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EDITORIAL

# The Promise of Palliation

C. BEN MITCHELL, PHD

Among the many casualties of the war on opioid abuse are patients who are in genuine pain, especially toward the end of life. They are the "collateral damage" at the intersection of the battle against death and the fight to control the abuse of pain killers, such as fentanyl, oxycodone, and hydrocodone.

Technological advancements in science and medicine have prolonged the lifespan of patients with incurable diseases. Yet, at the same time, these relative successes have resulted in increased prevalence of chronic illness and suffering, including intractable pain. With all its wonders, the developments in modern medicine have meant that patients now often live with painful conditions for much longer than they would have several generations ago.

Some years ago, the *Clinical Practice Guidelines for the Management of Cancer Pain* stated that "every patient should have the expectation of pain control as an integral aspect of his/her care throughout the course of the disease." The promise of palliation is not only good medicine in this era of increasingly sophisticated drug therapy, hospice and palliative care, and pain management teams, it is as close to a "patient right" as anything I can image.

The war on opioids—combined with unsubstantiated worries about addiction among dying patients—leads one to worry that advocacy will increase for legalized physician "aid in dying" (aka, assisted suicide and euthanasia). The real "aid in dying" should be palliation, but many patients are experiencing unnecessary physical pain due to limited opioid production and draconian local policies to curb illicit opioid use. According to Dorothy Wu, a hospice and palliative care researcher, "Anecdotal reports from hospice providers suggest that non-terminal patients with chronic pain are seeking care from hospices to obtain access to opioids, *despite the requirement that they forego curative care*. Such patients are making decisions that pain management outweighs other potential treatment outcomes. Hospice providers face difficult decisions when prognosis is unclear and appropriate use for such drugs is uncertain" (italics mine). If this is the case, it is easy to see that the next step for some patients would be to request assisted suicide.

Both public and private funding sources should invest in research on non-addictive pain medicine like those being developed by entomologist Bruce Hammock at the University of California, Davis. Hammock has developed a novel drug for chronic pain that he said has proved both effective and non-addictive in animal trials. His motivation came from his own experience: "The extreme and poorly treated pain that I observed as a medical officer working in a burn clinic in the Army, is a major driver for me to translate my research to help patients with severe pain."

The intersection of these two crises demands that the medical community continue to develop more efficacious pain management modalities while trying to curb the abuses. Patients and their families deserve the best pain management

compassionate practitioners can offer. The promise of palliation is a promise to be kept.E&M

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GREY MATTERS

# Machine Intelligence as Interpreter: Ethical Implications of Neural Speech Decoding

WILLIAM P. CHESHIRE, JR., MD

*Who is talking to me right now? Is it you, or is it the sentient computer pretending to talk on your behalf?* – Comedian John Oliver interviewing Stephen Hawking[1]

## Abstract

*The neurobiological capacity for language, a cardinal aspect of being human, can be lost by disease and, in some cases, partially restored by technology. Research is advancing toward more sophisticated devices to detect and compute methods to decode brain signals corresponding to language, including brain-computer interfaces that might one day disclose unspoken words. Enabling the mute to communicate is a prima facie ethical duty in neurorehabilitation. Extending the reach of brain-computer interface technology beyond its therapeutic grasp to enhance normal function is both intriguing and ethically problematic.*

## Introduction

My friend David no longer speaks. Once a skilled physician and inspiring teacher, he now inhabits the constricted realm of one who has lost nearly all motor function while retaining his intellect. When his motorized scooter whirs down the aisle at church, he smiles with tireless optimism and raises his thumb as high as he can lift it. The source of his unquenchable joy is his faith in the resurrected Lord. Devastatingly weakened but refusing to give in to disability, he completed and published the book[2] he had begun writing when he was first diagnosed with amyotrophic lateral sclerosis (ALS or Lou Gehrig's disease). Since then, he has gradually lost all speech, and his voluntary movement is limited to a flicker of his hand. Word-by-word or letter-by-letter, he communicates by pointing at a digital board mounted to his scooter. He knows that the time may come when he will no longer be able to communicate his thoughts.

## Locked-In Syndrome

Locked-in syndrome is a very rare neurologic condition in which the patient is awake and conscious but unable to communicate by producing speech, facial, or limb movements.[3] In addition to ALS, its causes include hemorrhage, ischemic stroke, demyelination, or tumors involving the brainstem, most commonly the ventral pons. Additionally, systemic poisoning with curare or botulinum toxin can cause a reversible locked-in state.[4] These illnesses have in common pathology that severs language and thought at the level of the cerebral cortex from the nerves and muscles

that carry out conscious actions. Locked-in syndrome was poignantly enacted in the biographical film *The Diving Bell and the Butterfly*.[5]

## Listening to Neurons

In cases of uncertain consciousness, technologies that detect dynamic patterns of brain function may aid in the detection of arousal or signs of covert conscious awareness, improve diagnostic accuracy, and guide efforts at reestablishing communication. A variety of experimental models have investigated signal variations in electroencephalography (EEG), magnetoencephalography (MEG), and functional magnetic resonance imaging (fMRI) in passive paradigms, which assess cortical functional connectivity elicited by external stimuli, and in active paradigms, which assess evidence of the patient's ability to modify brain activity on command.[6-10]

Recent studies have also employed brain-computer interfaces that detect brain responses in the absence of behavior expression.[11-14] A brain-computer interface (BCI) is a device that detects brain signals corresponding to thoughts and, without the need for muscle movement, translates them into machine messages or commands. Some BCI researchers envisage a holy grail in the development of a recording and stimulating device capable of probing vast numbers of neurons simultaneously, functionally merging brain and machine, fusing the human with his artifact. The neuroscientist Rodolfo Llinás has proposed threading nanowire electrodes into the intricate arborizing cerebrovascular system to gain access to the many tiny electrical fields generated by neurons deep within the brain without having to drill through the skull.[15] The potential health risks of such hypothetical interventions are unknown but probably nontrivial.

Once neurons are accessed by such probes, there is the further challenge of decoding their exceedingly complex signals and nanoscale interactions. Brain surgery affords a rare opportunity to take a closer look. When a patient with a brain tumor or an epileptic seizure focus is evaluated prior to excising the abnormality, direct intracranial recordings may be performed to map "eloquent cortex," meaning areas of the cerebral cortex that if removed would result in loss of language, motor, or sensory function. For example, Wernicke's area in the superior temporal gyrus is involved in language comprehension, and Broca's area in the inferior frontal gyrus is involved in language production. Their precise localization varies from person to person, and language functions are distributed over other cortical regions as well.

A number of studies highlight decisive advances toward what for some is the long-term goal of communicating with computers by thought alone.[16,17] In a study of seven patients undergoing evaluation for epilepsy surgery, using an automatic speech recognition program, Herff and colleagues were able to decode continuously spoken speech from intracranial electrocorticographic recordings with word error rates as low as 25%.[18] Recently, Akbari and colleagues used deep learning computational techniques to analyze recordings from the auditory cortex in five patients undergoing evaluation for epilepsy surgery as they heard someone recite numbers from zero to nine. When the computer reconstructed the neural data as audio output, a group of listeners identified the numbers with 75% accuracy.[19] In another study of three patients undergoing intracranial monitoring for epilepsy surgery, Anumanchipalli and colleagues used a computer neural network to decode signals recorded by high-

density electrocorticography as the patients read sentences. When the data were transformed to acoustic output, naïve listeners, who were asked to identify which one of ten sentences displayed on a screen they were hearing, correctly identified the sentences 83% of the time.[20] Interestingly, speech decoding demonstrated similar spectral features when the patients mimed words and did not speak aloud.[20] This suggests that unspoken words, and perhaps also imagined speech, might in principle be accessible to technological sensors if inserted deeply enough into the relevant parts of the cerebral cortex.

Obtaining direct intracranial recordings with cortical electrode grids or penetrating wires risks injuring the brain through mechanical disruption, hemorrhage, thrombosis, or introduction of infection, and such injury potentially can cause seizures. Ethical justification of long-term intervention would require that the potential benefit to the patient outweighs potential harms. That condition may be satisfied for the patient who is locked in and otherwise unable to communicate, but invasive brain procedures to enhance cognitive function in healthy individuals cannot be ethically justified. Nevertheless, the information gained from research studies using these techniques over the short term in patients whose brains are already exposed for surgical treatment may lead to generalizable knowledge of how to decode brain signals. Such knowledge may enable the development of more sophisticated, perhaps even noninvasive, BCIs. However, within the constraints of physics and the limits of foreseeable technology, sensors placed over the scalp and separated from the brain by its dense surrounding cranium are incapable of accessing brain signals at sufficient resolution to reconstruct information as complex as language.

## Ethical Aspects

BCI research is intensely multidisciplinary, drawing from neurobiology, psychology, mathematics, information technology, computer science, and engineering. Arguably, it should also draw from ethics. The technical challenges, though considerable, are steadily being overcome.[16,21] The ethical aspects, also fascinating, have only begun to be explored.

One finds in the bioethics literature definitions of "personhood" that would exclude from the human community those who are neurologically locked in. Mary Anne Warren and Daniel Dennett, for example, stipulate as a necessary condition for personhood the capacity for verbal communication.[22,23] While not explicitly disqualifying a conscious patient who is unable to communicate, Peter Singer, in basing his definition of personhood on the functional characteristics of rationality, autonomy, and self-awareness, tacitly presupposes the capacity to communicate these characteristics. As justification for euthanasia of humans categorized as nonpersons, Singer writes: "Ending a life without consent may also be considered in the case of those who were once persons capable of choosing to live or die but now, through accident or old age, have permanently lost this capacity."[24] When applying Singer's ethics to evaluate the worth of the vulnerable patient with an intellectual disability, Daniel Smith writes, "Absence of evidence can be taken directly as evidence of absence."[25]

A functionalist view of the human person leads also to the comment by Burwell, Sample, and Racine, who write that a BCI allowing a locked-in patient to

communicate "creates hope for restoration of personhood."[26] The idea that someone who was a person yesterday is now neurologically impaired and thus no longer a person today, but with a technological prosthesis might be a person again tomorrow, lacks coherence. Even M. C. Escher would be perplexed trying to draw a moral diagram of how this works or how a nonperson might have hope.

Applying technology to improve or restore a neurologically impaired patient's ability to communicate is a prima facie ethical obligation. To enable the patient, whenever possible, to participate in his or her medical care, indicate treatment preferences, ask questions, and share thoughts and concerns respects the patient's dignity as a human being who bears the image of her Creator. This dignity is not forfeited if the patient loses the capacity to communicate. Nor has the language-impaired, the minimally conscious, or the unconscious patient lost human dignity.

On occasion, despite careful observation, it may be unclear whether a patient with motor paralysis who is unresponsive retains consciousness. Behavioral signs of conscious awareness may be indefinite, inconsistent, or absent at the time of neurologic assessment. Studies have shown that as many as 40% of noncommunicating patients are incorrectly assigned a diagnosis of vegetative state, or unresponsive wakefulness syndrome.[27] A BCI that could accurately diagnose covert consciousness noninvasively and unambiguously would be a welcome clinical tool. A valid clinical test of consciousness would distinguish active from passive cognitive processes, the former being a potential signature of conscious thought, whereas the latter may reflect only reflex transmission of stimuli along a neural pathway. Relevant to this distinction is the finding that electrocorticographic signals of comprehended speech differ from those of non-comprehended speech.[28]

Successful development of working BCIs could improve the lives of the severely disabled by restoring their ability, not only to communicate but also to interact with the world around them.[29,30] BCI technologies might restore lost capacities that we often take for granted, such as mobility, eating, dressing, and self-care, as well as bring within reach the ability to engage in a range of meaningful activities.

Potential applications of BCIs might extend also to nonclinical uses in healthy individuals, particularly if noninvasive or minimally invasive techniques were to become feasible.[31] Primitive BCI technologies have already appeared in the computer game industry, and the market for their use will likely increase as users seek to connect with simulations and enter into virtual realities of their own or others' making. Potential applications beyond that are a matter of ongoing speculation ranging from the reasonable to the hyperbolic.

## Loss and Gain in Translation

Making communication more digital does not necessarily make it more clear in meaning. BCI technology would add to the ambiguities of human communication the uncertainties of interpreting artificially decoded thought.

Language in the brain is no linear string of words that a machine might blindly transcribe as an optical character-recognition device scans sentences on a page. Words formulated, chosen, and about to be spoken may approximate that, but the thoughts behind them are dynamic, fluctuating, laced with images, fused with emotions,

linked to memories, and continuously evaluated by a network of brain regions about which neuroscience has only a partial understanding. Further, the thoughts that give rise to language may be shaped by reason, driven by desire, influenced by the imagination, hindered by anxiety, arrested by fear, inspired by hope, or guided by forethought—the neurobiological correlates of which are exceedingly complex and to a large degree unknown. An electronic interface might tap into some of these components, but whether all of these could be reached and meaningfully decoded would be an ambitious if not unobtainable goal.

Deciphering the vast data from brain signals corresponding to language requires the most advanced computational resources, including artificial intelligence (AI). Current research is already doing this. Each of the examples cited above utilized AI. The automated speech learning program used to extract data from electrocorticographic recordings[18] was based on machine learning, a type of AI in which the machine learns to recognize patterns of data without being explicitly programmed. Research that converted electrocorticographic recordings to audio output[20] utilized artificial neural networks, a type of AI in which layers of connected units or nodes model biological neurons. Research that analyzed electrocorticographic recordings from the auditory cortex[19] utilized deep learning, a type of AI in which a cascade of hierarchical neural networks extract representations that correspond to abstract concepts.

The design of the technology required to read language signals in the brain, therefore, necessarily extends beyond transliteration to interpretation. Some simple examples illustrate how AI might undertake this. Many are familiar with the disambiguating text entry feature on mobile phones that suggests common words based on the first letters typed, allowing the user to complete sentences with fewer keystrokes. AI takes this to a new level as the machine learns the individual user's patterns of communication and actively predicts what he or she intends to write based on past input. The physicist Stephen Hawking communicated through an interface that relied on machine learning to anticipate his words and intentions, greatly simplifying his part by relieving him of much of the tedium of entering his text letter by letter.[32]

Conceivably, further progress in textual assistance from AI may not only correct spelling but also offer synonyms, suggest nuanced word choices, indicate or fail to display words not recommended, or propose further points or examples to consider. A BCI might detect the user's emotional state and display nonverbal communication, modify the tone of speech output to conform with the user's passion or, in other cases, conceal the user's vulnerability. Further, AI might assist the writer in real time with the formulation of arguments and effective rhetorical techniques. AI might detect logical fallacies as they are being written and offer arguments around them. Taking into account demographics, AI might anticipate reactions by readers. Tapping into historical, literary, and political repositories of data, AI might predict long-term societal consequences and, like a live spellcheck app, offer critique while the author is just beginning to compose an argument.

At some point along this dizzying hypothetical extrapolation it may become unclear who is the author. Unseen and undetected, the biases of the programmer or software vendor may exert undue influence on what otherwise would have been the free expression of ideas.

## While We Are Speculating

Let us assume for the moment that the trajectories of neuroscience and computational technology will eventually converge. Whether that can happen in the ways that futurists and technological enthusiasts predict is highly questionable. Nevertheless, these thought experiments are interesting to consider for the sake of argument.

A possible future scenario along these lines might find electronic probes interfacing, not just with brain areas corresponding to hearing or the motor output of speech but also with brain areas containing the thoughts that precede and give rise to language. A BCI might even eavesdrop on one's private thoughts, which could be a benefit or a risk, depending on the purpose to which the technology was deployed. It might detect deception, which would be useful and serve justice if applied to criminal prosecution but dreadful and undermining of trust if applied to family relationships. To date fMRI research has found distinguishing truth-telling from lying through brain imaging to be an elusive goal.[33]

These scenarios raise the ethical questions of who ought to have access to information about someone's brain states and in what circumstances it is appropriate. Suppose a BCI could detect mental fatigue or frustration. Informing the user could signal the need for rest or, if signs were persistent or severe, the need to seek help. Informing the employer or, in the case of a professional, the governing regulatory board could have potential career implications.

BCI technology might well uncover thoughts and biases of which one was unaware. Disclosing them could provide opportunities for self-understanding and growth in maturity. Disclosure could also risk provoking feelings of shame that the person might not have the resources to overcome. Should an individual have the right not to know his or her unconscious thoughts?

In normal conversation many fleeting thoughts are appropriately left unspoken and are forgotten. Would a BCI assisting with speech production blurt out unintended comments and store them in perpetuity? Would the user have the ability to preview or edit BCI output? Would a patient with an implanted BCI have the ability to turn the device off? Who decides?

