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A Levels-of-Explanation View

David G. Myers

As contributors to this volume, we share a common Christian faith and an engagement with some form of psychology. But our assignment here is to explore our differences, which involve differing understandings of psychology.[1] I write as an active Christian, one who begins each day by engaging the Word and the world, via Bible reading, prayer and the *New York Times.* I also represent psychology as it exists in most universities and colleges; as it is tested by the Advanced Placement, CLEP and GRE psychology exams; and as it is portrayed in essentially every introductory psychology text, including my own.

The definitions of this mainstream psychology have varied over time. For William James (*The Principles of Psychology*, 1890) psychology was *the science of mental life.* By the mid-twentieth century it had become *the science of behavior.* Today we synthesize this history by defining psychology as *the science of behavior and mental processes.* Over time, these varied definitions have agreed: psychology is a *science.* Scientific inquiry begins with a *curiosity* and a *humility* that motivates us to test competing ideas, including our own.

So, those of us in psychological science are sometimes asked, how do you reconcile your commitment to psychological science with your commitment to the Christian faith? (1) How do they fit together? (2) Are they mutually supportive? (3) Are there points of tension?

My answers, in brief, are: (1) They fit together nicely. A humble faith in God and awareness of human fallibility motivates rigorous, open-minded sci-

[1]Parts of this chapter are adapted from Myers (1991, 1994, 1995, 1996, 2000a, 2000b, 2007) and Myers and Jeeves (2002).

ence. (2) Psychological science supports much biblical and theological wisdom. Whether viewed through the lens of ancient biblical wisdom or modern psychological science, the story of human nature is much the same. (3) The discoveries of psychological science do challenge some traditional Christian understandings. An ever-reforming faith will always be open to learning from both the book of God's Word and the book of God's works.

SCIENCE AND FAITH

Many secularists and Christians alike see science and faith as enemies. On one side, the "new atheist" Sam Harris (2006, p. 47) writes that religion is "both false and dangerous." His kindred spirit, scientist Richard Dawkins (1997, p. 26), agrees that faith is not only wrong—a mental "virus"—but also "one of the world's great evils." The universe has "no design, no purpose, no evil and good, nothing but blind pitiless indifference," notes Dawkins (1995). Harris and Dawkins extend the historic replacement of supernatural with natural explanations. When our ancestors came to see bolts of lightning as acts of nature, they ceased seeing them as acts of God. When the new atheists see humans as products of evolutionary history, they often cease viewing them as special creatures of God. Science and religion, it may seem, sit on opposite ends of an explanatory teeter-totter.

Actually, say historians of science, many of the founders of modern science were people whose religious convictions made them humble before nature and skeptical of human authority (Hooykaas, 1972; Merton, 1938/1970). The Christian convictions of Blaise Pascal, Francis Bacon, Isaac Newton and even Galileo led them to distrust human intuition, and to explore God's creation and submit their ideas to testing. Whether searching for truth in special revelation (the book of God's Word) or natural revelation (the book of God's works), they viewed themselves in God's service.

If, as once supposed, nature is sacred (for example, if nature is alive with river goddesses and sun gods), then we ought not tamper with it. But if, as the scientific pioneers assumed, it is an intelligible creation—a work to be enjoyed and managed—then let us seek its truths by observing and experimenting. And let us do so freely, knowing that our ultimate allegiance is not to human-doctrine but to God alone. Let us humbly test our ideas. If nature does not conform to our presumptions, so much the worse for our presumptions. Disciplined, rigorous inquiry—checking our theories against reality—is part of

what it means to love God with our minds.[2] "Test everything; hold fast to what is good," Saint Paul advised the Thessalonians (1 Thess 5:21).

These attitudes of humility before the created world and skepticism of human ideas also underlie psychological science. The Christian psychologist-neuroscientist Donald MacKay encouraged us "to 'tell it like it is,' knowing that the Author is at our elbow, a silent judge of the accuracy with which we claim to describe the world He has created" (1984). If God is the ultimate author of whatever truth psychological science glimpses, then I can accept that truth, however surprising or unsettling. Openness to scientific inquiry becomes not just my right but my religious duty.

Levels of explanation. "Reality is a multi-layered unity," wrote the British physicist-priest John Polkinghorne (1986). "I can perceive another person as an aggregation of atoms, an open biochemical system in interaction with the environment, a specimen of *homo sapiens,* an object of beauty, someone whose needs deserve my respect and compassion, a brother for whom Christ died. All are true and all mysteriously coinhere in that one person."

In *Psychology Through the Eyes of Faith* (2002), Malcolm Jeeves and I illustrate the different levels of analysis (or "levels of explanation") appropriate to a multilayered reality. Each academic discipline provides a perspective from which we can study nature and our place in it. These range from the scientific fields that study the most elementary building blocks of nature up to philosophy and theology, which address some of life's global questions.

Which perspective is pertinent depends on what you want to talk about. Take romantic love, for example. A physiologist might describe love as a state of arousal. A social psychologist would examine how various characteristics and conditions—good looks, similarity of the partners, sheer repeated exposure to one another—enhance the emotion of love. A poet would express the sublime experience that love can sometimes be. A theologian might describe love as the God-given goal of human relationships. Since love can often be described simultaneously at various levels, we need not assume that one level is causing the other—by supposing, for example, that a brain state is causing the emotion of love or that the emotion is causing the brain state. The emotional and physiological views are simply two complementary perspectives.

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[2] "You shall love the Lord your God with all your heart, and with all your soul, and with all your mind" (Mt 22:37). Scripture quotations in this chapter, unless otherwise noted, are from the New Revised Standard Version of the Bible.

The multilayered ways of looking at a phenomenon like romantic love often correlate, enabling us to build bridges between different perspectives. A religious explanation of the incest taboo (in terms of divine will or a moral absolute) fits nicely with a biological explanation (in terms of the genetic penalty that offspring pay for inbreeding) and a sociological explanation (in terms of preserving the marital and family units). To say that religious and scientific levels of explanation often complement one another does not preclude conflict. It just means that different types of analysis can fit coherently together. In God's world, all truth is one.

Recognizing the complementary relationship of various explanatory levels (figure 1) liberates us from useless argument over whether we should view human nature scientifically or subjectively: it's not an either-or matter. "Try as it might," explained sociologist Andrew Greeley (1976), "psychology cannot explain the purpose of human existence, the meaning of human life, the ultimate destiny of the human person." Psychology is one important perspective from which we can view and understand ourselves, but it is not the only one.

