ
ø QC7.J3 1966
Physics is "highly revisable," and incompetent "in other important areas of human reflection." Uses Gödel's theorem to indicate that physicists will never be able to formulate a theory of physical reality that is final. (127-130) There are theological implications in the remarkable correlation between mathematical structures, purely products of the laws of the human mind, and physical experiences existing independently of the human mind. [WJN]

Jaki, Stanley L, O.B.
1978 **The Road of Science and the Ways to God**
Chicago, IL: University of Chicago Press, 1978, 478p
The 1974-75 and 1975-76 Gifford Lectures.
* BL182.J34 1978
Rational belief in the existence of a Creator, or at least an epistemology compatible with such a belief, played a significant role in the rise of science as a self-sustained, continually creative enterprise. Stresses the importance of Gödel's theorems of incompleteness toward developing a proper

perspective of the human
mind as more than just a logic machine. [WJN]

Jaki, Stanley L, O.B.

1980 **Cosmos and Creator**

Edinburgh: Scottish Academic Press, 1980, 168p
or Chicago, IL: Gateway Editions, Ltd.

ø

Argues that only a realist metaphysics and a sound Christian theology are fully compatible with the contingent nature of the universe, and have been indispensable in the birth of science. Based upon Gödel's theorem, it is argued that the most up-to-date physics will never be able to give an understanding of the cosmos which is a priori, for "no scientific cosmology, which of necessity must be highly mathematical, can have its proof of consistency within itself as far as mathematics goes. In the absence of such consistency, all cosmological models fall inherently short of being that theory which shows in virtue of its a priori truth that the world can only be what it is and nothing else." (49) [WJN]

Jeuken, M

1967 Ruimte en begrenzing in de biologie [Space and bounds in biology]

Geloof en wetenschap [Faith and knowledge] 65, 1967: 109-117

ø cit.:Kempff [1982]

Jongsma, Calvin

1975 Second thoughts on new math

Dordt College(a)

* ms 10p 1975

Critical of use of set theory, abstraction, and the logical over the intuitive in the new mathematics. Encourages an approach of self-discovery, in isolation neither from fellow students nor from reality. Reformed theological approach. [GBC]

Jongsma, Calvin

1980a The number and shape of things

Joy in Learning 5, Spring 1980: 1-3, 7-8.

Toronto: Curriculum Development Centre, 229 College St., Toronto M5T 1R4

*

States the philosophical, curricular, and pedagogical principles underlying CDC's mathematics program, The Number and Shape of Things. Learning of mathematics should be "reality oriented" and respect the child's

personal and intellectual development. It should enrich the child's understanding of God's creation. [CJ]

Jongsma, Calvin

1980b Christianity and mathematics: where and how do they meet?

* Talk at Jubilee 1980, Mar 8, 1980 20p+bibliog.+outline

Analyzes various approaches which have been made in integrating Christianity and mathematics. Argues from a Reformed theological perspective for a distinctively Christian approach to mathematics. Illustrates from philosophy of mathematics and mathematical education. [CJ]

Jongsma, Calvin & Trudy Baker

1979 The number and shape of things: thematic activities for the primary school

Toronto: Curriculum Development Centre, 229 College St., Toronto M5T 1R4

ø

A program of activities which shows how mathematics arises in a wide range of life experiences and contributes its part to an understanding of the whole. Intended primarily for introduction to mathematical ideas and techniques. Underlying principles explained in Jongsma [1980]. [CJ]

Jongsma, Calvin & Trudy Baker

t.a. The number and shape of things: conceptualization of ideas and techniques

Toronto: Curriculum Development Centre, 229 College St., Toronto M5T 1R4

ø

Systematic presentation of mathematical concepts and techniques. Covers arithmetic operations, spatial configurations, graphing, and measurement for grades K-3. Stresses understanding through the use of concrete, structural materials and real-life applications. [CJ]

Kapple, Frank

1967 The computer revolution

Journal of the American Scientific Affiliation 19, 2, June 1967

* letter in reply to Williams [1967]

The computer as a tool should improve, not replace, man's service to God. [GBC]

Keister, J C

1982 Math and the Bible

The Trinity Review 27, Sep-Oct 1982: 1-3

Professor of Physics, Covenant College

*

An attempt to use the Bible to generate and validate the axiomatic foundations of mathematics, particularly the axioms for arithmetic. [CJ]

Kennedy, Hubert C
1965 Toward a metaphysics of mathematics
Modern Schoolman 42, Mar 1965: 315-320
Providence College

ø

The objects of logic are "the being of reasoned reason" (John of St. Thomas); of mathematics are "the being of reasoning reason." Mathematical objects are known by constructing them; they are not real. Limits on mathematical objects: the limits of the constructor, of the history of mathematics, of the assumed tools (e.g., will proofs be finitary?). Assuming that there are pure mental constructs that are not mathematical "will, in every case, lead to difficulties." (320) [GBC]

Kent, W H, O.S.C.
1910 Theology and mathematics
The Catholic World 91, Jun 1910: 342-350 [now **New Catholic World**]

ø

The effectiveness of mathematics is a refutation of materialism. There has always been an interchange between mathematics and theology. Greek mathematics influenced medieval theology. Theologians like Fr. Bonaventura Cavalieri influenced mathematics (with his method of infinitesimals); likewise, Pascal. Cites a book by Dr. Justus Rei on "mathematical theology or mythical mathematics" entitled *Der Gott des Christenthums, als Gegenstand streng wissenschaftlicher Forschung*, written about 1880. What mathematicians understand intuitively they can lead others to by reasoning. [GBC]

Kies, J D
1974 Enkel gedagtes oor Wiskunde en Wysbegeerte [A few thoughts about Mathematics and Philosophy]
Suid-afrikaanse Vereniging vir die Bevordering van Christelike Wetenskap. **Bulletin** 41, Jun 1974:
50-54

ø

Supports Heidema's claims given in 1973. Totally denies different standpoints in modern mathematics and defends a formalistic postulational view on mathematics. Believes "no mathematician is concerned about the 'foundational crisis' to which Strauss refers, except perhaps in their philosophical moments when they are not actually doing mathematics." (54) [DFMS]

Koksma, J F

1936 Wiskunde en waarheid; referaat voor de een-en-twintigste wetenschappelijke
samenkomst der

Vrije Universiteit op 1 Juli 1936 [Mathematics and truth: report for the 21st scientific
meeting of the Free

University on 1 July 1936]

ø

Koteskey, Ronald L

1976 The integration of statistics and Christianity in the classroom

Christian Association for Psychological Studies Bulletin, Spring 1976: 17-20

Associate Professor of Psychology, Asbury College

*

Kraay, John

1966? [2 page discussion paper on foundations of mathematics given to the Groen Club
at Calvin College] Feb 27

[1966?]

*

A number of points raised which are later discussed in Tol & Kraay, Apr 1968; follows
Dooyeweerd's

view of the number-concept to a point. Takes exception with Kuyk's development of
Dooyeweerd's ideas. [CJ]

Kraay & Tol: see Tol & Kraay

Kuyk, Willem

1964 Belief and mathematics

Focus 4, 1, March 1964: 12-17

Professor of Mathematics, Antwerp State University, Belgium(s)

*

Solicited letter discussing relation of religion, philosophy, and mathematics. In
distinction from

Dooyeweerdian view that technical differences will probably appear in the work of
mathematicians of

fundamentally different religious outlooks, suggests that only differences of philosophical
interpretation will

occur. Also disputes Dooyeweerd's view of mathematical 'anticipations'. Holds a semi-
Dooyeweerdian

position on nature of mathematics. Mathematical theories deal with objects that are partly
produced by man,

arising out of his ``analytic-technical-lingual disclosing activity of the elementary
concepts of space and natural

number." [CJ]

Kuyk, Willem

1966 The irreducibility of the number concept

Philosophia Reformata 31, Jan 1966: 37-50

*

Philosophical investigation of various types of numbers (natural, rational, real) in the Dooyeweerdian tradition.

Main thesis is that numbers are predicates. Position distanced from main-line philosophies of mathematics

(logicism, formalism, intuitionism), though set theory is taken as fundamental to a theory of number. Various

approaches to defining real numbers discussed. See also Kraay and Tol & Kraay [1968a].

[CJ]

Kuyk, Willem

1968 A letter from Prof. Dr. W. Kuyk

Focus 9, 1, Aug 1968

*

Somewhat paternalistic reply to Tol & Kraay [1968a] in defense of his 1966 article.

Stresses human activity

in formation of the number concept. [CJ]

Kuyk, Willem

1970a Wiskunde en maatschappelijke tendensen [Mathematics and societal trends]

Geloof en Wetenschap [Faith and Knowledge] 68, 1970; 145-65

*

Reviews the historical positions of philosophers of mathematics, arguing that a balanced view must take into

account the "anthropocentric and objective" aspects of mathematics. On a pedagogical note, suggests that

overspecialization makes true inter-disciplinary work difficult, it denies that scientists are ordinary people too,

and it breeds disrespect for other disciplines. [GBC]

Kuyk, Willem

1970b First introduction to the foundations of mathematics

From notes taken by W R de Jong & A Tol

Amsterdam: Vrije Universiteit, 89p, Fall 1970

ø

Discusses propositional and predicate calculi, including completeness and incompleteness results. Philosophy

of mathematics treated in historic perspective from the Greeks to the 20th century.

Proposes alternative

philosophy of mathematics which includes adopting a principle of complementarity. [CJ]

Kuyk, Willem

1977 **Complementarity in mathematics**

Dordrecht-Holland: D Reidel, 186p, 1977

Italian edition: Il discreto e il continuo, Borghieri, 1982

*

The material of 1970b in book form, with further emphasis on complementarity of the discrete and the continuous as an organizing principle in mathematics. The only monograph available on a complementarist philosophy of mathematics. Italian edition includes revisions. [GBC]

Kuyk, Willem

1978 Dynamic variegations of mathematical development

Proceedings of meeting of I C M I, Helsinki, 1978. Bielefeld, 1979

* 23p

Complementarity in mathematics is a love-affair with numbers and space in complementary perspective with each other and with their historical-cultural setting; is indebted to Dooyeweerd for the conclusion that mathematical truth has social, physical, biological, and other aspects; is incompatible with Platonic realism; leaves open such questions as what are the right axioms for set theory, and what will a maximal non-principle ultrafilter look like in the integers (for which we only have non-constructive evidence); makes no distinction between empirical abstraction (Piaget) and reflective abstraction, since the potential always invades the actual; allows a variety of notions of rigor. "The rigor of the mind must precede the rigor of language." As with truth and intuition, rigor disappears when it wanders from examples. Rigor is not to be equated with algebraization. What do Zeno's paradox and Gödel's theorem have in common? Both are illuminated by a complementarist perspective. [GBC]

Kuyk, Willem

1979? Mathematics between absolutism and fallibilism (a complementarist approach to mathematics as brain development)

* 30p ms, n.d. 1979(?)

