

sible for its material/causal threatening to the mother in the first place. I sympathize with permitting abortion as “self-defense” if the unborn’s continued life materially threatens the mother’s life. Still, even in this hard case, the unborn remains a person who is the epitome of innocence and vulnerability and whose deliberate destruction is wrong. So, *contra* Camosy, I think the above moral principle is violated when an abortion occurs to save a mother’s life, but this abortion may (i.e., perhaps) be justified, if justified at all, as a lesser of two evils. A case-by-case assessment would be needed. Also, in the case of rape, it seems odd and unjust to punish an innocent for his/her violent conception by another party. It may be politically prudent to permit abortion in the hard cases in order to gain restrictions for the 98% of abortions (I understand and favor this), but we should also continue to think carefully about the lives of all innocents—for their sake and for the sake of truth.

Camosy addresses the challenge of public policy on abortion in chapter four. He argues that the criminalization of abortion in general need not lead to increased deaths of women due to illegal “back alley” abortions because abortion has become a relatively safe procedure (due to advanced medical technology) and there is evidence that previous high estimates of such abortions were fabricated (as admitted by ex-abortionist Dr. Bernard Nathanson, cofounder of the National Abortion Rights Action League). Moreover, because law serves as a teacher, public policy restrictions on abortion can encourage a culture (as illustrated in Ireland and Poland) in which prenatal children are protected, women seeking abortion are not punished as murderers, and illegal abortion providers are, for the sake of political prudence, found “guilty of something less than felony murder.”

In chapter five, Camosy argues that “we should consider both prenatal children and their mothers as vulnerable populations,” but, and significantly, current abortion “choice” favors neither. As mentioned, over 1.2 million prenatal children are killed annually in the US, whereas only 2% are due to the hard cases. But evidence also shows that large numbers of post-abortive mothers face guilt and increased health problems. Moreover, pregnant women face immense social pressures to “choose” abortion without real options to handle the inconvenience/burden associated with child-rearing. These pressures arise not only from the boyfriend/husband, parents, family, and friends, but also from larger social structures. Significantly, Camosy argues, workplaces are geared to treating all employees as men. Here all of us should take note: “Our social structures force women to choose between (1) honoring their roles as the procreators and sustainers of the earliest stages of human life and (2) having social and economic equality with

men.” To protect prenatal children and their mothers, Camosy rightly argues, we should protect them from this dilemma.

In the last chapter and conclusion, Camosy proposes, as a way forward, his Mother and Prenatal Child Protection Act. This act would protect the vast majority of prenatal children, allowing abortion in the small percentage of hard cases; as well, it outlines support for women to enable them to keep and raise their babies. Readers from all political stripes, whether “pro-choice” or “pro-life,” should consider Camosy’s proposal. If the proposal does not end the abortion wars, it may at least reduce the number of casualties.

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CHRISTIAN BIOETHICS: A Guide for Pastors, Health Care Professionals, and Families by C. Ben Mitchell and D. Joy Riley, MD. Nashville, TN: B&H Publishing, 2014. 207 pages. Paperback; \$24.99. ISBN: 9781433671142.

Patients, their supporters, and their caregivers are regularly confronted with new ethical issues or new variations of older ones in the light of new medical technologies. A variety of professionals and academics engage in bioethical reflection, expressing their views through the language of their own expertise. Gifted professionals with differing expertise do a valuable service to nonprofessionals by translating and articulating those reflections and positions into language and themes helpful to nonprofessionals directly affected by these issues. *Christian Bioethics* is cowritten by a theologian and a physician who directs a center for bioethics and culture. Organizing most chapters according to a specific case, the authors lead the reader through multi-dimensional aspects of each case as they apply to more general ethical concerns and realities. In so doing, they open up these dimensions by showing how Christian theology, ethics, and modern medical science interplay in real-life decisions that need to be made in clinical medicine.

