

Biotechnology, Bioethics and Liberalism: Problematizing Risk, Consent and Law

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Introduction

At the conclusion of the famous article of 1953 announcing the molecular structure of DNA, Watson and Crick observed “that the specific pairing we have postulated immediately suggests a possible copying mechanism for genetic material.”¹ Six months later, Pope Pius XII addressed the First International Conference of Medical Genetics on ethical issues. The Pope said that since the aim of genetics “is to influence the transmission of hereditary factors in such a way as to promote what is good and eliminate what is harmful,” genetics is “morally irreproachable.”² In these two events we have a prediction and a warranty: the scientist predicts the future fruitfulness of a biotechnological science, the Bishop of Rome warrants its moral value. The relationship between attempts to fulfill the prediction and maintain the warranty typifies what we now call “bioethics.”

This paper begins an examination of the way bioethics turns to law in its confrontation with biotechnology. There are three aspects to the bioethical encounter with biotechnology. First, bioethics accepts biotechnological facts as truths. Second, bioethics understands consent as the antidote to the risks of biotechnology it diagnoses. Third, bioethics turns to the positive law of procedural liberalism as the way to secure and guarantee consent. The paper aims only to raise the question of the implicit understanding of the human being and law one finds in the bioethical encounter with biotechnology.³

This paper does not pose policy questions or offer solutions, nor could it without self-contradiction. The task of the paper is not to improve bioethics, or correct it, or identify its mistakes so as to achieve a “proper” vantage point from which to solve “problems” with biotechnology. Rather, the paper aims to begin an inquiry into the way being human is understood at the intersection of biotechnology,

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¹ James Watson & Francis Crick, “The molecular structure of nucleic acids” (1953) 4356 *Nature* 737.

² Some of the means to that end were not seen as irreproachable. “Pope says Church raises no bars against quest for scientific truth” *New York Times* (9 September 1953) A18; and “Allocution to First International Conference on Medical Genetics,” (1953) 45 *Acta Apostolicae Sedis* 596 at 605. See also Albert Jonsen, *The Birth of Bioethics* (Oxford: Oxford University Press, 1998) at Ch. 6.

³ At many places in this paper I have written in the passive voice and of “bioethics” and “biotechnology” as though they were agents. I have used the passive to convey the way human agents come to be absent from the institutional machinations of these fields of knowledge. Although it may seem as though I have reified “bioethics” and “biotechnology,” I have attempted to point to a unity of focus that characterizes both fields. I do so as shorthand to identify what seem to be widespread ways of speaking.

bioethics, and liberalism. Such an inquiry can present no “solutions” for “moving forward.”

I. Two Moments of Biotechnology: Variation and its Measure

Some twenty years after Watson and Crick’s prediction, Paul Berg, Herbert Boyer and Stanley Cohen developed the technique of recombining “cut” strands of DNA into new genetic material, forming “recombinant DNA.”⁴ There are now many kinds of genetically engineered products, and many kinds of living beings under design in labs around the world. Biotechnology presents the allure of making us smarter, letting us live longer, healing us more effectively, and giving us better food. Modification of genetic material, the main activity of biotechnology, is the way these temptations are to be made real.

Contemporary reflections on biotechnology often cite the two main events of this modern phenomenon as (i) the discovery of the molecular structure of DNA and (ii) the development of recombinant DNA. But these reflections imply that isolated instances of technical advance capture the technicity of biotechnology, and of how biotechnological facts “are”. These advances have certainly led to effective results. However these advances manifest only a new precision in identifying and configuring the variables of biological phenomena.⁵ The significant moments, the ones that have come to define the way biological phenomena present themselves as variables, were much earlier. To see the technicity that determines biotechnology requires a look at two prior moments: Darwin’s identification of the problem of specie variation and Mendel’s development of statistical methods for identifying and predicting genetic variation.

Up until the mid-nineteenth century, the way to distinguish biological phenomena was through taxonomy. The development of taxonomy occurred along with the identification of *species* as the way to demarcate differences in that order of nature.⁶ Species provided a foundation for classification by expressing the perpetuation of distinct kinds over time. The question of the origin of such difference remained contested terrain. Though Darwin’s contribution to biology is

⁴ Compare Susan Aldridge, *Thread of Life: The Story of Genes and Genetic Engineering* (Cambridge: Cambridge University Press, 1996) at 104-107; Paul Rabinow, “Toward Biotechnology” in *Making PCR: A Story of Biotechnology* (Chicago: University of Chicago Press, 1996) 19.

⁵ Contrary to what Richard Doyle describes in *On Beyond Living: Rhetorical Transformations of the Life Sciences* (Stanford: Stanford University Press, 1997). He writes (at 25): “Specifically, the trope of ‘code’ has been as crucial to nascent molecular biology and its precursors as the more obvious gadgets of ultracentrifuges, electrophoresis gels and electron microscopes.” That the language of “codes” has enabled more effective techniques in the life sciences is without doubt; it is unclear, to me at least, how this marks a transformation in the technicity of the life sciences *per se*.

⁶ This historical moment is given a fuller discussion in François Jacob, *The Logic of Life*, trans. by Betty E. Spillman (Princeton: Princeton University Press, 1973) at 44-52; Harriet Ritvo, “Zoological Nomenclature and the Empire of Victorian Science” in Bernard Lightman, ed., *Victorian Science in Context* (Chicago: University of Chicago Press, 1997) 334 at 336-337.

commonly thought to be the identification of natural selection as the mechanism according to which specie evolution occurs, this common perception obscures the nexus of questions into which his account falls: how is *variation* both among and within species possible?⁷

This seemingly idle question contains strange new seeds. The question of the existence of variation is concerned with the way variation in species occurs — as though the difference between kinds occurs along a single continuum. Where previously biological phenomena were considered distinct kinds, differentiated according to “inner natures”, with Darwin the “inner natures” give way to the variation both among and within species according to observable traits. The animal kingdom is said to exist “continuously”, with differentiation replaced by variation. Where the individual’s identity previously hinged on its place in the taxonomy, it now hinged on its position vis-à-vis the norm of an observable population.

