Dietrich and Karl-Friedrich Bonhoeffer

THE BROTHERS BONHOEFFER ON SCIENCE, MORALITY, AND THEOLOGY

by Larry Rasmussen

Abstract. On one level this is a case study in science, religion, and morality, with special attention to the consequences for morality of science's embeddedness in society. On another level this is the science-and-theology dialogue between the theologian Dietrich Bonhoeffer and his brother Karl-Friedrich, a physicist. The influence of Karl-Friedrich and the brothers' exchanges on Dietrich's prison theology receives special attention. Because this study is set in Germany in the 1930s and 40s, and Karl-Friedrich's work intersected Germany's efforts to develop a nuclear weapon, the discussion leads to Los Alamos and the Manhattan Project. The attention there is to the interplay of science, religion, and morality at the time the bomb was detonated at the Trinity site.

Keywords: Dietrich Bonhoeffer; Karl-Friedrich Bonhoeffer; *deus ex machina*; Fritz Haber; individual and communal moral responsibility; Manhattan Project; Robert Oppenheimer; science, morality, and religion; scientific knowledge; Leo Szilard; theology

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Civilization and barbarism are not incompatible, and science serves them both well. This is a conclusion from the following case study. Set amid German fascism in the 1930s and 40s, it is a study in science, religion, and morality. The immediate subjects are the brothers Bonhoeffer, Dietrich and Karl-Friedrich. Connected at a distance are Los Alamos and the Manhattan Project.

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The moral character of individual scientists receives some attention here because that has proven vital time and again. But more attention falls to science's embeddedness in society, a factor only partially related to the moral character of individual scientists. In both instances it is important to state that science does not do science; scientists and societies do. This makes science a wholly human affair, subject to the triumph and tragedy of the human spirit and human institutions. Science cannot avoid cultural and ideological construal because scientists as human beings cannot and because the practice and uses of science in society do not, whether under the auspices of government, commerce, or university. Genius and great accomplishment reign here. So do perversity and stupidity.

We turn to Germany in the early 1930s. Most readers know of Dietrich Bonhoeffer, the pastor-theologian hanged by the Nazis for his part in the failed coup d'etat of July 1944. Fewer know of Karl-Friedrich Bonhoeffer, though he, a renowned scientist, was better known than Dietrich in the Germany of their day. Karl-Friedrich was Dietrich's oldest brother and the only one of the four Bonhoeffer sons to survive the wars and executions.

The scientist and the theologian both lived amid the misuse of science and religion. Both were moved deeply by the moral horror they not only saw around them but were part of. Both were deeply patriotic Germans, both were righteous Gentiles, and both accepted guilt and responsibility for their nation's crimes—crimes that made meticulous, efficient use of science and scientists as well as acculturated religion.

Born in 1899, Karl-Friedrich was seven years older than Dietrich. With his brother Walter, he took up military service in World War I and, like Walter, joined with a sense of duty to his country. Walter was killed within weeks, and Karl-Friedrich was wounded, though not seriously. After the war he swiftly attained international renown as a physical chemist, working closely with Nobel laureates Otto Hahn and Fritz Haber, the latter a close friend of both Karl-Friedrich and Albert Einstein. Bonhoeffer at 24 had become Haber's assistant at the prestigious Kaiser Wilhelm Institute in Berlin, establishing his reputation with groundbreaking work on the hydrogen molecule. But he stopped his work on "heavy water" when he suspected it could be used by his nation to develop a weapon of mass destruction, some kind of nuclear fission device and a subject of much interest and work among his good friends. That was near the onset of World War II, and Karl-Friedrich switched from physical chemistry to electrochemistry. Meanwhile his friend and colleague Hahn joined Fritz Strassmann at the Kaiser Wilhelm Institute in successfully splitting the uranium nucleus, the first recorded instance of planned atomic fission. (This was the event that Niels Bohr reported in his four-month stay at Princeton in early 1939 and that eventuated in the Manhattan Project after Enrico Fermi and I. I. Rabi brought news of it back to the Physics Department of Columbia University.)

Bonhoeffer, although rejecting that research on moral grounds, went on to hold the most important German professorates of physics in Frankfurt and Leipzig, after turning down professorships in Zürich, Breslau, Harvard, and the University of Chicago. His institute in Leipzig was heavily bombed, and after the war he returned to Berlin and the bereft Bonhoeffer family (his parents and sisters had survived the war, together with their children). There, in succession, he managed the Kaiser Wilhelm Institute and the Max Planck Institute. In due course he built the new Max Planck Institute in Göttingen, where his younger sister, Dietrich's twin, Sabine, lived with her family after returning from safety (and exile) in England (Sabine's husband, Gerhard Leibholz, was Jewish). The Göttingen institute now bears Karl-Friedrich's name, and in the tributes to him upon his death in 1957 he was consistently spoken of as a great scientist and a person of high moral character. "In the most difficult times he remained completely objective and upheld truth throughout," his colleagues wrote (Leibholz-Bonhoeffer 1994, 15). W. Jaenicke, one of the Jews he protected at his institute, wrote, "The same love of his country with which Karl-Friedrich Bonhoeffer went into the field as a volunteer in 1917 made him wish the defeat of Germany in the second World War" (Bethge 1995, 43).