Mathematics is a "network of cerebral activities," perpetually reorganized but with "continuity of purpose"; it exploits the naive concept of the real number line. Suggests that the discrete-continuous dichotomy in mathematics may be related to left-brain vs. right brain dominance. [GBC]

Kuyk, Willem

1980-1 Kan de geschiedenis ons iets leren over de structuur van wiskundig denken? I, II

[Can history teach us something about the structure of mathematical thinking?]
Wiskunde en Onderwijs, 24, 1980: 415-427; 27, 1981: 357-374
*

Presents a cusp model incorporating intuition and the dichotomies of the analytic/synthetic, abstract/concrete, and symbolic/model-theoretic. Relates it to Kuhnian revolutions in mathematics, to artificial intelligence, and to his philosophy of complementarity in mathematics. [GBC]

Kuyk, Willem
1982 A neuropsychodynamic theory of mathematics learning
For the Learning of Mathematics 3, 1, Jul 1982: 16-23
*

``Since natural numbers are at once cardinal and ordinal numbers, there is only one irreducible concept of natural number, involving the whole brain, and mapping to the two principal complementary processing modes of the cerebral hemisphere." Further justification of the cusp model, with historical examples, and its relation to mathematics education and to a philosophy of mathematics. [GBC]

Kuyk, Willem
1983a A neuropsychodynamic theory of mathematics learning
In Brabenec [1983a]
ø ms 19p
Three new things since the [1982] cusp model: how it relates to a hierarchy of the special sciences (which in turn relates to Genesis 1), how mathematics learning is concomitant to increased activity in various areas of the brain, and how this hierarchy might have maps between the levels supplying interaction among the levels.
``Mathematics has to do with mental processing strategies." [GBC]

Kuyk, Willem
1983b An outline of a complementarist philosophy of science, with a special reference to mathematics
In Brabenec [1983a]
* ms 22p
``The sciences are functionally related, ordered as dictated by creation." Details what some of the maps might look like between levels, or realms, or kingdoms. Complementarism insists that no holistic model is possible of even a single realm, and is in this respect scientific agnosticism. Argues for a Hebrew world-view to establish the unity, especially of mind and body. [GBC]

Laatsch, Richard G
1979 Mathematics and Christian faith--some personal perceptions
In Brabenec [1979]: 99-104
Professor of Mathematics, Miami U.(a)

*

Authority, faith ``practical" truth have roles in both mathematics and Christianity. Both mathematics and Christianity are important because they are relevant. Regarding truth: beware of systems that explain themselves. Naturalism, relativism, agnosticism have fatal flaws, but the Christian faith appeals to God, external to the universe, for its validation. [GBC]

Ladrière, Jean
1959 La philosophie des mathématique et le problème du formalisme
Revue Philosophique de Louvain 57, Nov 1959: 600-622
Louvain
ø

Ladrière, Jean
1966 Objectivité et réalité en mathématiques
Revue Philosophique de Louvain 64, Nov 1966: 550-581
ø

Mathematics is objective, not subjective epistemologically; its objects are real ontologically. [GBC]

Lancashire, Allan
1974 Use of symbols in mathematics and theology
Theology 77, Feb 1974: 74-81
*

The theological tradition of via negativa opens the possibility that both mathematics and theology symbolize concepts rather than data. But aren't mathematical symbols universal, and theological symbols culturally bound? In contemporary theology we constantly create new images to describe God: God is known in the I-Thou relation as the Between of Martin Buber or the Encompassing of Karl Jaspers. In contemporary mathematics, too, the view is relational. [GBC]

Lanning: see Brondesma et al.

Larguier, Everett H, S.J.
1939 Theory of mathematical reality
Modern Schoolman 16, May 1939: 88-91

Professor Emeritus, Spring Hill College(sa)

ø

Larguier, Everett H, S.J.

1942 Concerning some views on the structure of mathematics

The Thomist: A Speculative Quarterly Review of Theology and Philosophy 4, 3, Jul

1942: 431-445

*

Argues that intuitionism draws on the habitus principiorum of Aquinas, hence forming an epistemological

basis; the other views of philosophy of mathematics draw on the analytic method of Aquinas. [GBC]

Lay, Stephen R

1973 Relating mathematics and the Christian faith

In: Christian College Consortium [1973]

Professor of Mathematics, Aurora College (sa)

* 7p ms 8/24/73

There is a reciprocal interplay between mathematics and Christianity. The former needs the latter to be

grounded in truth; the latter benefits from the former because mathematics teaches us to distrust our mere

senses. [GBC]

LeMieux, Louis A

1950 Christ-centered teaching of science and mathematics

Catholic School Journal 50, Apr 1950: 121-123

Head, Department of Chemistry, Marquette University High School, Milwaukee WI

*

Mathematics is Christ-centered rather than secular when it is done well, with gratitude toward God, enriching

and clarifying faith, pointing beyond laws to the Lawgiver. [GBC]

Likkel: see Brondsema et al.

Lipely, Glenn E

1973 A reasonable faith

In: Christian College Consortium [1973]

Malone College

* 7p ms 8/23/73

Mathematics rests on faith. Conversely there are "postulates for living" a life of faith.

Written as a dialogue

between a girl and her mathematics professor. [GBC]

Lonergan, Bernard J F, S.J.

1957 **Insight: A Study of Human Understanding**

London: Longmans, Green & Co., 1957

ø

“Discusses the object, nature, and heuristic definition of mathematics, the nature of relations, the genesis of basic propositions and their analytic nature, the nature of probability, the process of mounting generalization, and the interplay of mathematics with science.” [McShane, 1963]

Lowe, Ivan

1971 Christian mathematician, where are you?

Translation, Jan-Mar 1971: 6,7,14

Summer Institute of Linguistics

*

The analytic skills of a mathematician are needed in Bible translation. [GBC]

Lucas, Jerry & Washburn, Del

1977 **Theomatics: God's best-kept secret revealed**

Stein and Day, 1977, 347 pp

ø BS534.L84

Numerology; included only because recent and popular. See reviews by Priestly [1979] and Benson [1978] cited

here. Various tracts have made similar claims, based on work of Ivan Panin. For example, Keith L. Brooks,

Absolute mathematical proofs of the divine inspiration of the Bible, n.d.; Winkie Pratney, The Holy Bible--

wholly true, 1979. For reviews see Priestly [1979] and Benson [1978]. [GBC]

Lueken, Marietta, Sister O.S.B.

1949 Mathematics and religious training in secondary schools

Catholic Educator 19, Mar 1949: 390-392

Mater Dei West High School, Evansville IN

*

Mathematical truth points to Truth, its reason to the Divine Mind, its symbols to Sacrament, its problem-solving to discipline. [GBC]

Lukinsky: see Brown & Lukinsky

Mac ---; see also Mc ---

MacKay, Donald MacCrimmon

1965 **Christianity in a Mechanistic Universe and Other Essays**

Downers Grove, IL: Intervarsity Press, 1965. 125p.

* BD553.M32 C5 1965x

MacKay, Donald MacCrimmon

1980 **Brains, Machines and Persons**

Grand Rapids, MI: William B. Eerdmans Publishing Company, 1980, 114p

ø

Discusses significance of brain research, whether intelligence or consciousness can be credited to computers, and how these things relate to a Christian view of man. Sees man as a mysterious indivisible whole which has various complementary aspects that should neither be placed in opposition to one another nor ignored. Claims that even if the brain can one day be completely described in mechanistic terms, as a sort of computer, ``nothing that the Christian gospel has to say about you and me would be any less meaningful, true or urgently relevant." [CJ]

Maitre, Jacques

1970 Langage mathématique et sciences religieuses

Introduction aux sciences humaines, ed. H. Desroche, 1970: 201-215

ø

Malatesta, Michele

1974 La problematica tomistica delle relazioni alla luce della logica matematica e dei moderni indirizzi di pensiero

Rassegna di Scienze Filosofiche 27, 1974: 227-257

ø

Marie, Noël, Sister C.S.J.

1947 Mathematics and religion

Catholic Educator 18, Sep 1947: 35-36

College of St. Rose, Albany, NY

*

Mathematics develops clarity of thought, which is useful in defending the faith. [GBC]

Marley, Gerald C

1978 Of men and computers

Journal of the American Scientific Affiliation 30, 1, Mar 1978: 43-44

Professor, California State University(sa)

*

Computers are only useful when predictable. Man is useful even when ``unpredictable (the result of making a responsible choice)." If a computer ever makes a responsible choice, ``the sign will go up over the door to the computer room: `machine is down.' " [GBC]

Marshall, Paul
1979 Mathematics and politics
Philosophia Reformata 44, 2, 1979: 113-136

ø

Critically analyzes various uses of mathematics in political science, including representing political phenomena in mathematical terms, manipulating these representations mathematically, and interpreting the results in political terms. Discusses the value and limitations to such mathematical modeling. Underlying perspective is that of Reformational Christian philosophy. [CJ]

Maziarz, Edward A
1953 [Review of Sullivan, 1952]
The New Scholasticism 27, 3, Jul 1953: 347-349
Professor, Loyola University(s)

ø

Commends Sullivan for the breadth and appropriateness of topics in Christian philosophy of science for a senior seminar for science or mathematics majors. [GBC]

McShane, Philip
1963 The foundations of mathematics
Modern Schoolman 40, May 1963: 373-387

ø

Logicism misses the openness of insight; intuitionism confuses understanding (which enjoys the principle of excluded middle) with judgment; formalism threatens meaningfulness. A philosophy of mathematics must take into account history, current mathematics, the introspection of psychology, philosophy, the happy interplay of mathematics and experimental science, and must respect the openness of what mathematicians actually do. Credits Lonergan [1957] with providing such a view. [GBC]

McWilliams, James A
1937 Mathematics and metaphysics in science
The New Scholasticism 11, 4, Oct 1937: 358-373
St. Louis, MO