If AI contributed to the generation of speech from a locked-in patient, might the machine or its programmers decide what is in the patient's best interest to express or to filter out? Suppose a locked-in patient unable to breathe on his own and communicating through an AI-enabled BCI was asked whether he wished to continue with mechanical ventilation. As the algorithm proceeded to interpret subtle brain signals, whether the BCI programmer or vendor had a financial relationship with the health insurer covering the cost of his care would be a contextual detail of no small relevance.

Finally, might the exchange of information from brain to computer be made to flow in both directions? If an electronic device could read brain signals corresponding to language, could it also be designed to implant ideas? Might a BCI user have reason to be uncertain whether his thoughts were truly his own or generated by the machine?

## Conclusion

BCI scientist Brendan Allison predicts that, "BCIs will first be exotic, then novel, then widespread, then unexceptional, and finally boring."[34] A corresponding forecast of the public's moral concerns might be a progression from evaluating BCIs as far-fetched, then rarely applicable, then beneficial as balanced against risks, then routine as long as justly distributed, and finally mundanely irrelevant.

Considering the historical impact of disruptive technologies, neither of those predicted pathways rings true. The full story will be punctuated by the unpredictable, for human decisions will still be made in regions of grey matter indecipherable by computational technologies.

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CLINICAL ETHICS DILEMMA

# Surgery In Those Who Cannot Give Consent[1]

ROBERT D. ORR, MD, CM; FERDINAND D. YATES, JR., MD, MA (BIOETHICS)

**Editor's Note:** *This column presents a problematic case, one that poses a medical-ethical dilemma for patients, families, and healthcare professionals. As this case is based on a real medical situation, identifying features and facts have been altered in the scenario to preserve anonymity and conform to professional medical regulations. In this case, a mother needs to decide whether or not her infant—who has a substantial chromosomal abnormality—should undergo recommended surgeries.*

**Column Editor:** Ferdinand D. Yates, Jr, MD, MA (Bioethics) is a medical staff member at Children's Healthcare of Atlanta and has a private pediatric practice in the Atlanta area.

## Question

Is it ethically permissible for this infant's mother to decline standard surgical procedures?

## Story

This three-and-one-half-week-old girl was the product of a full-term, normal second pregnancy in a 34-year-old woman named Elizabeth. She was born vaginally at an outlying community hospital, weighing just under six pounds, and she looked healthy at birth. She was soon noted to have a high-pitched cry, some unusual physical features, and a right-left transposition of her internal organs. At eighteen hours of age, she was transferred to the Medical Center NICU with respiratory distress, which had started after vomiting and choking. She has been found to have "*cri du chat* syndrome" (French, cry of the cat) caused by a chromosomal abnormality. In her case, there is an unusually large chromosomal defect. She is awake and fussy, has a poor suck reflex, produces a lot of respiratory mucous, coughs, chokes frequently, and is tube fed in the prone position with her head elevated. She has some periods when she temporarily stops breathing.

The prognosis for this syndrome is that some babies survive with severe mental retardation (average IQ = 20), but most succumb to respiratory infections from aspiration. Nearly 90% of survivors display self-injury or mutilating behavior. This baby was found to have severe gastroesophogeal reflux,[2] which is part of this syndrome. Because of this, she has a very poor prognosis for being able to avoid repeated respiratory infections. Two surgeries are proposed: a minor procedure to insert a feeding tube through her abdominal wall and a major operation to reduce her risk of aspiration. Her mother declines both.

Her mother is a business executive. She describes herself as basically optimistic and says her life is otherwise good; she is financially secure. She is divorced from

the father of her healthy nine-year-old daughter but remains in close contact. The father of this child is not involved. She has researched these diagnoses extensively, is well informed, and has discussed matters with her Seventh Day Adventist pastor. In light of the baby's poor long-term prognosis, she has consented to orders for no resuscitation and no ventilatory assistance. The reason she gives for declining the proposed surgeries is, "I love her too much to do that to her." Her plan is to take her daughter home for comfort care. She volunteers that she would give up working to care for her if she had a chance for a decent quality of life, which she describes as breathing, eating and experiencing some joy. She is personally comfortable with the chosen treatment plan, but she requests ethics consultation because she wants to ensure that she is within ethical bounds as well.

## Discussion

Neonatology operates under a professional and societal mandate to protect vulnerable newborns from premature or inappropriate limitation of treatment decisions for infants with physical or mental disabilities. The federal "Baby Doe Regulations" define clear limits when it is legally permissible to withhold or withdraw therapy from handicapped newborns. States, hospitals, and individuals interpret these regulations with varying degrees of latitude, some allowing more parental discretion than others. The primary ethical imperative is that the decision-makers, both professional and family, should seek the best interests of the infant; survival in a compromised but comfortable condition should ordinarily be sought if it is feasible.

In this case, the two offered surgeries are standard procedures that would be used in this infant if she had severe reflux without the chromosomal anomaly. However, her short-term ability to appreciate her environment is very limited. And in both the short and long term, she will experience the burdens of her compromised life (aspiration, choking, shortness of breath, self-injury). Even if surgeries were done to reduce reflux, she would still have respiratory distress from her heavy secretions. Both her professional caregivers and her mother appear to be seeking her best interests.

## Recommendations

1. It is ethically permissible to withhold vigorous life-saving therapies if this infant should deteriorate.
2. It would be ethically permissible to provide the two recommended standard surgical procedures.
3. It is also ethically permissible to forgo these invasive procedures, which might temporarily forestall death but would do nothing to enhance her poor quality of current or future life.
4. The permissibility of withholding other non-burdensome modalities (feeding, antibiotics) is less clear. Most would maintain that these are morally obligatory; others would say they are required only if needed for patient comfort.
5. It might be worthwhile to discuss these matters with all NICU staff involved in her care to ensure understanding and to determine if any of her caregivers have significant dissenting opinions.

## Follow-Up

The baby did not have the proposed surgeries. She was discharged home on hospice care at four weeks of age.

## Comment

Some people of faith oppose any decisions to limit treatment that are based on the infant's current or future quality of life. This resistance is often warranted since some parents are more concerned about their own quality of life than they are about the child's. Had this been an average case of *cri du chat* syndrome, this would have to be considered. However, the fact that her particular chromosomal defect was larger than the average for this syndrome suggested that her abnormalities would be of the more severe type. In addition, in this case, the Mom's extended research and her willingness to sacrificially care for this infant lent support to her request.

## Editor's Comment

Children typically have no voice, and as in this case, the mother often does the speaking for the child. However, different mothers have different voices, often different opinions of care, and certainly different situational circumstances. Frequently, the best interest of the child is delicately intertwined with that of the caretaker, and what may be medically-ethically allowed for the child may be quite burdensome for the parent. One of the goals of the medical ethicist is to provide guidelines and boundaries and to help ensure a proper medical-ethical transition of health care for the patient and the parent.[3]

## Endnotes

1. The article, as originally published, was untitled.
2. Reverse flow of stomach contents up the esophagus, with the potential for aspirating said material into the lungs.
3. Reprinted by permission of the publisher. "Medical Ethics and the Faith Factor", William B, Eerdmans Publishing Company. Grand Rapids, Michigan, 2009, 344-346.

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GUEST COMMENTARY

# Robots, Jobs, and Leisure: Being Human in the Face of Technological Disruption

JACOB SHATZER, MDIV, PHD

## I

Indulge me a moment as I recall a novel I recently read. Paul is a lead engineer of a massive factory in which machines do all of the work. The only employees are a few engineers, their secretaries, and a security force to protect the machines. All the people who used to work the machines live in another part of town. Their lives are pretty comfortable: taxes on the machines give them a decent enough living. But for work they can either be in the Army or the Reconstruction and Reclamation Corps—in other words, public works. Repairing roads.

We quickly learn that while Paul's father was instrumental in setting up this society, and he himself has a great place in it, he isn't satisfied. Something seems missing from the human experience: meaningful, respectable work. Now, I won't spoil what Paul ultimately does or how the book ends, but right in the middle, he does what you might expect: he decides that he has to get away from this increasingly automated, soul-killing society. So he buys an old-fashioned farm for himself and his wife.

I've neglected to tell you the name of the book and its author. It sounds like something Wendell Berry might write, doesn't it? Man returns to farm. It's actually called *Player Piano,* written in 1952. It's Kurt Vonnegut's first novel. Almost 20 years before *Slaughterhouse Five.*

But why did we start here?

As Nigel Cameron argues in his aptly titled book, *Will Robots Take Your Job?*, there is a risk that advanced forms of automation will mean that full employment is no longer possible for many world economies. Cameron isn't the only one pointing this out; books on the potential impact of artificial intelligence are proliferating, never mind the articles on the Internet. Futurist Yuval Noah Harari sees these challenges as arising due to the confluence of infotech and biotech,[1] and forecasts the rise of a "useless class," who won't share the fate of 19th-century wagon drivers (who could switch to taxis), but of 19th-century horses, who were largely pushed out of the job market altogether.[2] Another scholar argues for three main ages of humanity so far, tied to key developments: first, fire (100,000 years ago); second, agriculture, cities, war (10,000 years ago); and third, the wheel and writing (5,000 years ago). We're on the cusp of the fourth: AI and robots.[3] As one venture capitalist who has also been at the forefront of AI research puts it, "The threat to jobs is coming far faster than most experts anticipated, and it will not discriminate by the color of one's collar, instead striking the highly trained and poorly educated alike."[4]

Let's consider two examples. First, truck drivers. You can imagine that automated cars and trucks will impact truck drivers. One writer imagines that the transition would look like this. Initially, automated trucks would go in large convoys, with a human driver at the front—ready to override the system if necessary.[5] The trucks would then go through "docking stations" of a sort near major metropolitan areas, where human drivers would take over the last ten miles of a journey.[6] Obviously, far fewer drivers will be needed. Sure, some will find other jobs, but many will leave the workforce altogether if the change follows the pattern that factory closings did (with many former works simply ceasing to look for work, which removes them from the unemployment rate entirely).

This isn't far off: Rio Tinto is a company that is already using autonomous mining trucks in Australia; they can run 24/7. Morgan Stanley has estimated that automated freight delivery will save $168 billion a year between fuel, labor, fewer accidents, and increased productivity.[7] There are about 3.5 million truck drivers working now and about 7 million who serve their needs in truck stops, motels, diners, etc.[8] Even if each trucker spends only $100 a week at places like this, autonomous trucks could mean a $17.5 billion loss of revenue in communities around the United States.

Let's consider another, less obvious example: writing. Narrative Science is a company that uses AI to produce company updates and even fantasy sports stories for individual users. Right now, it's pretty easy to pick out the AI-written material, but it is continuing to improve.[9] This, combined with machine learning and big data, will mean that AI writing will be able to take into account more variables—both substance wise and stylistically speaking—and improve. If you want to know what tasks will be automated and what won't, the answer is basically this: the parts that can be codified and reduced to clear steps will be automated. And if it can be, it will be.[10] In other words, when it comes to automation, the line isn't between "manual" and "intellectual," but between "routine" and "non-routine." Computers are better at reading radiology films, for instance, than doctors.[11] The Federal Reserve categorizes 62 million jobs as route. That's about 44% of total jobs.[12] Work is changing, and it is going to have major societal impacts. The pace of change is fast, and we must determine what to do, as one scholar puts it, "when the machines do everything."[13]

While such a possibility requires wise political leaders to consider potential impacts and ways to prepare for them, it also raises questions for what it might mean to be human in an age of automation. Many Christians have recognized the place that meaningful work plays in being human, in existing and flourishing in the image of God. But what happens when there is less "work" to go around, or when work takes on a radical, new shape? Where do we turn when the robots take our jobs?

## II

I'd like to propose the idea that leisure just might be part of the answer. That most likely comes as a surprise: surely the answer to these challenging issues can't simply be to sit around and be lazy, to go through life leisurely. Probably not, but that isn't exactly what leisure is. In our modern confusion, we've let laziness and leisure collide, and in our desire to not be lazy, we've lost the ability to be at leisure.

German philosopher Joseph Pieper provides a helpful description of leisure that draws from Scripture, theology, history, and philosophy. As we explore this concept,

Pieper's insights will be significant. He reminds us of the distinction between lazy and leisure. In fact, in the Middle Ages, laziness was the source of restlessness, which in turn led to work for the sake of work.[14] There isn't a clean break between what causes us to work, work, work and what enables us to have leisure. We're used to thinking someone either works hard or is lazy; Pieper helps us see that some people work hard *because* they're lazy.

In fact, laziness is not only different than leisure but also we can see it as the opposite of leisure. Idleness or laziness can be viewed as the absence of leisure, not only the absence of work. Leisure requires a "oneness with the self," whereas idleness is the rejection of this state.[15] Someone who is idle and lazy isn't set up for leisure. Leisure isn't lazy; in fact, being lazy might make you further from leisure than working too hard.

## III

But if leisure doesn't mean lazy, what does it mean? Drawing on Scripture, we can see that leisure, properly understood, is a vital concept to living a full human life in relationship with God. There are three primary ways we can describe this leisure. These three ways overlap and reinforce one another to help give us a sense of what leisure really is.

First, leisure means rest. On one level, leisure does not seek to control or drive. Leisure involves a certain attitude of the mind, a way of holding things loosely. Leisure is similar to the "letting go" that precedes good sleep. It's not the mind that takes charge and controls.[16] Another way of getting at this element of leisure is that it isn't something that we can force. Part of leisure is a posture, an attitude, a way of being in the world that sets a person in a different relationship to the world—a relationship less of control and more of enjoyment and openness.

This piece—leisure as rest—is probably the most immediately recognizable. Rest is a valuable thing. In the story of creation, we see God at work, speaking a world into being. On each of the first six days, God speaks elements of creation into existence, and He unambiguously calls the results of His work "good." It's a job well done. And, as we all know, after a job well done, a person deserves rest. On the seventh day, God rests. If God rests after His work, humans should look forward to rest as well, especially after six—or even five—days of good, hard work. The creation of humans isn't the summation of creation: God's rest is. This "rest after work" is an important element of what it means to rest.

However, if we pick up the concept of rest in a deeper way, like we see across the whole Bible, we'll realize that rest is more than just taking a break or a breather after a job well done. In fact, we see that "entering God's rest" becomes a way of talking about salvation, about the hope that we have in Christ. Salvation is more than just rest after work.

We start to see this in the command to keep the Sabbath. God worked six days and rested on the seventh, so the Israelites were to work six days and rest on the seventh. So far, so good. Much like what we reasoned above. They were also supposed to extend that rest to their servants, guests, and animals (Ex 20:8-11). The logic given is that the Lord blessed the seventh day, making it holy, in His choice to rest on it. That

choice by God means we should make the same choice and extend that rest to those in our charge. But does this exhaust the meaning of the Sabbath?

Already in the Old Testament we see that the Sabbath as "God's rest" points to something deeper and more fundamental to human flourishing than mere pausing after a job well done. We see this dynamic in play in Psalm 95. The psalmist speaks of the Lord's anger at the disobedient generation that died in the wilderness because of their refusal to believe God's promises. Because of this, God declared that they would not enter His rest (Ps 95:11). In this case it doesn't mean that those people wouldn't get to take a day off; rather, not entering God's rest meant not entering the Promised Land. It meant not entering into God's blessing, into a flourishing relationship with God as part of God's people. "Entering God's rest" here carries with it the idea of being God's people in God's place, under God's rule. Not simply not working.

This is developed further in the New Testament, in the book of Hebrews. In the third chapter, after arguing that Jesus is greater than Moses, the author shifts to warn against unbelief. He brings up the Psalms' passage above, and he presses it into his hearers' minds. He observes that this offer of entering God's rest still stands, and it is an offer that those who believe God accept. He urges his hearers to obey and enter that rest, rather than perish through disobedience (Heb 4:11). The author isn't saying, "Working hard for God is good, so just get on with that work." Instead, he says, "Obey so that you can enter rest." And this isn't a rest that is a pause before more work; it is something different.[17]

Second, leisure means more than just rest from work for the sake of more work. We probably believe that rest is for the sake of work more than we realize. We often justify our rest in terms of the way it prepares us for further work. "I'd better get some rest, or I'll be worthless tomorrow at work." Now, there is a place for that point of view as we seek to be faithful workers, but true leisure, true rest, is more than this because it exists outside of the cycle of work. It isn't that "rest for better work" is wrong, but it is incomplete and falls short of a true vision of what it means to flourish in relationship with God.

Voices in our society already recognize that rest benefits work. In *Rest: Why You Get More Done When You Work Less*,[18] Alex Soojoung-Kim Pang argues that rest makes work more efficiently and meaningfully. According to his research, "work and rest are partners," "rest is active," "rest is a skill," and "deliberate rest stimulates and sustains creativity."[19] Naps, sustained sleep, time for recovery, exercise, play, and periods of longer rest (sabbaticals) are all vital to human flourishing.[20] Yet much of Pang's push—or at least the way the book is framed overall—is that rest is important because it increases productivity. Productivity's increase justifies the existence of rest.

