

Journal of RELIGION & SCIENCE



SEPTEMBER 2023 VOLUME 58 NUMBER 3

Zygon[®] | Journal of RELIGION AND SCIENCE

Editor: ARTHUR C. PETERSEN, University College London, UK Former Editors: RALPH WENDELL BURHOE (1966–1979), Karl E. Peters (1979–2009), Philip Hefner (1989–2009), Willem B. Drees (2009–2018) Book Review Editor: MLADEN TURK, Elmhurst University, USA

Associate Managing Editor: TOM HARLEY-MCKEOWN (Wiley, Oxford, UK) Editorial Assistant: THIRISSHU SUNDAR (Wiley, Chennai) Assistant Treasurer and Chicago Editorial Office Assistant: DAVID M. GLOVER (Zygon Journal Corporation)

Joint Publication Board, appointed by IRAS (www.iras.org), the Institute on Religion in an Age of Science (1954), CASIRAS (www.casiras.org), the Center for Advanced Study in Religion and Science (1972) and ISSR (www.issr.org.uk), the International Society for Science and Religion (2002):

WILLEM B. DREES, Prof. Emeritus of Philosophy of the Humanities, Tilburg University, The Netherlands SOLOMON H. KATZ, Prof. Emeritus of Anthropology, University, of Pennsylvania, USA SARAH LANE RITCHIE, Program Officer, Philosophy & Theology, John Templeton Foundation, USA EDWIN C. LAURENSON, Lawyer, McDermott Will & Emery LLP, San Francisco, USA (President) BENJAMIN M. STEWART, Gordon A. Braatz Associate Professor of Worship, Lutheran School of Theology at Chicago, USA IGNACIO SILVA, Associate Professor, Philosophy Institute, Universidad Austral, Buenos Aires, Argentina (Secretary) MICHAEL J. REISS, Prof. of Science Education, University College London, UK MLADEN TURK, Baltzer Distinguished Chair of Theology and Religion, Department of Religious Studies, Elmhurst University, USA GAYLE E. WOLOSCHAK, Prof. of Radiology and Cell and Molecular Biology, Northwestern University, USA (Treasurer) Editorial Advisory Board: THOMAS AECHTNER, ASSOC. Prof. in Religion and Science, Univ. of Queensland, Australia CHRISTINA AUS DER AU, Prof., Pädagogische Hochschule Thurgau, Bishop, Protestant Church of Thurgau, Switzerland ZAINAL ABIDIN BAGIR, Center for Religious and Cross-Cultural Studies, Gadjah Mada Univ., Indonesia JOSEPH BULBULIA, Prof. of Psychology, Victoria Univ., New Zealand NA CHEN, Research Professor, Center for Social Development, Fudan University, China ERNST M. CONRADIE, Senior Prof. of Religion and Theology, Univ. of the Western Cape, South Africa RANA DAJANI, Prof. of Cell Biology, Hashemite University, Jordan HELEN DE CRUZ, Danforth Chair in the Humanities, Prof. of Philosophy, Saint Louis University, MO, USA FRANS DE WAAL, C. H. Candler Prof. of Psychology, Director Living Links Center, Emory Univ., Atlanta, GA, USA TERRENCE DEACON, Prof. of Anthropology, Univ. of California Berkeley, USA CELIA DEANE-DRUMMOND, Director, Laudato Si' Research Institute, Oxford, UK ELAINE HOWARD ECKLUND, Herbert S. Autrey Chair in Social Sciences, Prof. of Sociology, Rice Univ., Houston, TX, USA FERN ELSDON-BAKER, Prof. of Science, Knowledge and Belief in Society, Univ. of Birmingham, UK DIRK EVERS, Prof. of Systematic Theology/Dogmatics, Martin Luther Univ. Halle-Wittenberg, Germany OWEN J. FLANAGAN, Prof. of Neuroscience, Duke Univ., Durham, NC, USA MOHAMMED GHALY, Prof. of Islamic Law and Biomedical Ethics, Center for Islamic Legislation and Ethics, Doha, Qatar MARCELO GLEISER, Prof. of Physics and Astronomy, Dartmouth College, Hanover, NH, USA CARLOS MIGUEL GÓMEZ RINCÓN, ASSOC. Prof., Theology and Religious Studies, Universidad del Rosario, Bogotá, Colombia URSULA GOODENOUGH, Prof. Emerita of Biology, Washington Univ., St. Louis, Durham, NC, MO, USA NIELS HENRIK GREGERSEN, Prof. of Systematic Theology, Univ. of Copenhagen, Denmark NIDHAL GUESSOUM, Prof. of Physics and Astronomy, American Univ. of Sharjah, United Arab Emirates YUANLIN GUO, Prof. of Philosophy, Center for Science, Technology and Society, Tianjin Univ., China MARK HARRIS, Prof. of Natural Science and Theology, Univ. of Edinburgh, UK PETER HARRISON, Prof. Emeritus, Institute for Advanced Studies in the Humanities, Univ. of Queensland, Australia ANTJE JACKELÉN, Archbishop Emerita of the Lutheran Church of Sweden, Uppsala, Sweden SEUNG CHUL KIM, Director, Nanzan Inst. For Religion and Culture, Nanzan Univ., Japan JUAN LARRAIN, Prof. of Cellular and Molecular Biology, Pontifical Catholic Univ. of Chile, Chile Yu-TING LEE, Assoc. Prof., East Asian History and Culture, National Taiwan Univ. Taiwan SARA LUMBRERAS, Prof., Institute for Research in Technology, School of Engineering, Comillas Pontifical Univ., Spain AGNALDO PORTUGAL, Assoc. Prof., Department of Philosophy, Univ. of Brasilia, Brazil FABIEN REVOL, Prof. of Moral Theology of Ecology, Catholic Univ. of Lyon, France ROBERT J. RUSSELL, Prof. Emeritus of Theology and Science, Graduate Theological Union, Berkeley, CA, USA KNUT-WILLY SÆTHER, Prof. of Religious Studies, Volda Univ. College, Norway CHRISTOPHER SOUTHGATE, Prof. of Christian Theodicy, Department of Theology and Religion, Univ. of Exeter, UK ANN TAVES, Distinguished Prof. Emerita of Religious Studies, Univ. of California Santa Barbara, USA HAVA TIROSH-SAMUELSON, Irving and Miriam Lowe Prof. of Modern Judaism, Arizona State Univ., Tempe, AZ, USA CLAUDIA E. VANNEY, Prof. of Physics and Philosophy, Universidad Austral, Argentina DANIE VELDSMAN, Prof. of Theology, Univ. of Pretoria, South Africa WESLEY J. WILDMAN, Professor of Philosophy, Theology, and Ethics, Boston Univ., MA, USA