ø

Discusses Einstein's philosophy of science. Compares mathematics as a foundation for science with metaphysics. Adopts an Aristotelian (Thomistic) position on the issue. Against the trend of mathematics replacing metaphysics. [CJ]

Meyer, Frank V

1977 Formalizing the liar paradox

In Brabenec [1977a]: 63-73

Formerly Associate Professor of Mathematics, Bethel College(a)

*

Discusses role of the liar paradox in revealing the limitations of formal, axiomatic systems. Implications of Gödel's results for philosophy of mathematics and the Christian's response to them. [CJ]

Mihram, G Arthur

1981 A note on truth and proof in the mathematical sciences

Abstract for SIAM fall meeting, October 1981

ø Author: P. O. Box 1188, Princeton, NJ 08540(si)

Biblical truth in the Old Testament is God's commands; in the New Testament, the actual state of affairs. It is neither the result of deductive theorem proving nor the goodness of fit of a mathematical model. [GBC]

Mitchell, Hadley T

n.d.a. Some implications of Gödel's theorem

* ms, Westminster Seminary course. 25p

Considers Gödel's incompleteness results, their supposed implications for Russell's program of logicism and for the development of a three-valued logic. Also draws several theological implications from it--man's knowledge is limited, axiomatizing ethics is absurd, Gödel's results do not apply to God, theologians can be comforted in their failure to systematize revealed truth because mathematicians cannot grasp all mathematical truths in their systems, either. [CJ]

Mitchell, Hadley T

n.d.b Ordinary arithmetic and theistic presuppositions

* ms, Westminster Seminary course. 28p

Considers 19th and early 20th Century developments in philosophy of mathematics, not always accurately.

Attempts to show how theistic presuppositions relate to a Christian philosophy of mathematics. [CJ]

Mitchell, Stephen O

1959 Necessary truths and the postulational method

Modern Schoolman 37, Nov 1959: 49-52

Indiana University

ø

Augustine's arguments for God's existence include number as an example of the absolute. In the light of

modern mathematics, one must either find another example or find something more foundational than number. If mathematics were an arbitrary creation of men's minds, we can still hold to eternal mathematical truth by appealing to Gödel's incompleteness result to guarantee ``truths that can be discovered only by the use of reason and not by the mechanical manipulation of fixed rules--truths which imply the existence of God." (52) [GBC]

Montzingo, Lloyd J Jr
1973 Mathematics-faith integration: a search
In: Christian College Consortium [1973]
o
Published as Montzingo [1974]. [GBC]

Montzingo, Lloyd J Jr
1974 How much does God think about mathematics?
Universitas 2, 3, May 1974: 2
Professor & Director, School of Natural and Mathematical Sciences
Seattle Pacific University(a)

*
Christianity makes no difference in the content or methods of mathematics. Integration of faith and mathematics takes place in the person of the mathematician, affecting personal attitudes toward one's mathematical work and one's fellow man. [CJ]

Montzingo, Lloyd J Jr
1981 Random variables and a sovereign God
In Brabenec [1981]: 91-98
*

Probability models of the world fit too well to dismiss them, but can we maintain determinism, perhaps statistical determinism? Leans toward a complementarist solution, in which both chance and providence operate as different correct explanations of the same phenomenon. [GBC]

Muggli, Joanne, O.S.B.
1953 Benedictine contributions to mathematics from the sixth to the thirteenth century
American Benedictine Review 4, Spr 1953: 34-46
Chairman, Department of Mathematics, College of St. Benedict, St. Joseph MN
ø
Benedictines from Bede to Adelard of Bath (sixth to twelveth centuries) were more than preservers of Greek mathematics keeping track of the dates for Easter. [GBC]

Munby, Denys

1971 Morals and measurements; Christian ethics and cost benefit analysis

Commonweal 95, 12, Dec 17, 1971: 271-275

ø

Quantifying values has three surmountable difficult prices, `` not as market values so don't criticize the money

symbols but the postulates; people with different incomes value money differently but this can be made explicit

in the model. The insurmountable difficulty is to respect minority Christian interests without enforcing them.

To value human life economically is necessary (public safety, e.g.) but if human life is of infinite value, then to

save one life, the rest of humanity should live at subsistence level. Quantitative decision-making clarifies

assumptions but does not deal with their quality. [GBC]

Murdoch, John Emery

1981 Mathematics and infinity in the later middle ages

In Dahlstrom et al. [1981]: 49-58

Harvard University

ø

Problems with infinity in the middle ages were dealt with adequately because of a theological background,

passim. Mostly deals with three problems: unequal infinities, curvilinear (horn) angles, and summing series

with infinitely many terms. [GBC]

Murdock, James

1983 Arrogance and humility in the philosophy of mathematics

In Brabenec [1983a]

Department of Mathematics, Iowa State University

ø

Historical survey of platonism, moderate realism, conceptualism, and formalism. Argues that a conceptualistic

philosophy of mathematics (but not that of the intuitionists) is viable in that it saves the best parts of both

platonism and formalism while avoiding arrogant overstatements, and is compatible both with current

philosophy of science and with Biblical perspectives on the limitations of human knowledge. Some general

conclusions are drawn about the implications of Christian humility for mathematicians in an age of arrogant

scientism. [From author's abstract]

Murtoff, Robert G

1979 To the Christian mathematician

* ms, Messiah College senior seminar, Apr 25, 1979, 8p
Mathematics is compatible with Christianity even though it is disjoint in content and derivative in importance from Christianity. It is a tool, an evidence of reason against world views of meaninglessness, a source of illuminating analogies, and an invention ``like the arts ... in which we are permitted to participate in the great drama of creation." [GBC]

National Union of Christian Schools
1953 Mathematics

Course of Study for Christian Schools, second edn, revised
Grand Rapids: National Union of Christian Schools [now Christian Schools International], 1953: 109-133

*

Section giving a by-now dated outline of topics to be taught in grades 1-9 in the areas of arithmetic, algebra, business mathematics, though the pedagogical approach remains basically sound. Reformed philosophy of mathematics for Christian school teacher also included. The revelation of God in nature includes mathematical ideas and laws which man may study to know God's handiwork and majesty. Study of mathematics should lead the student to praise God as the source and end of the number system and to lead a God-centered life. For later editions see Boonstra [1971] and Boonstra et al [1982]. [CJ]

Neidhardt, Walter Jim

1964 Pascal and the dilemma of modern man

Journal of the American Scientific Affiliation 16, 4, Dec 1964: 107-111
Associate Professor of Physics, New Jersey Institute of Technology, Newark, NJ

*

Pascal's disdain for metaphysics, his balance of reason and commitment, his rejection of any ability to isolate the subject from the object in an experiment, and his doctrine of orders are refreshingly modern. [GBC]

Neidhardt, Walter Jim

1967 The solution of seeming contradictions: not either-or but both-and
Journal of the American Scientific Affiliation 19, 2, June 1967: 33-35

*

Complementarity in science should caution against premature reductionism, and allow for complementarity in theology: man as spiritual and brute, or as free and determined. [GBC]

Neidhardt, Walter Jim

1978 Science and the cultural metasystem

Journal of the American Scientific Affiliation 30, 2, Jun 1978: 94-96

Ø

It is argued by analogy from Gödel's theorem that the methodologies, tactics, and presuppositions of science cannot be based entirely upon science; in order to decide on their validity, resources from outside science must be used. Science can only be understood as embedded in the metasystem of general human values. [WJN]

Neidhardt, Walter Jim

1980 The foundation upon which science rests: the correlation between the human mind and physical reality

Journal of the American Scientific Affiliation 32, 4, Dec 1980: 244-246

Ø

Physical scientists have been amazed by the remarkable correlation between mathematical structures created by the human mind for sheer intellectual pleasure and the nature of physical reality. A theological explanation is given and an objection based upon biological evolution is examined. [WJN]

Neidhardt, Walter Jim

1983 The open-endedness of scientific truth

Journal of the American Scientific Affiliation 35, 1, Mar 1983: 37-39

Ø

The structure of scientific truth is always found not to be closed but contingent and open-a reflection of the nature of the personal-infinite God, the source of all truth. Support for this position is drawn from the relevance of Gödel's theorem to scientific theorizing. [WJN]

Neuhouser, David L

1973a Understanding 'proofs' in mathematics and faith

Universitas 1, 8, May 1973: 1,3,4

Chairman & Professor of Mathematics, Taylor University(a)

*

Just as a mathematician does not discard a model because of paradoxes, neither should a Christian disregard the Bible in the face of paradoxes. Compare his [1979]. [GBC]

Neuhouser, David L

1973b Divine revelation and the scientific method

In: Christian College Consortium [1973]

* 13p ms

Neuhouser, David L

1979 Truth: mathematical and biblical [originally, Truth: biblical and mathematical]

Journal of the American Scientific Affiliation 31, 1, Mar 1979: 29-33

*

An expanded and revised version of Neuhouser [1973]. It is not possible to prove to the satisfaction of all sane men that God exists, though one can prove that he exists using the postulational method of mathematics--just choose the right axioms. Deduction can be better used with respect to religion in other ways: determine the implications of the gospel, and then check these out with various accessible types of evidence to see whether the assumptions are reasonable. This is how deduction is used in science. It may not be possible to explain everything and paradoxes may remain, but this is also true of scientific theories. Reasoning cannot be used to establish faith, but it is a support for it and may lead some men to the point where faith can take root. [CJ]

Neuhouser, David L

1981a Open to reason

* ms 132p

In a first section argues that mathematics, science and Christianity all require reason, experience, and faith. In a second, argues that love, logic, and knowledge are inseparable. In a third, uses Flatland as an extended example of the relationship between reality and imagination, to explain several Biblical passages. [GBC]

Neuhouser, David L

1981b Reality and imagination in mathematics and religion

In Brabenec [1981]:99-112

*

Establishes historically that imagination, creativity, intuition, revelation, ingenuity have their place along with induction in the scientific method. Mathematics is a twice-removed model of reality, through a "world-view filter" and an "articulation filter." Since the Fall there are no self-evident truths. Mathematics, like literature, is a "product of imagination tested by reason and experience." Considerable overlap with [1981a]. [GBC]

Nijenhuis, John, O. Carm.