All but the first two chapters are grouped following the rubric of Nigel Cameron wherein he distinguishes bioethical issues as those involved in taking life, making life, or remaking/faking life. In an effort to appeal to a broad target audience, including pastors, family members, chaplains, physicians, students, and patients, the authors’ case-focused approach risks losing “the roots that sustain the trees” by giving less attention to the underlying beliefs and theories that ground ethical reflections and decisions in their clinical situations. The authors are attuned to this risk to some extent, providing, in very basic terms, their worldview-level starting points. Both authors are committed to the basic

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Christian beliefs codified in the Apostles' Creed. They affirm a Christian worldview that envisions the world as God's world, all aspects of which are intercompatible including faith and science and their expression in theology and medicine. The discussion section of most chapters is written as a dialogical exchange between the authors, a method that gives some down-to-earth character to the book but sometimes disrupts the flow of the reading when topics change from medical to theological and back. Each chapter also has excellent leading questions listed after the case. These are helpful starters for reflection and discussion about the case and about the authors' interpretive details that follow each case.

The first chapter highlights key historical elements of biomedical ethics, starting with the role of the Hippocratic Oath in ancient Greece up until the present. The authors make important points about the transformation of the Oath into Christianized versions and into gutted, secular versions that reflect modern medical allowance for practices forbidden in the Oath. While mentioning claims that the Oath was likely influenced by polytheistic Pythagoreans, they fall short of acknowledging further suggestions by scholar Ludwig Edelstein and by Cameron that Pythagorean ideals may have characterized a reform movement against common practices of abortion, suicide, and having sexual relations with patients. In addition, the authors note covenantal aspects in the relations between the Oath-taker and his mentor, but they do not mention the contrasting codal nature of specified prohibitions. This distinction is important since ethical guidance for modern medical practice also tends to emphasize codal "dos and don'ts" rather than relational aspects that form the ethical core of practice. A number of formative twentieth-century bioethicists from different Christian traditions are also highlighted. However, the reader may have difficulty understanding why some positions of professed Christians may resonate more with biblical themes and teaching than others, due to the short text devoted to each bioethicist. For example, the authors allude to the important influence of Joseph Fletcher's thinking on contemporary changes in the Hippocratic Oath. However, his situationalist approach also contributed to a paradigm shift in bioethical thinking, deemphasizing the influence of basic ethical beliefs while attaching greater importance to individual conditions and contingencies of bioethical situations. The authors conclude by favoring the covenantal approach of William F. May and the virtue ethics of Edmund D. Pellegrino and David C. Thomasma, positions strongly supported and promoted by this reader as well. However, they could have given more substance to the cases and discussions by including more intentionally the impact of these favored approaches on their own positions in the chapters.

Chapter 2 brings the basic premises of the book and the perspectives of the authors into sharper focus, perspectives grounded in biblical hermeneutics. They review popular views on the role of scripture in ethical reflection, themselves understanding the Bible as "canonical revelation of God's commands and Christian virtues." But they also rightly appreciate additional interpretive nuances for gaining insights from scripture for ethics. Citing Kyle Fedler, they note that scripture is diverse in its historical and cultural contexts, and in its literary character. Laws and commands under the old covenant must always be interpreted in the light of the new covenant which fulfills the former. The chapter concludes with very helpful suggestions on fostering good communications between patient, caregiver, and support persons and on using good analytical judgment in making medical decisions. The authors point out that, if needed, ethical committees and consultants are available in most care centers today to assist in making difficult decisions.

The remaining six chapters deal with cases involving a broad range of topics including abortion, end-of-life decision making, assisted reproductive technologies, organ donation, cloning, and technologies applied to transhumanist aspirations of life extension and immortality. In chapter 5, the authors present the science of reproductive methods in terms understandable to most laypersons and pastors. Here they weave in their own views as well, such as their nonendorsement of freezing surplus embryos after in vitro fertilization. The chapter on cloning and hybrids is laid out with similar detail and care, though the discussion of triple genetic parenthood among embryos created to prevent mitochondrial disease may not, despite the authors' laudable efforts, be appreciated fully by laypersons due to complicated subject matter. It was disappointing that induced pluripotent stem cell technology—and its theological and ethical implications—was not discussed as a possible alternative to embryonic stem cells for developing therapeutic biological therapies; it received only a fleeting mention in chapter 2. This relatively new technology involves the formation of cells that have many molecular and physiological qualities of embryo-derived stem cells but are developed through the dedifferentiation of mature, adult cells. Such cells are very promising as sources of biological therapies but, for many Christians, are associated with fewer, if any, ethical concerns compared to the stem cell derived from the destruction of human embryos.