The second significant moment comes with the experiments of Gregor Mendel. Mendel grew varieties of peas, cross-pollinating them to see the way different traits emerged across several generations. There has been much speculation on whether Mendel was trying to “refute” evolutionary theories with his own teleological rendering of types. These speculations seem beside the point. With Mendel’s calculations, we see for the first time the delineation of a process for identifying the probable outcomes across generations, of typifying preceding and subsequent generations according to *statistical laws*. Mendel’s laws of inheritance were thought to express the inexorable conditions according to which traits would be passed on from generation to generation. Mendel’s experiments suggested many things about the way a biological science should proceed. Upon rediscovery of Mendel’s work at the turn of the century, it was widely accepted that biological phenomena would best be identified through a statistical analysis of populations, one that controlled for variation through sample size.

While Richard Doyle has argued that the most significant transformation in the life sciences has been the advent of the language of “code,” we can see that such an event only allows for a clarification of the variables of mathematical genetics.⁸ This earlier transformation is consistent with the perhaps more historic transformation of the nineteenth century — the replacement of what things are with the question of how they are known to or affect human beings. For it is during the nineteenth century that we first see the identification of what something is with the kinds of effects, outcomes, traits, purposes it has. These two moments, of variation and its statistical measure, ensure that biological phenomena are understood in terms of the probability of effect.

⁷ See e.g. Charles Darwin, *The Variation of Animals and Plants Under Domestication* (Baltimore: Johns Hopkins University, 1998) vol. 2 at Chs. XXIV-XXVI.

⁸ See Doyle, *supra* note 5 at Ch. 2, and compare Anthony William Fairbank Edwards, *Foundations of Mathematical Genetics* (Cambridge: Cambridge University Press, 1977) at Ch.1, specifically 1-4.

A brief consideration of the trends of modern medicine reveals that this transition travels well. In medicine, physicians have moved away from the traditional methods of diagnosing (i.e. sensing according to a taxonomy of disorders) to the identification of illness through technical means (i.e. specialized tests). Physicians now rely on the statistical results of clinical trials as identification of and measures for degenerative conditions. Medical science has long since abandoned a “natural history” approach to the human body, and instead is concerned with the statistical analysis of the biochemical ways disease functions.⁹

It is no secret that biotechnology aims to intervene in biological processes in order to produce an effect. Indeed, biotechnology aims to have “positive” effects in human affairs, betraying its commitment to progress, i.e. that the activities of human beings can bring about conditions that make existence worthwhile.¹⁰ Gregory Stock, director of the Program of Medicine, Technology and Society at the University of California at Los Angeles School of Medicine, expresses the latent drive of biotechnology:

We should hasten medical research, not stop it. We are not devoting massive resources to the life sciences out of idle curiosity, but in an effort to penetrate our biology and learn to use this knowledge to better our lives. We should press ahead. Of course, the resultant technologies will pose challenges: They stand to revolutionize health care and medicine, transform great swaths of our economy, alter the way we conceive our children, the way we manage our moods and even our life spans.¹¹

Biotechnology’s supposed power to improve the world is said to be due to its grasp of the way DNA operates to express “traits” in individuals.

*Biotechnology*¹² refers to the use of living beings in the production of other things and / or living beings. The use of yeast to make beer is “biotechnology” — bioethicists are not concerned about this. When scientists speak of biotechnology, they are largely referring to the products of genetic engineering i.e. the employment of enzymes to “cut” and “paste” genetic sequences together. The use of animals

⁹Though perhaps startling, this observation has been made by Hannah Arendt, *The Human Condition* (New York: Anchor, 1958) at 39-40; Edward S. Golub, *The Limits of Medicine: How Science Shapes Our Hope for the Cure* (New York: Times Books, 1994) at Ch. 8. Canguilhem, *infra* note 16, notes that the modern life sciences use statistics to identify causes of traits as well as symptoms. “Solving” the problem of disease has become a statistical endeavor — experimentation with pharmaceutical products requires mean and median expressions of symptom and illness.

¹⁰I recognize that I am still reifying bioethics and biotechnology by claiming that they “speak” and “think” when in fact many who might be considered speakers in these “discourses” do not hold these views. I speak of these fields this way because it seems to me that for the most part bioethicists conceive of the problem in these terms.

¹¹See Gregory Stock, “Go Ahead and Clone” in the *Fukuyama-Stock Debate*, online: reasononline <<http://reason.com/debate/eh-debate031802.shtml>>.

¹²This is taken from Aldridge, *supra* note 4; and Eric Grace, *Biotechnology Unzipped* (Washington, DC: Joseph Henry, 1997) at 2.

and microbes as “bio-reactors” — to grow products — is also a form of biotechnology. It is not simply genetic science — although biotechnology proceeds based on it.¹³ “Biotechnology” *produces* and *manufactures*, it does not *create*. It produces “living beings” but sees these as “encoded programs” and not as, say, cats. The catness of a cat is the encoded program “inside” each cell. This encoded program is identified according to statistical algorithms that allow for the proper sequencing of gene expression.