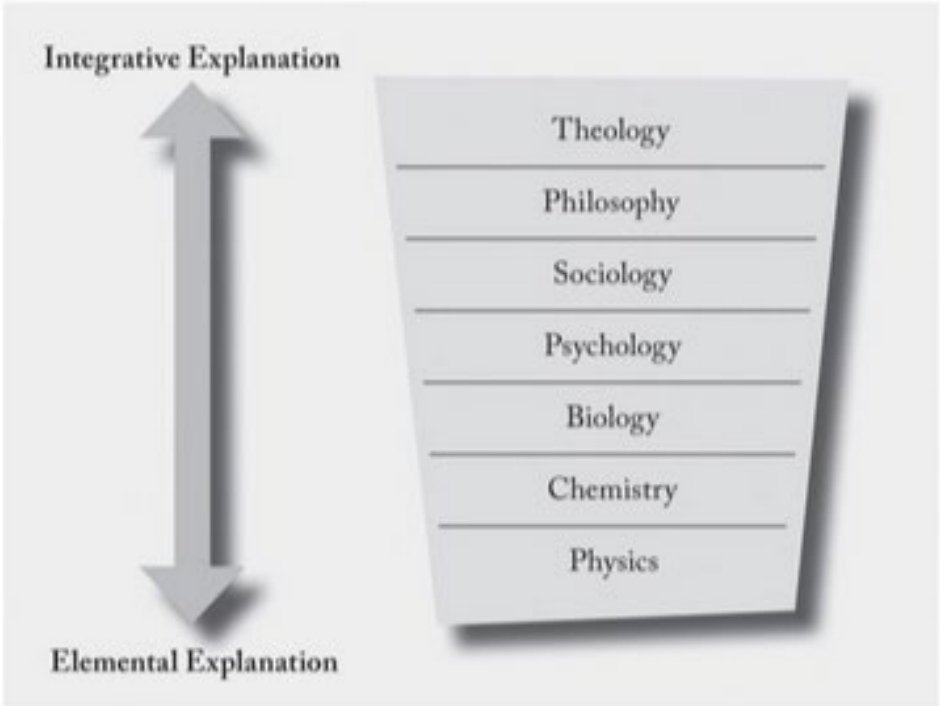

Figure 1.

PARTIAL HIERARCHY OF DISCIPLINES

The disciplines range from basic sciences that study nature's building blocks up to integrative disciplines that study complex systems. A successful explanation of human functioning at one level need not contradict explanations at other levels.

Psychological science and hidden values. Postmodernists and fundamentalists often resist psychological science. They say that psychology is so ideologically loaded that we should not swallow it uncritically. Being wary of hidden presuppositions and values, they would prefer we squeeze psychology into the contours of their ideology. For example, postmodernists have said that scientific concepts are socially constructed fictions. Intelligence, they have said, is a concept we humans created and defined. Because personal values guide theory and research, truth becomes personal and subjective. In the quest for truth, we follow our biases, our cultural bent. So, they say, we must be wary of psychology's biases and values (a message you will read elsewhere in this book).

Psychological scientists agree that many important questions lie beyond the reach of science, and they agree that personal beliefs often shape perceptions. But they also believe that there is a real world out there and that we advance truth by checking our hunches against it. Madame Curie did not just construct the concept of radium, she discovered radium. It really exists. In the social sciences, pure objectivity, like pure righteousness, may be unattainable, but should we not pursue it as an ideal? Better to humble ourselves before reliable evidence than to cling to our presumptions.

The list of popular beliefs that have crashed against a wall of observations is long and growing. No longer do many of us believe that sleepwalkers are acting out their dreams, that hypnosis uncovers long-buried memories, that our two cerebral hemispheres are functionally equivalent, that newborns are dumb to the world, that traumatic experiences tend to be massively repressed but recoverable much later, or that electroconvulsive therapy is a barbaric and ineffective treatment for profound depression.

Still, psychology's critics score points. Although psychological science helps us answer some important questions, it cannot answer all questions. "Bear in mind psychology's limits," I remind students:

> Don't expect it to answer the ultimate questions, such as those posed by Russian novelist Leo Tolstoy (1904): "Why should I live? Why should I do anything? Is there in life any purpose which the inevitable death that awaits me does not undo and destroy?" Instead, expect that psychology will help you understand why people think, feel, and act as they do. Then you should find the study of psychology fascinating and useful. (Myers, 2010, pp. 12-13)

Moreover, values indeed guide our research and reporting. Ironically, it is experiments—on "confirmation bias," "belief perseverance," "mental set" and the "overconfidence phenomenon"—that most convincingly demonstrate the critics' point: *belief guides perception.* When first viewing the "canals" on Mars through telescopes, some astronomers and writers perceived them as the product of intelligent life. They were, but the intelligence was on the viewing end of the telescope. To believe is to see.

Our values also leak through our choice of topics, our examples and emphases, and our labeling of phenomena. Consider our terminology. Should we call sexually restrained people "erotophobic" or "sexually conservative"? Should we label those who say nice things about themselves on personality tests as "high self-esteem" or "defensive"? Should we congratulate socially responsive people for their "social sensitivity" or disparage them for their tractable "conformity"? (Reflecting our culture's individualistic values, American psychology values the independent self rather than the interdependent self valued in many Asian and Third World cultures.) Without discarding scientific rigor, we can rightly expose psychology's implied values.

So, neither psychological science nor our reporting of it is dispassionate. Our preconceived ideas and values guide our theory development, our interpretations, our topics of choice and our language. In questing for truth we follow our hunches, our biases, our voices within. Perusing our results we are, at times, like the many voters who, while observing presidential debates, perceive their own predebate views confirmed. As C. S. Lewis noted, "What we learn from experience depends on the kind of philosophy we bring to experience" (1947, p. 11). Similarly, we teachers and authors cannot leave our values at home. In deciding *what* to report and *how* to report it, our own sympathies subtly steer us.

Being mindful of hidden values within psychological science should motivate us to clean the cloudy spectacles through which we view the world. Knowing that no one is immune to error and bias, we can be wary of abso-

lutizing human interpretations of either natural or biblical data. We can steer between the two extremes of being naive about a value-laden psychology that pretends to be value-neutral, and being tempted to an unrestrained subjectivism that dismisses evidence as nothing but collected biases. In the ever-reforming spirit of humility, we can also put testable ideas to the test. If we think capital punishment does or does not deter crime more than other available punishments, we can utter our personal opinions. Or we can ask whether states with a death penalty have lower homicide rates, whether their rates have dropped after instituting the death penalty, and whether they have risen when abandoning the penalty. In checking our personal predictions against reality, we emulate the empiricism of Moses: "If a prophet speaks in the name of the LORD and what he says does not come true, then it is not the LORD's message" (Deut 18:22 TEV).