Karl-Friedrich was already famous enough in the Nazi years that he successfully risked not signing the mandatory loyalty oath to Hitler required of all university professors, the same loyalty oath that Dietrich urged all pastors not to sign. He harbored Jews in his institute right up until the end of the war in 1945. In fact, together with similarly oriented members of the military-political conspiracy against the Nazi state, he became for the younger Dietrich the exemplar of an ethic of responsibility toward history for the sake of future generations when hope for their own generation lay in ruins. It is exactly this ethic that Dietrich was writing in the days between travel assignments for the military-political conspiracy. Karl-Friedrich did not ask, amid the horror of the Nazi years, how he might extricate himself heroically from the affair, although he had such opportunities, including those prestigious professorships abroad. He asked how he should live for the sake of future generations and another Germany.[1] Their mother, Paula, once said that because her firstborn turned out right, the other children did as well.

The brothers' relationship was warm and lighthearted, although they engaged in serious academic exchange and reported to one another on their reading. Karl-Friedrich wrote to Dietrich regularly while Dietrich was in prison and was able to see him on occasion. They both managed a sense of humor, against all good reason. A letter of Karl-Friedrich to Dietrich in Tegel Prison goes like this:

> Do you have time and peace of mind in your cell to do some work on your own account, or is the time completely lost for you as far as academic work is concerned? Can I get you books from the university library? So far I've kept avoiding

this question, as I thought that by the time I had an answer you would be out again. Even this disappointment does not prevent me from hoping the same thing again. When I get a few quiet minutes from the tumult of children [Karl-Friedrich, his wife, Grete von Dohnanyi, and their children are together with his sister Susanna and hers] I've been studying a little book on the structure and function of the brain. I read recently that the offspring of wild animals born in the zoo have a smaller brain than their contemporaries born wild in natural surroundings. An effect of imprisonment which will perhaps interest you—excuse the feeble joke. At any rate, one does not notice this aspect in your letters. They are always a great delight to us. They're always sent on to me by the parents or Maria. . . . Much love from us all. Get as much good out of this time as you can. Yours, Karl-Friedrich. (1972, 98 [30 August 1943])

The brothers were partners in a science-and-theology dialogue. Karl-Friedrich's empiricism, like that of their father, Karl, was part of the unflagging intellectual honesty and down-to-earth realism Dietrich brought to theology. Dietrich, although a convinced Barthian who staked true knowledge on God's self-revelation in Jesus Christ as the Word, never let go of modern empiricism's open-ended, consequences-oriented thinking. He even speaks of the significant turn in his own thinking "from phaseology to reality" "under the influence of father's personality" (1972, 275 [22 April 1944]). Down-to-earth empiricism is not all that Bonhoeffer means by "reality," by any means, but it is a critical element. He will have nothing whatsoever to do with any otherworldly Christianity. It is an utterly earthbound, earth-honoring, this-worldly faith for him—faith, incidentally, that was commensurate with science's story of evolution as Bonhoeffer understood it. While suspicious of all natural theology, he is emphatic about our nature as creatures of the earth whose very essence is to be that and no more. In his theological exegesis of Genesis 1–3, *Creation and Fall*, he writes: "Even Darwin and Feuerbach could not use stronger language than is used here [in Genesis]. Humankind is derived from a piece of earth. Its bond with the earth belongs to its essential being. The 'earth is its mother'; it comes out of her womb" (1997, 76).[2]

The scientific empiricism influential for Dietrich was not the province of only the men in the family. Dietrich's sister Christine, although she did not pursue a professional career in science, was a biologist. But let us leap to the conclusion and circle back later for details.

If we wish to understand Dietrich's famous theological letters from prison, rejecting the God of the gaps, God as a working hypothesis to explain what we do not know, and God as the *deus ex machina*—the rescuer God—and if instead we desire to find God in what we do know rather than what we don't, and in the center and not astride the unknown edges; and if we want to know why Bonhoeffer's perennial question "Who is Jesus Christ, for us, today?" turns on "claiming Christ for a world-come-of-age;" and if we wish to understand the utter earthbound orientation of Bonhoeffer's intellectually spacious Christianity and ministry, then we need to recog-

nize a shadow in the background—Karl-Friedrich's—and, behind him, father Karl's. Dietrich's famous prison theology[3] is deeply influenced by the science literature he is reading and by the ethos of Enlightenment values and science embodied by his brother, sister, and father. I cite a greeting to Karl-Friedrich from Dietrich in 1940 and then two smuggled letters to Eberhard Bethge from prison. From 1940:

> By the way, I must tell you that I am currently reading the book *Science Breaks Monopolies* with real enthusiasm, like reading a novel. If only we had been told such things in school or somewhere later. For me it is practically changing my world view; at least it is making a great impression on me and giving me much joy. (Bethge 1995, 53)

And from prison:

> I am now reading with greatest interest Weizsäcker's book [*On the World-View of Physics*] and hope to learn a great deal from it for my own work. (Bonhoeffer 1972, 308 [24 May 1944])

> Weizsäcker's book . . . is still keeping me very busy. It has again brought home to me quite clearly how wrong it is to use God as a stop-gap for the incompleteness of our knowledge. If in fact the frontiers of knowledge are being pushed further and further back (and that is bound to be the case), then God is being pushed back with them, and is therefore continually in retreat. We are to find God in what we know, not in what we don't know; God wants us to realize his presence, not in unsolved problems but in those that are solved. That is true for the relationship between God and scientific knowledge, but it is also true of the wider human problems of death, suffering, and guilt. (1972, 311 [29 May 1944])

Now add to this the meaning of the phrase "world-come-of-age" (see especially 1972, 324–29 [8 June 1933]). It means taking full moral responsibility for dramatically heightened human knowledge and human power affecting "the whole of earthly life" in unprecedented ways. This greatly expanded human knowledge and power does not posit God as necessary to either knowledge or power and does not turn to God for a bailout when that knowledge and those powers fail, as they do and will. Here we see Bonhoeffer's sharp critique of religion, together with the new departures of his prison theology, deeply, if indirectly, informed by the secular humanist scientists in his family who were, at the same time, moral exemplars.

We will come back to this. But first, more about the relationship of the brothers.

Dietrich made two trips to the United States. Both were to Union Seminary, New York, and both were turning points for him. The first was in 1930–31, when he was a student at Union. The second was in 1939, when he returned to Union having been offered refuge there by Reinhold Niebuhr and Paul Lehmann. Largely by coincidence, Karl-Friedrich also spent part of 1930–31 in the United States, but he turned down the professorship at Harvard and the chance to stay longer. In 1939, he was headed for

the University of Chicago as Dietrich headed for Union. Karl-Friedrich was offered a post at the university. Dietrich agonized over his absence from Germany. Again by coincidence, they boarded the same steamer home, Karl-Friedrich having declined the Chicago professorship and Dietrich having declined safe sanctuary in New York. That voyage, it turns out, was the last civilian crossing before the outbreak of the war. Karl-Friedrich knew of the developing military-political conspiracy against the Nazi government, which Dietrich now joined. Karl-Friedrich, at home in Frankfurt and Leipzig, was never as directly involved as those in the Bonhoeffer–von Dohnanyi nucleus in Berlin.

Let us hear from the brothers about 1930–31. This is a turning point for Dietrich that plays out not only for *Discipleship* (2001) but also for *Letters and Papers from Prison* (1972).

Dietrich writes to Karl-Friedrich about racism. Albert "Frank" Fisher, one of the few African-American students at Union then, had become Dietrich's mentor in what turned out to be Harlem's ministry to Bonhoeffer, where Bonhoeffer attended church and taught Sunday school. In his report on study at Union, Bonhoeffer remarks that "the race question" seems to be "arriving at a turning point" and wonders aloud whether "the 'black Christ' has to be led into the field against the 'white Christ'" (Bonhoeffer 1965, 112). He writes to Karl-Friedrich about this, and Karl-Friedrich, by now back in Germany, replies:

> I'm delighted you have the opportunity of studying the Negro question so thoroughly. I had the impression when I was over there that it is really *the* problem, at any rate for people with a conscience and, when I was offered an appointment at Harvard, it was a very basic reason for my disinclination to go to America for good, because I did not want either to take on that legacy myself or to pass it on to my hypothetical children. It seems impossible to see the right way to tackle the problem. (Bethge 2000, 151)

Then, in stunning witness to moral misjudgment, even among the most discerning, Karl-Friedrich adds: "In any case, our Jewish question is a joke by comparison." We will visit the tragic dimensions of that soon. For now, let it be noted that "the race question" is profoundly theological for Dietrich and at the heart of the church's essence and ministry. For Bonhoeffer, how otherness is apprehended and lived is *the* crucial issue for "community," and community is the very form of Christ's presence.

By 1930–31 Bonhoeffer had already written *Sanctorum Communio,* his doctoral dissertation. Its theme is "Christ existing as community," and behind it is Bonhoeffer's comprehensive theology of relationality, or sociality. Relationality means that being with and for others is our nature as humans—that is, we are biosocial creatures by nature. For Bonhoeffer it also means that being with and for others is the church's nature and the nature of Jesus. When later he names Jesus simply "the person [*Mensch*] for others" and says that the church is only the church when it is the church

for others, he means that in that moment when the church does *not* take its stand with and for others the church forfeits its essence as church and abdicates its discipleship and its ministry. (He has in mind the failure to intervene for the Jews.) Even more broadly, Bonhoeffer's theology of sociality and solidarity means that none of us can deny or diminish the humanity of any other without diminishing, even erasing, our own. The real-life, daily test of that for Dietrich was white supremacy in the United States and Aryan racism as anti-Semitism at home.