Even though biotechnology sees bare life as an “encoded program”, the logic of the encoded program necessitates that the variation between a fruit fly and a human being is a statistical matter.¹⁴ Biotechnology understands “programs” as electro-magnetic materiality and describes this electro-magnetic materiality in terms of the effect it has, i.e giving rise to live beings. These live beings are seen as *effects*, and as such are seen as *programs* — the program an effect of a code.¹⁵ Biotechnology “de-codes” the “bare life” of the “program” with statistics. The new primacy of “codes” and “programs” comes not because of a revolution in thought, but of a new precision in identifying variables for statistical calculation. Codes of DNA are established through statistics as the average expression of the effects of certain molecular configurations.¹⁶ The encoded program that biologists tell us is a biological entity is made possible by understanding differentiation of beings as a variation that can be explained by measures of statistical probability. Bioethics grasp biotechnological facts as “truths” about biological entities. These probabilities express the way these beings stand in relation to human beings.

II. Bioethics: From Risk to Consent

The biological revolutions of the 1950s occurred against the backdrop of the trials at Nuremberg and the deployment of nuclear weapons. Nuremberg saw the conviction of 23 physicians for acts of atrocity aimed at the creation of a “master race.” The invention and use of nuclear weapons caused many to worry that

¹³ Indeed, some bioethicists have noted that biotechnological innovations and discoveries are outpacing genetics because much of the scientific research in genetics is being carried out by “biotech companies.” Conrad Brunk, “Fitting your Genes” (Lecture presented at the Lenten Public Lecture Series, St. John the Divine Anglican Church, Victoria, BC. 7 March 2003) [unpublished].

¹⁴ The term “bare life” is drawn from Giorgio Agamben’s *Homo Sacer: Sovereign Power and Bare Life*, trans. by Daniel Heller-Roazen (Stanford: Stanford University Press, 1997). A fruit fly is said to differ from a human being by about 6%. This is based on a comparison of the genetic material of fruit flies and human beings. The percentage is a measure of the statistical significance of the difference.

¹⁵ The term “program” is used with a modicum of self-consciousness by François Jacob. See the introduction to his *The Logic of Life*, *supra* note 6. No other employment of the term by biotechnological scientists seems to enjoy any degree of irony.

¹⁶ This is widely accepted: compare Aldridge, *supra* note 4; Jacob, *ibid*; Erwin Schödinger, *What is life?: The Physical Aspect of the Living Cell* (Cambridge: Cambridge University Press, 1992); Richard Feynman, *The Character of Physical Law* (Cambridge, Mass.: MIT Press, 1965); Bruce Alberts *et al.*, *Molecular Biology of the Cell*, 4th ed. (New York: Garland, 2002). See a more thoughtful engagement in Georges Canguilhem, “Norm and Average” in *The Normal and the Pathological*, trans. by Carolyn R. Fawcett (New York: Zone, 1991).

physicians and scientists had become a technocratic elite set on bringing about a “brave new world.” It was in the 1960s and 70s that physicians, scientists, theologians, lawyers, and philosophers began to systematically raise questions about the direction of scientific research. The aim of the many conferences held during this time was to find ways to keep scientific discoveries from becoming destructive possibilities. These conferences proposed ways of “watching” medical and scientific practice, and many measures restricting experimentation with human subjects appeared at this time.

The conferences of the 1960s gave way to the centers and research institutes of the 1970s: the Institute of Society, Ethics and the Life Sciences (The Hastings Center), the Kennedy Institute of Ethics at Georgetown University and the Society for Health and Human Values permanently housed what had become “bioethical concern.” The new “field”¹⁷ of “bioethics” arose as a proposed “new discipline” that would couple the insights of biological and other scientific knowledge with knowledge of “human value systems.” The first documented¹⁸ use of the term “bioethics” was by Van Rensselaer Potter in an article arguing that this “new discipline” would promote “a science of survival.”¹⁹ While “the ethics” of science and medicine were previously dealt with by medicine, law, theology and philosophy, the new field of bioethics was to be an interdisciplinary social science.

The former sites of questions about the propriety of specific medical and scientific practices amalgamated into the new union of disciplines, sharing a concern with the consequences of medical and scientific research. This shared concern allowed for their alignment into an interdisciplinary social science of health policy called *bioethics*. Bioethics is claimed to be “the systematic study of the moral dimensions — including moral vision, decisions, conduct and policies — of the life sciences and health care, employing a variety of ethical methodologies in an interdisciplinary setting.”²⁰ The new interdisciplinary field of bioethics is populated by sociologists, psychologists, policy analysts, public health officials, physicians,

¹⁷ Many of the programs and interdisciplinary centers refer to bioethics as a field of interdisciplinary study. It admittedly remains unclear what bioethics is. In 1974 the Library of Congress entered “bioethics” as a subject heading. The Library of Congress cited an article by Daniel Callahan entitled “Bioethics as a discipline” as authority for its decision. See Daniel Callahan, “Bioethics as a discipline” (1973) 1:1 *Studies/Hastings Center* 66.

¹⁸ Sargent Shriver also claims to have coined the term — saying that he came up with it in 1970 one evening while discussing the need for an institute devoted to the study of the religious and ethical aspects of advances in the biological and medical sciences. He recalls the way “bioethics” arose: “Our idea was that we were starting an ethics institute regarding this new science, with primary emphasis on biology and ethics. . . . I know full well I proposed the word. But I don’t think it was a stroke of genius. It was as easy to come up with the word ‘bioethics’ as falling off a log.” Warren T. Reich, “The word ‘bioethics’: its birth and the legacies of those who shaped its meaning” (1994) 4 *Kennedy Institute of Ethics Journal* 319 at 325

¹⁹ Warren T. Reich, “The word ‘bioethics’: the struggle over its earliest meanings” (1995) 5 *Kennedy Institute of Ethics Journal* 19. See also Van Rensselaer Potter, *Bioethics: Bridge to the Future* (Englewood Cliffs, NJ: Prentice-Hall, 1971) at 4.