Psychological science and spiritual awe. So far I have suggested that people of faith, being sensitive to hidden values, can embrace psychological science as one way to explore the human creature. There is another reason why people of faith can welcome rather than fear the advance of psychological science. At the core of the religious impulse is a sense of awe and wonder—that bewildered sense that, as J. B. S. Haldane (1928/1971) said, "the universe is not only queerer than we suppose, but queerer than we can suppose." Such awe comes more genuinely from science than pseudoscience.

Consider how we perceive the world. What is truly extraordinary is not extrasensory perception, claims for which inevitably dissolve on investigation.[3] What is extraordinary is rather our very ordinary moment-to-moment sensory experiences of organizing formless neural impulses into colorful sights and meaningful sounds.

Think about it. As you look at someone, particles of light energy are being absorbed by your eyes' receptor cells, converted into neural signals that activate neighboring cells, which, down the line, transmit a million electrochemical messages per moment up to your brain. There, separate parts of your brain process information about color, form, motion and

[3]The repeated scientific debunking of claims of paranormal, supernatural human abilities (including telepathy, clairvoyance, precognition, past-life regression, and out-of-body, frequent-flyer programs) provides our first example of the congeniality of psychological science and biblical faith. The scientific refutation of New Age ideas about humans as extensions of God supports biblical presumptions about our human limits as finite creatures of God.

depth, and then—in some still-mysterious way—combine this information to form a consciously perceived image that is instantly compared with previously stored images and recognized as, say, your grandmother. The whole process is as complex as taking a house apart, splinter by splinter, transporting it to a different location, and then, through the efforts of millions of specialized workers, putting it back together. Voilà! The material brain gives rise to consciousness. That all of this happens instantly, effortlessly and continuously is better than cool; it is truly amazing and bewildering. In explaining such phenomena I empathize with Job: "I have uttered what I did not understand, things too wonderful for me" (Job 42:3).

RELATING CHRISTIAN FAITH AND PSYCHOLOGICAL RESEARCH

Faith connects to psychological science not only by motivating scientific inquiry and sensitizing us to implicit values, but as table 1 indicates, in other ways as well. We can, for example, make religion a dependent variable by studying the psychology of religion. (Why do some people, but not others, take the leap of faith?) We can make religion an independent variable by asking whether it predicts attitudes and behaviors. (Are people of faith noticeably more or less prejudiced? generous? happy?) And we can ask how insights into human nature that are gleaned from psychological research correspond to biblical and theological understandings. As when boring a tunnel from two directions, the excitement comes in discovering how close the two approaches are to connecting.

In times past, scholars connecting faith and psychology drew on the old personality theories, as when suggesting that Freud's ideas of aggressive, narcissistic motivations complemented Calvin's idea of original sin. A newer approach relates ancient religious understandings to big ideas from psychological research. In any academic field, the results of tens of thousands of studies, the conclusions of thousands of investigators, the insights of hundreds of theorists, can usually be boiled down to a few overriding ideas. Biology offers us principles such as natural selection and adaptation. Sociology builds on concepts such as social structure, cultural relativity and societal organization. Music exploits our ideas of rhythm, melody and harmony.

In my specialty of social psychology, what are the really big ideas? And how well do these big ideas about human nature connect with Judeo-

Table 1. Seven Ways to Relate Faith and Psychology (adapted from Myers, 1995)

Strategies for Relating Faith and Psychology	Personal Examples
1. *Faith motivates science.* Believing that "in everything we deal with God" (Calvin), and aiming to worship God with our minds, we can rigorously search God's world, seeking to discern its truths, while recognizing the limits of science.	1. Experiments on "group polarization" (exploring how group discussion changes and strengthens attitudes) 2. Reviewing studies of subjective well-being (who is happy?)
2. *Faith mandates skeptical scrutiny.* In the ever-reforming spirit of humility, we put testable claims to the test.	1. Scrutinizing claims of the efficacy of intercessory prayer and faith healing 2. Reporting tests of New Age claims of reincarnation, channeling, fortune-telling, aura readings, telepathy, clairvoyance, astrology (and their implications of human godlike powers)
3. *Expressing faith-rooted values.* Like everyone, we infuse certain assumptions and values into our teaching, writing, research and practice.	Writings for Christian and secular audiences
4. *Giving psychology to the church.* We can also apply psychology's insights to the church's life. For some, this means merging Christian and psychological insights pertinent to counseling and clinical practice.	Applying social influence and memory principles to the creation of memorable, persuasive sermons and effective evangelism
5. *Relating psychological and religious descriptions of human nature.* We can map human nature from two directions, asking how well psychological and biblical understandings correlate.	Relating psychological research (in biological, developmental, cognitive and social psychology) to Christian belief
6. *Studying determinants of religious experience.* The psychology of religion can explore influences on spirituality, religious commitment, charismatic behavior, etc. Who believes—and why?	Exploring parallels between (a) research on the interplay between attitudes and behavior, and (b) biblical-theological thinking about the interplay between faith and action
7. *Studying religion's effects.* Is faith a *predictor* of people's attitudes? emotions? behavior?	Summarizing links between faith and joy (religious commitment and self-reported life satisfaction and happiness)

Christian understandings? I discern four pairs of complementary truths. As Pascal reminded us three hundred years ago, no single truth is ever sufficient, because the world is not simple. Any truth separated from its complementary truth is a half-truth.

Rationality and irrationality. How "noble in reason" and "infinite in faculties" is the human intellect, rhapsodized Shakespeare's Hamlet. In some ways, indeed, our cognitive capacities are awesome. The three-pound tissue in our skulls contains circuitry more complex than all the telephone networks on the planet, enabling us to process information automatically or with great effort, to remember vast quantities of information, and to make snap judgments using intuitive rules called heuristics. As intuitive scientists, we explain our worlds efficiently and with enough accuracy for our daily needs.

Yes, Jewish and Christian theologians have long said, we are awesome. We are made in the divine image and given stewardship of the earth and its creatures. We are the summit of the Creator's work, God's own children.

Yet our explanations are vulnerable to error, insist social psychologists. In ways we are often unaware, our explanations and social judgments are vulnerable to error. When observing others, we are sometimes too prone to be biased by our preconceptions. We "see" illusory relationships and causes. We treat people in ways that trigger them to fulfill our expectations. We are swayed more by vivid anecdotes than by statistical reality. We attribute others' behavior to their dispositions (e.g., presuming that someone who acts strangely must *be* strange). Failing to recognize such errors in our thinking, we are prone to overconfidence.