Meanwhile, at Union, the seeds of a classic of the twentieth century, Bonhoeffer's *Discipleship*, were being sown in the sod of the Union Quad. Classmate and Frenchman Jean Lasserre struck up an unusual friendship with Bonhoeffer, given post-Versailles antipathy between Germany and France and given that both men were patriots who loved and defended their mutually hostile countries. However, they loved Jesus more, and Lasserre, an ardent Calvinist pacifist, convinced the Lutheran Bonhoeffer that the core of Jesus' teaching in the Sermon on the Mount (Matthew 5–7) is the doable ethic of nonviolent discipleship at the heart of following Jesus day by day. The Sermon would soon become, for Bonhoeffer, the *locus classicus* for resistance by the Confessing Church as Germany goose-stepped toward totalitarianism.

All of this belongs to Bonhoeffer's conversion from an academic theologian to an engaged Christian disciple. Let me share Dietrich's letter to Karl-Friedrich about this. Recall that Karl-Friedrich, like the brothers' father, is an agnostic scientist and a good Enlightenment secular humanist who found Dietrich's choice of theology odd, if not a waste. Here are Dietrich's retrospective comments to Karl-Friedrich from early 1935.

> We really have hardly seen each other at all in the last few years, so the days together recently were very good ones for me. Perhaps I seem to you rather fanatical and mad about a number of things. I myself am sometimes afraid of that. But now I know that the day I became more "reasonable," to be honest, I should have to chuck my entire theology. When I first started in theology, my idea of it was quite different—rather more an academic, probably. Now it has turned into something else altogether. . . . I think I am right in saying that I would only achieve true inner clarity and honesty by really starting to take the Sermon on the Mount seriously. Here alone lies the force that can blow all this hocus-pocus sky-high—like fireworks, leaving only a few burnt-out shells behind. The restoration of the church must surely depend on a new kind of monasticism,[4] which has nothing in common with the old but a life of uncompromising discipleship, following Christ according to the Sermon on the Mount. I believe the time has come to gather people together and do this. . . . Forgive me for these rather personal ramblings, but they just came to me as I thought about our time together recently. And, after all, we *do* have an interest in each other. I still have a hard time thinking that you really find all these ideas completely mad. Things do exist that are worth standing up for without compromise. To me it seems that peace and social justice are such things, as is Christ himself. . . . I recently came across the fairy tale of "The Emperor's New Clothes," which really is relevant for our time. All we are lacking

today is the child who speaks up at the end. (Bonhoeffer 2007, 294–85 [letter of 14 January 1935)

So the brothers talked about American racism and about the deep ways in which the Sermon on the Mount was shaping Dietrich's person and ministry in that portion of the church that resisted encroaching fascism. But Dietrich had another interest at Union that he discussed with Karl-Friedrich. He knew of Karl-Friedrich's philosophical interests and wrote as follows:

I have come to know American philosophy quite thoroughly, and have in the process often thought of you, Karl-Friedrich. Even though I haven't gained much more faith in the whole business than before, I have, however, learned a great deal from it. [William] James is extremely interesting to read. (Bonhoeffer 2008, 293–94 [letter to Karl-Friedrich and Margarethe Bonhoeffer])

Dietrich is a bolt-upright follower of Karl Barth and thus given to distancing autonomous theology from philosophy. But he also is taken with the pragmatic empiricism of William James and by James's claim that religion is valid only insofar as it demonstrates its ethical usefulness. It is not coincidence that, of his generation, Bonhoeffer is the one who writes an *Ethics* as his life work (2005), and not the systematic theology expected of German systematicians. In any event, Bonhoeffer never lets go of modern empiricism and the intellectual honesty of Enlightenment science and its deep critique of so much religion, which Dietrich largely shares. Still, this is the influence not so much of James as of Karl-Friedrich and the preeminent professor of psychiatry and neurology at Humboldt University and the Charité—their father, Karl.

But let me return to the brothers' story and my earlier comment about lurking tragedy and the Jewish question. The conspiracy of goodness of which Karl-Friedrich is part also harbors the mystery of iniquity of these years. These years yielded those terrible choices and moral agonies that led Dietrich in *Ethics* to write that "Shakespeare's characters are among us. The villain and the saint . . . arise from primeval depths" (2005, 76) and to tally the impotence of all the standard ethical options—duty, reason, obedience, virtue, freedom, conscience, principle, and so on (2005, 77–80). None of the traditional moral systems effectively met the force of systemic evil. Accepting the call to national service, as a scientist or any other citizen, was to be captured by principalities and powers wreaking destruction. Individuals might do the right thing, like harbor Jews or smuggle them out of the country, but their actions were isolated and could not move a nation off the wrong track.

