

SCIENCE, TECHNOLOGY AND SOCIETY IN THE FACE OF THE LOOMING DISASTER

A Seminar taught by
Professor Jean-Pierre Dupuy
jpdupuy@stanford.edu

STS 200, Spring 2007

Tuesday, 2:15-4:45

Object:

The major topic of the seminar will be the *indeterminacy* regarding the survival of humankind. With the advent of the atomic bomb humankind became potentially the maker of its own demise. In a recent stunning book, England's Astronomer Royal, Sir Martin Rees, who occupies Newton's chair at Cambridge University, forecasts that the odds are no better than fifty-fifty that humankind will survive to the end of the twenty-first century. The title of the book is explicit, and the subtitle even more: *Our Final Hour. A Scientist's Warning: How Terror, Error, and Environmental Disaster Threaten Humankind's Future in this Century – on Earth and Beyond*¹. Sir Martin warns us: "Our increasingly interconnected world is vulnerable to new risks, 'bio' or 'cyber', terror or error. The dangers from twenty-first century technology could be graver and more intractable than the threat of nuclear devastation that we faced for decades. And human-induced pressures on the global environment may engender higher risks than the age-old hazards of earthquakes, eruptions and asteroid impacts." Sir Martin is by no means isolated in his warning. Already in 2000, Bill Joy, one of the most brilliant American computer scientists, wrote a celebrated and much commented upon paper titled "Why the future doesn't need us. Our most powerful 21st-century technologies – robotics, genetic engineering, and nanotech – are threatening to make humans an endangered species."²

Even if one is less pessimistic than those two major scientists, it remains that our way of life is in the long run irremediably doomed. One would be hard-pressed to imagine how it could last more than another half-century.

¹ Basic Books, New York, 2003.

² *Wired*, April 2000. Bill Joy is the inventor of the Java program, the language of the Internet.

Thus we find ourselves with our backs to the wall. We need to say what is more important to us: our ethical imperative of equality, which leads to principles of universalization, or else our mode of development. Either the privileged part of the planet isolates itself, which increasingly means that it protects itself with shields of all sorts against the aggressions which the resentment of those left behind will render ever crueler and more abominable; or else another type of relationship to the world, to nature, to things and beings, must be invented, one capable of being universalized on a humanity-wide scale.

Science and Technology will have to play a crucial role in this radical shift provided that they entertain with Society the kind of dialogue of which they have proven incapable so far, for reasons that need to be analyzed.

The course will combine a number of significant case studies (environmental disasters, industrial catastrophes, threat of nuclear devastation, technological risks) with the lessons drawn from the STS literature, in particular the early warnings made by such thinkers as Ivan Illich, Martin Heidegger, Hans Jonas, Günther Anders, Hannah Arendt, and Gilbert Simondon.

Students: STS seniors.

Format: The seminar will consist in lectures/discussions based on a selection of texts collected in a Course Reader (available at the Bookstore) as well as on a series of documents and dossiers provided by the instructor and/or collected by the students.

The class will meet once a week, for a two-hour-and-a-half session. Each session will alternate the instructor's lectures, the students' presentations and the general discussions.

All students not doing a Senior Honors Thesis should write the so-called STS Senior Paper: about a 20 page paper on a STS topic; those writing an Honors Thesis need not do a Senior Paper in STS 200. Students will be encouraged to do oral presentations in addition to participating in the discussions.

Jean-Pierre Dupuy is Professor of Social and Political Philosophy, École Polytechnique, Paris; founding director of C.R.E.A. (Centre de Recherche en Épistémologie Appliquée), the philosophical research group of the École Polytechnique; founding director of GRISÉ (Groupe de Recherche et d'Intervention sur la Science et l'Éthique) at the École Polytechnique; and Professor (1/3rd time) of French and, by courtesy, of Political Science, Stanford

University. He is also a Stanford C.S.L.I. Researcher, and is affiliated with the STS program and the Symbolic Systems Forum.

SYLLABUS

I. Introductory session

II. The Counterproductivity of the Major Industrial Systems

Beyond a certain critical threshold of development, as growth in our major social institutions increases, the more they obstruct the achievement of the goals they are mandated to serve: medicine corrupts health, schooling dulls minds, transport immobilizes, communications create apathy and speechlessness, the flux of information impairs meaning, reliance on fossil fuels, which reactivates the dynamism of the past, threatens to destroy the whole future, and, last but not least, industrial food becomes poison.