Such conclusions have a familiar ring to theologians, who remind us that we are finite creatures of the one who declares "I am God, and there is none like me" and that "as the heavens are higher than the earth, / so are my ways higher than your ways / and my thoughts than your thoughts" (Is 46:9; 55:9 RSV). As God's children we have dignity but not deity. Thus we must be skeptical of those who claim for themselves godlike powers of omniscience (reading others' minds, foretelling the future), omnipresence (viewing happenings in remote locations) and omnipotence (creating or altering physical reality with mental power). We should be wary even of those who idolize their religion, presuming their doctrinal fine points to be absolute truth. Always, we see reality through a dim mirror.

Self-serving bias and self-esteem. Our self-understanding is a fragile container of truth. Heeding the ancient admonition to "know thyself," we analyze our behavior, but not impartially. A self-serving bias appears in our differing explanations for our successes and failures, for our good deeds and bad. On any socially desirable dimension, we commonly view ourselves as relatively superior—as more ethical, socially skilled and tolerant than our average peer. Moreover, we justify our past behaviors. We have an inflated confidence in the accuracy of our beliefs. We misremember our own pasts in self-enhancing ways. And we overestimate how virtuously we would behave in situations that draw less-than-virtuous behavior out of most people. Researcher Anthony Greenwald (1980, 1984) spoke for dozens of researchers: "People experience life through a self-centered filter."

That conclusion echoes a very old religious idea—that self-righteous pride is the fundamental sin, the original sin, the deadliest of the seven deadly sins. Thus the psalmist could declare that "no one can see his own errors" (Ps 19:12) and the Pharisee could thank God "that I am not like other men" (Lk 18:11) (and you and I can thank God that we are not like the Pharisee). Pride goes before a fall. It corrodes our relations with one another, leading to conflicts between partners in marriage, management and labor, and nations at war. Each side views its motives alone as pure, its actions beyond reproach. But so does its opposition, continuing the conflict.

Yet self-esteem pays dividends. Self-affirmation is often adaptive. It helps maintain our confidence and minimize depression. To doubt our efficacy and to blame ourselves for our failures is a recipe for failure, loneliness or dejection. People made to feel secure and valued exhibit less prejudice and contempt for others.

Again there is a religious parallel. To sense divine grace—the Christian parallel to psychology's "unconditional positive regard"—is to be liberated from both self-protective pride and self-condemnation. To feel profoundly affirmed, just as I am, lessens my need to define my self-worth in terms of achievements, prestige, or material and physical well-being. It is rather like insecure Pinocchio saying to his maker, Geppetto, "Papa, I am not sure who I am. But if I'm all right with you, then I guess I'm all right with me."

Attitudes and behavior. Studies during the 1960s shocked social psychologists with revelations that our attitudes sometimes lie dormant, over-

whelmed by other influences. But follow-up research was reassuring. When relevant and brought to mind, our attitudes influence our behavior. Thus our political attitudes influence our behavior in the voting booth. Our smoking attitudes influence our susceptibility to peer pressures to smoke. Change the way people think and, whether we call such persuasion "education" or "propaganda," the impact may be considerable.

Social psychologists have repeatedly shown that the reverse is also true: We are as likely to act ourselves into a way of thinking as to think ourselves into action. We are as likely to believe in what we have stood up for as to stand up for what we believe. Especially when we feel responsible for how we have acted, our attitudes follow our behavior. This self-persuasion enables all sorts of people—political campaigners, lovers, even terrorists—to believe more strongly in that which they have witnessed or suffered.

This realization—that inner attitude and outer behavior, like chicken and egg, generate one another—parallels a Judeo-Christian idea: inner faith and outer action likewise feed one another. Thus, *faith is a source of action*. Elijah is overwhelmed by the holy as he huddles in a cave. Paul is converted on the Damascus road. Ezekiel, Isaiah and Jeremiah undergo inner transformations. In each case, a new spiritual consciousness produces a new pattern of behavior.

But *faith is also a consequence of action*. Throughout the Old and New Testaments, faith is nurtured by obedient action. The Hebrew word for *know* is usually an action verb, something one does. To know love, one must not only know about love, one must act lovingly. Philosophers and theologians note how faith grows as people act on what little faith they have. Rather than insist that people believe before they pray, Talmudic scholars would encourage rabbis to pray, trusting that belief would follow. "The proof of Christianity really consists in 'following,'" declared Søren Kierkegaard (1851/1944). To attain faith, said Pascal, "follow the way by which [the committed] began; by acting as if they believed, taking the holy water, having masses said, etc. Even this will naturally make you believe" (1670/1965). C. S. Lewis (1960) concurred:

> Believe in God and you will have to face hours when it seems obvious that this material world is the only reality; disbelieve in Him and you must face hours when this material world seems to shout at you that it is not all. No conviction, religious or irreligious, will, of itself, end once and for all [these

> doubts] in the soul. Only the practice of Faith resulting in the habit of Faith will gradually do that. (1960)

Persons and situations. My final two-sided truth is that people and situations influence each other. We see this, first, in the evidence that social situations powerfully affect our behavior. As vividly shown in studies of conformity, role-playing, persuasion and group influence, we are the creatures of our social worlds.

The most dramatic findings come from experiments that put well-intentioned people in evil situations to see whether good or evil prevailed. To a dismaying extent, evil pressures overwhelmed good intentions, inducing people to conform to falsehoods or capitulate to cruelty. Faced with a powerful situation, nice people often do not behave so nicely. Depending on the social context, most of us are capable of acting kindly or brutally, independently or submissively, wisely or foolishly. In one irony-laden experiment, most seminary students en route to recording an extemporaneous talk on the Good Samaritan parable failed to stop and give aid to a slumped, groaning person—if they had been pressed to hurry beforehand (Darley & Batson, 1973). External social forces shape our social behavior.

The social psychological concept of powers greater than the individual parallels the religious idea of transcendent good and evil powers (the latter symbolized in the creation story as a seductive serpent). Evil involves not only individual rotten apples here and there. It is also a product of "principalities and powers"—corrosive forces that can ruin a barrel of apples. And because evil is collective as well as personal, responding to it takes a communal religious life.

Although powerful situations may override people's individual dispositions, social psychologists do not view humans as passive tumbleweeds, blown this way and that by the social winds. Facing the same situation, different people may react differently, depending on their personality and culture. Feeling coerced by blatant pressure, they will sometimes react in ways that restore their sense of freedom. In a numerical minority, they will sometimes oppose and sway the majority. When they believe in themselves (maintaining an "internal locus of control"), they sometimes work wonders. Moreover, people choose their situations—their college environments, their jobs, their locales. And their social expectations are sometimes self-fulfilling, as when they expect someone to be warm or hostile and the person be-

comes so. In such ways, we are the creators of our social worlds.

To most religious traditions, that rings true. We are morally responsible, accountable for how we use whatever freedom we have. What we decide matters. The stream of causation from past to future runs through our choices.