The word zygon means the yoking of two entities or processes that Statement of Perspective. must work together. It is related to zygote-meaning the union of genetic heritage from sperm and egg, a union that is vital in higher species for the continuation of advancement of life. The journal Zygon provides a forum for exploring ways to unite what in modern times has been disconnected-values from knowledge, goodness from truth, religion from science. Traditional religions, which have transmitted wisdom about what is of essential value and ultimate meaning as a guide for human living, were expressed in terms of the best understandings of their times about human nature, society, and the world. Religious expression in our time, however, has not drawn similarly on modern science, which has superseded the ancient forms of understanding. As a result religions have lost credibility in the modern mind. Nevertheless some recent scientific studies of human evolution and development have indicated how long-standing religions have evolved well-winnowed wisdom, still essential for the best life. Zygon's hypothesis is that when long-evolved religious wisdom is yoked with significant recent scientific discoveries about the world and human nature, there results credible expression of basic meaning, values, and moral convictions that provides valid and effective guidance for enhancing human life. Zygon also publishes manuscripts that are critical of this perspective, as long as such papers contribute to a constructive reflection on scientific knowledge, human values, and existential meaning.

Editorial Offices. Main Editorial Office: *Zygon* Journal, John Wiley & Sons Ltd, 101 Station Landing, Medford, MA 02155, USA. E-mail zygon@wiley.com. Chicago Editorial Office (Book Reviews): *Zygon* Journal, 1100 E. 55th Street, Chicago, IL 60615-5112, USA. Telephone +1 773-256-0767. E-mail zygon@lstc.edu.

Manuscripts. Please submit online via http://mc.manuscriptcentral.com/zygon. For author guidelines, see www.wileyonlinelibrary.com/journal/zygon.

