1910
Bibliography
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and Mathematics
1983

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Bibliography of Christianity and Mathematics:
1910-1983

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PREFACE

This bibliography is the result of a growing desire on the part of Christian mathematicians to explore the relationships between their faith in God and their academic work. The 1970's saw the growth of an informal association of Christian mathematicians interested in discussing different aspects of such an issue from various points of view. Since 1975, when a first general mailing was made by Dr. Robert Brabenec, Chairman of the Wheaton College Mathematics Department, the network of such mathematicians has grown and solidified. In 1977 the first biennial conference on Christianity and mathematics was held at Wheaton College, attracting over 100 mathematicians from colleges and universities throughout the United States and Canada. Conferences in 1979, 1981, and 1983 have been attended by approximately 50 mathematicians per conference.

Prior to the first conference of 1977, Bob Brabenec circulated a list of all those articles on the general topic of Christianity and mathematics of which he was aware. The intent was to make people aware of what had already been done and to solicit references to other works of a similar nature. Following the conference one of us suggested that a larger, annotated bibliography be drawn up and made available to those who were interested. In order to encourage communication it was also suggested that a depository be established so that copies of relatively obscure articles could be procured and read by anyone wishing to do so. At the 1979 conference the two of us were mandated by the conferees to do exactly that.

The initial listing of works contained only nine articles. We both knew of other articles on the topic, so we got to work compiling and annotating them as time became available to us. Both of us believed that the project could be completed in fairly short order, but we were willing to spend some time ferreting out other references, and we encouraged others to alert us to any that might be unknown to us. To our surprise the list continued to grow as we worked, to the point where we realized we had more than a simple handout to make available to people. Due to other concerns we were unable to finish the project by 1981, but we included an initial bibliography in the Proceedings of the conference held that year. Since then numerous items have been added and nearly all of the approximately 300 entries have been annotated. The resulting bibliography is meant to be as comprehensive as possible, though we have probably still not uncovered everything that has been written within this century on the topic. Since the bibliography has been entered and stored in a computer format, however, future additions can be made easily. To this end we would welcome any assistance from the reader in updating our list for use in future editions. References may be sent to either author at the addresses given below.

Materials are listed in this bibliography if they argue for or against some relationship holding between Christianity and mathematics or if they discuss mathematics or Christianity in terms of or in connection with the other one. Works exhibiting a wide range of Christian perspectives (Roman Catholic, Evangelical, Reformed) have been intentionally included, for it is our hope that Christians of various thought communities will begin to engage in dialogue with

one another on this topic and so provide a more united witness in their common task. Mathematics has been broadly construed, so that articles principally on logic or physics or biology have been included if they relate Christianity to some mathematical aspect or application in a significant way. However, a work is not listed if its only qualifying feature is that a Christian is writing about mathematics or that a mathematician is writing about Christianity. Books and articles relating mathematics and philosophy or Christianity and science have also been excluded, unless they also focus more narrowly on Christianity and mathematics or highlight an author's position on mathematics in another work.

Each completed entry in the bibliography contains the following information: author, title, source, author affiliation, locator information, and annotation. No book is listed as a main entry unless it is devoted to the topic as a whole. If a book is an anthology of such articles, each article is listed under separate authors as well, unless the article does not specifically relate Christianity and mathematics. Entries are classified in terms of general approach and main concerns in a brief subject catalog which precedes the bibliography proper.

This bibliography is intended to provide a listing of articles and books that are in fact readily available. Any entry listed in the bibliography with a * in the location line can be copied for the purpose of individual research (in accordance with Title 17 of the U.S. Copyright Code) -- at a cost of $.10 per page for xerox and postage. Send your request to Professor Chase at Messiah College (see below) with your payment. Books for which Dewey decimal numbers appear on the location line can be requested through inter-library loan through Messiah College. Additional copies of this Bibliography may be purchased through Dordt College Press through Professor Jongsma at Dordt College (see below).

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OUTLINE OF TOPICS

An entry about a topic does not necessarily represent agreement about the topic. For example, Heidema and Kies criticize the Amsterdam school, but appear under that topic; Benson and Priestly criticize numerology, but appear under that topic. In the main listing after author affiliation, the letter s, a, or i indicates a member of the AMS, the MAA, or SIAM respectively, from the 1979 Combined Membership List.