Faced with these pairs of complementary ideas, framed either psychologically or theologically, we are like someone stranded in a deep well with two ropes dangling down. If we grab either one alone we sink deeper into the well. Only when we hold both ropes can we climb out, because at the top, beyond where we can see, they come together around a pulley. Grabbing only the rope of rationality or irrationality, of self-serving pride or self-esteem, of attitudes-affect-behavior or behavior-affects-attitudes, of personal or situational causation, plunges us to the bottom of the well. So we grab both ropes, perhaps without fully grasping how they come together. In doing so, we may be comforted that in both science and religion, accepting complementary principles is sometimes more honest than an oversimplified theory that ignores half the evidence. For the scissors of truth, we need both blades.

PSYCHOLOGICAL SCIENCE SUPPORTS FAMILY VALUES

Christians are predisposed not only to certain understandings of human nature but also to values such as love, joy, peace and other "fruits of the Spirit." As followers of the one who bade children to come to him, Christians also care about the well-being of children and the social ecology that nurtures them (intact families, responsible media, healthy faith communities). Social-science research findings generally affirm those values. To see how, consider some facts of contemporary life.

In many ways, these are the best of times. Thanks partly to the doubling of married women's employment, the average real income in the United States (even after the recent decline) is nearly triple that in 1960. As you would therefore expect, our money buys more things. We have espresso coffee, iPods, laptops and smart phones. We eat out two-and-a-half times as often, enjoy a longer life expectancy, and support equal opportunities for women and ethnic minorities.

Had you fallen asleep in 1960 and awakened in the twenty-first century, would you—overwhelmed by all these good tidings—also feel pleased

at the cultural shift? Here are some other facts that would greet you (Myers, 2000b). Since 1960 in the United States:

- Child abuse and neglect reports have increased.
- Cohabitation, which predicts increased risk of divorce, has increased more than tenfold.
- The 5 percent of babies born to unmarried parents has increased to nearly 40 percent.
- The number of children who do not live with two parents has grown to three in ten.
- Child, adolescent and adult obesity rates have soared.

Concerned Christian family advocates believe that the ideal ecology for rearing children is two adults committed to each other and to their children. Are they right? Does family structure indeed affect children's well-being? Or is it simply a proxy for another factor such as poverty, race or parental education?

Sociologists and psychologists have generated a mountain of data hoping to answer that question. One strategy has been to compare children of different family structures while statistically extracting the influence of other entangled factors. Such data come from Nicholas Zill's summary of a 1981 child health survey of 15,416 randomly sampled children, conducted by the National Center for Health Statistics, and from a 1988 repeat survey of 17,110 more children. Zill and his colleagues (Dawson, 1991; Peterson & Zill, 1986; Zill, 1988; Zill et al., 1993) recognized that intact and broken families differ in many ways: race, children's ages, parental education, family size and income (poverty, we know, can be socially corrosive). To see if those were the only factors at work, he statistically adjusted scores to extract such influences. Even so, children of intact families were less likely to display antisocial and "acting out" behavior. Those living with both parents were half as likely as those living without fathers to have been suspended or expelled from school or to have had misbehavior reported by the school. In the 1988 national survey, children in intact families were half as vulnerable to school problems and were a third less likely to repeat a grade, regardless of their age or race.

The other strategy has been to follow children's lives through time, not-

ing their well-being before and after parental divorce. A monumental but rarely discussed study by Andrew Cherlin and others (1991, 1995, 1998; Chase-Lansdale et al., 1995) began when researchers interviewed 17,414 women—the mothers of 98 percent of all British children born during the first full week of March 1958. British parents and teachers rated the behavior of nearly 12,000 of these children as seven-year-olds and again four years later, knowing that by then some would have experienced their parents' divorce. At the second rating, boys whose parents had divorced during the four years had about 25 percent more behavior problems than those whose families remained intact.

But were these children's postdivorce problems influenced by the marriage breaking up, or were they the result of the marital problems that preceded the divorce? "Staying in an unhappy marriage is psychologically damaging," asserted Pepper Schwartz (1995), "and staying only for the children's sake is ultimately not in your interest or anyone else's." So rather than stay together for the sake of the children, should unhappy couples divorce for the sake of the children?

When the children had reached age twenty-three, the intrepid researchers traced and interviewed 12,537 of the original sample, enabling them to compare those who, at age seven, were living with two biological parents with those living with one biological parent, and to compare those whose parents had divorced with those whose parents had not divorced by age sixteen. Controlling for predivorce family problems did not weaken the divorce effect. Moreover, among children of divorce, 45 percent had cohabited—a rate more than double the approximately 19 percent among children of intact marriages. "Parental divorce seems to have stimulated a pattern of behavior characterized by early homeleaving due to conflict with parents and stepparents and early sexual activity outside marriage—leading, in this cohort, to a greater likelihood of premarital birth and cohabitation," said the researchers. Yet another follow-up, with 11,759 of the participants at age thirty-three, confirmed the emotional aftermath of the chain of events that often began with parental divorce. The bottom line from this important study is that by launching children into "negative life trajectories through adolescence into adulthood," divorce predicts increased social problems.

For victims of abuse, infidelity, alcoholism or financial irresponsibility, divorce is sometimes the lesser of two evils. (We are all earthen vessels.

We all at some time find ourselves broken, if not in our love life, then in our parenting, our friendships or our vocations.) Moreover, most children of nonmarried or divorced parents thrive. Nevertheless, the results of these national studies are confirmed by dozens of others that reveal the toxicity of family disruption for many children. Why this is so is a complicated story, apparently having less to do with parenting differences than with the poverty, broken attachments, dislocations and altered peer relationships associated with family fracturing and parental absence. If normal variations in well-meaning parenting matter less than most people suppose, family collapse and its associated social ecology matters more than many suppose. (So too do the post-1960 increases in materialism, individualism, and media modeling of impulsive sexuality and violence. But those stories are for another bedtime.)

FAITH AND WELL-BEING

These findings are the tip of an iceberg of data that support the social and family values linked with religious faith. So does an active faith, therefore, enhance social and psychological well-being? Or is religion, as Freud (1928/1964) surmised, corrosive to happiness by creating an "obsessional neurosis" that entails guilt, repressed sexuality and suppressed emotions (p. 71)? Another one of the new atheists, Christopher Hitchens (2007), argues that religion is "violent, irrational, intolerant, allied to racism and tribalism and bigotry, invested in ignorance and hostile to free inquiry, contemptuous of women and coercive toward children" (p. 56). Accumulating evidence reveals that some forms of religious experience do correlate with prejudice and guilt.