Here Karl-Friedrich is central, not Dietrich. Karl-Friedrich protected Jewish colleagues all through the years when the only laughter heard was the laughter of hell. One of the harbored was Fritz Haber. Haber belongs to that extraordinary cadre of German Jews who won fourteen of the thirty-

eight Nobel prizes between 1905 and 1936. He won in 1920 and, together with Carl Bosch, is credited for what some claim is the most important invention of the twentieth century: a synthetic way to fix nitrogen. The Haber-Bosch process uses heat in chemical "crackers" to synthesize nitrogen from the air, turning it into ammonia, which is then used to produce fertilizers (Northcott 2007, 244–45). Vaclav Smil says that two of every five humans on earth today would not be alive apart from this invention because it became the means of mass monocrop production of the basic food crops: corn, soybeans, wheat, and rice (Pollan 2006, 42). It meant significantly increased food surpluses. It also made possible the growth in meat-based diets. Haber would never see the outcome that we do now—the abandonment of most traditional agriculture in favor of fossil-fueled industrialization of agriculture and factory farming, with deleterious consequences for humans and the rest of nature.

Haber's context was World War I, and he, the devoted patriot scientist, threw himself into his nation's war effort. When Britain choked off Germany's supply of nitrates from abroad, Haber created a synthetic nitrate that allowed *das Vaterland* to continue making bombs. When the German war machine became mired in the trenches of France, Haber turned his genius to developing poison gases—ammonia and chlorine. He personally directed their use on the battlefield and returned home a hero, a rare feat in an utterly humiliated, defeated nation. His wife, a fellow chemist sickened by her husband's contribution to the war, picked up his army pistol and shot herself. Although Haber later converted to Christianity, Aryan racism brooked no exceptions, and Haber fled Germany for Switzerland. He died, broken, in a Basel hotel room. When Karl-Friedrich heard, he organized a memorial for Haber and wrote a speech for it. The Nazi Ministry of Education and Culture reacted fiercely and forbade Karl-Friedrich's address. He gave it anyway, but at a private funeral ceremony. For the public event, Karl-Friedrich asked his colleague Hahn to stand in for him. Hahn had first split the atom and, like Haber, was a Nobel laureate. So Hahn gave the address, but it was Karl-Friedrich's, word for word.

Here is Karl-Friedrich's letter to the Haber children:

> I have just learned from the newspaper of the death of your respected father. I am so dismayed by it that I can hardly find words. [I am so sorry] that he had to die at this moment! Everything good and beautiful which I owe to him comes back to me, and I cannot suppress the feeling of bitterness at our powerlessness to support him in these last difficult years. I shall always remember his wisdom and goodness, and as long as I live I shall do everything in my power to nurture and keep his memory alive in our field. I am grateful to the fate which for many years brought me close to such an extraordinary man as your father, and I hope that I will have an opportunity to express publicly how much Germany owes to him and also what I feel for him. Since I do not know where his grave is, I intend to have a wreath laid at the Haber-Linde as a sign of my gratitude. . . . With deep sympathy, always your Karl-Friedrich Bonhoeffer. (Bethge 1995, 43–44)

Iron clouds of tragedy hung heavy here. In addition to Haber's own death in exile, his son Hermann committed suicide in 1947, and Hermann's daughter shortly thereafter.[5] Karl-Friedrich says he regrets that Haber died at this moment [1934], that he will keep Haber's memory alive, and that he desires to publicly express all that Germany owes Haber, the brilliant patriot scientist. But at this moment Karl-Friedrich did not know, and Haber could not, what the state would do with another of Haber's inventions. Haber not only gave the world food for billions via synthetic nitrogen as fertilizer; he also invented Zyklon B, hydrogen cyanide—the death camp gas used against his own people in the Holocaust. Haber had developed Zyklon B to exterminate vermin. The Nazis said that was exactly what they were doing.

Friends, there is no known cure for human perversity and the terror of history, so do not be surprised either by the grandeur and generosity of the human spirit and the tender ties that bind friend to friend or by the misery to which that same spirit can descend in agony and horror, surrounded only by the ridicule of hell. There is in all of us, wittingly or unwittingly, something of the killer, just as there is in all of us an angel of mercy and delight. Further, all ideological channeling of painstaking science runs grave dangers, as does all practice of science—and religion—that presses on without firm moral constraints. The unspeakable use of the science of the fervent patriot Haber is the most tragic case, but it is hardly a solitary one.

To repeat: Civilization and barbarism are not incompatible, and science serves them both well, sometimes failing to note the difference between them or do much about it. Individual scientists, like Karl-Friedrich, may protest and even, at risk to their own lives, take treasonous yet moral actions. Doing the right thing, however, does not stop the diabolical use of science. The use of science, diabolical or otherwise, sometimes entails unexpected religion and fallen angels of light. I shudder over "Trinity" as the site for the bomb that made little Los Alamos, New Mexico, world famous for blasting open the door to the nuclear age. Robert Oppenheimer, a man of genuine humanist learning, read the sonnets of John Donne during sleepless nights in the summer of 1944 as the countdown to the test proceeded apace. One sonnet goes like this:

Batter my heart, three-personed God; for you
As yet but knock, breathe, shine, and seek to mend;
That I may rise and stand, o'erthrow me, and bend
Your force, to break, blow, burn, and make me new. (Conant 2005, 237)

This plea to the "three-personed God" to "break, blow, burn" in order to overthrow, transform, and make new remains the name for the closed-off site in the remote section of the desert known since the sixteenth century as Jornada del Muerte, "Journey of Death." Conquistadors, Franciscan priests, and fellow travelers gave thanks to God when they survived those

ninety miles and arrived at a little settlement on the northern edge named Socorro—"succor" or "sustenance."