²⁰ Warren T. Reich, “Introduction” in Warren T. Reich, ed., *The Encyclopedia of Bioethics*, rev. ed. (New York: Simon Schuster Macmillan, 1995) at xxi.

nurses, specialists, geneticists, molecular biologists, biochemists, lawyers, economists, political scientists, theologians, and philosophers. When developments in biotechnology promise benefits or threaten burdens, bioethicists assess the developments in light of the probable consequences. The site of this juxtaposition of benefit and burden is bioethics.

However, though bioethics seems to be an interdisciplinary field concerned with the ethical implications of health care research and practice, including aspects of “environmental ethics”, the very action of voicing “concern” from a position of professional expertise on “biological health” or “ethics” constitutes the field itself. They voice concern about the probability of realizing benefits or producing harms. It seems that any voiced concern involving the “biological health” of human beings, provided it is voiced by a person with expertise in and with the support of social science statistics, can fall into “bioethics”. One may wonder what kinds of areas in today’s world are not health-related. Indeed, the seemingly remarkable capaciousness of bioethics is perhaps suggestive of the kinds of questioning that it excludes.

Notwithstanding this capaciousness, bioethics accepts biotechnological facts as truths about what it is for something to be a “live” being. As an “interdisciplinary social science of health”, bioethics is at home with probabilities and the specters of harm such probabilities invite. Bioethics sees biotechnological facts as truths because bioethics grasps probabilistic renderings of risk as truthful assertions about the consequences of biotechnology. These consequences can be real only if the factual nature of biotechnological facts is thought to inhere in the ability of biological beings to be manipulated and varied according to statistical laws of gene transmission. But ghastly consequences do predispose one to imagine that there is something going on here. The haunting events of physicians and scientists carrying out research or administering treatments and drugs to unwilling patients spurred this new field to focus on the effects of medicine and science. The rise of “genetic responsibility” and of the dangers of abuse associated with medical practice and scientific research have assisted in turning the human gaze away from questions about what living beings are to the effects of living beings *on non-consenting* human beings. Where formerly we heard theologians, philosophers, physicians, and lawyers speak about good or bad specific medical practices, we now hear “bioethicists” raising “concerns” about “harm” without “informed consent.”²¹ In bioethics one can see a shift (one not necessarily restricted to bioethics) from an understanding of good and bad beings (the *evil* person, the *good* act) to an understanding of the relationship those beings have to the lives of human beings (*more nutritious* food, *less productive* machines). The reason the attention to consequences is important is because *consent* is a *consent to the occurrence of*

²¹ “Bioethics” is indeed now considered a “profession”. Professional bioethicists are accredited through national agencies. They work in various health care and research settings, and advise physicians, patients, nurses, technicians, scientists, research subjects and other health care professionals of the “ethics” of various scenarios that arise in medical and scientific settings. See <<http://bioethics.net>> for a dizzying survey of the vastness of this new profession.

consequences.²² This focus on the effects of medical and scientific techniques is not new to bioethics, and indeed had been occurring in the various disciplines that bequeathed bioethics its task.

Two of the main disciplines preceding (and in some sense disappearing into) bioethics are theology and philosophy, both evidencing a turn to the consequences of troublesome issues as the appropriate way to deal with them. It is of critical importance to recognize that both theology and philosophy have been attempting to reconcile the problem of negative consequences with positive duties long before bioethical questions emerged as bioethical questions. The transition from theology and philosophy to bioethics is evident in the fact that neither theology nor philosophy has kept its collective eyes from focussing on the effects of biotechnological innovation in the world.²³ While theology has been able to maintain a speculative aspect, “practical theology” considers theological themes as providing instruction for resolving dilemmas arising in scientific and medical practice. Contemporary theology has kept a close eye on developments in the biological sciences. Compare the differing approaches of Paul Ramsey and Harold Munn. In 1965 Paul Ramsey, a theologian, began to inquire into whether genetics presented any “new responsibilities”. Inquiring into the immediate aim of genetics as an explanation of conditions of heredity for the sake of cultivating improvement, he claimed that “there is ample and well-established ground in Christian ethics for enlarging upon the theme of man’s genetic responsibility.”²⁴ But it is important to note that disciplines like theology have become divided by the way questions arise, as bioethics is not simply any kind of reflection on the nature of human health. In a recent lecture series on biotechnology, Rev. Dr. Harold Munn gave a lecture entitled “If God has let us play with genes, what is left for God to do?” A seemingly innocent and perhaps irrelevant question — Munn proceeded to say that genetic engineering presents a moment for reflecting on the divinity of a god as something other than a kind of supreme architect. Rather than embrace the usual “intelligent design” argument for a reconciliation of biology and religion (which run rampant), Munn suggested that we begin to think and question the image of the divine that is harboured by Christendom today. This manner of questioning does not seem to belong to bioethics, but to theology.²⁵ This focus on *consequences* as a problem, then, is what animates bioethics as an interdisciplinary social science. It is necessary to say that

²²This difficulty is expressed with considerable aplomb in Nancy Weston, “The Metaphysics of Modern Tort Theory” (1994) 28 Val. U. L. Rev. 919 at 921-4.

²³The focus on consequences is relatively obvious in philosophy — one need look no further than debates over consequentialism. What is harder to see is the way philosophical gesturing about “issues” themselves often carries an unsaid consequentialism as well. See Bernard Williams, *Ethics and the Limits of Philosophy* (Cambridge, MS: Harvard University Press, 1985) at 75-77.

²⁴Paul Ramsey, “Moral and religious implications of genetic control” in John D. Roslansky, ed., *Genetics and the Future of Man* (Amsterdam: North-Holland Publishing Co., 1966) 107 at 168.