1977 Trinity and mathematics [reply to J P Mackey with rejoinder]

Horizons: The Journal of the College Theology Society 4,

Fall 1977: 229-232

Southern Benedictine College, St. Bernard, AL

*

Mackey used "Jesus = God" to mean that Jesus and God are consubstantial. We may say "Jesus is God" but not "Jesus = God." Compares Aquinas and Frege: what we know of Jesus is predicated of God. [GBC]

O'Connor, J R

1931 Blessed Jordan's contribution to mathematics

Dominicana 16, Jun 1931: 128-137

ø

O'Grady, Daniel C

1932 Mathematics and philosophy

The New Scholasticism 6, 2, Apr 1932: 120-129

University of Notre Dame

ø

The mathematician is limited by the ideas of his age, his method, and extra-scientific interest such as religion.

There is a parallel between Cartesian subject-object duality and wave-particle duality. [GBC]

O'Keefe, Thomas A, S.J.

1951 Empiricism and applied mathematics in the natural philosophy of Whitehead

Modern Schoolman 28, May 1951: 267-289. Also, a chapter of *The Actual Entity and the concept*

of Substance in the Philosophy of Alfred North Whitehead, Apr 1950 dissertation,

Gregorian University, Rome

Jesuit Seminary, Toronto

ø

Whitehead reconciles the empirical inexactitude of nature with the exact explanation of mathematics by setting

up a 1:1 correspondence between mathematics and sensible entities, excluding "any strictly intellectual

intuition of natural entities" (289). O'Keefe levels three criticisms against Whitehead by arguing that natural

relations are necessary, that the correspondence itself is neither mathematics nor natural, and that Whitehead

is ambiguous. [GBC]

Olson, Charles L, Jr

1982 Mathematics as language: a Christian's view of mathematics

* ms, Messiah College senior seminar, Mar 22, 1982, 6pp

Mathematics is related to Christianity as language is related: as a tool for understanding and communication.

Hence don't compare mathematics and Christianity: one is the thing to describe, the other

the thing to be described. There is beauty and power in mathematics. Compares the mathematical scene today with language since the tower of Babel. [GBC]

O'Toole, E J
1961 A note on probability
Philosophical Studies 11, 1961: 112-127
ø

O'Toole, G Barry
1944 Physical mathematics and mathematical metaphysics
Catholic Educational Review 42, May 1944: 257-270
ø
Mathematics is neither transcendent (metaphysical) nor sensible (physical). Modern algebra invades metaphysics by predicating things of predicates or by claiming that 0 is a number. Modern non-Euclidean geometries invade the physical, leading to nominalism. Recommends a return to Euclid: definitions are analyses of concepts, postulates are evident possibilities, axioms are statements of necessary relations. None of the three are "assumptions" per current "relativistic sophistry." [GBC]

Ozar: see Dahlstrom et al.

Perciante, Terence H
1974 The historical interaction of mathematics with Christianity and implications for the present
Assistant Professor of Mathematics, Wheaton College
* ms 29p faith/learning 1974
Surveys philosophy and foundations of mathematics from the Greeks to the early 20th century, relating it to perennial faith-and-reason debate. Analyzes dominant viewpoints on integrating faith and mathematics.
Suggests that a Christian viewpoint of the world may "affect the content and the methodology of mathematical foundations and then ultimately all of mathematics." [CJ]

Perciante, Terence H
1977 Recent problems in the foundations of mathematics
In Brabenec [1977a]: 15-25
*
Popular discussion of 20th century philosophies of mathematics and foundations. Compares classical view of mathematics with that of intuitionism. Takes same position regarding the possible

relation of Christianity and
mathematics as in [1974]. [CJ]

Peterson, Raymond
1965 A symposium on modern mathematics--part 2
Christian Educator's Journal, Jun 1965: 14-16.

*

Christianity does not affect either the material or the process of learning, only the individual's attitudes and motivation. Modern mathematics stresses comprehension, but doesn't take into account individual differences and so is only good for some, not all, students. Modern mathematics is concerned more with societal needs than with individual needs. Understanding modern mathematics does not guarantee one will see its relevance to life. See Zwier [1965] for Part 1. [CJ]

Pollard, William Grosvenor [1911-]
1958 **Chance and providence: God's action in a world governed by chance**
NY: Scribner, 1958. 190p.

ø

Chance is not lack of knowledge, but a ``necessary characteristic of scientific knowledge dictated by the nature of things." (43) Quantum mechanics is our best model of physical reality. Chance cannot be a cause. (92)
Complementarity of wave and particle in physics is the result of the principle of correspondence applied to psi-functions, which themselves exist ``in scientific time" rather than historical time, and which themselves are not subject to complementarity. (146) [GBC]

Pollard, William Grosvenor [1911-]
1961 **Physicist and Christian** [the Bishop Paddock Lectures (1959) at the General Theological Seminary, NYC]
NY: Seabury Press, 1961. 178p (out of print)
ø BL265.P4 P6 1964x

Pollard, William Grosvenor [1911-]
1970 **Science and Faith: Twin Mysteries**
Nelson, 1970

ø

Popma, Klaas Johan
1954 Successie en gelijktijdigheid [Succession and simultaneity]
Philosophia Reformata 19, 1954: 1-31

* [You may request a 2 page French summary.]

Dooyeweerdian approach to two difficulties with time in physics: succession and simultaneity. In the first case, how does one link arithmetic succession and physical succession? In the second, what does relativity theory do to simultaneity? Cassirer and Bergson hope to solve the second problem by positing that the construct in physics of simultaneity is not the same as the subjective, intuitive a priori judgment of simultaneity. Argues for a uniquely Christian physics; claims that being confessional is being exclusive, but is still able to be universal in applicability. [GBC]

Poythress, Vern Sheridan

n.d. Christianity and mathematics

* ms, Westminster Theological Seminary course. 29p, n.d.

Poythress, Vern Sheridan

1974a An approach to evangelical philosophy of science

Th.M. Thesis, Westminster Theological Seminary, 1974

Ø

Precursor to his [1976b].

Poythress, Vern Sheridan

1974b Creation and mathematics: or what does God have to do with numbers?

Journal of Christian Reconstruction 1, 1, Summer 1974: 128-140

*

Holds that one's philosophical world-view affects one's outlook on mathematical content, on the relationship of mathematics with other fields, on the nature of mathematical knowledge, and on applications of mathematics.

Sketches a Reformed, Biblical approach to these issues. See his [1976a] for later working out of same approach. [CJ]

Poythress, Vern Sheridan

1976a A biblical view of mathematics

Foundations of Christian Scholarship: Essays in the Van Til Perspective

Vallecito, CA: Ross House, 1976: 159-188

*

More detailed development of the ideas put forward in [1974b]. [CJ]

Poythress, Vern Sheridan

1976b **Philosophy, Science, and the Sovereignty of God**

Philadelphia: Presbyterian & Reformed Publishing Co., xvi+244p, 1976

*

A Reformed approach to philosophy of science, broadly conceived. Derives philosophical categories from Scripture. Contains critique of other Reformed positions. Highly individual terminology makes work difficult to read. Very little on mathematics per se, but provides a context for his work in philosophy of mathematics.
[CJ]

Poythress, Vern Sheridan
1981 Science as allegory; Mathematics as rhyme
Two invited addresses, in Brabenec [1981]: 3-24, 29-42
*

Explores the use of a global linguistic metaphor in order to stimulate thinking about certain aspects of mathematics. Makes many of the same claims about mathematics within this framework as in [1974b, 1976a].
Discusses failure of reductionist trends in philosophy of mathematics. DeVries [1981a] and Zwier [1981a] are response papers. [CJ]

Price, David T
1973 The Christian mathematician
Professor of Mathematics, Wheaton College(sa)
* ms 17p faith/learning
Summarizes mathematical process in pure and applied mathematics. Holds content and methodology of mathematics not affected by religion. Faith makes a difference only in personal attitudes toward mathematical work. [CJ]

Priestly, David T
1979 Is the Bible numerically pure?
Christianity Today, Mar 23, 1979: 684-685
*
Review of Lucas and Washburn [1977], describing the book as "disappointing," "only wind," "arbitrary."
[GBC]

Riordan, James T, S.J.
1964 Is there a Christian mathematics?
Catholic Educational Review 62, Sep 1964: 361-368
Loyola Seminary, Shrub Oak, NY
*

Mathematics is a sign, like a sacrament, pointing beyond itself (the eschatological emphasis), and an art worthwhile in itself (the incarnational emphasis). 2000 years from now the Church may

be the guardian of
mathematics to the same degree that it preserved the treasures of the classic era in the
past. [GBC]

Roberts, Arthur Wayne

1974 **Assumptions and Faith: You Have to Begin Somewhere**

Broadview, IL: Gibbs, 1974 (out of print)

Professor of Mathematics, Macalaster College(a)

ø

Discusses relevance and use of mathematical method for Christian faith and apologetics.

Analogies drawn

between mathematics and Christianity. Chapter 1 most relevant to this issue. [CJ]

Roberts, Arthur Wayne

1977 A Christian point of view

In Brabenec [1977a]: 161-167

*

Claims ``a Christian world view can indeed affect the way one teaches mathematics."

Teachers should admit

their religious bias and use any opportunities which arise to explain their position vis-à-
vis issues in

mathematical methodology. [CJ]

Roberts, Kenneth Dean

1982 What is a Christian mathematician?

* ms, Messiah College senior seminar, Mar 22, 1982, 9pp

If you have a talent for mathematics use that creativity for God, reflecting Him and
acknowledging Him.

Mathematics provides tools, models, and a language for simplifying and generalizing.

Tools become

purposeful in use. Christian mathematics is the same as non-Christian mathematics in
content, but not in

purpose. [GBC]

Rorabaugh, Mark A

1979 A connection between Christianity and mathematics

* ms, Messiah College senior seminar, 30 Apr 1979, 4p

Our finite minds seek permanence in the idealism of mathematics, which cannot be both
complete and

consistent. Although there is no ``Christian mathematics," mathematics can illuminate
Christianity. If one

needs to give way, it should be the mathematics. [GBC]

Rule, Cheryl

1977 Integration of faith and mathematics

* ms, Messiah College senior seminar, 2 May 1977, 5p

Mathematics teaching is a gift which can be used to show God's creative and beautiful handiwork. The axiomatic method, particularly the freedom to choose axioms is stressed. [GBC]

Runde, L

1960 The infinite in mathematics

Duns Scotus Philosophical Association 24, 1960: 2-29

ø

Schilling, Harold Kistler

1962 **Science and Religion: An Interpretation of Two Communities**

NY: Scribner's, 1962, 272pp

Professor of Physics, Dean of Graduate School, Penn State U.