While there is a growing number of books on bioethical topics now available for use in Bible studies and other discussion groups, I think this is a particularly well-organized book with a more focused application of the evangelical perspective of the authors than other books

of its kind. The authors do a commendable job in leading their target audience of mainly nonprofessionals into topics whose technical and biological complexities are made far more understandable through the authors' sensitivities and interpretive skills. They show how scripture and science are complementary, yet both need to be understood and their nuances appreciated by Christians in order to develop biblically informed approaches to contemporary bioethical issues in the light of new technologies that affect medical care.

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HISTORY OF SCIENCE

FOUR REVOLUTIONS IN THE EARTH SCIENCES: From Heresy to Truth by James Lawrence Powell. New York: Columbia University Press, 2015. 384 pages. Hardcover; \$35.00. ISBN: 9780231164481.

In *Four Revolutions*, James L. Powell describes the very human process of introducing new ideas and the winnowing that occurs before general acceptance. Powell is a very accomplished geoscientist whose credentials include presidencies of Oberlin College, Reed College, and Franklin and Marshall College. He served at the request of both Ronald Reagan and George H.W. Bush on the National Science Board. Powell is a geochemist by academic training from a doctorate from MIT. He writes very well, and at a level suitable for science-literate high school graduates. The book's four sections cover the ideas of deep time, continental drift and plate tectonics, meteorite impacts (structures and ecological effects), and climate change. In each case, a compact but salient history is given, along with the names of key thinkers and the dates of importance.

In the initial section on time, we encounter the roots of the humorous (if one has a sense of humor), trite disregard that physicists, in particular, have for geology. Most attribute this disciplinary disdain to Ernest Rutherford, late in the nineteenth century. However, it actually goes back at least as far as the 1860s, when Lord Kelvin vilified the lack of temporal precision in geological arguments. Kelvin's 1868 "assault," in Powell's words, was rebutted by the then-current president of the Geological Society of London, T.H. Huxley: "Mathematics may be compared to a mill of exquisite workmanship, which grinds your stuff to any degree of fineness; but nevertheless, what you get out depends on what you put in ..." Huxley also wisely stated that, "It is the customary fate of new truths to begin as heresies."

Powell continues to entertain us with tales of the efforts of succeeding geologists, physicists, and geochemists to

extract Earth ages from geological materials and processes. Approximations of earth age were scattered from hundreds of thousands to billions (from Kelvin's student John Perry) of years. The advent of using radioactivity as a clock for elapsed geologic time gave the scientific community one of its true pioneers and enduring stars, Arthur Holmes. Beginning about 1908, he developed a grand array of hypotheses and brilliant time-related concepts, wedding radiometric age determinations with observed geological phenomena. In my mind, Holmes became academically immortal when he published the geology text, *Principles of Physical Geology* in 1944, a text that has never been surpassed in scope or insight. After Holmes, various researchers extended the early techniques, producing more and more sophisticated estimations of geologic time. More recent studies have really only refined the excellent foundation established after Holmes. Note that among his other accomplishments was an amazing explanation for global tectonism, a "preview" of the greater confirmation of plate tectonics in the 1960s.

Part II of the book brings global tectonic ideas into a historical context. Early world maps constructed from ocean navigation inspired conjecture about the apparent fit of coastlines, Africa into South America as a prime example. This puzzle-piece matching remained whimsy until the early 1900s. The book gives us a summary of how science is a purely human enterprise, and ideal explanations are arrived at despite many limitations of methods.

Sin, though not explicitly stated, plays a big role throughout Powell's book, in exhibiting how personalities are barriers to intellectual progress. In the case of Alfred Wegener, astronomer turned atmospheric researcher and geology "amateur," there was demonstrated bitter opposition to his (and others') concept of continental drift, for both good and bad reasons. Wegener's publications from just before and after World War I, proposed many interesting and plausible explanations for the existence of joined continents in the past. Some scientists were immediately in agreement, but other prominent geologists and physicists were not only opposed, but rudely so. Ego, perhaps jealousy, the lack of collegial connectedness (not a geologist), and probably Wegener's German nationality all slowed the acceptance of the mega hypothesis. Some of US geology's biggest "guns," such as Stanford's Bailey Willis, were brutal in countering Wegener and the concept.

Powell writes of additional pros and cons, believers and unbelievers, concerning the mobile earth, but the Wegener episode is the most significant story until the early 1960s. A wonderful boom in post-war (WWII) technology and exploratory spirit built the background