²⁵Rev. Dr. Harold Munn, “If God has let us play with genes, what is left for God to do?” (Lecture presented at the Lenten Public Lecture Series, St. John the Divine Anglican Church, Victoria, BC. 7 March 2003) [unpublished].

the difficulty with which we might struggle with terrible consequences is not to be made light of — and it is here that the nobility of bioethics might show itself.

Even though biotechnology, with its ability to manipulate and manufacture living beings, to create happy, herd-like realities, presents the haunting possibilities of *Frankenstein*, *Brave New World*, and *1984* — or precisely because it presents these — bioethics seems to flee from questions about the nature of human existence latent in these possibilities. It is interesting that at precisely the moment where science claims the capacity to make living beings that the questions “what is a living being? What is a human being?” remain unposed. “Biologists no longer study life today. . . . Today biology is concerned with algorithms of the living world.”²⁶ As the arena for fielding questions about biological sciences, one might have thought that questions of life would arise. However this is not necessarily because bioethics shuns tough questions, but because bioethics seems to take the answers to these questions for granted — being interested in other questions. The questions posed in bioethics are “what is benefit? What is harm? Who should live? Who should die? How should the expensive resources of health care be distributed? Who should decide?”²⁷ By setting *these* questions as the necessary ones about biotechnology, bioethics shows a background understanding of what human life is about — and through no “fault” in its manner of proceeding. All our endeavors must take something for granted — and what is taken for granted can be revealing of how we understand what the world is all about.

We cannot say that bioethics “should” ask some other questions than it does, or that it might be more effective if it did. This would be demonstrate a concern with the exact kinds of questions with which bioethics is already concerned. That is to say, it would admit that certain kinds of consequences are to be avoided, certain kinds of consequences preferred, and that bioethics is *justified* insofar as it is able to secure these. By saying that bioethics “should” ask some other “better” question, we demonstrate a belief and commitment to identifying negative consequences and solving them. As noted, the focus *not* on the question of what life is but on what kinds of consequences are good and bad shows us that bioethics (i) accepts that certain states are preferable to others, (ii) it is bioethics’ task to sort these out, (iii) that these consequences, once sorted and identified, can be sorted out according to criteria that are themselves “right.” Indeed, insofar as one might think that bioethics “should” do anything regarding the biological sciences, one is already within the bioethical way of thinking.

Thus we can simply note that what is called “bioethics” is summoned to the task of dealing with, organizing and managing the probable harms of biotechnology. Bioethics is so summoned because biotechnology presents widespread risks that have not been consented to by those upon whom the risks could be visited. The apparently troublesome nature of the probability of a given consequence is what

²⁶ Jacob, *supra* note 6 at 299-300.

²⁷ Jonsen, *supra* note 2 at 11.

makes a risk show up as a risk — otherwise there is nothing risked. This probability presents itself as the “risk” of bodily harm without “consent” and, perhaps not surprisingly, of totalitarianism. That is, insofar as the possibility of scientists, doctors or other knowledge-holders can carry out acts on individuals without their consent, a bioethicist is right to worry about potential totalitarian impulses: technocratic rule by scientists without the consent of those who must live with the consequences of such rule. “Consent” operates to nullify the negative aspect of a risk because it evidences acceptance of the consequences.²⁸ In this way *consent is proof* of the exercise of autonomy, understood as a kind of performance of the will.²⁹

Bioethics thus seeks not to stop technocratic decision-making but to guarantee that the conditions under which such decisions issue are the kind that could be consented to. The danger of biotechnology, then, is mass technocratic decision-making in the midst of systematic lack of consent. The task of bioethics is to ensure that there is systematic consent to the kinds of consequences biotechnology presents. It is in this precise way that we can see bioethics as guaranteeing the benefits of biotechnology while reducing the risk of harm by implementing institutions for consent. Risks are potential harms not consented to. The bioethical worry about a technocratic elite is articulated as a concern that the effects of experimental measures have not been “freely chosen” by subjects of experiments, or that the results of the experiments could somehow affect the public at large without its consent. The problem with widespread biotechnological innovation carried out by a technocratic elite is not only that there has been no consent, but that there is no way to tell if consent has been secured. The danger is thus not the lack of consent but the *systematic* lack of consent. Biotechnology threatens environmental impacts that have not been identified nor consented to. There are worries about the effects of genetically modified food, both on the environment and on the consumers of food, that have not been consented to. Pharmaceutical products present a variety of risks and hidden uncertainties that have yet to be identified and consented to. Bioethics seeks to ensure that risks can be identified and agreed to in a systematic way. With the question of a “systematic way”, bioethics turns to law.

III. Liberalism: the Policies of Bioethics

Bioethics claims that biotechnology presents new problems for human existence by presenting risks attendant to new abilities to manufacture organic beings. Bioethics claims that biotechnology presents (i) unforeseeable risks of bodily harm,

²⁸This is of course a restatement of *volenti non fit injuria*. To see the way the doctrine has been incorporated into the law of consent see Erin Nelson, “The Fundamentals of Consent” in Jocelyn Downie, Timothy Caulfield & Colleen Flood, eds., *Canadian Health Law and Policy*, 2nd ed. (Toronto: Butterworths, 2002) at Ch. 4, specifically at 125-28.

²⁹The link between consent, autonomy and willfulness as grounds for ethical action are troublesome. The worry here is that the ground of something’s rightness is to inhere in any given person’s expression of it as such. If acceptance of consequences is the ground of something’s rightness, then rightness is a function of the conditions willing. On the performance of the will see Bradley Bryan, “Reason’s Homelessness: Rationalization in Bentham and Marx” (2003) 6 *Theory and Event* 3 at paras. 45-49.