Electronic Access and Back Issues. The journal, including all previous issues, is available at *www.wileyonlinelibrary.com.* Back issues are available from Wiley Blackwell Publishing, 350 Main Street, Malden, MA 02148, U.S.A. For back volumes in microfilm: University Microfilms, 300 North Zeeb Road, Ann Arbor, MI 48106; microfiche from Kraus Microform, Route 100, Millwood, NY 10564.

Indexes and Abstracts. Zygon is indexed in the ATLA Religion Database (www.atla.com). The contents are indexed or abstracted in Arts & Humanities Citation Index, Book Review Index, Children's Book Review Index, Current Contents, Dietrich's Index Philosophicus, Family Index, Guide to Social Science and Religion, Humanities Index, I B Z—Internationale Bibliographie der Geistes und Sozialwissenschaftlichen Zeitschriftenliteratur, Internationale Bibliographie der Geistes— Geistes—und Sozialwissenschaftlicher Literatur, Lancaster Index to Defence & International Security Literature, New Testament Abstracts, Periodicals Contents Index, Philosopher's Index, R I L M Abstracts of Music Literature, Religion Index One: Periodicals, Religious & Theological Abstracts, Repertoire Bibliographique de la Philosophie, Russian Academy of Sciences Bibliographies, Social Sciences Citation Index, Social Services Abstracts, and Sociological Abstracts.

Production Editor: Komal Agarwal (ZYGO@wiley.com)

Advertising For information and rates, contact Advertising Sales Representative, Wiley Blackwell, 350 Main Street, Malden, MA 02148; corporatesalesusa@wiley.com.

Copyright: Copyright and copying © 2021 Joint Publication Board of *Zygon*. All rights reserved. No part of this publication may be reproduced, stored, or transmitted in any form or by any means without prior permission in writing from the copyright holder. Authorization to photocopy items for internal and personal use is granted by the copyright holder for libraries and other users registered with their local Reproduction Rights Organization (RRO), e.g., Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923, U.S.A. (*www.copyright.com*), provided the appropriate fee is paid directly to the RRO. This consent does not extend to other kinds of copying such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Special requests should be addressed to: permissions@wiley.com.

Disclaimer. The Publisher and Editor cannot be held responsible for errors or any consequences from the use of information in this journal. Views and opinions expressed do not necessarily reflect those of the Publisher and Editor; neither does publication of advertisement constitute any endorsement by the Publisher or the Editor of the product advertised.

Printed in the United States of America by The Sheridan Press.

ISSN 0591-2385 (Print) ISSN 1467-9744 (Online)

For submission instructions, subscription and all other information visit:www.wileyonlinelibrary. com/journal/zygon

IN THIS ISSUE

EDITORIAL **ARTHUR C. PETERSEN** Information and Reality ARTICLES LIBBY OSGOOD Ecological Saints: Adopting a Green Gaze of the Life and Writings of Saint Marguerite Bourgeoys YUANLIN GUO Fengshui: Science, Religion, Superstition, or Trade? TIM LOMAS From Angels to Aliens: Humankind's Ongoing BRENDAN CASE Encounters with, and Evolving Interpretations of, the Genuine Celestial Unknown MARGARET BOONE Rescue and Recovery as a Theological Principle, RAPPAPORT and a Key to Morality in Extraterrestrial CHRISTOPHER J. CORBALLY **Species RICCARDO CAMPA** ADAM J. CHIN The Aims of Typologies and a Typology of Methods INFORMATION AND REALITY: CONTRIBUTIONS FROM THE SCIENCE AND RELIGION FORUM FINLEY I. LAWSON The Science and Religion Forum Discuss Information and Reality: Questions for **Religions and Science** NIELS HENRIK GREGERSEN "The God With Clay": The Idea of Deep Incarnation and the Informational Universe The Machine in the Ghost: Transhumanism MICHAEL BURDETT and KING-HO LEUNG and the Ontology of Information MARIUS DOROBANTU Spiritual Intelligence: Processing Different FRASER WATTS Information or Processing Information Differently? MATTHEW KUAN JOHNSON A Co-Liberatory Framework for Big Data RACHEL SIOW ROBERTSON PETER M. PHILLIPS Digital Theology and a Potential Theological Approach to a Metaphysics of Information ANDREW JACKSON Peacocke Prize Essay-Towards an Eastern Orthodox Contemplation of Evolution: Maximus the Confessor's Vision of the Phylogenetic Logoi