* 215/s334/s

Distinguishes among geometry as postulates, geometry by experience or empirical analysis, and geometry by intuition or presupposition. Draws parallel with similar approaches to theology. (Chapt. VIII) [GBC]

Schutte, Hendrik Jacobus

1962 Die aard van die wiskundige entiteite en die terrein van die wiskunde [The character of mathematical entities and the scope of mathematics]

Perspektief [Perspective] 1, 1, 1962: 16-23

ø

A discussion of the basis of algebra in the light of Dooyeweerdian conceptions of discrete number entities.

[HVB]

Schutte, Hendrik Jacobus

1964a Opmerkings oor die logiese positivisme [Remarks about logical positivism]

Perspektief [Perspective] 3, 1, 1964: 10-33

ø

An analysis and critique of the logical positivism of A.J. Ayer in his book Language, Truth, and Logic. Briefly tracing its development from Euclidean and non-euclidean geometry to Ayer's methods of verifying

propositions (and his claim that statements of faith are not propositions), Schutte then shows that logical

positivism is based on a world view that rejects the existence of absolute values and absolute truth. [HVB]

Schutte, Hendrik Jacobus

1964b Uitgangspunte in die wiskunde [Starting points in mathematics]

Perspektief [Perspective] 3, 2/3, 1964: 61-66

ø

A brief discussion of the implications of two ontological points of view (platonic and intuitionist) in connection with Russell's paradox in set theory. [HVB]

Schutte, Hendrik Jacobus

1967 Die invloed van die wiskunde en die fisika op die moderne mens se denke [The influence of mathematics and physics on modern man's thought]

Suid-afrikaanse Vereniging vir die Bevordering van Christelike Wetenskap [South African Association for the Advancement of Christian Scholarship]. **Bulletin 8**, Mar 1967: 9-16

ø

A comparison of the attitudes of life of western man in the middle ages and those of today, using Bentham's ethics as an example ("the greatest good of the greatest number is the measure of right and wrong"). The author concludes that striving for scientific neutral "objectivity" has resulted in a one-sided approach to reality which leaves unanswered the question of the purpose and meaning of life. [HVB}

Shank, H Carl

1973 A Christian-theistic analysis of concept formation in arithmetical mathematics
* ms, Westminster Seminary course paper. 21p, 1973.

Sikora, Joseph J

1959 The art and science of formal logic in Thomistic philosophy

The Thomist 22, 4, Oct 1959: 533-541

Department of Philosophy, Loyola University, Chicago

ø

Thomistic logic is two-valued, implication is strict, extension has a "privileged status" over intension, but hypotheticals and modals are allowed. To reduce logic to syllogisms is an obstacle to progress. True logic allows constructing some logical terms out of others as primitives as long as "properly grounded on an abstractive intuition of logical relations in the intellect." (540) Logic is the "natural art," the "reflective science," and the "scientific art" of reason. "Formal" in the title means "not material"--far from merely relations in abstraction from concrete relata. [GBC]

Simmons, Edward D

1961 The nature and limits of logic

The Thomist 24, 1, Jan 1961: 47-71

Assistant Professor of Philosophy, Marquette University

ø

Mathematics must be logical ``in the mathematical mode." To equate mathematics with logic is to cut all other disciplines off from logic. [GBC]

Simon, Yves R

1965 The nature and process of mathematical abstraction

The Thomist 29, 2, Apr 1965: 117-139

*

``Mathematics is by no means an ontology of real quantity." (138) Nor can mathematics be reduced to logic.

According to Aquinas, the object of mathematics is abstracted from sensible matter but not from intelligible

matter (131). Denies that the square root of -1 has a ``counterpart in the real world." (134) [GBC]

Smith, Lynn R

1982 Mathematics: creation or discovery?

* ms, Messiah College senior seminar, Mar 1982, 6pp

Mathematics is God's creation but man's discovery. It is perfect, but man's attempts to approach that

mathematics are imperfect. [GBC]

Smith, Vincent Edward

1953 **St. Thomas and the object of geometry**

Milwaukee: Marquette University Press, 1953. 99 pp.

Formerly Professor of Philosophy, Notre Dame University

ø

Aquinas avoids the extremes of empiricism and formalism in mathematics. Because mathematics abstracts, it is

a science; it is the science of form: neither substantial nor accidental form, but quantified substance, where

quantity is the first accident of matter. Discrete mathematics is apprehended by the imagination, hence not

needed by God, Who sees the end from the beginning. (Here distinguishes between imaginable and

intelligible.) Geometry is the study of the continuum, which is intelligible matter, so geometry studies form-

matter composites--the real world, not an ideal order. The continuum raises the question of the one and the

many, which Aquinas solves by distinguishing between actual and potential infinity: the formal definition of

the continuum emphasizes its actual unity; the material definition, its potential divisibility. Non-Euclidean

geometries have physical interpretations--they speak of sensible but not of intelligible matter. When

considered from a Thomistic framework, they are not talking about the same thing as

Euclidean geometry in which space is homogeneous. Euclidean geometry has premises that are true, primary, immediate, and the formal cause of their conclusions. [GBC]

Snook, Verbal M

1981 Communicating spiritual insights in mathematics classes

In Brabenec [1981]: 119-122

Chairman & Professor of Mathematics, Oral Roberts University(a)

*

In both the mathematical and spiritual realms, abstraction is useful but can be pedagogically dangerous.

Mathematics ``provides vehicles of thought that enrich spiritual perception": eternity and infinity, qualitative

vs. quantitative views of number, **Flatland**. [GBC]

Spradley, Joseph

1977 Recent parallels between the philosophy of science and mathematics

In Brabenec [1977a]: 27-37

*

Where does the meaning of mathematics lie? Logical positivism bases meaning on empirical verification, but universal statements are not empirical; falsifiability as a criterion excludes existential statements, hence is too restrictive; Carnap's operationalism is likewise too restrictive; Wittgenstein's language meaning as use avoids some problems but ``there is no theoretically neutral observation language." Kuhn, Toulmin, Feyerabend deal further blows to autonomous science. These observations are first applied to mathematics and then to ``mutual concern of science and the Christian faith." Concludes in Jaki's words: don't ``search ... for narrow logic but for understanding." [GBC]

Stafleu, Marinus Dirk

1970 Analysis of time in modern physics

Philosophia Reformata 35, 1970: 1-24, 119-131

ø

Explores the possibilities of Dooyeweerdian philosophy, especially in its broad concept of time, for developing a philosophy of physical science. Pages 1-9 treat mathematics as foundational for physics. Topic developed more elaborately in Chapter 2 of [1980], where set theory is assigned a more prominent part to play in mathematical foundations. [CJ]

Stafleu, Marinus Dirk
1972 Metric and measurement in physics
Philosophia Reformata 37, 1972: 42-57

ø

Treatment of measurement and metrics within a Dooyeweerdian philosophical framework. Criticizes contemporary secular philosophers' views on the topic. A somewhat revised version appears as Chapter 3 of [1980]. [CJ]

Stafleu, Marinus Dirk
1978 The mathematical and the technical opening up of a field of science
Philosophia Reformata 43, 1978: 18-37

ø

Surveys the history of electricity in the 18th and early 19th centuries; uses it as a case study for seeing how scientific theories develop and open up through a mathematization process having numerical, spatial, and kinematic components. Based on his interpretation of this historical process, proposes a modified version of Dooyeweerd's 'opening up' process. Summary of his general conclusions on this issue given in [1980], Chapter 1. [CJ]

Stafleu, Marinus Dirk
1980 **Time and Again: A Systematic Analysis of the Foundations of Physics**
Wetenskaplike studiereeks nommer 2
Toronto: Wedge Publishing Foundation; Bloemfontein, S. Africa: SACUM Beperk,
1980. vii+237p

Chapter 2: Number and space, 32-57

Chapter 3: Metric and measurement, 58-79

Chapter 8: individuality and probability, 148-168

* QC6.S72x

A physicist treats the philosophical foundations of mathematics in the context of working out a detailed Dooyeweerdian philosophy of physical science. After sketching the basic philosophical framework (Chapter 1), discusses set theory and its place in foundations of mathematics, the numerical and spatial aspects of reality and their interconnections and further theoretical development (Chapter 2), and the theory of measurement and metrics with application to mass, temperature, length, and time (Chapter 3). Treats probability theory primarily but not exclusively in relation to developments in physics during the last century (Chapter 8). [CJ]

Stephens, Marvin W

1973 Science: why?

In: Christian College Consortium [1973]

* 10p ms 8/73

Argues that the natural and the supernatural are complementary, hence we should view science and faith as complementary. [GBC]

Stewart, Brian

1976 Playful vocation

Theology 79, Jan 1976: 18-23

ø

Autobiography and introspection: creativity and arrogance are characteristic of a mathematician, make religious practice attractive and fruitful, and are themselves reinforced by that practice. [GBC]

Strausbaugh, William Gene

1979 Can mathematics and Christianity be integrated?

* ms, Messiah College senior seminar, 1979. 5p

Assistant Professor of Computer Science, Messiah College

Reason complements faith, provides models, can be used to serve God. [GBC]

Strauss, Daniel Francois Malherbe

1970 Wysbegeerte en Vakwetenskap [Philosophy and the Special Sciences]

M.A. Thesis, 358p

Bloemfontein, S. Africa: SACUM Beperk, 1970

Lecturer in Philosophy, U. of Bloemfontein, South Africa

ø

Deals in part with cosmological distinctions relevant for mathematics as a special science: sphere sovereignty, the indefinable nature of the meaning nucleus of any modal aspect, manifestation of cosmic time in the aspects of number and space, the modal subject-object relation, the distinction between number-concept and number-idea in its relation to the process of meaning disclosure--especially with respect to transfinite number-theory and the conflicting evaluations non-denumerability by formalism and intuitionism, and with respect to the nature of the disclosure of number and space in the calculus, projective geometry and complex numbers.

Pages dealing with mathematics: 44-51, 85-93, 101-109, 146-155, 176-213, 221-233, and 348-349. Approach to problem of infinity still strongly influenced by Dooyeweerd's semi-intuitionistic conception (183-186, 203).