(ii) unforeseeable risks that have not been consented to, and (iii) the threat of totalitarianism. Bioethics turns to the positive law of liberalism to solve these problems. By proposing legislative schemes, precedents, legal instruments, and policies to manage biotechnology, bioethics engages in bringing biotechnology to account. Liberalism's tools are thought by bioethicists to solve the problem of biotechnology because they present processes for resolving the difficulties the latter gives rise to. Insofar as developments in biotechnology may serve to throw current pre-conceptions of what life is about into disarray, bioethics takes these preconceptions for granted, develops policies, and brings them into legislative schemes. These legislative / policy schemes are considered just because they make consent secure: (i) they outline procedures ensuring that those affected by the consequences of biotechnology can consent; (ii) they are enacted through a process that is itself consensual in that it presumes the agreement of the governed;³⁰ and (iii) they are said to be the kind of legislation that any one would agree to were one to reflect upon it.³¹

First, let us look at procedures and policies. Bioethics suggests policies for calculating harm and benefit, and it carries out this calculus so that "members" of "society" can exercise their preferences in accordance with it. Out of a desire to account for these risks, to normalize them, make them predictable and available, bioethics first rises to give an account of biotechnology. Grounded in a social scientific understanding of the world, bioethics accepts biotechnological facts because it views human behaviour as constituted through individual membership in populations. By looking at how bioethical facts are constituted we come to see how it is that risk and consent come to the fore as "concerns."

Because consent justifies risk through law, bioethics sees "risk" as an acceptable risk only if anyone potentially affected by that risk has consented, has recourse to recover, or in some cases if the benefits are "considerable." It is not simply that one has not consented or has no recourse for recover, but rather that lack of consent defines the riskiness of the risk — and hence is a systematic lack of consent. Bioethics sees the systematic lack of consent as the problem. Systematic lack is remedied through a systematic body of rules of recovery, as one might see in the various legislative and administrative schemes that codify principles of tort law. It is also remedied through the proactive endeavour of setting up national health protocols, standards, and guidelines for practices of health — other systems that allow for the securing of consent.

The "systematic" lack of consent is thought to be more than a problem of identifying the appropriate legislative scheme, but also of the forms of governance. The second and third aspects identified above involves forms of governance that ensure that "societal risk" is something that "society" has "chosen", and that those

³⁰ I am thinking of the various writings on deliberative democracy here.

³¹ As the Rawlsians might put it. See Allen Buchanan *et al.*, *From Chance to Choice: Genetics and Justice* (Cambridge: Cambridge University Press, 2000) at 14-22.

conditions are rendered “fairly.” In much contemporary writing, from clinical bioethicists to Fukuyama, Habermas and Zizek, it is suggested that societal members have a choice to make, that such a choice is available for the making, and that societal members need to ensure that the conditions for making that choice are in place and available.³² These seem to be variations on “deliberative democracy” — that is, that somehow society’s members can engineer the conditions of “social” life such that they can come to discuss and agree on how to proceed with biotechnological innovation, both in general and in its particular manifestations. Each of these require legal mechanisms to authorize the mobilization of consent.

The systematic lack of consent is often thought of as totalitarian. We might note that bodily harm and totalitarian rule are seen as wrong and troublesome by bioethicists only because each involves bearing burdens without consent, and both bodily harm and totalitarian rule are vitiated by consent (though totalitarianism is vitiated by a particular kind of consent — systematic “informed” consent or “deliberative” democracy). The affected can choose to accept particular risks or deny them. Bioethics rationalizes consent by making it readily available: contract is the efficient allocation of risk, the Rawlsian social contract is a way of fairly allocating a say over the conditions of a just society, insurance spreads loss according to agreements which are themselves products. Having consented, the affected have not been “forced into” anything. Bioethics makes biotechnology “safe” by rendering biotechnology’s benefits and burdens into available choices.

Bioethics sees “positive law” as the solution to the unpleasant consequences presented by biotechnology. Positive law is understood as the vast array of “procedures” and “legal mechanisms” that operate to assure people of “fair” outcomes. For bioethics, procedures solve unpleasant consequences by guaranteeing a manner for settling disputes. Examples of such “solving procedures” are hospital procedures, democratic procedures and private law procedures. These procedures operate to ensure that consent has been obtained. Consent is obtained through these procedures by things like the consent form, the vote and the contract.³³ Positive law, then, is seen as a solution because it provides procedures for guaranteeing consent. But the engineering of procedures to guarantee consent occurs in an obliviousness to totalitarian democracy — as though democracy (or, “deliberative” democracy) and totalitarianism were necessarily opposed. Bioethics understands the problem of totalitarianism as one of consent (that is, of the systematic lack of consent). The way bioethics becomes oblivious to totalitarianism remains unclear.

³² Fukuyama, Habermas and Zizek have all weighed in on the question of the “ethics” of biotechnology as a political question: Francis Fukuyama, *Our Postmodern Future* (New York: FSG, 2002); Jurgen Habermas, *The Future of Human Nature* (Malden, MA: Polity, 2002); Slavoj Zizek, “Bring me my Philips Mental Jacket” (2003) 25:10 *London Review of Books* 22, online: *London Review of Books* <http://www.lrb.co.uk/v25/n10/zize01_.html>.

³³ Compare “Documenting Consent” in Lorne E. Rozovsky & Noela J. Inions, *Canadian Health Information*, 2nd ed. (Butterworths: Toronto, 2002) 145.