I. Integration concerns--general
    a. Christianity and the scientific method
       DeVries [1981b], Hooykaas [all], Jaki, Jeeves [1969], Mascall, Neidhardt, Neuhouser [1973b], Pollard [1970], Ramsey [1964], Schilling, Stephens
    b. Integration of faith and learning
       Gaebelein [1954], Heie [1980?], Lay [1973], Lipely [1973], Montzingo [1974], Pollard [1961], Stephens [1973], Whalen
    c. Mathematics and philosophy of science
       1. General
          Heie [1979, 1981], Spradley [1977], Stuermann
       2. Physics, time (see also IV e below)
          Clarke [1974], Jaki [all], Neidhardt [all], Stafleu [all]
       3. Complementarity
          Benson [n.d.], Bube [1956], Chase [1979, 1981, t.a.], Kuyk [all], MacKay [all], Neidhardt [1967]
    d. Historical approach
       Brabenec [1977b, 1978], Doyle, Henry [all], Kent, Kuyk [1970a], Muggli, Murdoch, Neidhardt [1964], O'Connor, Perciante [all], Spradley, Stafleu [1978], Strauss [1977a], Sweeney, Zeller
    e. Mathematics education
       A Beka Books [all], Barrett, Baylis [1977], Brabenec [1983b], Boonstra [1971], Boonstra & Zwier, Boonstra etal., Brondsema, Brown & Lukinsky [1970], Campbell, Conway & Ashley, Crowley & Hinchey, Fakkema, Gaydos, Heie [1977, 1983], Hengstman, Jongsma [1975, 1980a], Jongsma & Baker [1979, t.a.], Koteskey [1976], Kuyk [1970a], LeMieux, Lueken, Marie, National Union of Christian Schools, Peterson, Snook, Sullivan [1944, 1946, 1947], Tuls Van Brummelen [all], Vander Klok [all], Zeller, Zwier [all but 1981b & 1983]
    f. Popular
       1. General
          Alberda [1975, 1977], Hatfield [1972, 1973, 1977], Riordan
       2. Personal testimony
          Bancroft, Campbell, Dreibelbis, Laatsch, Price, Stewart [1976]
       3. Prayers/poems
          Chase [n.d.], W Weaver

II. Christian influences on philosophy of mathematics
    a. General works
       Brabenec [1971], Byrne [1961], Garber, Gauch, Hampton, Hartzler

[1949], Heie [1979, 1980?, 1981], Henry [all], Holmes [1977],
Jongsma [1980a], McShane, A W Roberts [1977], Tol, Tol & Kraay
[1968a, 1968b], Verno [all]
  b. Calvinistic approaches
    1. General
       Antonides, Boonstra et al., Brink, Jager, Tuls, A Veldkamp,
       Verno, Zwier [1983], Zwier & Boonstra
    2. Amsterdam school
       Alberda [1977], Chase [1979, 1981, t.a.], Dooyeweerd
       [1955], Heidema, Jongsma [1980b], Kies, Kraay, Kuyk [all],
       Marshall, Popma, Poythress [all], Stafleu [all], Strauss
       [all], Tol & Kraay[all], Vollenhoven [all], Zwier [1983]
  c. Thomistic approach
     J F Anderson, T C Anderson [all], Benze'cri, Burrell, Catalano,
     Collingwood, Conway & Ashley, Doyle, Dumitriu [1974], Fay, Greenwood
     [all], Hoenen, Kennedy, Kent, Larguier [all], Malatesta, Maziarz,
     McWilliams, Nijenhuis, O'Grady, Sikora, Simmons, Simon, V E Smith,
     Sullivan [all], Wellmuth, Whittaker, Winnance
  d. Process theology
     Benson [1981], Henry [all], O'Keefe

III. Mathematics to defend, clarify, or influence Christianity
  a. To understand, defend, clarify Christianity
     Adey, Barnhart [all], Chase [1977], Dobbins [1972], Fritz, Grove,
     Harvey, Marie, Mitchell, Murtoff, Neuhouser [all],
     Riordan, Rorabaugh, A Veldkamp, Wareham, J Weaver, Wolf
  b. To influence Christianity and Christian theology
     Brown [1981], Henry [all], Verno [1968]
  c. To 'subdue the earth'/cultural mandate
     Strydom