Zygon®Journal of
RELIGION AND SCIENCE
VOL. 58, NO. 3, September 2023

CONTENTS

EDITORIAL

Information and Reality A	RTHUR C. PETERSEN 567
---------------------------	-----------------------

ARTICLES

Ecological Saints: Adopting a Green Gaze of the Life and Writings of Saint Marguerite Bourgeoys LIBBY OSGOOD	569
Fengshui: Science, Religion, Superstition, or Trade? YUANLIN GUO	591
From Angels to Aliens: Humankind's Ongoing Encounters with, and Evolving Interpretations of, the Genuine Celestial UnknownTim Lomas and Brendan Case	614
Rescue and Recovery as a Theological Principle, and a Key to Morality in Extraterrestrial Species Margaret Boone Rappaport, Christopher J. Corbally, and Riccardo Campa	636
The Aims of Typologies and a Typology of Methods Adam J. Chin	656
INFORMATION AND REALITY: CONTRIBUTIONS FROM THE SCIENCE AND RELIGION FORUM	
The Science and Religion Forum Discuss Information and Reality: Questions for Religions and Science FINLEY I. LAWSON	678
"The God with Clay": The Idea of Deep Incarnation and the Informational Universe NIELS HENRIK GREGERSEN	683
The Machine in the Ghost: Transhumanism and the Ontology of Information MICHAEL BURDETT AND KING-HO LEUNG	714
Spiritual Intelligence: Processing <i>Different</i> Information or Processing Information <i>Differently</i> ?MARIUS DOROBANTU AND FRASER WATTS	732
A Co-Liberatory Framework for Big Data Matthew Kuan Johnson and Rachel Siow Robertson	749
Digital Theology and a Potential Theological Approach to a Metaphysics of InformationPeter M. Phillips	770
Peacocke Prize Essay—Towards an Eastern Orthodox Contemplation of Evolution: Maximus the Confessor's Vision of the Phylogenetic Logoi Andrew Jackson	789

566 Zygon

REVIEW

<i>The Cooperative Neuron: Cellular Foundations of Mental Life.</i> By William A. Phillips Derek Gatherer	806
ANNOUNCEMENTS	808

• Visit us at www.zygonjournal.org •

[Zygon, vol. 58, no. 3 (September 2023)] © 2023 by the Joint Publication Board of Zygon. ISSN 0591-2385 (Print), ISSN 1467-9744 (Online) Zygon and its logo are registered trademarks.

Information for Subscribers. Zygon: Journal of Religion and Science is published quarterly by the Joint Publication Board of Zygon, 1100 East 55th Street, Chicago, IL 60615-5112, USA, phone +1-773-256-0671, e-mail zygon@lstc.edu, through Wiley Subscription Services, Inc., a Wiley company, 111 River St., Hoboken, NJ 07030-5774, USA.

Subscription Prices. Personal: print + online 97/1000, AAR members: print + online 1/1000, print + online +

Journal Customer Services: For ordering information, claims, and any inquiries concerning your journal subscription please go to www.wileycustomerhelp.com/ask or contact your nearest office.

Americas: Email: cs-journals@wiley.com; Tel: +1 781 388 8598 or +1 800 835 6770 (toll free in the USA & Canada).

Europe, Middle East, and Africa: Email: cs-journals@wiley.com; Tel: +44 (0) 1865 778315.

Asia Pacific: Email: cs-journals@wiley.com; Tel: +65 6511 8000.

Japan: For Japanese speaking support, Email: cs-japan@wiley.com; Tel: +65 6511 8010 or Tel (tollfree): 005 316 50 480.

Visit our Online Customer Help available in 7 languages at https://hub.wiley.com/community/ support/onlinelibrary

Mailing. Periodical postage paid at Hoboken, New Jersey, and additional offices. Postmaster: Send address changes to Zygon, John Wiley & Sons Inc., C/O The Sheridan Press, PO Box 465, Hanover, PA 17331.

Delivery Terms and Legal Title. Where the subscription price includes print issues and delivery is to the recipient's address, delivery terms are Delivered at Place (DAP); the recipient is responsible for paying any import duty or taxes. Title to all issues transfers FOB our shipping point, freight prepaid. We will endeavour to fulfil claims for missing or damaged copies within six months of publication, within our reasonable discretion and subject to availability.

Printed in the USA by The Sheridan Group