*Reading*³:

Ivan Illich, *Energy and Equity*. To be found online at:

http://www.cogsci.ed.ac.uk/~ira/illich/texts/energy_and_equity/energy_and_equity.html

III. The Chernobyl Disaster and the Invisibility of Evil

20 years later, it is still impossible to predict with any certainty the future health consequences of the April 26, 1986 catastrophe. Even worse, the evaluations concerning the number of dead so far vary between a few dozens, if one is to believe the official reports, and a few hundreds of thousands, if one is to take seriously what people in the contaminated zones say they observe. Never in the history of mankind has such a divergence been the case between various assessments of the same historical fact. Morality aside, the perpetuation of this scandal cannot but undermine the public trust that the industry needs so desperately if it is to constitute a viable alternative to fossil fuels. What can account for this "Blindness to Evil" [Günther Anders]?

Readings

Dossier on the Chernobyl Disaster.

³ All readings that are not included in the Course Reader will be provided by the instructor.

IV. Global Warming and the Precautionary Principle

Most experts now agree that global warming is real, it is essentially due to human activity and its effects will be much more severe than what we imagined only yesterday. Furthermore, the experts realize that the objectives of the Kyoto protocol, still unsigned by the US, are laughable compared to what should be done to stem the rise in the atmospheric concentration of greenhouse gases: cut global emissions in half, when actually it is forecast that these emissions will continue to increase at least until 2030 given the inertia of the system. But we have the "precautionary principle." All the fears of our age seem to have found shelter in one word: *precaution*. Yet the conceptual underpinnings of the notion of precaution are extremely fragile, as we shall undertake to demonstrate.

Readings

Dossier on Global Warming.

Dossier on the Precautionary Principle.

V. Heidegger's Children's Critique of Technology

Criticism of technology usually defends humanistic values against the excesses of science and technology. Heidegger completely inverted this way of posing the problem. For him it was no longer a question of defending humanism but rather of indicting it. As for science and technology, or rather "technoscience", far from threatening human values, they are on Heidegger's view the most striking manifestation of them. Barbarism is not to be found where one usually looks for it. The true barbarians are the ones who are supposed to be humanists, who, in the name of the dignity that man accords himself, leave behind them a world devastated by technology, a desert in which no one can truly be said to dwell. This dual reversal is so remarkable that it deserves to be understood in depth given the major influence of Heidegger's thought in many circles. Although several prominent disciples of Heidegger's eventually broke up with him, they retained some fundamental insights from his teaching. The most interesting case is Günther Anders' work. We'll take cybernetics and the rise of cognitive science (the "mechanization of the mind") as illustrations of the pertinence (or lack thereof) of the Heideggerian critique.

Readings:

Heidegger, "Letter on Humanism", Course Reader's Chapter 1.

The Philosophical Contribution of Günther Anders, Course Reader's Chapter 3.

Jean-Pierre Dupuy, "The Self-Mechanized Mind", introduction to *The Mechanization of the Mind*, PUP, 2000.

VI. Converging Technologies and the Rebellion against the Human Condition

How the so-called "convergence" between Nanotechnology, Biotechnology, Information technology, and Cognitive science (aka NBIC convergence) illustrates the warning made by Hannah Arendt in 1958: "This future man, whom the scientists tell us they will produce in no more than a hundred years, seems to be possessed by *a rebellion against human existence as it has been given*, a free gift from nowhere (secularly speaking), which he wishes to exchange, as it were, for something he has made himself." What kind of ethical resources do we have to assess this ambition? We shall examine such items as defeating death, the shame of being born, the attack on the oneness of the human person, the artificialization of Nature, the reduction of knowledge to "know-how."

Readings:

Dossier on Nanotechnologies and the NBIC Convergence.

Hannah Arendt, *The Human Condition*, Course Reader's Chapter 2.

Jean-Pierre Dupuy, "The Philosophical Foundations of Nanoethics".

VII. The Powerlessness of our current Ethics and Politics

Given the magnitude of the possible consequences of our technological choices, it is an absolute obligation for us to try and anticipate those consequences, assess them, and ground our choices on this assessment. Couched in philosophical parlance, this is tantamount to saying that when the stakes are high, we cannot afford not to choose consequentialism⁴, rather than a form of deontology⁵, as our

⁴ Consequentialism as a moral doctrine has it that what counts in evaluating an action is its consequences for all individuals concerned.