IV. Specific mathematics topics addressed
  a. Proof/axiomatics/assumptions
     Carnes, Doyle, Dumitriu [1981], Heie [1981], Kies, H Mitchell [all],
     Neuhouser [1973a, 1979], G B O'Toole, A W Roberts [1974], Rule,
     Simmons
  b. Infinity
     Barnhart [all], Catalano, Clarke, Dahlstrom et al.,
     Greenwood [1956b],
     Heidema, Iverson, Murdoch, Runde, Strauss [1974a, 1974b, 1980,
     1981a, 1981b], Sweeney, Warner
  c. Models/applications/metaphors
     Chase [1977], Hannum [1973], Hatfield [1977, n.d.], Marshall,
     Poythress [1981], K D Roberts, Strausbaugh, Thomas
  d. Probability/statistics
     Dunn [1972], Gill, Hatfield [1965], Hauger, Lonergan, Koteskey
     [1976], Montzingo [1981], E J O'Toole, Pollard [1958], Vander Ziel
     [all], Van Rooijen
  e. Geometry/space/time
     Anonymous [1932], Groen [1962], Jeuken, Popma, Strauss [1980],
     J Veldkamp [1967]
  f. Number
     Schutte [1962], Strauss [1970-1, 1980]
  g. Mechanistic approach--computers, artificial intelligence

Antonides, Faber [1969], Faramelli [1972], Hexam, Jager, Kapple
[1967], MacKay [1965, 1980], Marley [1978], Ward, Williams
        h. Symmetry
           Dykes
        i. Game theory
           Brams, Hopkins

V. Specific philosophical topics addressed (including religious,
psychological)
        a. Truth
           Cassel [1973], Heisey, Koksma [1936], Meyer [1977], Mihram,
           Mitchell, Neuhouser [1979], Schutte [1964a], Vigano, Zimmerman,
           Zook
        b. Paradox
           Dilworth [1956], Dumitriu, Neuhouser [1979]
        c. Ontology
           Alberda [1975], Bernhart [1979], Greenwood [1956a], Ladrière,
           Larguier [all], Lonergan, Murdock, Schutte [1964b], Simon [1965]
        d. Ethics/values
           Brown & Lukinsky [1970], Campbell, Hatfield [1973], Heie
           [1979, 1981], Heisey, Hopkins, Munby, Vander Vennen
        e. Metaphysics
           Alberda [1977], J F Anderson, Burrell, Kennedy, McWilliams [1937],
           G B O'Toole, Schutte [1967], Whittaker [1941]
        f. Epistemology
           Dubbey [1980], Ladrière [1966], Whittaker [1941]
        g. Bible
           1. General
              Gitt [1980], Mihram
           2. Numerology
              Benson [1978], Lucas & Washburn [1977], Priestly [1979]
        h. Language use
           1. Mathematics to clarify language
              Henry [1976], Iverson [1977]
           2. Mathematics and theology as symbol systems
              DeVries [1981a], Henry [all], Lancashire [1974], Olson,
              Poythress [1981], Riordan, Temple, Torrance [all], Zwier [1981b]
        i. Concept formation/psychology/creativity
           Dubbey [1983], Shank [1973], Kuyk [1979, 1980-1, 1982, 1983a,b]
        j. Freedom/causality
           Ashton, Chase [1977], Gill

VI. Vocational concerns
     Arnold [1971], Lowe [1971]

VII. Humor
     R M Brown, Eves [all]

VIII. Book-length works
     Barnhart [1977, 1980a, 1980b], Brabenec [1977a, 1979, 1981, 1983], Bube
     [1968, 1971], Dahlstrom et al., Henry [1976], Kuyk [1970a, 1977],
     Lonergan, Lucas & Washburn [1977], MacKay [1965], Mascall [1956],
     Neuhouser [1981a], Pollard [1958, 1961], V E Smith, Stafleu [1980],
     Sullivan [1952]

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IX. Student papers (at Messiah College (no *), Westminster Seminary (*), or
    Free University (**))
    Adey, Dreibelbis, Dykes, Garber, Grove, Harvey, Heisey, H Mitchell
    [all]*, Murtoff, K D Roberts, Rorabaugh, Rule, Shank*, Smith,
    Strausbaugh, Tol & Kraay [1968a]**, J Weaver, Wolf, Zook

X. Not classified yet
    Bakst, A W Conway, DeSilva, Donkin, Gilbert

BIBLIOGRAPHY OF CHRISTIANITY AND MATHEMATICS, 1910-1983

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]