The pre-conditions of a deliberative democracy are considered a puzzle, and many academic philosophers have come to turn their sight to creating rationales for the turn to law upon bioethical imperatives. Philosophy, long in danger of the lure of Syracuse, now routinely seeks wisdom for the sake of having an effect in the world of human beings.³⁴ Underlying this routine seeking lies a transformation of philosophy from ontology to epistemology, from the conditions of the possibility of beings to the conditions of the possibility of knowledge. The question of what something is was replaced by the question of how it exists in human thought. This re-orientation betrays a fundamental orientation to the purpose and nature of questions about how beings are as they are: beings are understood *first* in terms of how they affect us and are known to us *instead* of what they are. The supposed priority of epistemology over ontology focuses on the way beings affect us and bring about consequences of concern.³⁵ Philosophers like Baroness Onora O’Neill, Allen Buchanan and Norman Daniels are drawn to bring their philosophical training to bear in the architecture of “moral systems” that protect society from the harms of biotechnology.³⁶ It is interesting to also note that not only have the study and practice of law come to focus on what kind of effect legal enactment can have, but that theoretical foundation is grounded upon the kinds of consequences such a theory produces — as though law and philosophy were now instruments to be wielded in effecting “social change”.³⁷ Along this way of thinking, a theory of justice might thus entail identifying and securing the conditions necessary for legal institutions to solve social problems — a theory that sets out what justice is in terms of how it would have to be administered.

Reflecting on the way contemporary theories of bioethics produce accounts of liberal institutions that could govern, we might note:

- (i) Rawls’s theory of justice is “operationalized” (bioethicists’ word) into procedures that guarantee fairness by securing consent and “distributing access”;
- (ii) democratic procedures and institutions are sought to ensure that consent of the governed vitiates the risk “to society at large” of biotechnological projects; and

³⁴ Evidence of this is easily available: professional philosophers now see their “job” as necessitating some kind of usefulness in public affairs. One need look no further than the pages of the journal *Philosophy & Public Affairs*.

³⁵ Martin Heidegger, *Being and Time*, trans. by J. Macquarrie & E. Robinson (San Francisco: Harper Collins, 1962) at ¶ 3; Hans-Georg Gadamer, “Philosophy or Theory of Science?” in *Reason in the Age of Science*, trans. by Frederick G. Lawrence (Cambridge, Mass.: MIT Press, 1982) 151.

³⁶ And engaging in this task is seen as entirely within the task of the “philosopher”: see Onora O’Neill, *Autonomy and Trust in Bioethics* (Cambridge: Cambridge University Press, 2002) at Preface and Ch. 1; and Buchanan *et al.*, *supra* note 31 at Introduction and Ch. 3.

³⁷ Holmes captured this in a startling way, claiming that the lawyer of the future would be social scientist, specifically the “man of statistics and the master of economics”: see Oliver Wendell Holmes, “The Path of Law” (1897) 10 Harv. L. Rev. 457 at 469. See also Philippe Nonet, “In the Matter of Green v. Recht” (1987) 75 Cal. L. Rev. 363.

(iii) legislation and judicial decisions are understood to create “incentive structures” for physicians, biotechnological scientists and patients.

Under (i), institutions are just if they are the kind that flow from the principles of justice, principles that can be shown to be the kind *one would have agreed to* under the conditions that such justice entails. Aside from significant debate over the Rawlsian formulation, the condition precedent to just institutions is their having been agreed to, freely chosen, consented to. The “justness” of any outcome is dependent upon the procedures that produce it, which are themselves dependent upon the authorizing moment in reflective equilibrium. Points (ii) and (iii) follow the same logic, that consent can be secured through procedural mechanisms that then serve to authorize and secure the outcomes in question. The systematic lack of consent is thus remedied through a system for consent.

It is thought-provoking that totalitarianism and democracy are assumed to be antinomies throughout the discourse of bioethics, as though there could be no democratic totalitarianism. In the process of engineering institutions, it is clear that in some sense bioethicists become “social engineers”. We might do well to ask how bioethics deals with the question of totalitarian democracy as a consequence of its own accounting for biotechnology. With its proposal of procedural solutions to guarantee consent, bioethics seems to become oblivious of the occurrence of totalitarian democracy. It is unclear how bioethics becomes oblivious to the “last man” as a “problem” it delineates — it is only clear that it does.³⁸ To avoid this, bioethics appends “informed” and “deliberative” to the core concepts of “consent” and “democracy”. In this, too, bioethics carries an implicit understanding of the human and the place of law in the world.

In the variety of ways that problems are presented in bioethics — from environmental degradation to pharmaceutical distribution — legal enactment is seen as an obvious solution. Leaving decisions to the caprice of individual decision-makers smacks of differential treatment — it is unsystematic. Bioethics addresses risk by designing “fair” institutions. These institutions are to eliminate the threat of totalitarianism while transforming risky situations into consensual ones. The problem of risk and consent is thought solved through the production of various legal and policy instruments (procedures) that secure consent. That is, positive law makes consent available through procedures. How positive law is the “obvious solution” for bioethics is an open question that requires we dig into the shared self-understanding we have regarding law.

³⁸ See Fukuyama, *supra* note 32 at Preface.

Conclusion: Questions

This paper has simply attempted to problematize the way bioethics turns to law as the solution to biotechnology. It has attempted to show that a certain conception of the human and of law lays latent at the intersection of biotechnology, bioethics and law. We see human beings at once members of populations to be polled for their opinions on the scenarios that could befall them. We see humans as autonomous, but such autonomy as inhering in a capacity to agree to the consequences that could befall them — while not affecting whether the consequences will befall them. Law is ubiquitously positive law, and specifically the positive law of procedural liberalism. Law is thought an instrument that structures the way human beings give voice to their concerns, and is an instrument that coordinates the realization of those concerns. But as noted, this is only to problematize the latent understanding. At the very least, many matters need clarification.