But leisure operates outside of work's framework; it does not comfortably fit into a calculation about productivity. Leisure isn't resting in order to be more productive. This idea follows from the logic that we developed in trying to understand Scripture's idea of God's rest. God's rest on the seventh day isn't rest in order to work again at the start of the next "week"; rather, God's entering into rest is some other state. A state worthy in and of itself, not worthy because it helps someone prepare for another state. That is why the idea of God's rest provides a helpful metaphor for salvation and eternity with God.

Consider the incarnation. God becomes flesh, not simply to draw us into His work but to draw us into His rest. If the key metaphor for the church is the body of Christ, we must balance our enthusiasm for doing the work of Christ with an understanding that ultimately salvation is entering God's rest. Jesus's body rests. Leisure in our lives today, even before eternity, is rightly ordered to and understood in reference to that rest, not simply getting us ready for more work. The work that the church does—that Christ's body does—is work that is ordered to the future, eternal Sabbath rest with God. That is the primary reality; the body "at leisure," if you will, not the body at work.

Without this idea, we don't truly rest; we aren't truly at leisure. If rest is always understood in light of more work, then work is the primary reality. Humans are made to work, but not only to work. And we tend to enjoy our rest as though that were the case. Rest entered into in order to get back to work is not leisure, and it isn't entirely rest. It is work paused, work on hold.

Third, leisure connects to our ultimate purposes as human beings. It takes a few steps to get to this conclusion because humans were not immediately created to rest. So how can leisure be the ultimate purpose?

It is clear from Genesis 2 that God created humans to put them to work in His garden. Let me be equally clear: I'm not denying work as a created good. I'm instead trying to help us see the way work alone cannot account for the goodness of rest. But work is still good! Right before God commands the man not to eat from the tree of the knowledge of good and evil, we read, "The LORD God took the man and put him in the Garden of Eden to work it and to take care of it" (Gen 2:15). The first task of humans is to care for the garden that God has made. Work is good. Some Old Testament scholars argue that this work is meant to be an extension of the visible form of God's rule over His creation. Humans are God's co-rulers, meant to signify and extend his rule over all of the created order.[21] By working and taking care of the garden, the humans demonstrated God's rule, and their work was to result in the care and extension of the garden. In fact, scholar Greg Beale argues that both the tabernacle and the temple were designed to be symbols of God's presence and gracious rule in His creation, extending the task originally given in Eden.[22] The work in the garden, then, is a work that is meant to be enjoyed and to extend humankind's life in the presence of God.

True human flourishing means enjoying the presence of God. True human work is related to that pursuit in the world and, as is the case currently, in the fallen world. Yet work in the fallen world can go askew in many ways, not least of which is what we've highlighted above: it can diminish rest to something answerable to work and increased productivity. Additionally, if we forget that it is not work in-and-of-itself that gives us meaning and purpose, we will struggle as more and more people either cannot find work. Futurists recognize this. Some argue that we'll have to consider things "jobs" that weren't considered "jobs" in the past, just so that people performing them will have purpose and meaning.[23] In other words, losing jobs isn't just a problem of money; people miss the job itself along with the income flow.[24] But naming more things "work" won't automatically lead to human flourishing. In order to understand the relationship of work to ultimate flourishing, we must turn not only to the origins in Genesis but to the view of salvation and the church in the New Testament. Just as

the Tabernacle and Temple were visual reminders of the presence of God, so now the church is the body of Christ, a living symbol of God's provision of salvation and eternal life.

Jesus gives us a brief explanation of what "eternal life" means in His prayer with His disciples on the night that he was betrayed. He prayed, "This is eternal life, that they know you, the only true God, and Jesus Christ whom you have sent" (John 17:3). Jesus doesn't say that eternal life is working, even working for God. It is knowing God, knowing Jesus. Human flourishing is existing in relationship to God in the presence of God. This is the promise of eternal life.

What then of work? Work is ordered to this ultimate rest, to this salvation. Our attitude toward work must reflect this, and our pursuit of true leisure must reflect it as well. Working or resting without the proper framework does not provide true leisure.[25] We cannot manufacture leisure by labeling certain times "leisure" and other times "work." Rather, "leisure" represents a broader spiritual framework that orients all of our working and resting under the great work of God's salvation and the life that He is drawing us into.

Leisure isn't merely rest; it isn't ordered within a work productivity calculation, and it ultimately draws us to the flourishing relationship with God that He created us for. Leisure is a unique kind of time.

## IV

Another way to wrap our minds around what leisure means is to compare different types of time. In the world of the New Testament, two words distinguished two "kinds" of time. *Chronos* time is the moment-by-moment, day-by-day, passing of time. Calendar time. Clock time (as we might call it). *Kairos* time, however, carried with it the idea of fully realized time, time full of meaning and significance. We might call *Kairos* time "just the right moment." These two types of time emphasize qualitative differences in the way we experience or define time.

This distinction helps explain the difference between plain ol' rest and true leisure. When we rest by stopping from work in order to work more later, to regain our strength, our rest occurs in the same *chronos* time as our work. On the other hand, leisure is a different quality of time altogether; it is restful, yes, but it is rest ordered to and coordinated with a deeper sense of human flourishing than "mere" rest. Now, I'm not saying that leisure only happens in opportune moments or at "just the right time," and I'm not saying that our work can't also be meaningful, *Kairos*-type work. Rather, the difference between these two types of time can help us understand some of the qualitative differences between leisure and laziness or leisure and rest for the sake of work. [26]

## V

We don't really know what the future of work will hold. A growing number of scholars envision advances in AI that will lead to more "fusion" jobs, jobs in which humans work creatively in conjunction with robots rather than robots entirely taking over jobs.[27] Some even see advances in technology as changing education to such a degree that flexible, lifelong learning becomes a way for people to consistently

connect with their passions in this new era.[28] This is certainly a possible outcome, but one that will need to be chosen lest economic considerations make it impossible or rare. Other scholars argue that the danger of choosing NOT to develop AI is greater than any dangers posed by it.[29] Still others point out the jobs are the least of our worries: lethal, autonomous drones and all-out robot wars are far more likely to cause problems before a lack of jobs does.[30]

Reclaiming leisure certainly won't solve all of our problems. It won't automatically make our work more meaningful or more enjoyable. It won't save us from the robots. It will help us see that while our creations might take some of our jobs (or just radically change the jobs we do, as some argue), we must still understand rest. Leisure can help us broaden our framework on what it means to be human, what it means to live a life before the face of God and look forward to an eternity at rest in His presence. And this framework will help us ask better questions. We still might wonder whether our creations are going to turn on us and steal our jobs—or, like Paul in *Player Piano*, we might sometimes be tempted to buy an old farm. But we'll be ready to ask better questions about meaningful work and what we might do with our times of rest.

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2. Harari, *21 Lessons*, 30.
3. Byron Reese, *The Fourth Age: Smart Robots, Conscious Computers, and the Future of Humanity* (New York: Simon & Schuster, 2018).
4. Kai-Fu Lee, *AI Super-Powers: China, Silicon Valley, and the New World Order* (New York: Houghton Mifflin, 2018), 5.
5. See the discussion in Hannah Fry, *Hello World: Being Human in the Age of Algorithms.*
6. Yang, 47.
7. Yang, 44.
8. Yang, 45.
9. Yang, 50.
10. Thomas Davenport and Julia Kirbey, *Only Humans Need Apply: Winners & Losers in the Age of Smart Machines* (New York: Harper, 2016). 14.
11. Yang, 50-51.
12. Yang, 52.
13. Malcolm Frank, Paul Roehrig, and Ben Pring, *What to Do When Machines Do Everything: How to Get Ahead in a World of AI, Algorithms, Bots, and Big Data* (Hoboken, NJ: Wiley, 2017), 193.
14. "At the zenith of the Middle Ages, on the contrary, it was held that sloth and restlessness, 'leisurelessness', the incapacity to enjoy leisure, were all closely connected; sloth was held to be the source of restlessness, and the ultimate cause of 'work for work's sake'." Josef Pieper, *Leisure: The Basis of Culture* (Ignatius Press, 2009), 43.
15. As Pieper explains, "Idleness in the old sense of the word, so far from being synonymous with leisure, is more nearly the inner prerequisite which renders leisure impossible: it might be described as the utter absence of leisure, or the very opposite of leisure. Leisure is only possible when a man is at one with himself, when he acquiesces in his own being, whereas the essence of *acedia* is the refusal to acquiesce in one's own being. Idleness and the incapacity for leisure correspond with one another. Leisure is the contrary of both." Pieper, 46.
16. "Leisure is not the attitude of mind of those who actively intervene, but of those who are open to everything; not of those who grab and grab hold, but of those who leave the reins loose and who are free and easy themselves—almost like a man falling asleep, for one can only fall asleep by 'letting onself go'." Pieper, 47.

17. Interestingly, the verses that follow this argument are often quoted: "For the word of God is alive and active. Sharper than any double-edged sword, it penetrates even to dividing soul and spirit, joints and marrow; it judges the thoughts and attitudes of the heart" (Heb 4:12 NIV). While this verse obviously applies to all of God's Word, it's nearest context is this reminder, this urging to enter God's rest! And when we enter God's rest, we aren't simply preparing for more work. Rather, we see work reoriented. This insight leads us to our next way of defining leisure.
18. Alex Soojung-Kim Pang, *Rest: Why You Get More Done When You Work Less* (New York: Basic, 2016).
19. Pang, 11-15.
20. As he puts it, "A life that takes rest seriously is not only a more creative life. When we take the right to rest, when we make rest fulfilling, and when we practice rest through our days and years, we also make our lives richer and more fulfilling." Pang, 240.
21. In the ancient world, kings would erect statues in their image in lands ruled from a distance. The presence of the statue reminded those inhabitants of the king's rule. Similar language is used in Genesis as the humans are placed in the creation to signify and extend the rule of God as king.
22. G. K. Beale, *The Temple and the Church's Mission: A Biblical Theology of the Dwelling Place of God* (Downers Grove, IL: InterVarsity, 2004).
23. Lee, *AI Super-Powers*, 21.
24. Thomas H. Davenport and Julia Kirby, *Only Humans Need Apply: Winners & Losers in the Age of Smart Machines* (New York: Harper, 2016), 7.
25. As Pieper reminds us, "Leisure, it must be clearly understood, is a mental and spiritual attitude—it is not simply the result of external factors, it is not the inevitable result of spare time, a holiday, a weekend or a vacation. It is, in the first place, an attitude of mind, a condition of the soul, and as such utterly contrary to the ideal of 'worker.'" Pieper, 46.
26. We're not used to thinking about the different ways of conceiving time or talking about time. In fact, some scholars have investigated how our sense of time relates to our sense of identity. Cultural historians have studied how national identity is impacted by conceptions of time. The way we think about time impacts and is impacted by the way we think about other aspects of what makes us who we are, our identity. Leisure's way of framing time, then, is one way that we can set ourselves up to orient our lives toward true human flourishing in relationship with God, and not merely moment by moment of work and survival. See Thomas M. Allen, *A Republic in Time: Temporality and Social Imagination in Nineteenth-Century America* (Chapel Hill: University of North Carolina Press, 2008), 4.
27. Paul Daugherty and H. James Wilson, *Human + Machine: Reimagining Work in the Age of AI* (Boston, MA: Harvard Business Review Press, 2018). In this book, the authors argue that advances in AI will lead to more "fusion" jobs, jobs in which humans work creatively in conjunction with robots rather than robots entirely taking over jobs. This is certainly a possible outcome, but one that will need to be chosen lest economic considerations make it impossible or rare. See also Hannah Fry, *Hello World: Being Human in the Age of Algorithms* (New York: Norton, 2018); Malcolm Frank, Paul Roehrig, and Ben Pring, *What to Do When Machines Do Everything: How to Get Ahead in a World of AI, Algorithms, Bots, and Big Data* (Hoboken, NJ: Wiley, 2017); Nick Polson and James Scott, *AIQ: How People and Machines Are Smarter Together* (New York: St. Martin's 2018); and Andrew McAfee and Erik Brynjolfsson, *Machine, Platform, Crowd: Harnessing Our Digital Future* (New York: Norton, 2017).
28. Hemant Taneja with Kevin Maney, *Unscaled: How AI and a New Generation of Upstarts Are Creating the Economy of the Future* (New York: Hachette, 2018), 96.
29. See Amir Husain, *The Sentient Machine: The Coming Age of Artificial Intelligence* (New York: Scribner, 2017). "Although this coming future may feel alarming—especially in domains like the military—my intention is to show that a future absent AI is no less dangerous. We cannot stop the march of technology; we can only hope to direct it toward better purposes" (48).
30. See Paul Scharre, *Army of None: Autonomous Weapons and the Future of War* (New York: Norton, 2018). 90+ nations have drones patrolling the skies. 30+ nations already have defensive supervised autonomous weapons (4). The Israeli Harpy drone has already crossed the line to full autonomy: it "can search a wide area for enemy radars and, once it finds one, destroy it without

asking permission. It's been sold to a handful of countries and China has reverse engineered its own variant" (5).

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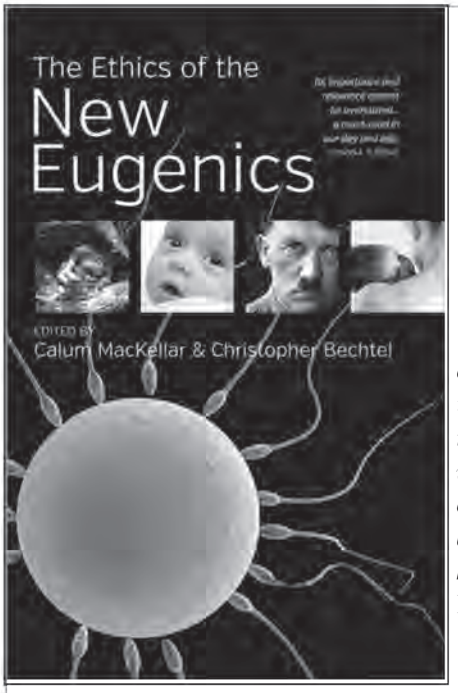


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## The Ethics of the

# New Eugenics

Edited by Calum MacKellar and Christopher Bechtel

*"The book is clearly written, easy to follow, well-structured, and well-researched. A lay audience will easily access and understand the debate and realize what is at stake with the new eugenics. Medical procedures and technical concepts are well explained… [Its] importance and relevance cannot be overstated…a must-read in our day and age, especially when biotechnology and the new eugenics can be a threat to all of humanity."* **Johann A. R. Roduit,** Institute of Biomedical Ethics, University of Zurich

*"Clearly written and highly informative about international and nations laws, as well as about past, current, and possible future eugenic practices and arguments for and against the same, this volume makes for valuable reading not only for students of medical ethics but can be recommended to anyone wanting to learn more about arguments for and against current and possible future reproductive selection procedures."* ***Ethics & Medicine***

Strategies or decisions aimed at affecting, in a manner considered to be positive, the genetic heritage of a child in the context of human reproduction are increasingly being accepted in contemporary society. As a result, unnerving similarities between earlier selection ideology so central to the discredited eugenic regimes of the 20th century and those now on offer suggest that a new era of eugenics has dawned. The time is ripe, therefore, for considering and evaluating from an ethical perspective both current and future selection practices. This inter-disciplinary volume blends research from embryology, genetics, philosophy, sociology, psychology, and history. In so doing, it constructs a thorough picture of the procedures emerging from today's reproductive developments, including a rigorous ethical argumentation concerning the possible advantages and risks related to the new eugenics.

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GUEST COMMENTARY

# Synthetic Human Entities With Embryo-Like Features (SHEEFs) and the Incarnation

TODD DALY, PHD

For a few years now, scientists have been able to use human pluripotent stem cells (hPSCs) to generate various organoids—artificially grown mass of cells or tissues that resemble various organs. Several techniques have been developed to both induce and suppress stem cell differentiation, coupled with more recent 3D tissue culturing methods, have yielded more complex and realistic organoids. While these organoids have proved especially useful for gaining insight into organ development and especially disease modeling, they're not without their limitations. For instance, media factors can easily complicate their creation, and organoid development and growth are frequently stunted due to their inability to deliver nutrients and eliminate waste.[1] Nevertheless, the continual evolution of synthetic biology, coupled with greater precision and control in outfitting hPSCs with particular developmental pathways, have led to increasingly complex organoids, which provide better models for research. But perhaps no development has been more significant than the recently discovered ability to induce human pluripotent stem cells (hPSCs)—non-embryonic stem cells—into exhibiting *totipotent* behavior, which means the power of self-organization and the execution of a body plan.[2]

In 2014, researchers were able to produce *embryoid* bodies with pluripotent stem cells in mice. Two years ago, researchers at the University of Cambridge were able to grow microcolonies of embryonic stem cells in mice (mESC) in a 3D culture, which self-organized and developed in a manner that closely paralleled canonical mice embryos up through the early post-implantation stage, including the initial phases of mesoderm generation.[3] In 2016, similar techniques were carried out with human pluripotent stem cells (hPSCs). Scientists have demonstrated that these cells (hPSCs) are capable of undergoing self-organized development *in vitro* into various early-stage organoid structures—including a brain, eye, and gut.[4] But they have also created human embryo-like structures. Significantly, these *in vitro* bodies or structures recapitulated epiblastic formation that mimicked the early stages of pro-amniotic cavity development in canonical embryos in the absence of maternal tissues, though they did go on not developing later epiblastic features.[5] A group of Harvard researchers have dubbed these organisms SHEEFs—Synthetic Human Entities with Embryo-like Features.