However, as I document in *A Friendly Letter to Skeptics and Atheists: Musings on Why God Is Good and Faith Isn't Evil* (2008), the data also reveal that, in general, an active faith correlates with social and personal health and well-being. First, actively religious North Americans are much less likely than irreligious people to become delinquent, to abuse drugs and alcohol, to divorce, and to commit suicide (Batson, Schoenrade & Ventis, 1993; Colasanto & Shriver, 1989). Thanks in part to their lesser rates of smoking and drinking, religiously active people even tend to be physically healthier and to live longer (Koenig, 1997; Matthews & Larson, 1997).

Second, other studies have probed the correlation between faith and coping with crises (Myers, 1992). Compared to religiously inactive widows, recently widowed women who worship regularly report more joy in their lives. Among mothers of developmentally challenged children, those with a deep religious faith are less vulnerable to depression. People of faith also tend to retain or recover greater happiness after suffering divorce, unemployment, serious illness or a disability. In later life, according to one meta-analysis, the two best predictors of life satisfaction have been health and religiousness.

Third, in surveys in various nations, religiously active people also report somewhat higher levels of happiness (Inglehart, 1990). Consider a Gallup (1984) U.S. survey. Those responding with highest scores on a spiritual commitment scale (by agreeing, for example, that "my religious faith is the most important influence in my life") were twice as likely as those lowest in spiritual commitment to declare themselves very happy. National Opinion Research Center surveys reveal higher levels of "very happy" people

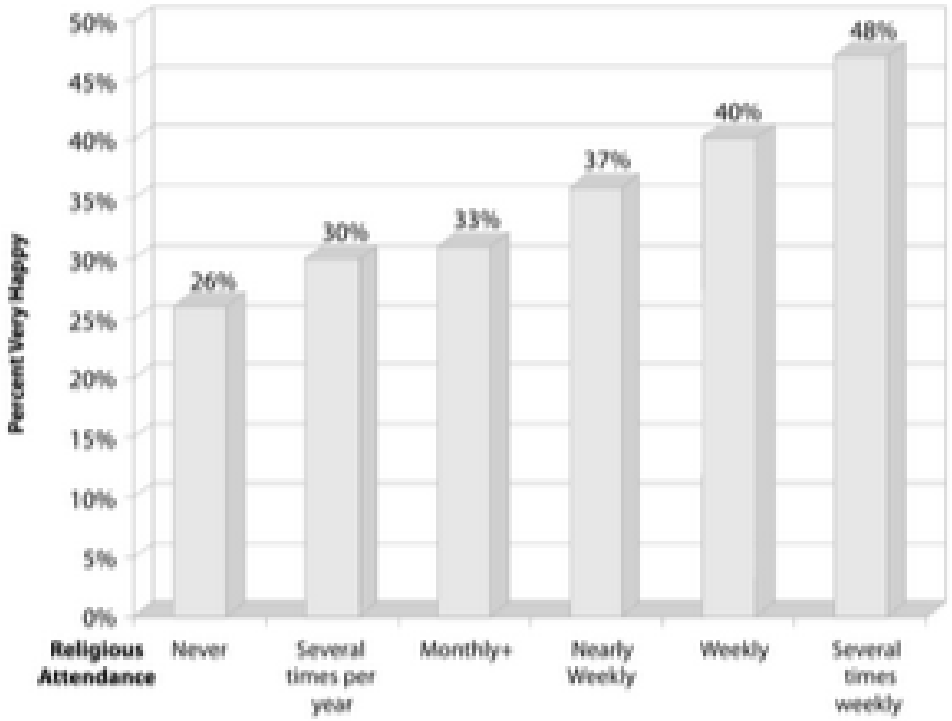

Figure 2. Religious attendance and happiness (data from 42,845 participants in the General Social Surveys, National Opinion Research Center, 1972 to 2008)

among those who feel "close to God." Self-rated spirituality and happiness may both be socially desirable responses, however. Would the happiness correlation extend to a behavioral measure of religiosity? As figure 2 indicates, it does. The evidence similarly indicates that strong religiosity predicts heightened generosity with time and money (Myers, 2008).

What explains these links between faith and personal and social well-being? Is it the close, supportive relationships—the "fellowship of kindred spirits," the "bearing of one another's burdens," "the ties of love that bind"—provided by faith communities? Is it the sense of meaning and purpose that many people derive from their faith? Is it a worldview that offers answers to life's deepest questions and an optimistic appraisal of life's events? Is it the hope that faith affords when facing "the terror resulting from our awareness of vulnerability and death" (Solomon, Greenberg & Pyszczynski, 1991)? Such are among the proposed explanations.

WHEN PSYCHOLOGICAL SCIENCE CHALLENGES FAITH

We have seen how psychological research affirms faith-rooted assumptions about human nature, faith-rooted values and faith-related well-being. Although psychological science is largely congenial to faith, it does sometimes motivate us to rethink certain cherished ideas and to revisit Scripture. As ecological findings drove biblical scholars to reread the biblical mandates concerning our environmental stewardship, so recent psychological findings have stimulated new questions among people of faith. One example below comes from research on illusory thinking, another from new information about sexual orientation. Such findings have prompted some of us to rethink our presumptions about both prayer and sexual orientation—and to look more closely at what the Bible does and does not say. Mindful that we are fallible creatures, the scientific challenge to some of our assumptions should neither startle nor threaten us. As we worship God with our minds and with humility of spirit, we should expect our "ever-reforming" faith to change and grow.

Example 1: Testing prayer. We pray, asking in faith. Sick, we pray for healing. Fearful, we pray for safety. Hopeful, we pray for success. Suffering drought, we pray for rain. Sharing our prayer experiences, we may recall times when God has answered our petitions and our intercessions for others.

And then along comes psychological experiments showing that we humans often perceive relationships where none exist (especially where we expect to see them), perceive causal connections among events that are only coincidentally correlated, and believe that we are controlling events that are actually beyond our control.

These experiments have been extended to studies of gambling behavior, stock-market predictions, clinical assessments of personality, superstitious behavior and intuitions about ESP. The unchallenged verdict: we easily misperceive our behavior as correlated with subsequent events, and thus we easily delude ourselves into thinking that we can predict or control uncontrollable events. Thus gamblers often act as if they can control mere chance events. They may feel more confident when allowed to spin the wheel or throw the die (throwing softly when hoping for a low number and hard for a high number). The gambling industry thrives on such illusory thinking.

Reading this research has provoked some of us to wonder whether illusory thinking similarly contaminates people's beliefs regarding the power of their petitionary prayers. If indeed we are predisposed to find order in random events, to interpret outcomes guided by our preconceptions, to search for and recall instances that confirm our beliefs, and to be more persuaded by vivid anecdotes than by statistical reality, then might we not misunderstand the efficacy of petitionary prayer? Is prayer not a made-to-order arena for the operation of illusory thinking principles?