[DFMS]

Strauss, Daniel Francois Malherbe
1970-1 Number-concept and number-idea
Philosophia Reformata 35, 3, 1970: 156-177 and 35, 4, 1971: 13-42

*

A detailed philosophical discussion in the Dooyeweerdian tradition of the numerical and spatial aspects, their unique character and their interrelationships; discusses various other outlooks on foundations of mathematics along the way. [CJ]

Strauss, Daniel Francois Malherbe
1974a Heidema en die Filosofie (van die Wiskunde) [Heidema and the Philosophy of Mathematics]
Suid-afrikaanse Vereniging vir die Bevordering van Christelike Wetenskap [South African Association for the Advancement of Christian Scholarship].
Bulletin 40, 1974: 3-29

ø

Treats arguments of Heidema [1973] in detail. Shows most of the disqualified conceptions of Dooyeweerd and Strauss are dependent on the influence of 20th century intuitionistic mathematics, which draws in turn on Aristotelian conceptions (e.g., restriction of infinity to the potential infinite). Difference between Aristotle's categories and the modal aspects in the Philosophy of the Cosmogenic Idea are explained. Shows that Heidema does not know that the non-denumerability of the real numbers crucially depends on employment of the actual infinite, which a number of prominent 20th Century mathematicians do not accept (Brouwer, Weyl, Lorenzen, Heyting, Gentzen, Troelstra et al.). Critical appraisal of Dooyeweerd's dependence on intuitionism given and supplemented with indication of how Strauss has diverged from it by considering the actual infinite as an anticipatory hypothesis on the law-side of the numerical aspect. [DFMS]

Strauss, Daniel Francois Malherbe
1974b Wysbegeerte en Wiskunde [Mathematics and Philosophy]
Suid-afrikaanse Vereniging vir die Bevordering van Christelike Wetenskap [South African Association for the Advancement of Christian Scholarship].
Bulletin 42, 1974: 4-22

ø

Many modern mathematicians do refer to standpoints with different philosophical roots. Kies [1974] argues that mathematics entails no standpoint differences, hence there could not be any

standpoints in mathematics.

Strauss disagrees, claiming that there is a "foundational crisis" which, as H. Weyl remarked, has had considerable influence on mathematical life. Agrees with H J Schutte in his account of potential and actual infinity. [DFMS]

Strauss, Daniel Francois Malherbe

1977a Die drie grondslae-krisisse van die wiskunde [The three foundational crises in mathematics]

Woord en Wetenskap; Gedenkbundel aan Prof Dr F J M Potgieter [Word and

Science; Festschrift

dedicated to Prof F J M ...] 28 Sept 1977 in Pretoria, S. Africa. Ed. D F M Strauss, H J S Stone, J C

Lombard and J M Gerber. Bloemfontein, V C H O: 274-290

ø

Pythagorean mathematics through the discovery of incommensurable quantities (the first crisis) redirected

Greek mathematics away from arithmetization towards geometrization. This shift is shown to be determined

by the dialectical ground-motive of form and matter at the root of Greek philosophy and mathematics. Use of

infinitesimals caused a second foundational crisis, as seen in the lack of a satisfactory definition of limits.

Weierstrass, Dedekind and Cantor first realized that limits should be known in advance to be a number; they

therefore introduced the actual infinite domain of real numbers, which amounted to introducing set theory to

overcome the problems of the second foundational crisis. But as the discovery of set theoretical antinomies

makes clear, this new remedy itself precipitated a new crisis. Alternative reactions to this crisis are mentioned,

including non-standard analysis of Robinson & Luxemburg. The various attempts to overcome the

antinomies in set theory show "a far-going and surprising diversion of opinions and conceptions on the most

fundamental mathematical notions such as set and number themselves, which induces us to speak of the third

foundational crisis that mathematics is still undergoing." [DFMS]

Strauss, Daniel Francois Malherbe

1977b The transcendental-empirical method--a provisional analysis of the modal aspect of space

Tydskrif vir Christelike Wetenskap 13, 1977: 111-113.

ø

Strauss, Daniel Francois Malherbe
1980 **Inleiding tot die Kosmologie** [Introduction to Cosmology]
Wetenskaplike Studiereeks Nommer 1
Bloemfontein: SACUM Beperk, 331p, 1980

ø

English summary by author appears in **Tydskrif vir Christelike Wetenskap** [Journal for Christian Scholarship] **17**, 1981: 54-63. Some general features of the meaning of number and space (12-15), time in the aspects of number and space--providing a more succinct statement of the nature and difference between the potential and actual infinite (53-55), the distinction between the law side and the factual side of the numerical aspect (59-61), a demonstration of the circular nature of arithmeticism in modern mathematics (85-87). [DFMS]

Strauss, Daniel Francois Malherbe
1981a Infinity
Basic Concepts in Philosophy, ed. by Zak Van Straaten
Cape Town, South Africa: Oxford University Press, 1981: 110-114

*

Brief historical and philosophical discussion of the notion of infinity. Relates notions of infinity to view of space and number developed in his earlier works: an appeal to spatial continuum is necessary in order to account for an actual infinity. [CJ]

Strauss, Daniel Francois Malherbe
1981b Are the natural sciences free from philosophical presuppositions?
Philosophia Reformata **46**, 1, 1981: 1-13.

*

An account of mathematics must be given in terms not within mathematics itself. Revises his 1970-71 view to allow the actual infinite within the numeric modal aspect. Urges that we resist "the apostate inclination to absolutize something in created reality." (12) Repeats for benefit of English audience some of the 1977 arguments. [GBC]

Strydom, B C
1967 Abstraksie en veralgemening in die wiskunde
[Abstraction and generalization in mathematics]
Koers **35**, 2, 1967

ø

The author argues that the development of mathematics historically has been stimulated

by science and technology, and that there has always been beneficial interaction between mathematics and its technological applications. He concludes that mathematics should be studied and practiced as obedience to God's call to develop culture, and that even though abstraction and generalization are essential in mathematics, they should not be introduced in mathematics education before it becomes necessary. [HVB]

Stuermann, Walter E

1962 Logic and mathematics

Logic and Faith: A Study of the Relations Between Science and Religion, Chapter 6
Philadelphia, PA: The Westminster Press, 1962: 78-91

ø

Discusses logic and mathematics in the course of considering the relationship between science and religion.

Logic and mathematics are formal sciences, concerned more with validity than with truth.

Mathematics is the

language of science, "the key to the understanding and description of nature." (85).

Asserts that mathematics

is "an extension of logic" (90), though does not seem to intend it as a strict logicist position. [CJ]

Sullivan, Helen, O.S.B.

1944 Is mathematics a liberal art or a lost art?

Catholic Educational Review 42, Apr 1944: 222-227

Mount St. Scholastica, Atchison KS

ø

Teachers are strong in method, weak in knowledge in secondary level; love of materialism has made us

ignorant of a classical liberal education in mathematics. [GBC]

Sullivan, Helen, O.S.B.

1946 Mathematics in the scheme of life

Catholic Educational Review 44, May 1946: 296-300

ø

Heaven will stretch our minds, not end run them. There calculus will not be applied, but the universal

abstract concepts involved in learning calculus will better fit us for heaven. The truth of mathematics points to

the ultimate Truth which is God. [GBC]

Sullivan, Helen, O.S.B.

1947 Mathematics for women

Catholic Educational Review 45, Mar 1947: 160-165

ø

God made women different from men, so we should teach them mathematics differently-- as a liberal art, yes, but with emphasis on the universal, not the specialized; the concrete, not the abstract; the aesthetic, not the practical. [GBC]

Sullivan, Helen, O.S.B.
1949 **The Christian Approach to Science**
Atchison, KS: 1949. 99p
ø

Sullivan, Helen, O.S.B.
1952 **An Introduction to the Philosophy of Natural and Mathematical Sciences**
NY: Vantage Press, 1952. 188p
ø
Text for college seniors for an integrative course in the Thomistic tradition. Maintains that not all sciences are mathematizable. Author hopes to "arrive at sound conclusions in line with Christian principles." Reviewed by Maziarz [1953]. [GBC]

Sweeney, Leo, S.J.
1981 Surprises in the history of infinity
In Dahlstrom et al. [1981]: 3-23
Loyola University, Chicago IL
ø
At various times in history Christians have regarded God as infinite in contrast with finite, or with unrestricted, or with indeterminate. [GBC]

Taylor, Hawley O
1948 Mathematics and prophecy
American Scientific Affiliation, **Modern Science and Christian Faith**, Chapter 8
Wheaton, IL: Van Kampen Press, 1948: 175-183
* BL240.A64 1950
In addition to helping the Bible student understand various numbers and measures mentioned in the Scriptures, mathematics can help them better understand the nature of prophecy and Scriptural writings. By means of probability theory one can see that it is highly improbable that all the different prophecies about Jesus would be fulfilled in one man, unless they were given with foreknowledge on the part of the various prophets.
This provides proof for the divine inspiration of the Bible.[CJ]

Temple, G
1974 Mathematics and theology
Science, Philosophie, Foi, by S Dockx et al., 1974: 183-196
ø

Thomas, Robert S D
1983 The activity and application of mathematics
In Brabenec [1983a]
Department of Mathematics, University of Manitoba
ø
A philosophy of mathematics must take seriously its potential applications, and what mathematicians actually do. [GBC]

Tol, Anthony
1979 Counting, number concept and numerosity
Hearing and Doing: Philosophical Essays Dedicated to H Evan Runner, ed. John Kraay &
Anthony Tol: 295-332. Toronto: Wedge Publishing Foundation, 1979. xvii+380p
* 190/h435
Philosophically complex article in the Dooyeweerdian tradition on the use and meaning of the numerical aspect of reality. Centrality of natural numbers considered in practice (counting) and in theory (number concept). Priority of counting vs. cardinal numbers considered. Discusses how classes are involved in the number concept. Numerosity seen as a channel of meaning or mode of being. [CJ]

Tol, Anthony & Kraay, John N
1968a De arithmetische en ruimtelijke aspecten der werkelijkheid [The arithmetical and geometric aspects of reality]
Werkcollege Systematiek o.l.v. Prof. Dr. Ir. H. van Riessen [Working paper in Systematics under the guidance of Prof. . . .]
* ms, Free University, Amsterdam course paper. Jan 23, 1968, 8p
Comparison of Dooyeweerd, van Riessen, and Groen on modal theory as it relates to arithmetic and geometry, in such areas as the subject-size and the law-side, the relation between subject and object, and the meaning of mathematical individuals. [GBC]

Tol, Anthony & Kraay, John N
1968b Do-it-yourself no.2/the truth behind number--a symposium
Focus 8, Apr 1968: 34-52
Visser-roosendaalstr. 15, Venhuizen (N.H.), The Netherlands
*