It seems that much hinges on the term "embryo-like," as these entities are not currently subject to the 14-day rule of canonical embryos. At present, this allows for the possibility of engineering SHEEFs that develop beyond two weeks. However, scientists argue that the most useful information would come from developing SHEEFs that mimic canonical embryonic development as closely as possible, which would involve developing a "synthetic human embryo."[6] The concern here, however,

is that synthetic embryos might then be subject to the 14-day limit that applies to canonical human embryos. While many scientists appear to support the regulation of SHEEFs, one gets the feeling that many are wary of any regulations that might limit them from examining later stage development of SHEEFs, where more useful knowledge is thought to be found.[7]

In echoing these concerns, the aforementioned Harvard researchers, which include John Aach and George Church, have called for new regulations to accommodate this research. They argue that simply extending the current 14-day limit on canonical or "non-synthetic" embryos is ill-suited for SHEEFs, as the structural complexities involved in their development are far too varied for the well-defined, linear progression of canonical embryos from zygote to blastocyst and the formation of the primitive streak (PS).[8] As Church and his colleagues point out, continuing advances are setting the stage for more complex SHEEFs that are surprisingly adaptable to non-natural conditions and are able to develop with considerable plasticity in recapitulating aspects of embryogenesis, including the potential to accumulate new embryonic features as they mature.[9] They reference a 2014 study where a SHEEF was generated *via* a hPSC colony micropatterning, which gave rise to a well-formed, circular-shaped primitive streak that adapted to the shape of the micropattern. This shape was notably different from the more linear- shaped, primitive streak that occurs in naturally generated ("non-synthetic") embryos.[10]

But we are gently warned to expect the development of some SHEEFs that are very different from human embryos. For instance, Church and his colleagues speculate that it might be possible to generate SHEEFs that proceed through neurulation without having first developed a primitive streak (PS), giving rise to entities capable of experiencing sentience or pain.[11] It might also be possible to have a 20-day-old SHEEF that has not gone through neurulation at all, or a 5-day-old SHEEF that has. These possibilities show just how ill-suited the current standard, based as it is on the linear progression of canonical embryos, is when it comes to SHEEFs. Using an insightful metaphor, they liken current regulations to a highway with a clear stop sign at day 14. But, due to the expanding powers of synthetic biology, SHEEFs are capable of "off-roading,"[12] of going places where there are no well-marked roads and much less stop signs. They liken any future regulations as more broadly territorial in nature, marked by the occasional perimeter fence. It may be worth pausing briefly at this point to consider this insightful metaphor, for while it does help explain their argument for the non-technical person (like myself), it also seems to capture something of the relentlessly inquisitive scientific spirit. They may be tapping into the allure of fresh frontiers, wanderlust, making one's own road, westward expansion, discovering new things. However, if there weren't already serious moral objections to the linear highway with the stop sign at day 14, one might be tempted to liken this project to leaving the straight and narrow path. Nevertheless . . .

Informed by the ethical principles and methodologies that led to the 14-day rule for research on human embryos, Aach, Church and their colleagues argue that new research guidelines should be based on the appearance of features or capacities associated with the emergence of moral status. They say, "Instead of tying research limits to stages of canonical embryogeneiss in an attempt to preempt SHEEFs from being generated in morally concerning conditions, limits should be based as directly as possible on the appearance of features or capacities that are associated with emergence

of moral status."[13] They propose as a *preliminary* research boundary the appearance of neural substrates—rather than the primitive streak—"and functionality required for the experience of pain."[14] Aach, Church, and their colleagues go on to outline a four-step process that follows the methodology employed by the commissions that developed the 14-day rule.

First, they call for an expansive discussion about the biological features and capacities of non-synthetic or canonical embryos whose emergence is deemed morally significant, while being mindful that adapting this for SHEEFs will require a "broad catalogue" of morally significant features, which, they emphasize, should be created "without abridgment or preferential attention to the first appearing feature."[15] Though appreciative of the methodology employed in the *Warnock Commission*, they are critical of their excessively narrow focus on pain as a morally relevant feature, and they reference the 1994 *Report of the Human Embryo Research Panel* as providing a better example of a broad catalogue of morally relevant features. Though this report supported the findings of the *Warnock Commission*, it also considered other potentially morally relevant benchmarks, such as the beginning of brain activity/function, "well-developed" cognitive abilities like consciousness, reasoning, or the possession of a self-concept." It also cited other "often mentioned" features, such as human form, survival outside the mother's womb, and the onset of the heartbeat (day 22).[16] Extending this discussion to SHEEFs would involve revisiting these reports with a view to expanding the thresholds of what they call "moral status signifying features."[17]

The second step involves considering which, if any, features of this updated moral catalogue for non-synthetic embryos might be considered for SHEEFs. Here Aach, Church, and their colleagues suggest enlisting the help of sociologists to probe for moral concerns or reactions to the occurrence of such features in possible SHEEFs, looking in particular for reactions of combinations of signifying features. Though they anticipate moral objections that mirror those leveled against contemporary canonical embryo research, they acknowledge that obtaining well-defined reactions to SHEEFs may be extremely difficult, based on their novelty. A SHEEF, for instance, that combines a beating heart and a brain while lacking the capacity for pain and sensation might evoke uncertain reactions. They also foresee "yuck" responses to SHEEFS' possessing a "recognizable human form," including a beating heart, but without a brain. However, they quickly dismiss such recoiling as falling short of an articulated moral objection.[18] Nevertheless, every response should be catalogued as a "data-point" pertinent to the question of what research limits might be applied to SHEEFs. At this point, philosophers could then be brought in to see if the various responses might be aligned into "systematic conceptual frameworks" for the moral status of SHEEFs. Philosophers could also help formulate a conceptual framework to define the meaning of developmental potential for SHEEFs.

The third and crucial step involves identifying the biological substrates and functionalities underpinning any of these "moral status signifying features." Here, Church and his colleagues stress the need for experts in developmental biology, acknowledging that there are varying degrees of biological concreteness of particular features.[19] If, for instance, a beating heart was identified as a moral status signifying feature for SHEEFs, then it would be helpful to draw on the fairly detailed map of the embryonic cell types that participate in cardiogenesis in mice, which could be

integrated with embryological, cell culture, and molecular data from humans. They acknowledge, however, the difficulties in identifying biological substrates that correspond to more abstract signifying features, such as "developmental potential." In addition, they urge caution when it comes to pain. For even though the neural pathways that underlie pain perception have been mapped out with considerable detail, uncertainties remain concerning the composition and functionalities of these pathways in embryos. Finally, they also concede that some moral status signifying features of SHEEFs, such as possessing human form, would be better approached through sociological methods rather than biology.[20] Once again, their main point here is that possible research limits should be based primarily on the biological substrates of moral status signifying factors. So, for instance, a research limit for prohibiting the creation of SHEEFs capable of experiencing pain might require two forms of neurons in the pathway from nociception to cortex be absent or non-functional.

Once these first three steps have been accomplished, the final step involves setting up *exploratory* committees, consisting primarily of researchers and bioethicists from around the globe, to look into the moral and scientific issues raised by SHEEFs.[21] Though they concede that guidelines and research limits may ultimately be necessary through a formal commission, their task would be best served by considering the findings of these exploratory committees. It is worth noting here that these Harvard geneticists urge paying close attention to viewpoints "that accept moral status as developmentally emergent," while insisting that opposing viewpoints have their say.[22] They also point out that the exploratory nature of these committees should encourage participants to move from a place of initial uncertainty to formulated viewpoints through a variety of forums, conferences, themed journal issues and "open challenges"—challenges for researchers and bioethicists alike. As an example, they suggest that scientists work on generating a synthetic embryonic disk *in mouse* capable of neurulation without a primitive streak, while philosophers and bioethicists could be challenged to consider whether—and under what conditions—generating "a human pain-sensing SHEEF" might be ethically permissible, "given the high scientific and medical importance of understanding human pain."[23]

The potential applications for this research are certainly alluring. In addition to the possibility of engineering specific tissues and organs without creating or destroying human embryos, SHEEFs could be used for disease modeling and testing cancer and diabetes drugs.[24] Equally enticing is the use of SHEEFs to gain fundamental knowledge about the early stages of canonical embryogenesis. Knowledge of post-implantation embryonic development could provide important insight into developmental disorders.[25] But as Aach and his Harvard colleagues are fully aware, the most useful knowledge would require generating SHEEFs that are as close as possible to non-synthetic embryos without triggering research restrictions that would apply to them.[26] They express little doubt that the rapid development of synthetic biology will soon make this possible. In the meantime, their call to create more advanced forms of embryo-like structures as models for human biology is being echoed by others in the scientific community.[27]

What are we to make of all this? There is a lot to take in—SHEEFs that are engineered to mirror canonical embryos in vitro; SHEEFs that admit of novel combinations ,such as a beating heart with a brain incapable of sensing pain; SHEEFs with a recognizable human form, beating heart, but no brain; SHEEFs engineered

to bypass a primitive streak while developing some kind of nervous system. To date, there has not been much ethical reflection on the possibility of engineering these human creatures who are more than a clump of cells but less than full human beings. What little Christian reflection which has taken place has focused on morally relevant features that might indicate when these unique human entities are worthy of protection.

For instance, John Holmlund has offered a series of brief reflections on the bioethics blog of Trinity International University. He says, "How far shall we go in the name of treating disease or understanding human biology? What strange beasts shall we create?"[28] Holmlund is, I think, rightly suspicious of this project. He also rejects the concept of moral status as an emergent property, holding that human life begins at conception and is therefore worthy of protection. Therefore, insofar as SHEEFs are engineered to be very much like "embryos in a dish," he believes that they deserve the same protection that all other human embryos deserve, whether made "the old fashioned way" or through IVF. Hence, they should be neither created nor destroyed for research purposes.

However, SHEEFS' combining features in novel ways is more challenging. When it comes, for instance, to SHEEFS' engineered to develop a nervous system without passing through the primitive streak, he suggests that the development of a nervous system is "morally relevant" and that such creatures should never be produced.[29] In a later post, he reiterates the point, citing that a "nervy SHEEF," i.e. a SHEEF with a human nervous system capable of sensing pain, brings us to a moral boundary and is the "clearest marker" of an immortal, non-material soul.[30] Therefore, for Holmlund, even drawing up its design constitutes a moral boundary. But others like William Cheshire have pointed out the inadequacies of the capacity to feel pain as an adequate marker of human moral status. After all, it is possible to suppress nocioception with a local anesthetic.[31] Moreover, nociocepion must be distinguished from pain. The experience of pain would require something like a functional cerebral cortex. His point, I think, is that using pain as a criterion for SHEEFs allows quite a lot of room for the creation of SHEEFs with nociception. Rather than ask what it means for a human organism to experience pain, Cheshire says a better question is: "What does it mean to be the kind of being that experiences pain?"[32] In response, Holmlund concedes that he made a rather "breezy connection" between a rudimentary nervous system and identification of the soul but maintains that his approach has merit.[33]

It is worth considering the moral status of the various kinds of SHEEFs that may one day be produced. I wonder, however, that the kinds of reflections that Holmlund offers are somewhat problematic in that they appear to accept—to some degree—the kind of argumentation employed by those who support research on human embryos up to (and probably beyond) 14 days. That is, we're engaging in the kind of emergent, feature-based morality that we would otherwise want to resist, the kind found in the *Warnock Report*. As Michael Banner has noted, the feature-based morality on display in this report views humanity as an achievement requiring certain qualifications.[34] He trenchantly observes that there are no explicit *arguments* to convince us that the appearance of the primitive streak is of moral significance but only *assertions*, and he claims that their underlying anthropology shares a "family resemblance" to Aristotle's assertion that nature itself determines that some men be slaves and others rule.[35] Therefore, appealing to the development of something resembling a nervous

system as a moral boundary seems, on some level, like accepting the terms of the debate. Granted, we must admit that SHEEFs are more ambiguous—biologically and morally—than a human embryo.

But I think we should be troubled by recommendations to draw on the findings of the *Warnock Report* in creating an updated catalogue of morally relevant features for SHEEFs and the biological substrates related to them, features that include "well-developed cognitive abilities like consciousness, reasoning, and the possession of self-concept,"[36] and the capacity for survival outside the mother's womb. No less troubling is the assertion that the determination of such features is best left to the "experts." The subtle subtext suggests that they're fully capable of policing themselves. But when applying this method to SHEEFs, assigning moral value to the appearance of certain features appears no less arbitrary than in the case of canonical embryos. Asserting that *other* features must be identified in the absence of the primitive streak—including the functionalities associated with these features—leaves more fundamental questions unanswered, like "What gives these particular biological features *moral* significance?" Moreover, while they intend to include sociologists and possibly philosophers in constructing new regulations, philosophers in particular would not be addressing these fundamental questions or articulating anthropologies needed to answer them.[37]

At this point, I would like to back up and consider what the generation of SHEEFs might mean more broadly. This is related to Oliver O'Donovan's insistence that the question "What is going on?" is crucial to any Christian ethic that values practical reasoning. This question is meant to describe the way the world fits together.[38] That seems impossibly complex, though it may be worth situating the creation of SHEEFs in a broader context by considering some of the thoughts and values that inform this project, including the understanding of nature implicit in it.

First, insofar as the creation of SHEEFs appears as the latest iteration of our relentless quest for useful knowledge—in this case knowledge of early embryonic development—we might describe this project as Baconian. Though Francis Bacon's (1561-1626) motives for freeing scientific inquiry from the strictures of final and formal causes were rooted in Christian theology—namely, as a way of cultivating instrumental, or useful knowledge in order to "relieve man's estate" and to "restore man's dominion over creation"—this new method of science has shown itself capable of adapting to various metanarratives.[39] If Bacon envisioned the development of material and efficient causes as the way to recapture the glory of prelapsarian Adam, the quest for material and efficient causes is no less at work in creating synthetic embryos for instrumental knowledge—knowledge that might one day help us arrest developmental disorders and defeat cancer. As Allen Verhey has noted, the Baconian account of knowledge basically arms compassion with artifice and not necessarily with wisdom.[40]

Certainly, Bacon is not entirely to blame. The rise of nominalist thought was also important to the flourishing of inductive science. For if generic equivalence is reduced to the creative imposition of the mind on a universe filled only with particulars, then we are almost encouraged to experiment with new generic orderings.[41] And these experiments invite strange and possibly unanswerable questions, such as "What would it mean to produce an entity that has a human heart and a brain incapable of pain or

sensation?" or "How might one determine the relationship between a human entity and a human being?" Similarly, if nature is blind to any purpose beyond the accidents of natural selection, we are not only encouraged to experiment with new genetic orderings, but also to impose our own order upon it. As the Scottish theologian John Baillie (1886-1960) once noted: "When nature is believed to have no preordained meaning or purpose in itself, the speculative interest in it fails, and the remaining concern is only to subdue its inherent purposelessness to our own chosen ends."[42] Though we should be thankful for the many ways in which modern science has contributed to human flourishing, our reasons for manipulating the natural order are usually situated within a metanarrative, which brings up a final general observation about the narrative that informs the development of SHEEFs.

We might describe the development of SHEEFs as a soteriological project. Here I concede that I'm going after the low-hanging fruit in George Church's monograph (coauthored by Ed Regis) on synthetic biology. In his book *Regenesis: How Synthetic Biology Will Reinvent Nature and Ourselves*, Church anticipates using synthetic technology to improve human health, extend the life span, and increase our memory and intelligence.[43] *Regenesis.* We must be born-again. Salvation through synthetic biology. Church considers any living organism to be essentially "a ready-made, prefabricated production system" governed by its own genome.[44] Developing genomic technologies will enable us to improve upon what nature has already accomplished. A first step might involve making all humans immune to all known viruses. But toward the end of the book, he acknowledges that synthetic biology will be a core feature of "our march toward transhumanism." [45] All of nature, it seems, is up for redesign and improvement.