If that sounds heretical, it may be reassuring to remember that warnings about false prayer come from believers as well as from skeptics. There was no stronger skeptic of false piety than Jesus. If it is heretical to think too little of the power of our prayers, is it not more heretical to think of God as a sort of celestial Santa Claus who grants our wishes if we are good?

Well then, say some researchers from both the skeptic and believer camps, why not settle the issue empirically? Why not put prayer to the test? Recognizing the mixed results and design problems in earlier prayer experiments, a massive Harvard Medical School-related prayer experiment was undertaken. One large group of coronary-bypass patients was prayed for, one not. These patients participated voluntarily, but without knowing whether they were being prayed for or not. To assess a possible placebo effect, a third group was being prayed for and knew it. From a

scientific perspective, the study seemed flawless. It exploited the clinical trial methodology used in evaluating the healing powers of a new drug.

What result would you predict from this effort to put prayer to the test? Knowing of this experiment from its beginning, I published (in some articles at «davidmyers.org») my prediction of *no* prayer effect. As I report in my introductory psychology texts, we now have impressive evidence of links between faith and health (more good news from psychology for people of faith). Nevertheless, as a person of faith, I had three reasons for predicting that intercessory prayer would not exhibit significant healing powers for the experiment's cardiac-care patients.

First, *the prayer concept being tested was more akin to magic than to a biblical understanding of prayer to an omniscient and sovereign God.* In the biblical view, God underlies the whole creation. God is not some little spiritual factor that occasionally deflects nature's course, but God is the ground of all being. God works, not in the gaps of what we do not yet understand, but in and through nature, including the healing ministries that led people of faith to spread medicine and hospitals worldwide. Thus, while our Lord's model prayer welcomes our acknowledging our dependence on God for our basic necessities ("our daily bread"), it does not view God as a celestial vending machine, whose levers we pull with our prayers. Indeed, would the all-wise, all-knowing, all-loving God of the Bible be uninformed or uncaring apart from our prayers? Doesn't presuming that we creatures can pull God's strings violate biblical admonitions to humbly recognize our place as finite creatures of the infinite God? No wonder we are counseled to offer prayers of adoration, praise, confession, thanksgiving, dedication and meditation, as well as to ask for what will (spiritually if not materially) be given. Prayer, J. I. Packer (1961) has written, "is not an attempt to force God's hand, but a humble acknowledgment of helplessness and dependence" (p. 11).

Second, even for those who believe that God intervenes in response to our prayers, there were practical reasons for expecting null effects:

The noise factor. Given that 92 percent of Americans express belief in God (Banks, 2008), all patients undergoing cardiac bypass surgery will already be receiving prayer—by spouses, children, siblings, friends, colleagues, and congregants or fellow believers, if not by themselves. Do these fervent prayers constitute a mere "noise factor" above which the signal of

additional prayers may rouse God? Does God follow a dose-response curve (i.e., more prayers yield more response)? Does God count votes? Are the pleading, earnest prayers of patients and those who love them not sufficiently persuasive (as if God needs to be informed or persuaded of our needs)? Are the distant prayers of strangers participating in an experiment also needed?

The doubt factor. To be sure, some Christians believe that prayers, uttered in believing faith, are potent. But how many people of faith also believe that prayers called forth by a doubting (open-minded, testing) scientist will be similarly effective?

God is not mocked. During the British prayer-test controversy of 1872 (over a hypothetical proposal for a similar experiment), Christians recalled that in response to one of his temptations, Jesus declared that we ought not put God to the test. Reflecting on a proposal to test prayers for randomly selected preterm babies, Keith Stewart Thompson (1996) questioned "whether all such experiments come close to blasphemy. If the health outcomes of the prayed-for subjects turn out to be significantly better than for the others, the experimenter will have set up a situation in which God has, as it were, been made to show his (or her) hand." C. S. Lewis (1947) observed, regarding any effort to prove prayer, that the "impossibility of empirical proof is a spiritual necessity" lest a person begin to "feel like a magician" (p. 215). Indeed, if this experiment were to show that numbers of pray-ers matter—that distant strangers' prayers boost recovery chances—might rich people not want, in hopes of gaining God's attention, to pay indulgences to others who will pray for them?

Third, *the evidence of history suggests that the prayers of finite humans do not manipulate an infinite God.* If they could and did, how many droughts, floods, hurricanes and plagues would have been averted? How many stillborn infants or children with disabilities would have been born healthy? And consider the Bible's own evidence: How should the unanswered prayers of Job, Paul and even Jesus (in petitioning that the cup might pass) inform our theology of prayer? If the rain falls on my picnic, does it mean I pray with too little faith or that the rain falls both on those who believe and those who do not? Should we pray to God as manipulative adolescents—or as dependent preschoolers, whose loving parents, already knowing their children's needs, welcome the intimacy?

As we awaited the much-anticipated results of this mother-of-all prayer experiments, data from other prayer experiments surfaced. As I report in *A Friendly Letter to Skeptics and Atheists*,

- A 1997 experiment on "Intercessory Prayer in the Treatment of Alcohol Abuse and Dependence" found no measurable effect of intercessory prayer.
- A 1998 experiment with arthritis patients found no significant effect from distant prayer.
- A 1999 study of 990 coronary-care patients—who were unaware of the study—reported about 10 percent fewer complications for the half who received prayers "for a speedy recovery with no complications." But there was no difference in specific major complications such as cardiac arrest, hypertension and pneumonia. The median hospital stay was the same 4.0 days for both groups.
- A 2001 Mayo Clinic study of 799 coronary-care patients offered a simple result: "As delivered in this study, intercessory prayer had no significant effect on medical outcomes."
- A 2005 Duke University study of 848 coronary patients found no significant difference in clinical outcomes between those prayed for and those not.

Climaxing this string of negative results came the final blow: intercessory prayer in the Harvard prayer experiment had no positive effect on recovery from bypass surgery (Benson et al., 2006).

Henri Nouwen once suggested that clearing the decks of some of the false gods of popular religion may prepare our hearts for the God of the Bible. The Bible does not promise that we will escape misfortune, sickness and death. Rather, it offers a perspective from which to view misfortune, a promise that God is with us in our suffering, and a hope that suffering and even death will ultimately be redeemed. In the Christian understanding, God is not a genie whom we call forth with our prayers but the creator and sustainer of all that is. When the Pharisees asked Jesus for a way to validate the kingdom of God, he answered, "The kingdom of God is not coming with things that can be observed; . . . for, in fact, the kingdom of God is among you" (Lk 17:20-21).