After a lengthy historical introduction, argues that number is not reducible to other concepts and that a foundation for mathematics must lie outside mathematics. Challenges Kuyk's view of foundations given in 1966. [GBC & CJ]

Tol, Anthony & Kraay, John N
1968b Reply to Prof. Dr. W. Kuyk
Focus 9, 1, Aug 1968
*

Reply to Kuyk's Aug. 1968 letter. Discusses whether foundations of mathematics is a mathematical issue. Continues to contend that comparison of sets is not a sufficient foundation for the number-concept. [CJ]

Torrance, Thomas Forsyth
1969 The logic of man
In **Theological Science**, Chapter 5, Section 2: 222-280
NY: Oxford University Press, 1969, 368p. The Hewett Lectures for 1959.
Retired Professor, Department of Christian Dogmatics, University of Edinburgh
* BT40.T65 1969
To confuse logic and mathematics is to make a category mistake. What then of formal logics? They are necessary for science to carry on, else one could not deduce the consequences of false propositions, hence could not weigh rival hypotheses. But in such logics "we are shut up to the world of pure possibility and thereby excluded from the world of reality." (272) "[I]t is impossible to state in statements the relation of statements to being." (272) The parables of Jesus and His incarnation are examples of multiple levels meeting, defying formal logic. [GBC]

Torrance, Thomas Forsyth
1981 Word and number
Chapter 4, **Christian Theology and Scientific Culture**, NY: Oxford University Press, 1981: 109-145
ø BL241.T67 1981
Because the universe is characterized "not by necessary truths of reason but by contingent truths" it will always "defy complete mathematical formalisation." (123) Rejects Augustinian-Aristotelian-Newtonian dualism, hence is able to avoid the error of liberalism without a real incarnation, and the error of hypercalvinism with its double predestination. Discusses four modes of rationality: organismic, aesthetic,

verbal, and mathematical. The word, logos, has an "interpretive and controlling function" (112) but needs number, which is determinate and invariant for reliability and universality. [GBC]

Tuls, John

1955 The place of mathematics in the Christian school curriculum

Calvin Forum 21, Oct 1955: 25-28

Professor of Mathematics, Calvin College (deceased)

*

Discusses nature of mathematics, place and value of mathematics in the curriculum, and relation of mathematics to Christianity. Various forms of integration of faith and mathematics are treated from a Reformed perspective. [CJ]

Van Brummelen, Harro W, ed.

1971 **Mathematics in the Christian school**

Toronto: Association for the Advancement of Christian Scholarship, 114p, 1971

Education Coordinator, British Columbia Society of Christian Schools

ø

Report resulting from a working seminar on elementary and secondary school mathematics. Discusses philosophy of mathematics, place of mathematics in the curriculum, how mathematics is and can be learned, and what content and approaches should be used. [CJ]

Van Brummelen, Harro W, ed.

1972 **Some concrete ideas for the mathematics classroom in the Christian school**

Toronto: Association for the Advancement of Christian Scholarship, 1972

ø

Proceedings of a follow-up seminar to the one which produced Van Brummelen [1971]. Concrete activities suggested for a number of different mathematical topics, but not organized into grade levels or teaching units. Educational rationale and mathematical outlook not stated but presupposed from the 1971 report. [CJ]

Van Brummelen, Harro W

1977a Mathematics

Shaping School Curriculum: A Biblical View, ed. Geraldine Steensma & Harro Van Brummelen: 139-147

Terre Haute, IN: Signal Publishing Co, 1977

* LC331.S52

Claims mathematics is influenced by the philosophical beliefs of its practitioners concerning its nature and

basis. Logicism and formalism rejected as unchristian. Sketches basic content of mathematics, its methods, and its relation to other fields. Implications for curriculum drawn. [CJ]

Van Brummelen, Harro W
1977b Mathematics in the Christian high school curriculum
Christian Educators Journal 17, 1, Sep-Oct 1977: 15-17

*

Discusses how teaching mathematics can be distinctive in a Christian school. Shows how new math curricula were influenced by logicism; Christian mathematics curriculum should instead show the role of mathematics in western culture and relate it to real-life concerns. Proposes a 3-stage process of learning in mathematics-- exploration, systematic concept-development, and application. [CJ]

Van Brummelen, Harro W
1978 Mathematics in the Christian school curriculum
Talk, mathematics policy conference, Aug 4-5, of the National Union of Christian Schools [now Christian Schools International] at Calvin College, Grand Rapids, MI

* ms 15p Jun 1978

Outlines a Reformed Christian philosophy of mathematics and spells out its implications for the curriculum, both in terms of content and pedagogy. Similar in thrust to [1977a] and [1977b], though more detailed. [CJ]

Van Brummelen, Harro W
1979 What's happening in math?
Christian Home and School 57, 9, May-Jun 1979: 16-18

*

Discusses responsibilities of Christian schools with respect to mathematics curriculum in the wake of the backlash against "new math." Criticizes back-to-the-basics movement. Argues for a Christian alternative to these approaches which is up-to-date in terms of societal and cultural needs. [CJ]

Vanden Hock: see Brondsema et al.

Vander Klok, Don
1977 Towards a new understanding of mathematics: some thoughts on the state of mathematics curriculum
* 12p ms Nov 15, 1977
Mathematical textbooks find their integration point not in concrete reality but in mathematics itself, despite lip service to application. Dedication is encouraged despite lip service to induction. Hence an

unquestioning
affirmation of the status quo is promoted, which fits the job market all too well. This violates our students' humanness. Set the mathematics into its historical and social context! The learner must become the point of integration. [GBC]

Vander Klok, Don
1983 A Christian mathematics education?
The Christian Educators Journal, Feb 1983: 9-10, 27.

*

Three rationales for mathematics do not come across in the classroom: value in logical reasoning, influence on culture, practicality. In Christian education, mathematics "open[s] up creation," and is about "exploring and forming" that creation. Values can be discussed if the mathematics is "in the context of the meaning of God's creation." [GBC]

Vander Vennen, Robert E
1975 Is scientific research value-free?
Journal of the American Scientific Affiliation, Sep 1975: 107-111

*

Scientists and mathematicians are not dealing with value-neutral facts; they are looking for truth. God is the discloser of laws. Discounts positivism, subjectivism, reductionism (especially reduction to mathematics), scientific determinism--all ways of secularizing science. [GBC]

Van der Ziel, Aldert
1965 Probability considerations in science and their meaning
Journal of the American Scientific Affiliation 17, 1, Mar 1965: 23-27
Department of Electrical Engineering, Univ. of Minn., Minneapolis, MN

*

"The use of probability concepts does not imply that the world is governed by chance."
[GBC]

Van der Ziel, Aldert
1975 Random processes and evolution
Journal of the American Scientific Affiliation 27, 4, Dec 1975: 160-164

ø

Distinguishes among random processes, deterministic processes which must be simulated by random processes for two different reasons--they are too complex, or the initial conditions are not known. Objects to equating creation with setting initial conditions. Sees interplay of selective and random processes

in microevolution.

Cautions against evolution (mutation, genetic drift, and natural selection) providing a sufficient explanation to account for man. "[God] would still be Creator if I knew everything there is to know."
[GBC]

Van Rooijen, J P

1949 Van kansrekening tot statistiek [From probability to statistics]

Geloof en Wetenschap [Faith and Knowledge] 47, 2, 1949: 41-57

ø

Veldkamp, Arnold

1975 Irrational numbers and reality

Pro Rege 4, 2, Dec 1975: 2-3

Professor of Mathematics, Dordt College

*

Mathematics, as the ancient Greeks knew, studies the numerical and spatial structure of the world. Modern mathematics has also been applied to demonstrate order in creation. The Christian alone acknowledges the Creator of that order. [CJ]

Veldkamp, J

1967 Onderzoek van de ruimte [Investigating space]

Geloof en Wetenschap [Faith and Knowledge] 65, 1967: 77-86

ø

Verno, C Ralph

1968 Mathematical thinking and Christian theology

Journal of the American Scientific Affiliation 20, 2, June 1968: 37-40

Associate Professor of Mathematics, West Chester State College

*

Argues that the mathematical or postulational mode of thinking, which he describes as reasoning deductively from postulates containing undefined terms to conclusions which necessarily follow, ought to be the model for Christian apologetics and theology. Christian apologetics must be presuppositional (since articles of the Christian faith cannot be proved by logic alone--the Christian shares no assumptions with the unbeliever), though Christians can argue that only their perspective makes total sense of human experience. A postulational approach in theological discussions would make dialogue between opponents more fruitful. Exposition of Christian doctrine cannot be contradictory even when the ideas or propositions seem paradoxical. Different positions on the doctrines of the Trinity, the dual nature of Christ, and divine

foreordination are
discussed in the light of this approach. [CJ]

Verno, C Ralph

1969 Mathematics in the Christian philosophy of life

Torch and Trumpet 19, Dec 1969: 13-14; also in Brabenec [1979]: 95-97

*

Uses a famous quote by Kronecker to launch a discussion of whether and in what sense man creates mathematical concepts. Argues that the view of man as creator of mathematics is not in conflict with the Reformed Biblical view of God as Creator and man as creature. Notes in concluding that creativity ought to be a central part of all Christian education. [CJ]

Verno, C Ralph

1970 Kronecker, creation and Christianity

Torch and Trumpet 20, April 1970: 7-9; also in Brabenec [1979]: 91-93

*

A Christian view of the purpose and importance of mathematics must not be narrowly utilitarian; there is beauty in mathematical results and proofs which must also be appreciated. Man can discover propositions and organize them in elegant ways. In all this God must be praised as the source of all mathematics and as the one who made man with the desire and ability to construct mathematical theories. [CJ]

Verno, C Ralph

1979 Brief position paper for panel discussion on relation of mathematics and Christianity

In Brabenec [1979]: 89-90

*

Christianity affects not the content of mathematics but its purpose, not the what or how but the why.

Summarizes the main points of his earlier articles, particularly [1969], [1970]. [CJ]

Viganò, Mario, S.I.