This invites some major questions concerning nature and whether it can serve as a moral category any longer. We'll come back to this shortly. But the language employed by Aach and Church and their colleagues reflects deep ambivalence over nature. On the one hand, they refer to embryos resulting from the conjoining of egg and sperm as "canonical embryos." On the other, these same creatures are also referred to as "non-synthetic embryos." Their use of "canonical" is a curious choice. Insofar as "canonical" refers to the standard or "reed" (*kanōvn*) by which other entities are judged, it makes sense. Though it is considered a "rule" or "standard," it holds little authority as such; canonical embryos appear devoid of normative authority, the kind that would protect them from creation for research purposes.[46]

The nomenclature of "non-synthetic embryo" occurs more frequently.[47] While it seems unlikely that the term is deliberately pejorative, the subtle *via negativa* of "non-synthetic" suggests a frame of reference for evaluating human creatures which privileges the "designed" over the "given."[48] But who wants to sip non-fat eggnog at Christmas? Though admittedly, some might find the notion of full fat eggnog even more revolting. Either way, ours is an age of anxious ambiguity where we simultaneously clamor for organic products that are "all-natural" while celebrating our abilities to alter our natural hair color, skin tone, sexual drive, cognitive powers, or sleeping patterns.

But perhaps this is making too much of the nomenclature. Though Aach and Church and their colleagues seem to view nature as significantly malleable, it is difficult to criticize gaining information on early embryo development through the

creation of SHEEFs that may lead to eliminating certain cancers and genetic diseases. At the same time, however, the creation of SHEEFs and synthetic embryos is troubling. With Jon Holmlund, I find myself resisting the creation of these novel human forms. It is also difficult to avoid speculating on particular, hypothetical combinations, and it is equally difficult to avoid privileging one aspect of human development as morally normative, like a central nervous system. Whether or not it is helpful or wise to identify ensoulment with the appearance of a central nervous system, it seems that *some* appeal to nature as normative lies behind Homlund's concerns.

This desire to appeal to nature is well attested in the subtle and eloquent works of Leon Kass. Francis Fukuyama, and Michael Sandel serve as recent examples who argue that *nature itself* has normative significance and thus sets moral limits to our boundless quest for knowledge, especially when it comes to altering human traits and capacities.[49] The success of these works remains disputed, leaving open the question whether nature can have the kind of moral force necessary without some appeal to the transcendent. One way to ground the normativity of human development is by appealing to the incarnation of Christ. Drawing on the language of the report by Aach, Church, and their geneticist colleagues, it may be useful to briefly explore the possibility of canonizing human development through Christology, which might allow us to make some preliminary judgments about SHEEFs and synthetic embryos in light of humanity as it has been taken up in the person of Jesus Christ.

This approach, as some may recognize, draws on the insights of Karl Barth (1886-1968) who argued that in the Incarnation, itself an act of sheer grace, we are presented with humanity as it is meant to be in Jesus of Nazareth.[50] In other words, Christology determines anthropology.[51] For Barth, to be a human creature is to be "determined *by* God for life *with* God."[52] As Gerald McKenny observes, the question of human nature for Barth is the question of the characteristics of human nature that equip us to share in the divine life. We are beings who have been drawn into this covenant history with God; our very being is determined by God for this relationship. This means that our creaturely nature is not in conflict with our divine determination *for* such fellowship.[53] One of Barth's major points, then, is that our finite, embodied, creaturely nature is the very sign of our divine determination for fellowship with God.[54] If, then, the humanity of Christ reveals that we are divinely determined for fellowship with God as human creatures, which serves as a normative claim for human creatures, then any deliberate departure from the functions, traits, and capacities (i.e. human nature) that would impair or rule out fellowship with God would mark a departure from this norm.

But might the incarnation not also speak more specifically to embryogenesis and the biological processes intrinsic to it *as the moral norm*, in effect canonizing it in ways that would preclude or cast considerable doubt on the morality of synthetic embryos? If the divine Logos is enjoined to human nature in the person of Jesus Christ—enhypostatically—might this not be a divine vindication of human development from zygote to blastocyst and onward?

It may be useful to recall that the doctrine of incarnation was beset by heretical interpretations on many sides. For instance, the idea that the incarnation was a fusion or synthesis of the divine and human was explicitly rejected by the church, driven in part by Gregory Nazianzen's soteriological concerns—"the unassumed is the unhealed."[55]

The Chalcedonian formula (c. 451) that confessed a hypostatic or personal union of the divine and human natures in Jesus Christ "without confusion," was an explicit attempt to avoid any kind of synthetic Christ, whether a synthesis of natures (in Eutyches) or substances, e.g. a synthesis between a human body and a *divine* mind, as in Apollonarius. In the latter case it is interesting to observe that Apollonarius could refer to Christ as a "synthetic anthropoid" (*synthesis anthrōpoeidēs*).[56] Because the human mind is changeable, passable, and subject to impure thoughts, he reasoned that Jesus' mind could only be divine. Though he could affirm the goodness of the human body (and soul), in his understanding of the incarnation, the body becomes an instrument to the divine mind (*nous*).

Granted, in discussing SHEEFs, we are not talking about a synthesis of the divine and the human. But there may still be lessons here. The Chalcedonian formula, which confesses the hypostatic union of the divine logos with humanity in the person of Jesus Christ—one person with two natures "without confusion, without conversion, without division, without separation," tells us that the earliest processes of human development are more than just "accompanied" by the divine Logos; Christians also affirm that God has not only *become* man in Jesus Christ, but also remains man without ceasing to be God.[57] Perhaps then we may speak of the incarnation as canonical activity, as divine vindication of this particular form of human growth and development, a divine vindication of human development initiated by Jesus's conception by the Holy Spirit. Granted, Christians confess the incarnation as a mystery, which means that some questions might ultimately prove unanswerable. We may doubt whether Jesus's conception will yield to the kinds of questions asked by geneticists—for instance, whether, or the degree to which, Jesus's nascent humanity can be fully described in embryonic terms or genetic language. Nevertheless, it seems that God's dwelling among us by passing through gestation may be a kind of vindication needed to respect this particular order of nature in human development, while questioning others.

So how might we assess the creation of SHEEFs in this framework? I think there may be good reasons to engage in this kind of synthetic biology in order to develop various organoids—say perhaps a heart or a kidney—in order to study their function with a view toward treating various maladies. This application at least seems to respect human gestation as normative. This might also apply to growing a new organ from one's own genetic material to replace a diseased organ, though there may be other reasons for rejecting this. I do not think that a Christologically canonized embryogenesis would preclude certain kinds of genetic manipulation during gestation in treating disease, either.

Synthetic embryos seem more difficult. Are we able to say that they should never be created? For Church and his colleagues, much depends on the catalogue of morally relevant features. Maybe all that can be said is that the closer synthetic embryos come to canonical embryos, which—if allowed to develop—would have the potential for fellowship with God and other creatures, the more morally problematic they become, especially if higher order functions like consciousness are no longer considered "morally relevant features." Though we can appreciate the desire to learn more about the early stages of developmental disorders in an effort to alleviate suffering, should synthetic human embryos be employed for such purposes, their destruction would seem no less problematic than the destruction of canonical embryos. These

creatures would be the object of *human*, not divine determination (though this is an oversimplification), serving an instrumental purpose that falls well short of divine fellowship. Admittedly, it may not be possible to determine when a synthetic embryo is indistinguishable from a canonical one.

There are likely other helpful questions we could ask of this project. It's certainly worthwhile to envision the potential consequences of these scientific developments. There are also questions that are not so much aimed at setting up moral boundaries or grounding appeals to nature, but ones that are centered on who we are as humans and how our various capacities to reorder nature shape our thoughts, attitudes, and dispositions toward others as human beings, especially the vulnerable. These would be questions of virtue. How might the language of praise and wonder, in considering human gestation, place limits on our interventions? As Baillie suggested earlier, recapturing a speculative interest in nature and human embryonic growth might help extinguish some of our pretensions, cultivate a proper sense of humility, and refine our desires. Reflecting on the incarnation may assist with this, even if it cannot be enlisted to do more specific moral work when it comes to SHEEFs.

## Acknowledgements

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10. Aach et al., "Addressing the ethical issues," 4.
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32. Cheshire, "Moral Significance," 140. "What does it mean to be the kind of being who has the intrinsic capacity to develop sentience, to ponder the universe, to comprehend the inevitability of mortality, to seek purpose, to yearn for love, and to suffer?"
33. Jon Holmlund, "'Nervy' SHEEFs, Pain, and Moral Status," Dec. 4, 2017. Available from http://www.bioethics.net/2017/12/nervy-sheefs-pain-and-moral-status/.
34. Banner, *Christian Ethics Christian Ethics and Contemporary Moral Problems* (Cambridge, Eng.: Cambridge University Press, 1999), 65. Several dubious qualifications have been suggested: the property of being an enduring subject of non-momentary interests (Michael Tooley), the possession of freedom, self-determination, rationality (Fletcher), the capacity to love and be loved (BMA report on handicapped newborns), or viability. The 14-day limit was first proposed by the Ethics Advisory Board of the U.S. Department of Health, Education, and Welfare in 1979, and later endorsed by the Warnock Committee in the U.K. in 1984, and later by the National Institutes of Health's Human Embryo Research Panel (United States) in 1994.
35. Aristotle, *Politics* I.V 18-24. "But is there any one thus intended by nature to be a slave, and for whom such a condition is expedient and right, or rather is not all slavery a violation of nature? There is no difficulty in answering this question, on grounds both of reason and of fact. For that some should rule and others be ruled is a thing not only necessary, but expedient; from the hour of their birth, some are marked out for subjection, others for rule." Banner doesn't deny that such arguments exist—though he finds them unconvincing—but that *The Warnock Report* seems uninterested in pursuing such argumentation. See *Christian Ethics*, 63, fn. 49. He observes that *The Warnock Report* gives "no argument to show that either the formation of the primitive streak or the end of the possibility of twinning, is of any moral relevance to the question of the status of the embryo." Indeed, "there is no explicit argument to convince us that this observation of the formation of the primitive streak is of moral significance . . . *The Report*, we might say, gives us a ruling, not a judgment, an assertion, not an argument."
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50. *Church Dogmatics* III/2.
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# Heart Poisoning: Medicine Unlike Any Other

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## Abstract

During the search for the circumstances of my father's death as a political prisoner in the Auschwitz concentration camp, I learned about one of the least known and most horrific aspects of the Holocaust. Phenol injections to the heart, that I term "heart poisoning," were an unusually gruesome act of killing, invented and executed by German doctors and their assistants. The rapid Nazification of German medicine and science led to the proliferation of such vicious method of extermination of approximately 20,000 Auschwitz prisoners, including children. Heart poisoning also terminated human sterilization experiments on imprisoned females and males and atrocious studies on twins and dwarfs. Most Nazi doctors who actively participated in this savage cycle of death in Auschwitz were recipients of doctoral degrees at well-known German universities. At the end of World War II, some of them absconded, like physician-scientist Josef Mengele, while the others stood trials in Poland, the USSR, and West Germany. The Nuremberg Code of medical ethics was subsequently enacted. As our collective memory fades and 66% millennials who were born in the United States after 1983 are unfamiliar with Auschwitz, this darkest chapter of a medicine unlike any other should inform the bioethical underpinnings of contemporary medical and nursing education and practice.

## Introduction

Nine days before his German Army attacked Poland on September 1, 1939, Hitler uttered this pronouncement: "I have assembled my *Totenkopf* (Death's Head) Formations, for the time being only in the East, with the command to send man, woman, and child of Polish origin and language to death, ruthlessly and mercilessly. This is the only way we can win the living space we need…Poland will be depopulated and settled with Germans."[1] In the eyes of Hitler and his followers, Jews and Poles, among others, were *untermenschen* (sub-humans) impeding the full glory of the "Aryan" Reich.[2] After Hitler's German troops attacked Poland, Denmark, Norway, Holland, Belgium, Luxemburg, France, and the Soviet Union, Heinrich Himmler, Reichsführer-SS, declared Auschwitz as the site for the "Final Solution of the Jewish Question." While an estimated 1.1 million European Jews perished in Auschwitz,[3] their fate was shared by large numbers of Poles, Soviet prisoners of war, Romani, and other ethnic groups. Auschwitz was the site of the worst medical atrocities of World War II.

On March 13, 1942, my pregnant 28-year-old mother, my two younger siblings, and I watched in tears as three Gestapo (German Secret Police) agents took my father away into the night in Nowy Sącz, a small town in German-occupied southern Poland. These Gestapo men had frantically searched our apartment for anti-Nazi literature after someone betrayed my father's connection with the anti-Nazi resistance, the

*Armia Krajowa* ("Home Army"). Before his arrest, my father was our family's breadwinner, who worked as an insurance adjuster. After 3 months of apparently fruitless interrogations by the Gestapo (my mother told me after the war that "my father was a man of honor"), he was transferred to regional prison in Tarnów. In late July, a prison official informed my mother about the forthcoming transfer of my father to the Auschwitz concentration camp, thereby confirming my father's message in one of his secret *grypsy* ("notes") that was smuggled out of the prison. My mother took me to Tarnów where a large crowd of prisoners' relatives gathered along the road to the train station in the hope of seeing prisoners before boarding the train for Auschwitz. We did not see my father among these prisoners. Apparently, he was sent to Auschwitz on a different date because my mother received news from the Auschwitz camp authorities in late September 1942 that my father had died of "natural causes." My mother would set up a small knitting shop in our apartment to sustain us during the war and its turbulent aftermath.

After World War II, while my mother established a growing knitting business in the larger city Bielsko-Biała, my younger brother and I were placed in a boarding school run by the Piarists in Rakowice on the outskirts of Kraków. My two sisters were raised by our maternal grandmother who had been widowed after my grandfather was mortally wounded defending Warsaw from the invading Soviet Red Army in 1920. While at the boarding school, I was hoping and praying that my father had somehow survived the War and that I would find him somewhere nearby.

When I was ten years old, my mother took me, for the first time, to the Auschwitz-Birkenau State Museum created from the German-run Auschwitz concentration camp on November 2, Polish Memorial Day, also known as All Souls Day. She led me through the gate displaying the motto "Arbeit Macht Frei" ("Work Makes You Free") toward the rows of barracks ("Blocks") numbered from 1 to 25. We reached the black wall between Blocks 10 and 11. "This is the place where your father was killed," my mother said. The black wall, called the "Wall of Death," was the place of daily firing squad executions. Political prisoners, like my father, were jailed, interrogated, tortured, and summarily sentenced to death by the Gestapo in Block 11. We placed flowers and lit a candle at the Wall that had become a tomb for the numerous victims of the German extermination program. Some five decades later, I would learn that this Wall was not the last station of my father's life. I also would learn about an unusually gruesome act of killing invented and executed by German doctors and their assistants.

## The Search

My mother and my siblings made annual pilgrimages to the Auschwitz Museum on Memorial Day. Flickering candles placed at the Wall of Death and many other execution sites symbolized the lasting memory of departed victims. During my medical studies in Kraków at the Copernicus School of Medicine (now a Medical College of the Jagiellonian University), I visited the Auschwitz-Birkenau State Museum, trying to find my father's picture among the inmates' mugshots displayed in some of the barracks. I did not know at the time that these pictures comprised a very small sample of mugshots as they depicted prisoners whose names, date of birth, and

profession were obtained from their death certificates issued by the Auschwitz camp authorities and other documents available at that time. As I would subsequently learn, my father's camp number and death certificate were not available to the historians who prepared these exhibits. Most death certificates and other documents that had not been destroyed by the fleeing SS were seized by the Soviet Army during the liberation of the Auschwitz concentration camp on January 27, 1945. These documents were returned to the Auschwitz-Birkenau State Museum some fifty years later following the collapse of the Soviet Union.

I left Poland for the United States for a postdoctoral fellowship at Vanderbilt University. During my subsequent travels to Poland to see my mother, while also attending international conferences in Poland and other European countries, I visited the Auschwitz death camp. One of these visits on October 17, 1995, was extraordinary. Stanisława "Stasia" Iwaszko, a relative of my wife, Ania, invited me to her office in the Auschwitz-Birkenau State Museum archives. Stasia is a historian who has devoted her professional life to the study of the Auschwitz concentration camp. She had found my father's Death Certificate. It was issued on September 29, 1942, stating that my father died of "heart failure due to typhus" on September 19, 1942, at 8:35 PM. Doctor of Medicine Johann Kremer signed the certificate.