The mindset of the good and patriotic Los Alamos scientists did not let the name Trinity stand in its doctrinal form, however. They did not overtly object or argue with their leader. Rather, because their collective mindset conformed to the Euro-American consciousness and identity that Dietrich in 1932 named "war and industry," or "the machine and war," "Trinity" soon became "Project T." And the bomb itself was not even "the bomb"; it was "the gadget." It was still called that when it was raised to the top of the tower at Trinity and exploded in the porcelain blue skies over the skullcap mounds of the Jornada del Muerte. The weapons physics and plutonium bomb lab was even called "G" Division—gadget division. Project T and G Division—Trinity and gadget—such is the way we split off and distance great destructive powers of our own making. Such is the way we objectify, trivialize, and remove ourselves from the horror and terror that inhabit our creations. We do it with deep, if casual, religion, on the one hand, and trivializing objectification, on the other, sometimes adding humor to counter the insanity.

When the "gadget" detonated, and these world-class scientists got to see who won the betting pool about its force, religion again emerged, this time as scripture. Oppenheimer's account of the desert success of the gadget, called "Fat Man" to distinguish it from "Little Boy," the bomb dropped on Hiroshima, reads as follows:

> A few people laughed, a few people cried. Most people were silent. I remembered the line from the Hindu scripture, the Bhagavad Gita: Vishnu is trying to persuade the Prince that he should do his duty and to impress him he takes on his multi-armored form and says, "I am become Death, the destroyer of worlds." I suppose we all thought that, one way or another. (Conant 2005, 308)

And here is what Thomas Farrell, not one of the scientists but the deputy military commander of the Manhattan Project, reported about the tense expectation at countdown time:

> Everyone in that room knew the awful potentialities of the thing they thought was about to happen. The scientists felt that their figuring must be right and the bomb had to go off but there was in everyone's mind a strong measure of doubt. The feeling of many could be expressed by "Lord, I believe; help Thou mine unbelief." We were reaching into the unknown and we did not know what might come of it. It can be safely said that most of those present—Christian, Jew and atheist—were praying and praying harder than they had ever prayed before. If the shot were successful, it was a justification of the several years of intensive effort of tens of thousands of people—statesmen, scientists, engineers, manufacturers, soldiers, and many others in every walk of life. (Conant 2005, 307)

Vishnu, the Bhagavad Gita, and a gospel encounter with Jesus; the three-personed God, the gadget, and hard prayer. This is not the straight and narrow evil of the train tracks to Auschwitz, where Haber's patriot science

in the hands of hardworking racists exterminated his own people. This is perversity's more subtle work among those who would be genuine heroes, saving us from the ravages of war and industry hell-bent upon nihilistic empire. Yet, if Dietrich is right, the paradigm as well as the identity in both cases is still war and industry, and science serves them both well.

The Los Alamos scientists were not as convinced of their own moral course as official lore has it, however. Leo Szilard, who in 1934 filed a patent for the world's first chain reaction and the concept of a "critical mass" to create it, was the Columbia University scientist who asked Albert Einstein to write the letter to President Franklin D. Roosevelt that led to the Manhattan Project. Szilard also invented the concept of the "breeder" reactor to create plutonium for fuel and atomic bombs. Szilard, while still at Columbia and well before the Manhattan Project, was keenly aware of what Farrell called "the awful potentialities of the thing that was about to happen" (the testing at Trinity) (Conant 2005, 307) and, in a second letter to the Commander in Chief via Einstein, urged him not to use the bomb against Japan but to demonstrate the power of this weapon to the world by exploding it in an uninhabited area. Roosevelt died before Szilard could meet with him, and President Harry Truman sent Szilard to meet with Jimmy Byrnes, soon to be appointed Secretary of State. Byrnes was dismissive of him and his argument that use of the bomb in war would likely start a nuclear arms race between the United States and the Soviet Union.

Szilard then organized a petition of Manhattan Project scientists. Sixty-eight of them signed it before Oppenheimer forbade any further circulation of the petition and secretly alerted General Leslie Groves, the military head of the Manhattan Project, about it. The day after the Trinity explosion, on July 17, 1945, Szilard nonetheless bundled his petition sheets in a manila envelope, addressed them to Truman, and sent them up the military chain of command. Groves had his subordinates delay release of them to the president until after the decision to drop the bomb on Hiroshima had been made. Meanwhile, Groves conducted his own poll among his scientists and was chagrined that 83 percent favored a demonstration before using the bomb in warfare. He squelched that poll and, even after Fat Man and Little Boy were dropped and Japan surrendered, he had Szilard's petition declared Secret to keep it from publication. Szilard's security clearance was revoked, too.