1973 La matematica è ancora vera?

Gregorianum 54, 1, 1973: 61-89

* [May request one page English summary]

Does mathematics as the science of structures contain any truths? Yes. Respecting the autonomy of mathematics, its difference from metaphysics and from natural science calls for a mending of the rift between humanist philosophy and the philosophy of science. [GBC]

Vollenhoven, Dirk Hendrick Theodoor

1918 De wijsbegeerte der wiskunde van theïstisch standpunt [The philosophy of mathematics from a theistic standpoint]

Amsterdam: Wed G Van Soest, 1918

ø

Vollenhoven, Dirk Hendrick Theodoor

1932 De noodzakelijkheid eener christelijke logica [The Necessity of a Christian Logic]

Amsterdam: H J Paris, 1932

ø

Vollenhoven, Dirk Hendrick Theodoor

1936 Problemen en richtingen in de wijsbegeerte der wiskunde [Problems and directions in the philosophy of mathematics]

Philosophia Reformata 1, 1936: 162-187

* [May request English trans. by Poythress, ms, 41p]

Analyzes a wide range of historical positions on certain key issues in philosophy of mathematics. Sketches the beginnings of an alternative, Christian philosophy of mathematics which he holds in common with

Dooyeweerd. [CJ]

Vollenhoven, Dirk Hendrick Theodoor

1948 Hoofdlijnen der logica [Main features of logic]

Philosophia Reformata 13, 1948: 59-118

*

Calvinistic perspective on the analytic, on judgment, on the law (including "modal" law), and their relations.

Distinguishes between the "panlogicians" who include both God and the cosmos, whether in tension or not,

and those who claim that logic is restricted to men, to the results of mere human thinking.

As to the

relationship between logic and Christianity, claims that only God has adequate definitions, so we should avoid

absolutizing any system. (87) Logic remains open-ended. To tie it down to "Scripture and the concrete life"

makes it too easy to slip into the reductionism of humanistic scholars. Leaves open how the knowledge of

these three might interact: of God, of law, and of the cosmos. (118) Wants to be consistent with the methods

of science as well as its results. [GBC]

Ward, Terry A

1983 Artificial intelligence research: an evangelical assessment

Journal of the American Scientific Affiliation 35, 1, Mar 1983: 39-42

Academic computing services, University of Northern Iowa

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``For the artificial intelligence community, man is essentially a rational calculating mechanism. For the Christian, man is a being created in the image of God . . . to respond to his Creator." (42) [GBC]

Wareham, C Roscoe

1965 Awareness of God through mathematics

Brethren Life and Thought 10, Winter 1965: 31-38

*

Collection of analogies--unity, order, infinity, opposites, pairs, fractions--relating mathematical concepts to concepts in Christianity. [GBC]

Warner, John W

1977 Infinity and reality

In Brabenec, 1977a: 127-140

Professor of Mathematics, College of Wooster(a)

*

Survey of concept of infinity from Greek to modern times. Limits are a pervasive concept: ``we can only approach [reality] asymptotically." Infinity helps explain the Trinity. Mathematics deals with things that are more real than sense data, ``the Platonic vision reborn"--just as theologian J B Phillips says that the supernatural is more real than the natural. [GBC]

Washburn: see Lucas & Washburn

Weaver, John A Jr

1977 Where is mathematical reality?

* ms, Messiah College senior seminar, May 1977. 5p

Devotional thoughts on symmetry and simplicity as evidences for God as great designer. [GBC]

Weaver, Warren

1963 A mathematician's prayer

Medicine at Work 3, 12, Dec 1963: 2; also, **Journal of the American Scientific Affiliation**

16, 1, Mar 1964: 7

*

Thankfulness and humility for the beauties of mathematics. [GBC]

Wellmuth, John J, S.J.

1942 Some comments on the nature of mathematical logic

New Scholasticism 16, Jan 1942: 9-15

Loyola University, Chicago

ø

Scholastics, who use Aristotelian logic, need to heed mathematics more. Claims that C. I. Lewis's system of strict implication is extensional, not intensional. All extensional logics are isomorphic to algebras, which then admit another reading; hence logicism is untenable. [GBC]

Whalen, John P

1957 Integration of theology, science and mathematics

Catholic Educational Review 55, Oct 1957: 464-479

*

Successful integration of theology, science and mathematics must recognize their distinctives, must recognize the central role played by the relationship between God and man, and therefore must recognize Christ. Integration is at the level of the unity of truth, beyond pietism or symbolism. All three are constructs of the mind, but have different objects, methods, and lights (faith or reason). "Integration can be effected only in the individual because only the individual is versatile enough to be moulded by all the aspects of truth into a unified whole." (479) [GBC]

Whittaker, John F, O.P.

1941 The position of mathematics in the hierarchy of speculative science

The Thomist 3, 3, Jul 1941: 467-506

*

Places pure mathematics, philosophy of mathematics, and applied mathematics in metaphysical relationship to each other (495). Mathematics and theology are both without motion and without matter (469), but mathematics depends on matter for its existence (471). [GBC]

Williams, Leland H

1966 A Christian view of the computer revolution

Journal of the American Scientific Affiliation 18, 2, Jun 1966: 36-37

Director, Triangle University Computation Center, and Professor, University of Edinburgh(sa)

*

Thinking is more than symbol-manipulating; computers as symbol-manipulators will help us to develop jobs in

society which have dignity, but the new leisure must be used wisely. See Kapple [1967] for a response. [GBC]

Winance, Thomas E

1955 Note sur l'abstraction mathématique selon saint Thomas

Revue Philosophique de Louvain 53, Nov 1955: 482-510

ø

Wolf, J Leonard

1982 In what ways are Christianity and mathematics related?

* ms, Messiah College senior seminar, Mar 22, 1982, 6pp

Faith and accountability are needed in mathematics. Mathematical laws may describe from our vantage point

how God runs the world, but God doesn't need to simplify, and his perspective is supra-rational. The

rationality, beauty, and simplicity of mathematics should point to these same qualities of faith in Christ.

Likewise, probability of fulfilled prophecy points to God. [GBC]

Zeller, M Claudia, O.S.F.

1952 Integrating mathematics in the Catholic College

Catholic Educational Review 50, Jun 1952: 403-407

Department of Mathematics and Physics, College of St. Francis, Joliet, IL

*

Calculus depended on the Scholastics, who contra Aristotle allowed motion at a point by shifting attention ``to

the act of moving rather than the change of position or extension." Mathematics is objective beauty (that is,

per Aristotle, having order, symmetry, definiteness). The teacher vitalizes the static content of mathematics by

including the historical setting; e.g., Riemann's headstone has Rom. 8:28 on it. [GBC]

Zimmerman, Larry L

1980 Mathematics: is God silent? Parts I, II, III

The Biblical Educator 2, 1-3, Jan, Feb, Mar, 1980.

Institute for Christian Economics, 1007 E. North St., Anaheim, CA 92805

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If mathematics is a free artistic creation, why are important discoveries like calculus often simultaneous? why

is it so useful? Only a theistic view has accounted for it. Mathematics deals with truths, not just logical

validity. Its beauty reflects its Creator. [GBC]

Zook, David Alan

1981 A Christian looks at mathematics

* ms, Messiah College senior seminar, April 1981. 6p
Argues against David Hume, against unrestricted use of the notion of infinity, against theorizing about truth without living it. Meaning and its understanding are rooted in experience, not in axiom sets, even in mathematics. A defense of intuitionism. [GBC]

Zwier, Paul J
1961a Mathematics: A skill and an art
Christian Home and School 39, Apr 1961: 18-19
Professor of Mathematics, Calvin College(sa)

∅
Mathematics is more than a tool for science; it ``merits attention in its own right apart from applications".
Christian schools should review their programs to see if improvements can be made. Commends the then-new mathematics curricula for their emphases on mathematical structure. [CJ]

Zwier, Paul J
1961b Modern mathematics in a Christian college
The Banner 96, 42, Oct 20, 1961: 9,25. Also: **Calvinalia** 5, 4, Oct 1962: 26-27

*
A Christian student should know the methods, the historical setting, the current vitality, the power, and the beauty of mathematics. [GBC]

Zwier, Paul J
1961c Geometry: an ideal introductory mathematics course
Christian Educator's Journal 1, 2, 1961: 7-9.

∅
Geometry is an ideal course for exhibiting the deductive nature of mathematics. The geometrical approach developed in new math programs should be adopted by Christian schools in the spirit of teaching the best course possible.[CJ]

Zwier, Paul J
1965 A symposium on modern mathematics--part I
Christian Educator's Journal, June 1965: 12-14.

*
Holds that new mathematics is better suited to and more consistent with the goals of mathematics instruction in the Christian school than the traditional curriculum; this is due to its emphasis upon structure, understanding, and conceptual precision. See Peterson [1965] for Part 2. [CJ]

Zwier, Paul J

1979 Making curriculum decisions and the nature of mathematics

In Brabenec [1979]: 105-116

*

Contrasts mathematical curricula and pedagogies of the '60s and '70s at Calvin College.

Suggests mathematics

curriculum ought to reflect a Christian philosophy of mathematics and not merely contemporary trends. Notes

areas where basic disagreements may arise; lists these, outlining a pluralist. Christian philosophy of

mathematics, and gives an underlying religious rationale for the approach. [CJ]

Zwier, Paul J

1981a Teaching mathematics distinctively

In Brabenec [1981]: 123-132

ø

Outlines three models of excellence in mathematics teaching--the teacher who strives for technical excellence in

teaching, the teacher who strives to integrate faith and learning and communicates that to the students, and

the teacher who has a more holistic view of the educational process and tries to shape the learning process to

the development of the maturing young adults' personalities--and chooses the last one.

Suggests that

Christianity and mathematics should be integrated by the students via discussion and analysis of well-written

passages that are antithetical to a Christian view of life. Appendix contains readings which can be used in the

classroom for various topics. [CJ]

Zwier, Paul J

1981b A reaction to the Poythress paper

In Brabenec [1981]: 43-45

*

Discusses on what grounds Poythress [1981] uses a good metaphor. Finds unconvincing an argument of

Benacerraf which Poythress adopts. [GBC]

Zwier, Paul J

1983 A comparative study of Christian mathematical realism and its humanistic alternatives

In Brabenec [1983a]: 75-85

ø

Fallibilism is being extensively advocated today; platonism is being debased as abhorrent, distasteful,

outmoded. In contrast, claims that the Christian doctrines of the Trinity and the nature of

man have some
bearing on the question of the existence of universals (including mathematical objects)
and on how we know to
know them. Compares Morris Kline and Davis and Hersh with Alvin Plantinga's Does
God Have a Nature
and with Poythress [1976a]. [GBC]

Zwier & Boonstra: see Boonstra & Zwier.

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