I learned that Johann Kremer was a physician-scientist holding two degrees from the University of Münster, Germany, where he worked as an associate professor of anatomy and genetics. Kremer joined the SS (Schutzstaffel), the Nazi Party's elite guards, in 1941, apparently to avoid the Wehrmacht military service on the Russian front. He accepted an assignment as SS *Obersturmbannführer* (Senior Assault Unit Leader) at the Auschwitz concentration camp.[1,4] At the time of his arrival in Auschwitz in 1942, almost half of Germany's physicians were members of the Nazi Party (the National Socialist German Workers' Party—NSDAP).[5] NSDAP control over German medicine undermined the independence and professional freedom of physicians and nurses in Nazi Germany. One of the German wartime medical leaders, Doctor Karl Haedenkamp, was the Berlin plenipotentiary of the medical syndicates, proclaiming that "the preeminent duties of the profession lie in the field of care of public health and race hygiene (eugenics)."[6]

Importantly, death certificates from the Auschwitz concentration camp omitted the prisoner's camp number that was tattooed on the forearm and printed on each prisoner's camp garb. To find out more about my father's circumstances at the Auschwitz concentration camp, we needed to search prisoners' mug shots that displayed this number. Thus, with Stasia's help, I searched hundreds of photos of registered prisoners who were incarcerated during the summer of 1942. I found my father's picture almost at the end of one of several albums, right before the gap that Stasia had warned me about. My father's mugshot displayed the number 59537 printed on his camp garb. Next to the number was a triangle with the letter "P," designating Polish political prisoners. In this act of reconnection after 53 years, I could not take my eyes off my father's solemn face, framed by his shaved head. This shaved and defiant man revealed deep sadness in his eyes, and I realized how much he must have suffered during the Gestapo's interrogations following his arrest on March 13, 1942.

Stasia left the room with a note with my father's camp number, and she returned with photocopies of two hand-written pieces of paper. The first, dated September 19,

1942, contained two columns of deceased prisoners' camp numbers. This list included my father's number and his location in Block 20, the prisoners' infirmary. So, my father had died in Block 20, rather than Block 11, the "Death Block," as described by eyewitness survivor Jan Gałaś to my mother. In Block 20, prisoner-orderlies affiliated with the Auschwitz Resistance Movement secretly recorded the numbers tattooed on dead inmates' forearms. These freedom fighters heroically risked their lives preserving the truth about the "hell on earth" while trying to help other prisoners. Their 2000 documents were invaluable to Danuta Czech, author of the monumental *Auschwitz Chronicle 1939-1945* that lists the number assigned to my father on August 17, 1942.[1] My father was one out of 404,222 prisoners entered in the Auschwitz Camp Occupancy Register. However, many more of those brought to Auschwitz—mostly Jews from all over German-occupied Europe—were unregistered, as they were immediately selected by SS doctors for the gas chambers installed in the Spring of 1942.[1]

## How I Learned About Heart Poisoning

When I examined the second piece of paper retrieved by Stasia, I did not know the meaning of the Polish word "szpila" ("needle") bracketing some of the deceased prisoners' numbers. She explained that "szpila" meant execution by phenol injection to the heart. I had read about the horrible experiments conducted on Auschwitz prisoners, especially sterilization experiments on women in Auschwitz I and Auschwitz II (Birkenau). Birkenau-housed female prisoners initially transferred from the overcrowded Ravensbrück concentration camp located near Berlin. Therein, young women were subjected to atrocious medical experiments with live bacteria mixed with dirt that was applied to fresh surgical wounds, intentionally severed bones, and their bone marrow. Some of the victims developed sepsis and received lethal injection.[9] However, I was not aware of phenol injections. This harsh chemical, known as carbolic acid or oxybenzene, serves as a general disinfectant for toilets, cesspools, floors, drains…but…applied to human hearts? Before World War II, SS doctors intravenously injected phenol to patients in the Buchenwald concentration camp. In Auschwitz-Birkenau, phenol was selected for this savage heart poisoning because it was "cheap, easy to use, and absolutely reliable" when "large injections" were administered to the heart "with a long needle."[7]

Upon learning of phenol injections to the heart fifty-three years after my father's death, I went for the first time to Block 20, the Camp Infirmary, instead of Block 11 and the "Wall of Death." Entering a long dark corridor, I immediately noticed the first locked room to the left, Room 1, with a windowed door. I spotted a table flanked by two stools. A 20-cc glass syringe with a long needle lay on the table, accompanied by a small bottle. Afterwards, I learned from the written account of Dr. Stanisław Kłodziński, an Auschwitz survivor and member of the Auschwitz Resistance Movement, what happened in this room.[10] Each half-dressed prisoner/patient, selected by an SS doctor or sent by the Gestapo from Block 11 (the "Death Block"), was ordered to put the left forearm behind the neck and the right forearm behind the back in order to extend the spaces between the ribs shielding the heart. Deceptively, the SS doctor or his assistant told some prisoners that this injection will "cure infection" as everyone was concerned about the overwhelming typhus outbreak raging in the Auschwitz concentration camp. After the prisoner-patient was in

position, 20 cc of phenol were quickly injected to the heart through the fifth rib space. Death followed within two minutes. During a one-to-two-hour sessions known as "Blocksperren" ("barrack closing"), up to fifty prisoners were killed. Approximately 20,000 Auschwitz prisoners, including children, were victims of heart poisoning. One of the most terrible acts of genocide was the March 1, 1943 execution of eighty healthy boys transported from Zamość District, in loyal adherence to Hitler's command "to send [every] man, woman, and child of Polish origin and language to death, ruthlessly and mercilessly." Upon their arrival to the Auschwitz concentration camp, these innocent boys, aged thirteen to seventeen, were executed by SS *Oberscharführer* (Senior Squad Leader) and physician-assistant Herbert Scherpe. These boys quickly realized, while waiting in the washroom, what awaited them and loudly began to cry, "Why are you killing me?"[10]

## SS Doctors in the Auschwitz Cycle of Death

The signer of my father's death certificate, Johann Kremer, and his fellow SS doctors played a pivotal role in the monstrous Auschwitz cycle of death. They directly selected arriving prisoners at the railroad ramp for forced labor or the gas chambers, personally performed or supervised phenol injections, and commanded gas chamber operations, a far more efficient alternative to individual phenol injections. I learned from Erling Norrby's book *Nobel Prizes and Nature Surprises* that Fritz Haber, a German recipient of the 1918 Nobel Prize in Chemistry, contributed to the development of the deadly Zyklon-B gas.[11] Haber's synthesis of ammonia was of tremendous agricultural utility for the production of fertilizers "to the benefit of mankind." Yet Haber's chemistry of life morphed into a chemistry of death after he developed chlorine gas used as a chemical weapon during War World I and then synthesized the Zyklon-B compound used in the gas chambers of German concentration camps during World War II.

At the Auschwitz concentration camp, SS doctor and chief physician, Eduard Wirths, a medical graduate of University of Würzburg, insisted that only doctors should carry out selections and that "the syringe [should] remain in the hand of physicians."[1,7] Nevertheless, Johann Kremer delegated many of these phenol injections to his assistant, Josef Klehr. A cabinetmaker, Klehr boasted that he could execute a prisoner every two minutes! Nine days after my father's recorded death, Jean Weiss, one of the Block 20 "orderlies," silently fought back tears while witnessing his own father's execution by Klehr.[1,7]

## Heart Poisoning at the End of Sterilization Experiments and Anthropometric Studies

I learned that other SS doctors used phenol injections to the heart to terminate horrific sterilization experiments. Nearly half a million Germans were sterilized in Germany before World War II.[7] Sterilization "expert" Carl Clauberg, a professor at the Universities in Kiel and Königsberg (modern-day Kaliningrad) and a reserve SS *Gruppenführer* (Group Leader), came to Auschwitz in 1942. He personally asked Reichsführer Himmler for permission to develop a "cheap and efficient method to sterilize women." Himmler granted this request and assigned all of Auschwitz I Block 10 to Clauberg, who conducted horrendous experiments, during which he injected a corrosive chemical into female prisoners' uteri without using anesthetics.[12]

The inventor of the tested chemical agent, Dr. Johannes Goebel, a representative of Schering Werke, assisted in Clauberg's experiments. Some patients developed life-threatening inflammation of the abdominal region, peritonitis, and rapidly died. Other gravely ill women were put to death using phenol injection to the heart. In response to Himmler's question about "the amount of time it will take to sterilize a thousand female Jews," Clauberg incredulously boasted that one trained physician assisted by ten staff members would most likely sterilize several hundred or even a thousand women per day.[12]

A second "sterilization study" that tested yet another method was also terminated in some botched instances by phenol injections. This second sterilization project was conducted in Auschwitz II (Birkenau) by SS doctor Horst Schumann, who arrived in 1942.[1] Schumann joined the Nazi Party before receiving his medical degree from the University of Halle. Before his assignment to Auschwitz, Schumann led the Euthanasia Institute in Württemberg, one of the thirty killing centers established within extant medical institutions to implement the objectives of T4 programs based on the policy of "medical killing," first introduced as euthanasia removing "life unworthy of life."[7,8] In 1939, the German Reich Committee for the Scientific Registration of Serious Hereditary and Congenital Diseases oversaw the identification and the killings of children born with mental deficiencies, Down syndrome, microcephaly, hydrocephaly, physical malformations, and spastic paralysis.[6] Later in 1939, a *Führerbefehl* (Führer Decree) extended medical killing of children to "medicalized" killing of adults.[7] In Birkenau Barrack 30, Schumann condemned female and male Jewish prisoners to phenol injections to the heart or gas chambers after burning and mutilating their bodies with excessive radiation from a Siemens "Röntgenbombe" during sterilization experiments.[12,13]

Josef Mengele, one of the most notorious SS doctors at the Auschwitz concentration camp, also practiced heart poisoning. This "angel of death" used phenol injections to the heart to terminate his experiments and obtain "fresh" organs for further analysis.[12] The German Research Society actively supported Mengele's experiments on identical twins and dwarfs.[7] Mengele held two doctoral degrees from the Universities of Munich and Frankfurt, where he worked at the Institute for Hereditary Biology and Race Hygiene. This physician-scientist joined the Nazi Party at 26 and volunteered for its elite paramilitary arm, the Waffen-SS. Wounded on the Eastern Front, he came to Auschwitz becoming the "white angel" who frenziedly selected incoming European Jews for the gas chambers.[1,2]

## Lessons in Contrast: Swift Punishment of the "White Rose" and Protracted Trials of Genocide Perpetrators

In stark contrast to the Nazi medical establishment condoning medicalized killing by SS doctors and their assistants,[7] a group of German medical students called the "White Rose," led by siblings Sophie and Hans Scholl and Willi Graf, produced six leaflets denouncing the Holocaust. Supported by Professor Kurt Huber at the University of Munich (Mengele's Alma Mater), the Scholls distributed the leaflets throughout the city in 1942 and 1943.[14] They asked, "Why is apathy the reaction of the German Nation? Everybody strives to acquit oneself of complicity; everybody does it and then sleeps with a clear and peaceful mind. But no one can be exonerated; everybody is

guilty, guilty, guilty!" Tragically, after Sophie and Hans were reported to the Gestapo by the school custodian, they were arrested. Four days later, they were sentenced to death by a *Volksgerichtshof* (People's Court) and immediately beheaded.[2,14]

Fast-forward two years later. The Allied defeat of Nazi Germany in 1945 was followed by the tracking and prosecution of SS officers and SS doctors who actively implemented Hitler's Holocaust. I learned that the justice rendered was disturbingly slow and lenient with a few notable exceptions. Only 12-15% of the former SS staff at the Auschwitz concentration camp stood trial.[12] Surprisingly, in 1951, a decree of the States of the Federal Republic of Germany suspended all sentences imposed by the Allied authorities.[1]

Johann Kremer, the physician-scientist who signed my father's death certificate and killed some of his subjects/victims of hunger "studies" by heart poisoning,[12] was initially sentenced to death in communist Poland. Upon appeal, his sentence was changed to two ten-year terms, as prosecutors were unable to establish the precise number of his victims. Kremer was then returned to the Federal Republic of Germany, where he received a commuted 10-year term. He died a free man when the 1965 Auschwitz Trials started in Frankfurt.[1]

Kremer's assistant, Josef Klehr, the phenol-syringe mass killer, was captured by U.S. troops and sentenced to three years in a labor camp. After his release, Klehr settled in a small town in West Germany and returned to his pre-war trade of cabinet making.[1] Upon learning this astonishing story, I wondered how many SS executioners, like Klehr, absconded by returning to their pre-war trades without accounting for their crimes against humanity. Miraculously, the Auschwitz survivor, Jean Weiss, who witnessed the heart poisoning of his father, succeeded in tracking Klehr. The phenol syringe mass killer was arrested again in September 1960, eighteen years after the elder Weiss' execution in Auschwitz Block 20. At the 1965 Auschwitz Trials in Frankfurt, Weiss testified that he witnessed Klehr killing between 700-1000 people.[1] Of note, 2,467 people were executed by heart poisoning in Auschwitz during the last four months of 1942.[12] Klehr was sentenced to life imprisonment for the murder of "at least 475 people." According to Robert Jay Lifton's magisterial book *The Nazi Doctors*, "The Auschwitz Klehr was to a considerable degree a creature of the SS Doctors, of Entress in particular. Klehr was their psychological delegate who could perform the murderous acts the other doctors initiated. Because his hands were so dirty, these SS doctors could almost-but just almost-feel that theirs were clean."[7]

Friedrich Entress, ethnic German, born at the onset of World War I in Posen, received his MD degree at the University of Poznan. In Auschwitz, he was both a particularly vicious organizer of mass killing by heart poisoning as well as Josef Klehr's mastermind.[7] He was transferred in 1944 to a leadership position in Groß-Rosen concentration camp. After World War II, Entress was captured and tried in an American Military Court in Dachau, after which he was executed in 1947.[1]

Professor Carl Clauberg, who conducted gruesome sterilization experiments on 700 women in Auschwitz, was tried in 1948 by the Soviet Tribunal. He was sentenced to a 25-year imprisonment. Following the amnesty of 1955, Clauberg returned to his alma mater in Kiel, West Germany, "boasting [of] his scientific achievements." However, protests by Jewish organizations led to Clauberg's arrest. He died in prison in 1957 while awaiting trial.[1]

Eduard Wirths, as SS-Unit Assault Leader and SS-Garrison Physician, supervised all 20 SS Doctors in Auschwitz from September 1942 until the camp's evacuation. He then continued as a physician in other German concentration camps. Captured by the British Army, he committed suicide in prison.[1]

## Mengele's Escape, Schumann's High Blood Pressure, and Weber's Absconsion

In contrast to the aforementioned SS doctors, Josef Mengele, the Auschwitz "Angel of Death," returned to his hometown in Bavaria and, unfettered by the local authorities, jump-started a family business of manufacturing agricultural equipment. When Ernst Schnabel, author of *Anne Frank: A Portrait in Courage*, presented Mengele as a particularly vicious SS Doctor, the "Angel of Death" was already in South America. Evading all extradition attempts, Mengele died in Brazil during a 1979 swimming accident.[1,7]

Horst Schumann was another SS doctor at Auschwitz who conducted atrocious sterilization experiments using X-rays and subsequently killed many of his patients, either by phenol injection to the heart or sending them to the gas chambers (see above).[1,13] Prior to that assignment, Schumann directed the Euthanasia Centre in Württemberg. His alma mater revoked his MD degree when he evaded arrest. Schumann later worked as a ship's physician and settled in Ghana from where he was extradited to West Germany in 1966, awaiting trial in prison until 1970. At that point 54 of the 115 witnesses to his horrendous sterilization experiments had died. His trial was interrupted because of the "defendant's [Schumann's] high blood pressure"; expert medical opinions based only on subjective findings were used to release him from prison. Schumann died a free man, eleven years later.[1]

Bruno Weber, MD, and SS Chief Assault Leader, acted as both director of the SS Hygiene Institute in Rajsko near Auschwitz I and head of Birkenau Block 10. Heinous blood exchange experiments, including massive exsanguination of starved and weakened prisoners through the carotid artery, were carried out in Birkenau Block 10.[1,7] Weber terminated these experiments by heart poisoning. He also conducted experiments with hallucinogenic drugs to assist the Gestapo in its interrogations of Auschwitz prisoners. These drug-assisted interrogations were to extract information about the Auschwitz Resistance Movement. After Hygiene Institute's evacuation to Dachau in 1945, Weber managed to live "under the radar" of the post-World War II justice system in Germany and died a free man in 1956 in Homburg, Saarland.[1]

## De-Nazification or Amnesia?

These and other examples demonstrate the deeply flawed de-nazification of the German medical profession after World War II. Surprisingly, Dr. Karl Haedenkamp, one of the top wartime German physicians (see above), assumed the first post-war leadership position of the German medical profession as the head of the Federal Chamber of Physicians in West Germany.[6] Two former members of the SA and SS succeeded him: Doctors Ernst Fromm and Hans Joachim Sewering. Ironically, both Fromm and Sewering assumed high positions in the World Medical Association, an organization established in the wake of the Nuremberg Doctors' Trial in 1947.[6] This

trial led to the enactment of the Nuremberg Code of ethics that comprised the ten points for human experimentation. These guidelines were subsequently expanded in the Declaration of Helsinki, Henry Beecher's paper, and the Belmont Report, among others, as succinctly distilled by B.A. Fischer IV.[15]

## Conclusion

Heart poisoning was one of the most gruesome acts of genocide invented and executed by German doctors and assistants. Some of the Nazi doctors were physician-scientists hailing from prominent German universities. The Nazi ideology of racial superiority corrupted their minds and professional conduct,[2] leading these physicians and scientists to invent, propose, and execute inhuman experiments. In contrast, their innocent victims maintained a spirit of endless humanity, exemplified, among others, by members of the Auschwitz Resistance Movement, who risked their lives to secretly document Nazi atrocities and help weakened inmates. Of these heroes, Dr. Stanisław Kłodziński was one of the survivors responsible for preserving the truth about phenol injections to the heart so distorted by the official camp documents.