It is not clear what is at stake in the statistical manner of identifying facts about “life” in biotechnology. Nor is it clear how bioethics comes to be the field of knowledge “charged with the task” of accounting for biotechnology. It has long been noted that saying something is right does not make it so, which thus begs the question as to why moderns place such high hopes in “consent” as the method for rendering biotechnology “acceptable.” Indeed, the bioethical categories of risk, harm, totalitarianism, and consent need to be brought into question. The way bioethics turns to positive law while remaining oblivious to (though attempting to manage) the prospect of totalitarian democracy also needs to be explored.

This paper also implicitly suggests that we might inquire into how bioethics is under the sway of *technique* in its account of biotechnology.³⁹ “Technique” is not a concept of a being or cause, nor is it a “worldview” or “way of picturing the world.” Technique “is” the way that beings are revealed as fungible, interchangeable, and available for human use — “it” “is” a way that beings reveal themselves to us in modern times.⁴⁰ Under the sway of technique, beings are seen not in their individuality but according to membership in schemes, organizations, or populations — beings are de-individualized. “Consent” is something available, too. Constituting public opinion, consent is the fundamental datum of the poll. Consent is the way that the individual is transformed into a member of a population, a population that gives rise to a statistical calculation about the kinds of legal

³⁹ I recognize that this way of putting it makes it sound as though bioethics could exist “out” from under technique, or independently of it — though I recognize it could not be. It seems that bioethics *is* bioethics because it manifests technique.

⁴⁰ See Martin Heidegger, “The Question Concerning Technology” in *The Question Concerning Technology and Other Essays*, trans. by W. Lovitt (San Francisco: HarperCollins, 1977) at 5, 17, 27. It is no small matter that “technology” is the dominant translation of *technik*, a word more properly rendered as “technique”. By worrying about “technology” we imagine that somehow we can stand back and solve the problem of technological items. “Technique”, as “the way the real is revealed as real” in modernity requires us to ask more basic questions, like for instance how it is that we come to understand life as, say, a set of codes.

institutions in need of design to secure consent on important questions. It remains unclear how bioethics, in taking account of biotechnology, manifests technique.⁴¹ Insofar as biotechnology, bioethics and liberalism are defined by a “concern” for health, technique seems manifest. But more needs to be said.

Many words of bioethics remain to be distinguished — since bioethicists use these words in ways that do not seem to quite fit the sense the words have. With the words *bioethics* and *biotechnology* one hears *bios* — a fullness of a human life, *ethos* — the proper dwelling of the human, *techne* — an art or knowing for making, and *logos* — speech. And yet today, with bioethics we hear of “moral values” being brought to bear on “medical” and “scientific” practices — indeed on anything that tampers with the biological aspects of human livelihood. These senses do not seem to cohere. We might also note the following distinctions that seem to occur within the discourse of bioethics.

Accounting is the way bioethics inquires into, assesses and answers the problems it has with biotechnology. Bioethics “accounts” for biotechnology because it “brings it to account.” Bioethics identifies benefits and harms; it assesses the probability of benefits and harms; it expresses this probability as a degree of risk; it sets methods for offsetting, distributing and compensating for risks. Bioethics “accounts” for biotechnology because it counts, measures, weighs and organizes biotechnology and its products for use. It seems that the questions asked by bioethicists concern the usefulness or harmfulness of various biotechnological ventures. Other words:

Difference/Variation: Though claiming to articulate the conditions of difference, biotechnological science seems only to deal with the variation among members of an assumed singular class.

Life/Encoded Program: While biotechnology claims to be uncovering the codes of “life” — bioethics and biotechnology have an implicit understanding of life *as* an encoded program not contingent upon the discovery of “the codes”. Indeed, life is not in question.

Biography/Biology: “Biography” is to be kept distinct from “biology” — the former is concerned with the events that make up a human life, the latter with the programmatic processes that keep living beings alive.

Create/Produce: Though claiming to design, create and make living beings, it seems biotechnology produces and manufactures them.

Peril/Probable Harm: Bioethics seems to identify risk and probable harm, turning possibilities of danger and peril into probabilities to be managed.

⁴¹I am not concerned to ascertain how or whether bioethics exhibits technique only by virtue of accounting for biotechnology; I am not sure it is possible to ascertain.

Autonomy/Informed Consent: Though claiming to be concerned about autonomy, bioethics seems to be concerned with obtaining consent. Bioethics seems to grasp the autonomy of individuals as residing in the capacity to self-determine as negative freedom. This way of understanding autonomy results in attempts to “protect” a certain sphere of choices. It does not include a “positive” conception of autonomy. Insofar as bioethics does attempt a “positive” conception of autonomy, it conceives of *ethos* as “worldview”.⁴²

Justice/Procedures: Though claiming to reveal justice, bioethics seems to see positive law as instrumental procedures for solving problems.

Insofar as bioethics attempts to solve problems associated with the biological aspect of human life, it regards the human as biological process (program), endowed with a capacity to choose, governed by legal processes. If it is the case that bioethics implicitly sees human beings this way — that is, has come to accept biotechnological facts, see human beings as “behaving animals with preferences”, and see legality as a mechanism for organizing choices — then we may be able see how bioethics manifests technique. By organizing and administering biotechnology, bioethics does more than merely “legitimate” biotechnology (which would presuppose the illegitimacy of biotechnology — something not asserted here). It may be that bioethics organizes, administers, normalizes and regularizes human beings for the sake of ordering preferences according to a scheme of benefits and burdens, all thought from within a yet to be examined commitment to “progress”. And there lies here an understanding of the human and the law in need of examination.

⁴²This is Albert Jonsen’s way of describing the *ethos* he claims “underlies” bioethics in America — describing it as a “background picture.” It seems indistinguishable from, and fraught with the difficulties of, “worldview”. See Jonsen, *supra* note 2 at 389.