 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 term-
       inology; 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]

 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
       o

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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
          o
          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 motion and matter, intelligible
          matter but not sensible matter. Abstraction introduces no error if
          two criteria are met, which Anderson calls "dependent intelligibility"
          and "judgment of 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]

  1969   Intelligible matter and the objects of mathematics in Aquinas
          The New Scholasticism 43, 1969: 555-576
          o
          Summary of his arguments in [1966] about Aquinas on ontology of
          mathematical objects, for which see the above abstract.[GBC]

  1972   Aristotle and Aquinas on the freedom of the mathematician
          The Thomist 36, 1972: 231-309
          o
          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
        o
        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.
        o   510.23/t949/t

Ashley: see Conway & Ashley

Ashton, John, S.J.
 1931   Mathematicians and the mysterious universe
        Thought, a Quarterly Journal of the Sciences and Letters 6, Sep 1931:
         258-274
        o
        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
        o

Bancroft, Stephen
  n.d. A testimony to the wonders of a life in Christ by a Christian
      mathematician
      Associate Professor, Mid-american Nazarene College(a)
      *   ms   9p   faith/learning
      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]

  1980a **Aleph-nought**
      Hershey, PA: Beta Books, 1980, 107p
      *
      Further extends analogy of [1977] and [1980a], emphasizing Old and
      New Testament history.[GBC]

  1980b **Aleph-one**
      Hershey, PA: Beta Books, 1980, 246p
      *
      Extends analogy of theology to physics and psychology.[GBC]

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  t.a. The alephs
      Bible Science Newsletter, to appear
      *   ms   20 p
      Summarizes Barhnart [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 met 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]

 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]

 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 pontifica universitá laterancae,
        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]

----- (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
        *   510.1/w558
        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.

  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]

  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]

----- (ed.)
  1979 **A Second Conference on the Foundations of Mathematics**
        Proceedings of the Conference Held at Wheaton College, May 30-June
          2, 1979
        *   510.1/w558/1979
        Papers by Heie, Chase, Bernhart, Verno (three), Laatsch,
        Zwier cited here. Others by Barker, Jongsma, Friewald, Cutland,
        Snook, Wood.

----- (ed.)
  1981 **A Third Conference on Mathematics from a Christian Perspective**
        Proceedings of the Conference Held at Wheaton College, June 3-6, 1981,
          189p
        *   510.1/w558/1981
        Papers by Poythress (two), deVries (two), Zwier (two), Heie, Chase,
        Montzingo, Neuhouser, Benson, Snook, Hauger cited here. Others by
        Niver, Pereia, Stout.

----- (ed.)
  1983a **A Fourth Conference on Mathematics from a Christian Perspective**
        Proceedings of the Conference Held at Wheaton College, May 25-28,
          1983
        o
        Papers by Brabenec, Dubbey, Heie, Kuyk (two), Murdock, Thomas, Zwier
        cited here. Others by Jongsma, Van Iwaarden, and others.

  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, Stephen J
  1980 **Biblical games: strategic analysis of stories in the Old Testament**
        Cambridge, MA: M.I.T. Press, 1980
        o
        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.
        o
        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]

1968   **The encounter between Christianity and science**
       Grand Rapids, MI: Wm Eerdmans, 1968, 318 pp.
       o   215/b917/e
       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
        o
        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]

16

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 meanngs 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?
        ms   7p   faith/learning 1973
        Chairman & Professor of Mathematics, Messiah College(sa)
        *
        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 God.[GBC]

Catalano, Joseph S
 1969   Aristotle and Cantor: on the mathematical infinite
        Modern Schoolman 46, Mar 1969: 264-267
        Newark State College
        o
        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]

 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]

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]

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]

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t.a. Complementarity as a Christian philosophy of mathematics
      *   ms, to appear, 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
      o
      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
      o

18

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
       o
       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
       o
       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
       o
       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
       o

De Vries, 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]

 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]
       o

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
       o   199/d691/n
       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 an 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
       o
       Argues that in the Ars Logica of John of St. Thomas implication is
       equated with disjunction (p->q = ~pvq), 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
 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, Polytechric 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]

 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 antimonies: contemporary and Scholastic
      solutions
     International Philosphical Quarterly 14, Sep 1974: 309-328
     Center of Logic, Rumanian Academy
     o
     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]