Fritz Löhner-Beda, a Jewish lawyer, satirist, and operetta librettist collaborating with composer Franz Lehar, was a critic of the Nazi regime in Vienna. Like my father, Löhner-Beda perished seventy-seven years ago in the Auschwitz concentration camp's Monowitz Annex (Auschwitz III). He was bestially beaten to death by the capo in front of a group of high-ranking executives of IG Farben visiting the newly constructed chemical factory staffed by the slave labor. Löhner-Beda famously declared in his song, "Whatever our destiny may be, we nevertheless shall say 'yes' to life: for once the day comes, we shall be free!"[16]

Sadly, seventy-seven years later, as our collective memory fades, 41% of Americans, and 66% of millennials who were born after 1983 cannot say what Auschwitz was.[17] Likely, the truth about its SS physicians, dubbed "doctors of death," is even less known among not only the public at large but also medical and nursing professions. Yet we are witnessing the "slippery slope" of contemporary advocates of "life unworthy of life" in Europe, Canada, and the United States.[8] Shockingly, Down syndrome has already been eradicated in Iceland.[18] Social and economic coercion seems to drive present-day prenatal screening.[19] These deeply troubling trends eerily evoke the history of the German Reich Committee for the Scientific Registration of Serious Hereditary and Congenital Diseases at the onset of World War II (see above).[6,7]

Are we about to succumb to the same ethical and public health conundrum?

Let us hope that this darkest chapter of medicine unlike any other will vividly inform the bioethical underpinnings of contemporary medical and nursing education and practice.

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# Healthcare, Religious Obligations, and Caring for the Poor

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## Introduction

It is a truism that the poor will always be with us, but it is not a truism that society properly understands its ethical obligations to them. These ethical obligations exist in two ways—by the natural law of a moral community and by the law of grace. The concept of the laws of nature can refer to what a physicist or chemist may say about essential patterns within the physical world, but the concept also refers to the essential patterns necessary for a society of people to become a moral community. Integral to this sense of natural law is that individuals and the society as a whole, defined by its necessary institutions, economy, and laws, are in an inseparable reciprocal relationship in which a profound obligation rests on both to assist each to fulfill its purpose. It is because of this reciprocal responsibility that society owes healthcare to the poor.

Moreover, there is the law of redemptive grace. This law not only obligates us to seek healing of the lame, blind, and unjustly treated, but also to restore to a proper life those who have sickened their bodies with irresponsible, foolish, and perverse habits and actions. This restoration foretells a future reality in which God's grace transforms those aspects of history (both natural and human) that are scarred, corrupted, and ruined by violence, malice, and disease into a fulfilling covenantal experience of God, nature, and humanity. This is the Kingdom of God.

## The Bible and the Poor

In the ancient Greek world, there was no social system of relief for the poor.[1] The poor were called the *ptwchos*, "beggars or mendicants." They could not care for themselves, and society did not have within their moral aims the ability to provide institutionally for the poor. However, this changes with the Hebrews and early church. Throughout scripture, the poor are given special dispensations for economic and political care. The concept of the *ptwchos* in the Greek Old Testament is not an abstract term referring to nondescript people. Rather, they are the "orphans, widows, and strangers." They are people within the community and known not just as beggars and mendicants but as children of known deceased parents, women without a patriarch who could draw upon the resources of society, and racially distinct people who live within their midst. The orphans, widows, and strangers share a lack of access to economic and political power in society. In a patriarchal society, legal access comes from and goes to and through the leading male of the family. An orphan does not have a father. A widow does not have a husband. The orphan and widow hence are left out, dispossessed of legal ties to social power.

The stranger is similar. They are the people of different races who join the Hebrews in the mass exodus out of Egypt. They too are slaves, prisoners, or oppressed people who witnessed the great acts of God through Moses, leading up to

the capitulations of Pharaoh and the reluctant release of the Hebrews to return to the land they called home—Palestine. They claim this land (already inhabited by many people) through a contract extension left them by their ancient ancestors, in particular Abraham and Sarah, the original patriarch and matriarch of the Hebrews, who bought land in Canaan and were buried there. To the Hebrews, this story was told and retold for four hundred and thirty years while in Egypt. Yahweh, the God who called into existence their blood line and established a special covenant with them, had promised them the land. Consequently, it was important for the people to know what part of the land belonged to them, and that was determined by their tribe, eponymously named after the sons of the fourth patriarch Joseph.

However, the welcomed strangers are not blood kin to any of the original tribes of the Hebrews. Although they can enter the promise land with the descendants of Abraham and Sarah, they do not have legal rights to own the land. They lack a patriarch to endow them with social access to land and an economy. Because they revere God and are included with God's people, they should be respected. Even though they are poor, beggars, and dependent upon those possessed with social privilege and power, they are not inferior people or outcasts from the community. The community formed by God's great act of liberation from Egypt and legally cemented together by the laws of the Covenant includes the dispossessed as well as the powerful as essential and valuable members of the community. They have a role to play, just as the land owners do, in recognizing the sovereignty of Yahweh and giving thanks for God's great mercies. The poor and rich are equal before God, though unequal economically.

Eventually, within the development of Israel's notion of the role of the poor in society, the lame and blind are added to the class. Like the poor, they are functionally unable to participate in the land-based economy but are still members of the community; thus, they are responsible for helping Israel to be God's chosen nation.

The Law of the Covenant establishes an institution of relief for the poor. Farmers (and by extension business trader and manufacturer) should leave ten percent of their fields unharvested for the poor. Because of their dispossessed position in society, the poor cannot generate enough finances to care for themselves, but they are not beggars or mendicants. They are provided with resources so that they can fulfill their function in society to be faithful to Yahweh's command and testify to God's majesty and glory. The community is formed and institutionally configured according to its purpose, to be faithful and to glorify Yahweh.

Within this moral community, people can trade and earn wealth but never at the hindrance of anyone else in the community. Usury (which most likely refers to making more than necessary profit in lending money) is forbidden, especially to the poor, for it undermines the moral purpose of the community. The manipulation of markets and surreptitious measurements of value and currency are illegal and strongly condemned, primarily because such acts weaken the necessary social virtues of trust and honesty. No community committed to glorifying God and acknowledging and respecting every person's indispensable role in moral community can tolerate economic crimes and harm done to the poor.

It is to the exploiting and oppressive rich that the great prophets like Isaiah, Amos, and Jeremiah pronounce the wrathful judgment of God. The rich's assaults are not only against the laws of the covenant but against the glory of God, and their

exploitive actions jeopardize the integrity and moral purpose of the community. Throughout scripture, God cares for the prisoners, and God promises freedom from their confinement. The rich unjustly oppress these prisoners and prevent them from participating, even in their own small way, in society. However, not all wealthy people were so negatively labeled; often God blesses people with riches. The negatively designated rich undermine the moral purposes of the community.

The poor is a fluid term in the Old Testament referring to the orphan, widows, strangers, lame, blind, and prisoners. Yet there is another group of people often poor economically but different than the others—the lazybones or sluggards. The Wisdom writings are particularly harsh towards the sluggard. For instance, "How long will you lie there, O lazybones? When will you rise from your sleep? A little sleep, a little slumber, a little folding of the hands to rest, and poverty will come upon you like a robber, and want, like an armed warrior" (Proverb 6. 9-11). The sluggards lack economic and political means because of their irresponsibility, not because of their natural state or misfortune. They squander their role in society through their self-destructive habits and consequently weaken the economy and the moral integrity of society. Their biggest fault is not necessarily their foolish ways but their effects on the moral purpose of society, a goal to honor and glorify the God who called them to be a special people and to be a model of all nations. The sluggards, though they may be poor, are never given the special care and treatments as the others—the orphans, widows, strangers, lame and blind and those unjustly imprisoned.

I now offer a summary. First, social roles, whether rich or poor, or determined by the moral purpose of the community. Everyone has a responsibility to contribute to that purpose, and society has the responsibility to enable everyone to contribute to the covenantal foundation of the community by providing ways for them to participate in the economy and socially necessary institutions, like communal worship of God. Second, there are different types of the poor. There are those poor by natural circumstances, like being born blind or suffering a disability. There are the poor by misfortune, those not included in the power-structures of society, either because of their disadvantageous state (that is, being an orphan, widow, or stranger) or because of their unjust treatment by the oppressive rich. Finally, there are the sluggards, the poor due to their irresponsible habits, the ones who do not take advantage of the social opportunities to promote the moral purpose of the community.

## The Social Covenant and Obligations to the Poor

I want to apply these observations from the Bible to our present situation. I am not equating either biblical Israel or the first-century church with 21st century America. The former is deemed a holy people, directly shaped by a revealing God who speaks through the Law and Prophets and became the incarnate Word in Jesus Christ proclaimed by the original apostles. America is not a holy people defined by God but is loosely understood to be a covenant people defined by laws and shaped by its history and institutions towards a social goal in which everyone has the right to "life, liberty, and the pursuit of happiness." Even though opinions differ about the basic ethical makeup of our society, whether it is individualistic or collectivistic, communitarianism offers an insightful way to account for the moral purpose of our

society and how that purpose binds all people into a moral community of responsible citizens.

Communitarianism recognizes that this is an issue of how the social institutions and individuals shape and define each other, not a choice between the consensus of society and the autonomous individual. The well-known proponent of communitarianism, Amitai Etzioni, gives a good account of this balance:

> The challenge for those who aspire to a good society is to form and sustain—or, if it has been lost, to regenerate—a social order that is considered legitimate by its members, not merely when it is established (as contract libertarians would have it) but continuously. The new golden rule requires that the tension between one's preferences and one's social commitments be reduced by increasing the realm of duties one affirms as moral responsibilities—not the realm of duties that are forcibly imposed but the realm of responsibilities one believes one should discharge and that one believes one is fairly called upon to assume.[2]

It is because people learn "moral responsibilities" that they realize their experiences of self-making necessarily involve contributing to the social institutions, which makes such efforts possible for families, schools, and businesses. People are never only responsible to themselves or only to institutions. The responsibility involves finding ways to experience human flourishing within established and continuous social relationships. As societies learn to find these ways, they establish a moral order that provides frameworks by which they and subsequent generations determine the aims and behaviors that actually lead to human well-being. The social good emerges not from an imposed order but from the innate socializability of people, who in community seek to establish the habits, social relationships, and organizations that enable human happiness. Thus, the public good is the moral order forged and shared by a community aimed toward human well-being.

Of course, not every aspect of our society conforms to this sense of the public good. The ethical burden of mutual and reciprocal responsibility between society and its citizens and among society's citizens are often ignored and broken. Our economy and social relations are vast, complex, and, at times, chaotic. Consequently, it is systematically difficult to account for the genuine ethical behavior of the contributing institutions and agencies in society.

However, I think Aristotle makes a helpful distinction, helping us to understand the mutual and reciprocal social obligations between natural and unnatural economic behavior within a moral community. In book one of *Politics*, Aristotle discusses the relationship between the managing of the household, which he calls *oikonomike*; the art of property ownership, which he calls *ktetike*; and the art of acquisition, which he calls *chrematistike*. In a just society, the wealth serves a greater purpose than its accumulation. It serves the happiness of all the citizens, which he calls *eudaimonia*. The buying and cultivation of property should contribute to the flourishing of the household. *Household* can refer to individual families, but it also refers to the relations of families and mediating social institutions necessary for people to fulfill their social natures as convivial beings designed to organize their lives towards a final aim. A society properly aimed toward *eudaimonia* would in this extended sense be a household. *Household*, both in the individual and collective senses, is natural and

necessary to experience human flourishing, and the art of using property to enable and enhance the household is the natural use of wealth.

However, the art of acquisition strains the natural order of society.[3] It accumulates wealth for its own sake or strictly for its purchasing and political power. Wealth can be created for the household, and that is consistent with the natural ordering of a just society in which all people are seen as necessary agents within the community's moral purpose. However, if wealth is created for its own sake, then it pulls resources out of the household and undermines the natural ordering of a community aimed toward human flourishing and diminishes the reality of a mutual, reciprocal society ethically bound together towards a common moral goal. The more the art of acquisition is expressed throughout society, the harder it is to make the ethical argument that all people are part of a household, part of a community of mutually reciprocal moral obligations. Of course, the making and possessing of wealth are not contrary per se to the sense of the community as a household, but if the poor and dispossessed are neglected because of the particular economic benefits to those who amass wealth primarily for their individual acquisitive and/or political advancement, then the making and possessing of wealth can undermine the natural order.

But who are the poor in a modern economy? The "Calorie Engel Curve" is somewhat helpful in identifying the poor in contemporary society. This is a graph with vertical and intersecting horizontal lines. A person or family's income or total expenditure are placed on the horizontal line, and the average caloric intact relative to the income or expenditure level is on the vertical line. Those who are below the ratio of income to caloric intact of 2,000 calories per day are considered poor.[4] Even though the "Calorie Engel Curve" highlights the tangible necessity of income and caloric intact, it is a bit arbitrary. As an argument, for who are the poor "Calorie Engel Curve" is vulnerable to what is called the "Micawker Problem," taken from the Dicken's novel *David Copperfield*, or what is also called the "bright-line" problem. In real day to day needs, the difference between those who are immediately above the line and those immediately below are negligible, and if a family is one dollar above the cutoff line, they are ineligible for Medicaid.[5] Furthermore, the graph does not recognize the situation of the working poor—those who make just above the official poverty line but, because of family responsibilities, are functionally no different than the classified poor. The graph cannot in a helpful way express the existential state of living in poverty. There are other variables in determining poverty not measurable in the Calorie Engel Curve, such as access to social services, support from extended family, personal emotional state, and prospects for the future.

Thus, it is important to consider what Augus Deaton calls an "index of well-being."[6] Poverty is more than income. It is "the absence of one or more of the basic capabilities that are needed to achieve minimal functioning in the society in which one lives."[7] These capabilities include the ability to make a viable income, a reasonable life-span, literacy, the enjoyment of the aesthetic pleasures offered by society, and a sense of affirming recognition for one who is poor. In the sense of well-being, poverty obviates a person from playing a significant role in society by contributing to the economy and participating in the necessary mediating institutions of society. The poor cannot thus share in the affirming and promoting of the overall moral purposes of society, cannot be recognized as a person of social worth, and cannot fulfill what

they by their social nature have the potential to actualize. This is perhaps the most demeaning consequence of living in poverty.

What does society owe the poor? How much publicly funded healthcare is owed the poor? If society understands itself as a community bound together by an overriding moral purpose, as did Israel and the early church and as Aristotle described the natural law of all cities/states, then each citizen must contribute to that purpose, and the community must provide ways in which each citizen can participate in that moral purpose. Presently, we offer publicly funded education for all citizens; we offer Medicare for the elderly and Medicaid for the poor. Our society has accepted the moral responsibility to provide the minimum means to help all its citizens contribute to society. The minimum is what is necessary for persons to function in a way that they may strive for the maximum expression of well-being in society. For instance, even though we offer publicly funded education for all children, we do not guarantee funding for Ph.D.'s. We offer life-saving measures for all people (that is, for those whom it would indeed contribute to their viability) but do not guarantee enhancement therapies and surgeries. Such measures parallel what the Bible says is obligated toward the poor by nature and misfortune and thus witness to the comprehensive moral purpose of society to promote each citizen as a necessary part. As long as society has the commitment of being a moral community aimed toward a fulfilling purpose, the poor will be recognized as valuable parts of the community.[8]

Yet, what does society owe to the "sluggards," to those made poor by their foolish and destructive habits? This obligation is a challenge to clarify because the "sluggards" have abnegated their responsibility to society and have handcuffed themselves with their action from contributing to the moral goals of society.[9] Consequently, they have broken the moral bound and weakened the social fabric. However, the "sluggards" are still part of society and members of families and neighborhoods. Others are invested in their lives and are affected in their own financial, social, and emotional well-being, often negatively, by their state of poverty. Their suffering causes suffering for others, and because of this symbiotic relationship with others and society, the community is indirectly responsibility for their minimum healthcare. The community is directly obligated to enable the poor to strive for the moral goal of the community, but it is indirectly obligated to the "sluggards." This offering of public assistance is thus a shame upon the "sluggards." They are helped not because of their worth or potential but because of others in society. The obligation to the "sluggard" is not owed directly or given happily. It is given begrudgingly to their shame for harming others and for not actualizing their ethical potential to the moral nature of the community.