The Lord's Prayer, the model prayer for Christians that I pray daily, affirms God's nature and our human dependence even for daily bread. We can approach God as a child might approach a benevolent parent who knows the child's needs but also cherishes the relationship. Through prayer, people of faith voice their praise and gratitude, confess their wrongs, utter their hearts' concerns and desires, open themselves to the Spirit, and seek the grace to live as God's people.

Example 2: The question of sexual orientation. I see myself as a family-values guy. In my psychology textbooks, I document the corrosive effects of pornography, teen sexual activity and family decline. I have been on the advisory board of the marriage-promoting National Marriage Project, whose cohabitation report concludes that trial marriages undermine marriage. And I have authored *The American Paradox: Spiritual Hunger in an Age of Plenty* (2000b) to document the post-1960s social recession and its roots in radical individualism, the sexual revolution, and the decline of marriage and the two-parent family.

Hearing me speak on such things, a friend remarked, "You've become more conservative." No, I said, I've always been pretty conservative on these family concerns, because the data are so persuasive.

New data have, however, dragged me, along with other Christian thinkers such as William Stacy Johnson (2006) and Jack Rogers (2006), to revise my understanding of sexual orientation. Here are some of the observations that challenged my former assumptions (for documentation, see Myers & Scanzoni, 2006):

There is no known parental or psychological influence on sexual orientation. Factors once believed crucial actually seem not to matter. Sexual orientation appears not to be influenced by child abuse, social example, overprotective mothering, distant fathering or having gay parents. We may yet discover some parental or psychological influence. But, for now, if some new parents were to seek my advice on how to influence the sexual orientation of their newborn, I could only say, after a half century of research, that we are clueless. We simply do not know what, if anything, parents can do to influence sexual orientation.

Unlike sexual behavior and other moral behaviors, sexual orientation appears unaffected by an active faith. Earlier I noted that, compared with people who attend church rarely, those who attend regularly are less

likely to be juvenile delinquents, abuse drugs and alcohol, and divorce. In a recent National Opinion Research Center survey, they were also one-third as likely to have cohabited before marriage, and they reported having had many fewer sexual partners. Yet, for the males, they were no less likely to have had a homosexual relationship (Smith, 1996). This unpublicized finding is worth pondering. If male sexual orientation is a spiritually influenced lifestyle choice, then should same-sex relationships not—like those other disapproved tendencies—be less common among people of faith?

Today's greater tolerance seems not to have amplified homosexuality. Homosexuals are a small minority, roughly two or three percent of the population, and their numbers appear not to have grown with the emergence of a gay rights movement or with the passage of gay rights laws. Contrary to the concern that gay role models would entice more people into homosexuality, surveys suggest no increase in the homosexual minority. In 1988, when the National Opinion Research Center first asked American males about their sexual partners (with procedures that assured anonymity), 97 percent of those sexually active reported having exclusively female partners during the previous year. In 2004, the result was still 97 percent.

Biological factors are looking more and more important. This scientific story is still being written and the light is still dim, so we had all best be tentative. Nevertheless, we have learned, first, that biological siblings of gay people, especially their identical twins, are somewhat more likely than people without close gay relatives to themselves be gay. Evidence points to both prenatal influences and to brain differences in a region known to influence sexual behavior. (A similar brain difference has been observed in male sheep that display same-sex attraction.) These and other biological factors help explain a dozen you-never-would-have-guessed discoveries of gay-straight differences in traits ranging from fingerprint patterns to skill at mentally rotating geometric figures. The emerging conclusion: sexual orientation (most clearly so for males) is a natural disposition, not a voluntary moral choice. (I document these and other findings in my text *Psychology*, 9th edition. For a book-length exploration of the biology of sexual orientation, see Wilson & Rahman, 2005.)

Efforts to change a person's sexual orientation usually (some say, virtually

always) fail. People who have experimented with homosexual behavior (as many heterosexual people do) can turn away from it. Homosexuals, like heterosexuals, can become celibate. Or they can marry against their desires (with risk of future divorce) and have children. But research on efforts to help people do a 180-degree reversal of their sexual orientation—their feelings and fantasies—reveals that, though many have tried, hoping upon hope to escape their culture's contempt, few have succeeded. "Can therapy change sexual orientation?" asks an American Psychological Association statement (www.apa.org). "No. [It] is not changeable." There are anecdotes of ex-gays, but these are offset by anecdotes of ex-ex-gays—often the same people, a few years later.

The Bible has little, if anything, to say about an enduring sexual orientation (a modern concept) or about loving, long-term, same-sex partnerships. Out of 31,103 verses in the Protestant Bible, only seven frequently quoted verses (none of which are the words of Jesus) speak directly of same-sex behavior—and mostly in the context of idolatry, temple prostitution, adultery, child exploitation or violence. Some biblical scholars and theologians, such as Robert Gagnon (2002) in *The Bible and Homosexual Practice: Texts and Hermeneutics,* have assembled a biblical case against same-sex sexual relationships. Others, such as William Stacy Johnson (2006), in *A Time to Embrace: Same-Gender Relationships in Religion, Law, and Politics,* offer a biblical case that supports same-sex partnerships. Their differences, and those among the authors in this volume, involve not biblical commitment but interpretation.[4]

To suggest that sexual orientation may be disposed rather than chosen leaves moral issues open. Shall we regard homosexuality as, like left-handedness, a natural part of human diversity, or as a lamentable aberration such as dyslexia? Moreover, whether straight or gay, everyone faces moral choices over options that include abstinence, promiscuity and permanent commitment. It therefore behooves us all to discern biblical mandates and priorities, critically evaluate and learn from the natural revelations of science, regard one another with love and grace, and learn from one another through open, honest dialogue.

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[4]Robert Gagnon's detailed critique of my book, *The Christian Case for Gay Marriage* (with Letha Dawson Scanzoni), is available at ‹www.westernsem.edu/media/pub_article/rreview/autumn05›, along with my reply.

WHAT PSYCHOLOGICAL SCIENCE AND FAITH SHARE IN COMMON

To conclude, psychological science and the spirit of faith share similar ideals: humility before nature and skepticism of human presumptions. Psychological science enlivens ancient biblical wisdom about human nature. Psychological science documents the corrosion of family values and the toxic effects of that corrosion for children and civic life. Psychological science has shown the correlates between an active faith and human health and happiness. And psychological science challenges us to revisit certain assumptions, mindful that all truth is God's truth, and therefore, truth is to be welcomed rather than feared. This is not to say that psychological science, value-laden and limited as it is, should ever be the final word. Rather, by often affirming and sometimes challenging our prejudgments, it helps keep alive that "ever-reforming" Reformation spirit.

In that spirit, we in this book lay our tentative and still-forming thoughts before one another, welcoming one another's reflections and critique. My surest conviction is that some of my ideas err. And that is why I welcome the correction and admonition of my esteemed colleagues.

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