

7-1-1997

Book Review: The Crest of the Peacock: Non-European Roots of Mathematics, by George Gheverghese Joseph

Bernadette Anne Berken
St. Norbert College

Follow this and additional works at: <http://scholarship.claremont.edu/hmnj>

 Part of the [Mathematics Commons](#), and the [Social and Cultural Anthropology Commons](#)

Recommended Citation

Berken, Bernadette Anne (1997) "Book Review: The Crest of the Peacock: Non-European Roots of Mathematics, by George Gheverghese Joseph," *Humanistic Mathematics Network Journal*: Iss. 15, Article 9.
Available at: <http://scholarship.claremont.edu/hmnj/vol1/iss15/9>

This Book Review is brought to you for free and open access by the Journals at Claremont at Scholarship @ Claremont. It has been accepted for inclusion in Humanistic Mathematics Network Journal by an authorized administrator of Scholarship @ Claremont. For more information, please contact scholarship@cuc.claremont.edu.

Book Review: *The Crest of the Peacock: Non-European Roots of Mathematics*, by George Gheverghese Joseph

Bernadette A. Berken
St. Norbert College
De Pere, Wisconsin 54115

"It is a pioneering book that celebrates the magnificent heritage of non-Western mathematics and challenges the reader to cast off limiting European bias and see mathematics and its development as the product of civilizations from every corner of the globe."

The Crest of the Peacock: Non-European Roots of Mathematics. George Gheverghese Joseph. Penguin Books: London, 1990. 371 pp, ISBN 0-14-012529-9.

An exciting global mathematical journey awaits the reader of George Gheverghese Joseph's *The Crest of the Peacock-Non-European Roots of Mathematics*. Joseph is an apt mathematical tour guide and leads his readers on an intellectual journey to the four corners of the earth in search of an accurate understanding of the historical development of mathematics. What makes Joseph particularly suited for this challenging task of weaving a solid tapestry of mathematical history is the rich and diverse background that he possesses. He is the product of four different heritages: He was born in Kerala, Southern India, and spent the first nine years of his life there, steeped in the music, customs, and the rich diversity of Indian culture. Coming from a family of Syrian Orthodox Christians brings a second perspective to his background. Living and growing up in Mombasa, Kenya with a rich mixture of African and Arab influences adds a third aspect to his background while his studies in Britain at the University of Leicester and the University of Manchester furnishes his final Western heritage. In addition to these four significant and diverse heritages, Joseph's many travels and job experiences abroad contribute to his inclusive perspective of the global development and history of mathematics.

This inclusive perspective compels Joseph to clearly state that the capacity to 'make' science and technology (and mathematics) is not the prerogative of one culture alone. His book diverges sharply from the typical treatment of the history and development of mathematics that tends toward an extreme bias in favor of the early contributions of the Greeks and the subsequent domination of mathematical development by

Europe and her cultural dependencies. Instead, Joseph substantiates the development of mathematics before the Greeks and celebrates the contributions of peoples from many diverse cultures around the world. Additionally, based on sound evidence, he proposes alternative perspectives for the development of mathematics and the diverse transmission of mathematical knowledge across cultures emphasizing the global nature of mathematical pursuits and suggesting the possibility of independent mathematical development within each culture.

After a short chapter introducing the reader to the global perspective of mathematical development, Joseph begins his global mathematical journey with a brief chapter that explores proto-mathematics, the mathematics that existed when no written records were available. Here he includes an examination of and conjectures about some very early bone artifacts that may well exhibit some of the earliest evidence of numerical recording. Inca *quipus* and the Inca abacus compose a majority of this chapter where Joseph explains the logic and usefulness of both. Counting systems and Mayan numeration and calendrics round out the chapter. Although some people may argue that these considerations should not be included in an examination of mathematical development, Joseph soundly refutes objections to their inclusion.

Throughout his book, Joseph emphasizes the global nature of mathematical pursuits. Nevertheless, he is unable to include every culture within the book. It would be unrealistic to expect anything else. Joseph does not include the mathematical experiences of native North America, Korea, Japan, or most of Africa. Nor does he elaborate on Hellenistic mathematics since Greek mathematics is the usual fare of most other books of this type. Instead, he chooses to focus on the

development of mathematics in Egypt, Babylonia, China, India, and the Arab world.

In each of these cultures, Joseph explores mathematical development chronologically yet within the social, historical, and religious context of the particular culture. Further, he makes numerous connections among the various cultures so that the reader easily perceives the interactions that occurred between cultures and the process by which mathematical knowledge was transmitted and grew. Using available primary sources, Joseph examines each culture's counting system, including bases and numerals, as well as the algebraic, geometric, and trigonometric pursuits of each. In addition, he includes the significant or unique contributions of the culture. Frequently Joseph poses questions that challenge familiar and commonly held opinions that stem from a narrow Euro-centric bias.

Numerous maps, charts, tables, photos, and sketches contribute important detail to the text. Throughout the book, Joseph copiously sprinkles in examples taken from the original sources to illustrate important mathematical ideas. Although many scholars of the history of mathematics tend to label all mathematics before the Greeks merely as utilitarian and pre-scientific, Joseph dispels this view often in his exposition where numerous contributions by non-Hellenistic ancients around the globe are shown to be quite remarkable; what we today might call "awesome."

Because Joseph so competently incorporates a great variety of convincing evidence from a number of historical sources, the reader easily sees the unity of what we call mathematics. The strong historical profile that Joseph provides for each culture allows the reader to more fully understand why a specific culture focused its efforts on particular mathematical pursuits.

This superb book is a clearly written treatise that is an outstanding contribution to a true and more complete understanding of what comprises mathematics and the process by which mathematical knowledge came to be. It is a pioneering book that celebrates the magnificent heritage of non-Western mathematics and challenges the reader to cast off limiting European bias and see mathematics and its development as the product of civilizations from every corner of the globe. This literary work of art offers the reader both truth and beauty. Don't miss out on reading it!

Poetry

Sascha Cohen, sixth grade

Hale Middle School, Los Angeles, CA

Submitted by Margaret Schaffer, teacher

Red and blue
bumpy grass
sharp
an angle
measuring a wide 140 degrees
is close up by two thin acute corners
they make up the pointed yellow
obtuse triangles
that look like Swiss cheese
scattered in this design
and there is
a little green hexagon.

Framing each of the polygon's
six sides
are
deep purple
rectangles
all with
four straight parallel
lines
that form
90 degree angles.
Their lines are side
by side
connected
only to shape
a glorious
decagon
and around that
is an outer ring of
diamonds and
rhombuses.
And then the squares!
Each congruent square
was more beautiful than the last.
It grew more confusing
and less symmetrical
with each set
of patterns
and geometric figures
little green hexagon in the middle
sitting still
my mind now twisted
my eyes stretched as I
stand back and look at this
immense stained glass window.