It is conceivable that if the social problems related to the "sluggard" increase (for example, healthcare expenses due to smoking tobacco, ruinous alcohol and drug use, obesity, etc.), the responsible public institutions, experiencing greater financial restriction, will decrease the minimum healthcare given to them. Also, it is conceivable that if the community loses its sense of shared moral purpose, even the indirect obligation owed the "sluggard" will become less convincing and binding upon the community.

Let me summarize the argument so far. The major premise: a moral community is based on the purpose of the community, and the social institutions and society's members are ethically obligated toward that purpose. The minor premise: the poor

are members of the moral community and thus have obligations to help society achieve its purpose and vice versa—society is obligated to help the poor contribute to society. Conclusion: therefore, society and the church should promote agencies and policies that contribute to the poor becoming responsible members of society, such as Medicare, Medicaid, low-cost health insurance, below-cost clinics available to the poor, and policies aimed to guarantee a viable low-wage market available to all.

## The Law of Grace and the "Sluggard"

At this point on how to treat the "sluggard," the church has a special plea to make. Throughout the Gospels, we read that Jesus identified with the poor. In his first sermon at Nazareth, recorded in Luke 4, he says of himself, quoting from the 6th century prophet Isaiah, "The Spirit of the Lord is upon me, because he has anointed me to bring good news to the poor. He has sent me to proclaim release to the captives and recovery of sight to the blind, to let the oppressed go free, to proclaim the year of the Lord's favor." Jesus envisioned his ministry inaugurating the Kingdom of God that Isaiah prophesied by fulfilling the commands given to Israel to care for the various poor—the natural and misfortune poor. When John the Baptist's disciples ask him, as recorded in Matthew 11.5, if he is the expected Messiah, he answers in a way similar to the Nazareth sermon: "Go and tell John what you hear and see: the blind receive their sight, the lame walk, the lepers are cleansed, the deaf hear, the dead are raised, and the poor have good news brought to them." The fact that Jesus does care for the poor and imprisoned demonstrates that the eschatological Kingdom of God is being made present in his ministry. Redemption occurs within the concrete situation of the poor, a healing of capacities to fulfill one's purpose and a redemption of the estranged and alienated from the community and God. This experience of Christ identifying with the poor is a new classification of the poor—the eschatological poor.

The notion of the kingdom of God throughout the New Testament refers to both the future coming of God's new creation in which redemption is universal and to the present experience of this future state. Jürgen Moltmann rightly expresses this twofold reference: "Anyone who stresses *the lordship of God* means the rule of God in the present. Anyone who stresses *the kingdom of God* means the dimension and new order of all things according to God's precepts and is talking about the future of this kingdom."[10] The disciples exercise God's rule in their lives by living according to the features of the future reign of God, and by their obedient actions they make present His healing and saving power. The church's works of righteousness and witness of God in Christ move history forward to its proper goal in the kingdom of God by making present what that goal is and will be.

But Jesus does not restrict the Kingdom only to the poor. He includes the sinner and criminal. In the parable of the Great Dinner in Luke 14:15ff, Jesus compares the citizens of the Kingdom of God with those invited to a great banquet. The privileged people make excuses and turn down the invitation to the banquet. Thus, the invitation goes out to the poor and even to those on the "road and lanes," a phrase referring to highwaymen and robbers. They are compelled to enter the banquet. Jesus seeks the sinner and tax-collector, those who undermine the covenant community by their actions. He identifies not only with the poor but also with what we call the "sluggard." The Kingdom in the person and work of Christ heals people of the poverty and also

transforms the sinner into a child of God. Even though the sinner and "sluggard" are rightfully judged by society for failing in their responsibility to the moral community, the Good News of the Kingdom of God—a kingdom great enough to heal and liberate the poor and transform the sinner—restores the morally rejected into worthy citizens of the community of God.

Jesus moreover exhorts his followers to do likewise. In two beatitudes, Jesus says, "Blessed are the poor in spirit, for theirs is the kingdom of heaven," (Matthew 5.3) and "Blessed are you who are poor, for yours is the kingdom of God" (Luke 6.20). The context of both these beatitudes is Jesus's description of people living in the state and power of the Kingdom of God. A beatitude is not about the disciple's personal happiness or joy. Rather, it is a state of living in the redemptive power of Christ, inaugurating the kingdom of God. In relation to what Jesus maintains throughout his teaching—that he identifies with the poor and sinner—we should interpret them as maintaining that the disciples experience the blessed state of living today by the power of the future Kingdom in making real in their lives their identification with Jesus, who has become identified with the poor and sinner. By caring for the poor and sinner, the disciples and the church make tangible the presence of Christ in society and make real Christ's Good News and salvific power. Their ministry to the poor and sinners is a sacramental act and embodies the eschatological power of the future Kingdom of God that both judges the world and redeems it, a power that reconciles in their action at that particular moment in time with God's new creation. The future kingdom becomes nearer in the blessedness of the disciples' identity with Jesus, who identifies with the poor.

How does this understanding of the eschatological poor and the church living the beatitude of poverty inform us on how to relate healthcare to the poor? The church offers a response to the poor and the "sluggard" that the secular community cannot—an eschatological power and an acceptance of the shameful. The church's belief that Christ identifies with the poor compels her to care for the poor in order to be faithful to the Lord's call to follow Him. This care obviously entails promoting healthcare to the poor as a way of acknowledging and recognizing the redemptive work of Christ. The church experiences the state of being blessed, of being in the beatitude, by working alongside and with the structures and agents of healthcare. This addendum to the specific practices of healthcare is not superfluous to the scientific treatments given the poor. The church in the beatitude embodies a force of healing even greater than what healthcare can provide, for it incorporates the poor into a larger story of the redemption of the world, of the ultimately healing power of God to transform the poor into citizens of the new creation. Her presence among the poor materializes the presence of Christ and thus turns a sick, painful, and perhaps fatal situation into a sacrament, into a manifestation of the redemptive work of Christ to heal the world.

The church's presence can take many forms—chaplaincies, chapels in hospitals, healthcare professionals as ministers who call themselves Reverend Doctor or Reverend Nurse, etc., clinics sponsored by churches. These forms bring to healthcare for the poor another moral obligation than the natural/covenantal law. That is the law of grace, of divine forgiveness, healing, and reconciling. By being faithful to the call to live the beatitude, the church contributes a value added to obligations society may feel about caring for the poor. This faithfulness not only helps to restore the poor to

health but also it incarnates the life of the new creation, of God's ultimate redemptive plans.

According to the law of grace, obligations are owed the sluggard! Even though the non-church moral community cannot directly affirm the right of the sluggard to healthcare (only indirectly through the sluggard's relationships and place among others in the community), the church directly affirms the sluggard's worth before God and their receptivity of Christ's redemptive healing. The church can do something for the sluggard that the moral community cannot: express in tangible ways God's heart to heal and save all people. For this reason, the church seeks ways to accompany the acts of healthcare to the sluggard, as minimum as they are, in order to expresses the hope that the sacramental presence of Christ is powerful enough in each situation to start the process of the healing of the soul and body. The church is obligated to give healthcare to the sluggard because Christ has chosen to identify with all the poor, the irresponsible as well as the natural and unfortunate poor. Those institutions defined by the natural/covenantal law may see the church's acts of healthcare to the sluggard as futile or irreconcilable to the law of reciprocity underlying the moral community, but the church follows an obligation, one not measured by mutual social relationships but by the realities of the new creation evident in the Kingdom of God made real through Jesus's ministry to the poor. The church's success is also not measured in the same way. Of course, the church seeks the health of the poor, but she also looks for the coming Kingdom of God—the reign of God bringing wholeness and peace throughout the world—to become tangible here and now to the sluggard. Her success is measured by the work of the Kingdom of God, and it is that work that morally compels the church to promote healthcare for all the poor. In every offer of redemption and hope to the sluggard, the church proclaims that the Kingdom of God becomes more present and transforms society into the new creation of human flourishing and fulfillment before God.

A visual representation of the value-added law of grace to healthcare is the famous sixteenth-century series of paintings by Matthias Grünewald, made for the monks at the Antonite monastery of Isenheim called the Isenheim Altarpiece. The Antonite monks of Ishenheim, named after the founder of Christian monasticism, St. Anthony, specialized with primarily palliative measures in treating people dying of ergotism, caused by the ingestion of rye infected with the parasite ergot and called St. Anthony's Fire. These people were shunned not only for their possible infectious state but also for being outcast and pariahs. The monks wanted to incorporate into their treatments Christ's redemptive healing and hope given to all people, including the sick and the pariahs. They commissioned Grünewald to paint two panels of Christ salvific work on the Cross and Christ's glorious resurrection over death, disease, and the wages of sin. Grünewald depicts the full range of Christ's vicarious suffering and has him resemble people dying of ergotism. The painting both depicts the horror and alienation of human existence and also the power of God to endure and transform the sick and rebellious of humanity. The painting aesthetically reveals to the dying the hope of the new creation occurring in Christ, even in their morbidity. In using this painting to help bring healing to the poor of Ishenheim, the monks were experiencing the beatitude of identifying with Christ among the poor.

Let me summarize this last argument.

The major premise: Christ identifies with all the types of the poor and works to inaugurate the Kingdom of God in their midst. The minor premise: in identifying with the poor, the Church realizes the sacramental power of Christ, redeeming lost situations toward the Kingdom of God, and the Church experiences the state of being in a beatitude. Conclusion: therefore, the church should find ways not only to promote healthcare for the poor but to identify with the poor through such means as providing clinics and hospices for those left out of healthcare networks, joining hospitals and clinics with a ministerial presence, giving aesthetic ways to witness to the sick and poor Christ's redemptive work, and ordaining healthcare workers to serve as ministers in their medical work.

## Endnotes

1. Much of what is given in this subsection comes from the *Theological Dictionary of the New Testament: Volume VI*, editors Gerhard Kittel, Gerhard Friedrich, translated by Geoffrey W. Bromiley, Ernst Bammel, contributor (Eerdmans Publishing, 1968), pages 885-915; and Jürgen Moltmann, *The Way of Jesus Christ: Christology in Messianic Dimensions*, translated Margaret Kohl (London: SCM Press, 1990), pp. 94-104; Richard Batey, *Jesus and the Poor* (New York: Harper & Row, Publishers 1972).
2. Amitai Etzioni, *The New Golden Rule: Community and Morality in a Democratic Society* (New York: BasicBooks, 1996), pp. 12-13.
3. "But the art of wealth-getting which consists in household management, on the other hand, has a limit; the unlimited acquisition of wealth is not its business. And, therefore, in one point of view, all riches must have limit; nevertheless, as a matter of fact, we find the opposite to be the case; for all getters of wealth increase their hoard of coin without limit," Aristotle, *Politics*, I,9, 30-33.
4. See Augus Deaton, "Measuring Poverty," in *Understanding Poverty*, edited by Abhigit Vinayak Banerjee, Roland Benabou, and Dilip Mookherjee (Oxford: Oxford University Press, 2006), p. 6.
5. Joel Handler and Yeheskel Hasenfeld, *We the Poor People: Work, Poverty, and Welfare* (New Haven: Yale University Press, 1997), p. 134.
6. *Understanding Poverty*, p. 8.
7. *Understanding Poverty*, p. 10.
8. Lisa Cahill claims that "What defines a gospel-based bioethics is a hopeful, practical commitment to improve the health of those who are most vulnerable to illness and early death because they lack basic needs. This commitment is distinctive of Christian bioethics, if not "unique" in the sense that no other bioethical approaches or traditions share it," in "Bioethics, the Gospel, and Political Engagement," *Christian Bioethics*, 2015: 21:3, p. 247. Although Cahill makes a good case that Christian ethics has a viable place in the public square in debating what society owes the vulnerable and rejected, the covenantal-communitarian ethic also ethically compels society to care for the vulnerable and dying. Cahill would be right if she added that only some Christian bioethics advances an ethics that cares for those society and its institutions have rejected as detriments to society.
9. For a good example of how difficult it is to justify continual help to the sluggard or the "underserving poor" see George Sher, "Health Care and the Deserving Poor," in *The Hasting Report*, 1983: 13, 1. "But if so, then while psychopathology and insuperable habit may render some poor persons undeserving of their impoverished status, and may diminish responsibility and desert in others, they do not have either effect across the board. Psychological considerations may alter some judgments about who is "deserving," but the distinction between the "de- serving" and the "undeserving" poor still holds. The Effect "(p. 11).
10. Moltmann, p. 97.

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# BOOK REVIEWS

## The Price of Global Health.

2nd ed. Ed Schoonveld. Burlington: Gower Publishing Company, 2015.
ISBN 978-1-4724-3881-2, 455 PAGES, HARDBACK, $126.96.

Schoonveld tackles the colossal tasks of informing his readers about the intricate factors that determine international pharmaceutical pricing, and he proposes strategies that broaden access to safe and secure drugs. Because both goals are inextricably intertwined, he accomplishes them by describing drug pricing models, explaining historical outcomes of implementing these models, and addressing how aspects of those models that achieve greater access and affordability can serve as the basis on which to construct frameworks that foster greater equanimity of access on a global scale.

As a leading expert in global pharmaceutical pricing and market access, Schoonveld is an authoritative guide, and his text is a must-read for ethicists and policy-makers who wish to gather all the facts required to make informed decisions about promoting more just allocation of safe drugs. Readers can become conversant in issues of international pharmaceutical pricing through his painstaking, often technical, delineation of the many situational forces that affect access and affordability. But more importantly, they will be equipped to engage in a reconsideration of strategies that have the potential to provide more just ways of ensuring access to safe drugs in local and global marketplaces.

Each chapter presents concise descriptions of a breadth of allocation approaches. These provide convincing examples that just allocation of safe pharmaceutical products is possible on local and international levels. They further provide cautionary tales as to some of the pitfalls of poorly planned or executed policies. It is here that Schoonveld's text stands out as more than a mere synopsis of international contexts and policies. In any nation in which law-makers engage in their solemn responsibility of ensuring access to the fundamental goods of health care resources, his text can serve as a catalyst for the consideration of strategies that are proven to provide practical value in local and global marketplaces. This second edition is updated to take into account recent legal changes that condition international pharmaceutical pricing.

**Reviewed by Scott M. Davidson,** Instructor of Theology and Philosophy at Alvernia University in Reading, PA.

## Being Amoral: Psychopathy and Moral Incapacity.

Edited by Thomas Schramme. Cambridge, MA: The MIT Press, 2014.
ISBN 978-0-262-02791-5. 335 PAGES, HARDCOVER, $45.00.

What about those who just don't care about the harm they do to others for their own ends? As this collection of fine essays by moral philosophers and psychiatrists points out, even the term by which we commonly identify such people as "psychopath" is contested and is not a formal clinical psychiatric designation. It is found neither in the Diagnostic and Statistical Manual of Mental Disorders (DSM), nor the International Classification of Diseases (ICD). Nonetheless, as Thomas Schramme, Professor of Philosophy at Hamburg University and editor of this volume, writes, "We need some category to refer to a condition that makes people unable to be moral, or that makes them amoral" (3). We know such folk exist. Our struggle to understand them, their understanding of themselves in the world, and their motivations are the themes of this book.

Psychopathy raises several questions for the moral philosopher. What is the role of empathy in the moral life? Does psychopathy urge us to more refined definitions of it, and have we conflated its meaning with responses that should be labelled sympathy? Just what responses that can be described as moral does a psychopath have? And what does all this mean for the crucial question of criminal adjudication and punishment? The last question is addressed by Matthew Talbert with the firm conviction that there are some, perhaps many, psychopaths who have had quite successful business careers. Psychopaths are not always wrongdoers. Further areas of inquiry include the moral/conventional distinction and the internalism/externalism debate.

The book has four parts. The first contains Schramme's detailed introduction and a history of psychopathic study in Europe and the U.S. The second part addresses the debate on the deficits psychopaths are thought to have. Topics comprise moral rationality (the reasons psychopaths give for their behavior), the previous mention of the problem of empathy with close attention to Hume and Smith, the inability to put feelings into words (alexithymia), Heidegger's notion of comportment and its contrast with the psychopath's, and indifference to others' sufferings. The third part attends to questions specific to moral philosophy: the internalism/externalism debate, the ability of psychopaths to genuinely have such moral reactions as resentment, and the fundamental capacity to know the difference between right and wrong. The book closes with the question of blame assignable to psychopathic behavior both legally and morally.

The book and its nuanced inquiries into problems in moral philosophy should interest the religious moralist as well. But there is more. As one example, Schramme writes, "Being a moral person is therefore an integral aspect of human nature" (p. 243). If the psychopath is incapable of being a moral person and also a genuinely social person, how does theological anthropology respond? Religious ethicists who emphasize the importance of being in relationship in the world may find psychopathy as interesting as do moral philosophers.

**Reviewed by Gerald S. Vigna, PhD.,** who is Associate Professor of Theology at Alvernia University in Reading, PA.

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