I share two portions of the scientists' petition:

> The development of atomic power will provide the nations with new means of destruction. The atomic bombs at our disposal represent only the first step in this direction, and there is almost no limit to the destructive power which will become available in the course of their future development. Thus a nation which sets the precedent of using these newly liberated forces of nature for purposes of destruction may have to bear the responsibility of opening the door to an era of devastation on an unimaginable scale.[6]

Two paragraphs on, as they discuss the moral responsibility that accompanies the lead the United States has in creating this weapon of mass destruction, the scientists write:

> The added materials strength which this lead gives to the United States brings with it the obligation of restraint and if we were to violate this obligation our moral position would be weakened in the eyes of the world and in our own eyes. It would then be more difficult for us to live up to our responsibility of bringing the unloosened forces of destruction under control.

On the fiftieth anniversary of the Hiroshima bombing, in 1995, Hans Bethe, a Nobel laureate who was a senior Manhattan Project scientist, called upon all scientists to cease from aiding in efforts to develop, improve, or manufacture all weapons of mass destruction. Later that same year, Joseph Rotblat received the 1995 Nobel Peace Prize and urged all scientists to heed Bethe's call as the scientist's parallel to the Hippocratic Oath of physicians. Rotblat was the solitary Los Alamos scientist who left the project when he became aware that the Germans would not succeed in creating an atomic weapon. A parallel of sorts in the United States to Karl-Friedrich Bonhoeffer in Germany, he vowed he would never again work on a real or potential weapons project.

All of this, to say far too little, is a cautionary tale about science, morality, religion, and their twists in the course of national service and, for that matter, in the service of market society. I am certain that Karl-Friedrich and Dietrich Bonhoeffer would have understood such gnarled perversity at a deep level. They probably would also have found it rather inexplicable, at least in part. And they would have wondered, as Dietrich and fellow conspirators did in an essay he wrote about the lessons learned in resisting Nazism, "Are we still of any use? What we shall need is not geniuses, or cynics, or misanthropes, or clever tacticians, but plain, honest, straightforward [human beings]. Will our inward power of resistance be strong enough, and our honesty with ourselves remorseless enough, for us to find our way back to simplicity and straightforwardness?" (Bonhoeffer 1972, 16–17)

We conclude with the theological letters from prison. Dietrich has put aside the work on *Ethics,* his contemplated *magnum opus.* New insights rush in about God, the world, and "Jesus Christ, for us today." He must accommodate them before returning to the constructive ethical task for postwar Germany and postmodern Christianity.

On some matters his convictions remain firm. His God is the gracious and suffering God incarnate in Jesus and the Spirit. His theology is Martin Luther's theology of the cross and Barth's free, sovereign, self-revelatory God of the cosmos.

While these tonic chords remain in place, there are new melody lines, and we find him writing clearly in his own hand and finding his own distinctive voice rather than channeling Luther or Barth. Almost all of

these new lines are under the influence of the science-and-religion conversation as it has been prompted by the moral and intellectual stance of the scientists in his family, on the one hand, and the ruins of Germany, the Confessing Church, and the modern project of industry and war, on the other. The contrast for him is one of religious consciousness and world-come-of-age consciousness. The question then becomes how to claim Christ for a world come of age and follow a Jesus who calls us not to a new religion but to life.

Let me draw the contrast, and let the reader listen for science and religion between the lines.

For the person of religious consciousness, God is a working hypothesis for explaining whatever is (or seems) unexplainable. Contrasted with this is a characteristic of the world come of age: the growth of human autonomy through the increase of human knowledge and powers. Humankind in a world come of age, using autonomous reason, can and does interpret natural and social processes and can and does face life's questions without the tutelage of a divinity, from premises that do not and need not posit God. Where God or the gods once were employed to account for almost everything, now other explanations suffice, largely scientific ones—or they suffice at least as well as religious ones. The ensemble of explanations in sphere after sphere is assembled without God's necessary participation.

When God *is* used as a working hypothesis for explaining the as-yet unexplainable, God is located in the unknown rather than the known. As the known increases, again largely via the enterprise of scientific endeavor, God is farther and farther removed from the center of life and pressed ever outward toward the boundaries, which are themselves pushed back as human knowledge and powers increase. This shrinks and marginalizes both God and religion. Religion becomes a separated sector of life, a sector of the unknown and inexplicable, rather than the centering dimension in our overriding sense of reality. By contrast, Bonhoeffer, under the influence of science and the history of which it is part, wants us to find God in what we do know and in our strengths rather than in what we don't know and in our weaknesses. That, he says straightforwardly in the previously cited letter to Karl-Friedrich, is the relationship of God and scientific knowledge.

The mention of our strengths leads to a second comment about God in *Letters and Papers from Prison.* The God of religious consciousness is also the *deus ex machina* and not only a working hypothesis. In the plays of antiquity, whenever the normal course of human events could not muster some action essential to the plot, a god or goddess intervened and performed a rescue. The business of life and the plot could then move on to the next dramatic episode. Bonhoeffer contends that people of religious consciousness turn to God and religion only (but always) when their human resources fail to secure solutions to problems that exhaust them or that they regard (or choose to regard) as insoluble or interminable. God

and religion rescue us from dangers we encounter but cannot face or control. Or they function, in some grand theodicy, sooner or later to right all those wrongs we are too tired to right as our passion for justice wanes but our comforts and complacency do not.