 1981 The logical mechanism of mathematics
     International Philosphical Quarterly 21, Dec 1981: 405-417
     o
     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 W
  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)
        o   510.2/e93/m
        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]

  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
        o   510.2/e93/m
        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 Griffoen.
        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, circa 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: 178-179
         o
         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
         o

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
         o
         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
         *   377.1/g127/p (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
        o
        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 Aulae 38, Jul 1956: 116-127
         St. Charles Seminary, Carthagena, Ohio
         o

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
         o

Greenwood, Thomas
  1956a L'existence des concepts mathématiques
        Gregorianum 37, 1956: 629-633
        University of Montreal
         o

1956b Orthodoxy of the transfinite numbers
        The Thomist 19, Jul 1956: 368-379
        o
        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
        o   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 limitatons 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 dis-
       agreements 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]

 1972 Mathematics
       Christ and the Modern Mind, ed. Robert W. Smith
       Downers Grove, IL: Inter-varsity Press, 1972: 285-294
       *
       Mathematics is a language, pursued for its beauty and its ability
       to solve problems--a wonderful gift to discern the handiwork of God.
       [GBC]

 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]

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 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 [Cosmonomic 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.
        o
     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 founda-
     tional issues in mathematics
     In Brabenec [1977a]: 141-149
     Vice President, Academic Affairs, Northwestern 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]

  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]

  1980? Philosophy of mathematics and interfaces with Christian belief
     *   26p ms   1980?
     Mathematics accommodates but does not necessitate ontological commit-
     ments; 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]

  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]

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 faithful-
         ness 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. disseration, Claremont Graduate School (Dissertation Abstracts
          28, 10, p. 4251), 1965
         Chairman, Claremont Men's College(a)
         o
         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
         "mathematico-existentialism" because mathematical relationships are
         objective objects grounded in human existence which is "there."[GBC]

1966   Aspects of the influence of mathematics on contemporary philosophy
         Philosophia Mathematica 3, 2, Dec 1966
         o
         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]

1967   Mathematics, phenomenology and language analysis in contemporary
        theology
        Journal of the American Academy of Religion 35, 4, Dec 1967
        o
        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]

1969a Mathematical objectification and common sense causality in science
        and religion
        Journal of the Blaisdell Institute 4, 1, Jan 1969
        o
        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]

1969b Whitehead's philosophical response to the new mathematics
        The Southern Journal of Philosphy 7, 4, Winter 1969-70
        o
        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]

1972   Mathematics and theology
        Bucknell Review 20, 2, Fall 1972
        o
        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]

1973   Nonstandard mathematics and a doctrine of God
        Process Studies 3, 1, Spring 1973
        o
        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 then out, contra Aristotle, Aquinas. Thus any
        metaphysics is relative and incomplete; the cosmos has no essence in
        the traditional sense.[GBC]

1976 **Logos: Mathematics and Christian theology**
   Lewisburg: Bucknell University Press, 361p, 1976
   o   261.5/h522/1
   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, I
1980 Learning to live with robots
   Christian Century 97, May 21, 1980: 574
   o
   "Literature on robotics is nothing less than a debate on the meaning
   and purpose of existence."[GBC]

Hinchey: see Crowley & Hinchey

Hoeksema: see Brondesma et al.

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

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
   o

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

  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.
        o   215/j25/r
        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]

  1980 **Cosmos and Creator**
        Edinburgh: Scottish Academic Press, 1980, 168p
          or Chicago, IL: Gateway Editions, Ltd.
        o
        Argues that only a realist metaphysics and a sound Christian theology
        are fully compatible with the contingent nature of the universe, and
        have been indispensible 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
       o   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]

 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]

 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]

----- & 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
       o
       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]

----- & -----

t.a. The number and shape of things: conceptualization of ideas and
      techniques
      Toronto: Curriculum Development Centre, 229 College St.,
      Toronto M5T 1R4
      o
      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
        o
        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**]
        o
        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
          o
          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 [Mathmatics and truth: report for the 21st
          scientific meeting of the Free University on 1 July 1936]
          o

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]

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 distantiated 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
      Kray and Tol & Kraay [1968a].[CJ]

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]

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 "anthropocen-
      tric 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]

1970b First introduction to the foundations of mathematics
        from notes taken by W R de Jong & A Tol
      Amsterdam: Vrije Universiteit, 89p, Fall 1970
      o
      Discusses propositional and predicate calculi, including complete-
      ness 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]

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]

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]

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]

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]

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]

1983a A neuropsychodynamic theory of mathematics learning
In Brabenec [1983a]
o   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]

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
o

 1966 Objectivité et réalité en mathématiques
Revue Philosophique de Louvain 64, Nov 1966: 550-581
o
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 Encomapssing 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)
        o

 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
        Professor of Mathematics, Aurora College(sa)
        *   ms   7p   faith/learning 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
        Malone College
        *   ms   7p   faith/learning 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, S.J.
  1957 **Insight: A Study of Human Understanding**
        London: Longmans, Green & Co., 1957
        o
        "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 mathematicians, 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
        o
        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, 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.
        o   215/m153/c

  1980 **Brains, Machines and Persons**
        Grand Rapids, MI: William B. Eerdmans Publishing Company, 1980, 114p
        o
        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
        o

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
        o

Marie, Noël, C.S.J.
  1947 Mathematics and religion
        Catholic Educator 18, Sep 1947: 35-36
        *
        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
        o
        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 limitaions 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)
        o
        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
       o
       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 open-
       endedness 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
       o
       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
       o   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]

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n.d.b Ordinary arithmetic and theistic presuppostions
        *   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
        o
        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
  1974 How much does God think about mathematics? [originally,
         Mathematics-faith integration: a search]
        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]

  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
        o
        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
        o
        Quantifying values has three surmountable difficu prices," not
        as market values so don't criticize the money symbols but the postu-
        lates; 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 E
  1981 Mathematics and infinity in the later middle ages
        In Dahlstrom et al., 1981: 40-58
        Harvard University
        o
        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
        o
        Historical survey of platonism, moderate realism, conceptualism, and
        formalism. Argues that a conceptualist 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 their
        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 meaning-
        lessness, 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]

  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
        spritual and brute, or as free and determined.[GBC]

  1978 Science and the cultural metasystem
        Journal of the American Scientific Affiliation 30, 2, Jun 1978:
94-96
        o
        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]

  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
        o
        Physical scientists have been amazed by the remarkable correlation
        between mathematical structures created by the hman 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]

1983 The open-endedness of scientific truth
      Journal of the American Scientific Affiliation 35, 1, Mar 1983:
37-39
      o
      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]

 1973b Divine revelation and the scientific method
        *   ms   13p   faith/learning 1973

 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 verison 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]

 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 knowlege are inseparable. In a third, uses Flatland
        as an extended example of the relationship between reality and
        imagination, to explain several Biblical passages.[GBC]

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 consubstan-
       tial. 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
       o

O'Grady, Daniel C
 1932 Mathematics and philosophy
       The New Scholasticism 6, 2, Apr 1932: 120-129
       University of Notre Dame
       o
       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
       o
       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
        o

O'Toole, G Barry
 1944 Physical mathematics and mathematical metaphysics
       Catholic Educational Review 42, May 1944: 257-270
        o
       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 mathema-
       tics. 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]

 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
  1958 **Chance and providence: God's action in a world governed by chance**
        NY: Scribner, 1958. 190p.
        o

        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]

  1961 **Physicist and Christian**
        [the Bishop Paddock Lectures (1959) at the General Theological
        Seminary, NYC]
        NY: Seabury Press, 1961. 178p (out of print)
        o   <dkc>

  1970 **Science and Faith: Twin Mysteries**
        Nelson, 1970
        o

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

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Poythress, Vern Sheridan
  n.d. Christianity and mathematics
      *   ms, Westminster Theological Seminary course. 29p, n.d.

  1974a An approach to evangelical philosophy of science
      Th.M. Thesis, Westminster Theological Seminary, 1974
      o
      Precursor to his [1976b].