The contrast with world-come-of-age consciousness is stark. The growth of human autonomy through the increase of human knowledge and powers means that human destiny, and much of the rest of the planet as well, falls into human hands in ever greater measure. And people of world-come-of-age consciousness regard themselves as irrevocably accountable for their answers to life's questions, together with the consequences of the answers chosen and acted upon. Where there is failure and tragedy, as most certainly there will be, there is no ready recourse to God and religion. The buck is not deposited with "God," "circumstances," "fate," or any other religious or quasi-religious account.

It should be noted that by "world come of age" Bonhoeffer does not mean moral wisdom. He means psychological maturity and moral accountability, or responsibility. He does not mean that humankind has achieved a degree of moral accomplishment never before attained. Neither he nor Karl-Friedrich could have even imagined *that* amid the imperial fantasies of the Third Reich and its malevolent uses of good science. The Los Alamos scientists may have imagined or assumed that moral wisdom accompanied their knowledge and power, but only until the painted blue skies of Jornada del Muerte exploded in blinding white. In any event, Bonhoeffer means that humanity is morally responsible for the uses of increased knowledge and powers, whether they are exercised in a morally wise manner or not. He means that world-come-of-age people accept that responsibility without denying or deflecting it. There is no returning to an adolescent dependence on a father—even a "heavenly Father"—who will pay the fine and bail us out. For world-come-of-age people like Karl-Friedrich, humankind's future or lack of future rests in human hands, fragile and trembling though they be.

We can see why Bonhoeffer has no place for God as the *deus ex machina*. In that scenario the compassionate and empowering God is experienced by people not in their achievement and strength but only in their resignation, weakness, and doubt. Religion is for people in their trouble or alarm rather than for people at their best and striving to be so. It is for people when they are exhausted, defeated, and even self-denigrating, when they are most turned in upon themselves and preoccupied with their own troubles, rather than for people as they join God's sufferings in the life of the world, for its healing. Religious people locate God beyond the world, except for some interior realm in their own consciousness that serves as the point of contact with God. God is thus removed from the world except for a speaking place in the recesses of the solitary soul, and religion is removed

from critical engagement in the public arena. Jesus is not the one with and for others; Jesus is mine, on call.

Of course, all of this can be overdrawn. Bonhoeffer, too, turns to the suffering God in his own agony. Bonhoeffer, too, is keenly aware of his weakness and not only his strength, and he finds himself in the arms of God in his weakness as well as in his strength. But that is only to underscore what he calls the whole of earthly life as the domain of God in Christ and the Spirit, as well as the domain of discipleship, in marked contrast to the shrunken domain of religion and its dumbing down of human moral responsibility for the whole of earthly life.

I have intended to probe the kind of science and the kind of religion, together with the relationship between them, that is represented by the sort of science pursued by Karl-Friedrich and the faith and ethics pursued by Dietrich Bonhoeffer. The relationship is a moral one for both brothers and a theological one for Dietrich. The question is whether, or how, the sober lessons there carry over into the joint pursuit of science and religion today in view of the fact that morality's preserve is not solely, or even chiefly, that of individuals' choices, whether those of scientists or other citizens. What C. Wright Mills called "higher immorality"[7] pertains to the moral status of the social-political-economic systems that shape, channel, make possible, and constrain (or broaden) individual choices. The routine operation of structures and systems generates moral and immoral behavior en masse. In Germany it kept the trains running on time—to Auschwitz, Dachau, and the front. The proper question, then, is not simply what qualities of character Karl-Friedrich and other scientists possess. The question is what sort of science he and others pursue and what uses are made of it, both in and out of their hands.

Notes

A version of this essay was given as an address for the Science and Theology Workshop at Bethlehem Lutheran Church, Los Alamos, New Mexico, 19 April 2008.

1. This sentence is a paraphrase of Dietrich Bonhoeffer's, from the essay on the lessons learned in a decade of fighting fascism, "After Ten Years" (in Bonhoeffer 1972), 7.
2. "The earth is its mother" is a reference to Sirach 40:1b. Elsewhere at this time, in the 1932 address titled "Thy Kingdom Come! The Prayer of the Church-community for God's Kingdom on Earth," Bonhoeffer cites the exact words of this verse—that earth "is the mother of us all." ("Thy Kingdom Come!" is included in Rasmussen in press.)
3. The prison theology is the subject of the letters from April through August, 1944 (1972, 271–394). It includes the phrases cited in this paragraph.
4. Bonhoeffer initiates this in the cloistered seminary at Finkenwalde. The world knows it in another form, his little book *Life Together* (1996).
5. See Stern 1999, 163 (regarding Hermann Haber's suicide in 1947), 121 (regarding Hermann's oldest daughter).
6. The full text of the petition is at *http://www.reformation.org/leo-szilard.html.*
7. This is the title of a chapter in Mills 1956.

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