  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]

  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]

  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]

  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)
        o
        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]

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
       o

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
       o
       A discussion of the basis of algebra in the light of
       Dooyeweerdian conceptions of discrete number entities.[HVB]

 1964a Opmerkings oor die logiese positivisme [Remarks about logical
         positivism]
       Perspektief [Perspective] 3, 1, 1964: 10-33
       o
       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]

 1964b Uitgangspunte in die wiskunde [Starting points in mathematics]
       Perspektief [Perspective] 3, 2/3, 1964: 61-66
       o
       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]

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
          o
       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
       o
       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
       o
       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
        o
        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
        o
        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]

  1972 Metric and measurement in physics
        Philosophia Reformata 37, 1972: 42-57
        o
        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]

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

  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
        o   530.01/s779/t
        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 inter-
        connections 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?
        *   ms   10p   faith/learning 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
        o
        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
        Instructor in 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
        o
        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]

  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]

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.
       o
      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 Cosmonomic 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]

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
       o
      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]

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 Dr F J M ...]
       28 Sept 1977 in Pretoria, ed. D F M Strauss, H J S Stone,
       J C Lombard and J M Gerber.
      Bloemfontein, V C H 0: 274-290
       o
      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 antimonies 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]

1977b The transcendental-empirical method -- a provisional analysis of the
   modal aspect of space
   Tydskrif vir Christelike Wetenskap 13, 1977: 111-113.
   o

1980 **Inleiding tot die Kosmologie** [Introduction to Cosmology]
   Wetenskaplike Studiereeks Nommer 1
   Bloemfontein: SACUM Beperk, 331p, 1980
   o
   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
   acutal 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]

1981a Infinity
   Basic Concepts in Philosophy, ed. by Zak Van Straaten
   Cape Town, S. A.: Oxford University Press, 1981: 110-114
   *
   Brief historical and philosophical discussion of the notion of
   infinity. Relates notions of inifnity 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]

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 1977 arguments.[GBC]

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

  1946 Mathematics in the scheme of life
        Catholic Educational Review 44, May 1946: 296-300
        o
        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]

  1947 Mathematics for women
        Catholic Educational Review 45, Mar 1947: 160-165
        o
        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]

1949 **The Christian Approach to Science**
Atchison, KS: 1949. 99p
o

1952 **An Introduction to the Philosophy of Natural and Mathematical Sciences**
NY: Vantage Press, 1952. 188p
o
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
o
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
In American Scientific Affiliation's **Modern Science and Christian
Faith**, Chapter 8
Wheaton, IL: Van Kampen Press, 1948: 175-183
*
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
o

Thomas, Robert S D
1983 The activity and application of mathematics
In Brabenec [1983a]
Department of Mathematics, University of Manitoba
o
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]

----- & -----
 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]

----- & -----
 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, Univeristy of
        Edinburgh
       *
       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]

1981 Word and number
Chapter 4 of **Christian Theology and Scientific Culture**, NY:
 Oxford University Press, 1981: 109-145
o
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
o
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]

----- (ed.)
1972 **Some concrete ideas for the mathematics classroom in the Christian
 school**
Toronto: Association for the Advancement of Christian Scholarship,
 1972
o
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]

1977a Mathematics
      Shaping School Curriculum: A Biblical View, ed. Geraldine
       Steensma & Harro Van Brummelen: 139-147
      Terre Haute, IN: Signal Publishing Co, 1977
      *   377/s529
      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]

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 curriculm should instead show the role of mathe-
      matics 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]

1978 Mathematics in the Christian school curriculum
      Talk given at the 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]

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 mathe-
      matics curriculum in the wake of the backlash against "new math."
      Criticizes back-to-the-basics movement. Argues for a Christian alter-
      native 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
      Mathematics textbooks find their integration point not in concrete
      reality but in mathematics itself, despite lip service to application.

Deduction 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]

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 (especial 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]

  1975 Random processes and evolution
        Journal of the American Scientific Affiliation 27, 4, Dec 1975:
          160-164
        o
        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
        o

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
       o

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]

 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]

 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

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the source of all mathematics and as the one who made man with the
desire and ability to construct mathematical theories.[CJ]

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
         o

  1932   De noodzakelijkheid eener christelijke logica
            [The Necessity of a Christian Logic]
         Amsterdam: H J Paris, 1932
         o

  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]

  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 "panlogicists" 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
       *
       "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

o

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 mathematique selon saint Thomas
       Revue Philosophique de Louvain 53, Nov 1955: 482-510
       o

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
        o
        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
        *
        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)
        o
        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]

  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]

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

1965 A symposium on modern mathematics--part 1
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]

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]

1981a Teaching mathematics distinctively
In Brabenec [1981]:123-132
o
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]

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 Benecerraf which Poythress adopts.
[GBC]

  1983 Christian mathematical platonism?
        In Brabenec [1983a]
        o
        Fallibilism is being extensively advocated today; platonism is
        being debased as abhorent, 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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