⁵ A deontological doctrine evaluates the rightness of an action in terms of its conformity to a norm or a rule, such as the Kantian categorical imperative.

guiding moral doctrine. However, the very same reasons that make consequentialism compelling, and therefore oblige us to anticipate the future, make it impossible for us to do so. Unleashing complex processes is a very perilous activity that both demands foreknowledge and prohibits it. Now, one of the very few unassailably universal ethical principles is that *ought* implies *can*. There is no obligation to do that which one can not do. However, in the technological age, we do have an ardent obligation that we cannot fulfill: anticipating the future. That is the ethical impasse.

Readings:

Samuel Scheffler, "Individual Responsibility in a Global Age", Course Reader's Chapter 6.

Hans Jonas, *The Imperative of Responsibility*, Course Reader's Chapter 4.

VIII. Nuclear Weapons and the Deterrence/Preemption Dilemma

Is the logic of nuclear deterrence, aka Mutually Assured Destruction (MAD), still relevant today in a nuclear world marked by terrorism and proliferation? MAD entails the abandonment of the military defense of one's nation: the policy of deterrence does not contemplate doing anything in defense of the homeland. In fact, the policy positively requires that each side leave its population open to attack, and make no serious effort to protect it. The safety can be only as great as the terror is. If the terror were to be diminished – by, for example, building anti-ballistic shields that protected some significant part of the population – then safety would be diminished, too, because the protected side might be tempted to launch a holocaust, in the belief that it could “win” the hostilities. In MAD “destruction” must, perversely, be “assured”, as though our aim were to destroy, and not to save, mankind. MAD constitutes a radical departure from the logic of preemption that has been the logic of all human conflict until the nuclear age (and even during the nuclear age). It explodes the theory of just war. Nuclear weapons are the first of mankind's technological innovations that are simply not encompassable within the familiar moral world.

Does the new geopolitical context require a return to the logic of preemption?
Does preemption solve the moral problem?

Readings:

Dossier on Nuclear Deterrence

IX. Enlightened Doomsaying and the "Ethics of the Future"

The paradox of "enlightened doomsaying" presents itself as follows. To make the prospect of a catastrophe credible, one must increase the ontological force of its inscription in the future. But to do this with too much success would be to lose sight of the goal, which is precisely to raise awareness and spur action so that the catastrophe *does not take place*. It is a matter of achieving coordination on the basis of a negative project taking the form of a fixed future *which one does not want*. One could say: it is matter of obtaining through scientific futurology and a meditation on human goals an image of the future sufficiently catastrophic to be repulsive and sufficiently credible to trigger the actions that would block its realization — but this formulation would seem to be hobbled from the outset by a prohibitive defect: self-contradiction. If one succeeds in avoiding the undesirable future, how can one say that coordination was achieved by fixing one's sights on that same future? The paradox is unresolved.

It is nevertheless indispensable to solve it. We desperately need a new ethics to rule our relation to the future in the "technological age". We must strive for an "Ethics of the Future" [*Ethik für die Zukunft*] - meaning not a future ethics, but an ethics *for* the future, for the sake of the future, i.e. the future must become the major object of our concern.

Reading:

Jean-Pierre Dupuy, "The Precautionary Principle and Enlightened Doomsaying. Rational Choice before the Apocalypse."

X. Wrap-up Session and More Moderate Views

We'll examine more moderate, or less apocalyptic, but still influential views such as Gilbert Simondon's Philosophy of Technology in Europe and Andrew Feenberg's contribution to science studies in the US.

Readings:

Papers on Gilbert Simondon's Philosophy of Technology.

Andrew Feenberg, *Questioning Technology*, Course Reader's Chapter 5.

Course Reader

Table of Contents

1. Martin Heidegger, "Letter on Humanism" in M. Heidegger, *Basic Writings*, edited by David F. Kroll, harper & Row, New York, 1977, p. 189-242.

2. Hannah Arendt, *The Human Condition*, The University of Chicago Press, Chicago, 1958:

Prologue (p. 1-6); Section 7, The Public Realm: The Common (p. 50-58); Section 32, The Process Character of Action (p. 230-235); Section 41, The Reversal of Contemplation and Action (p. 289-294); Section 42, The Reversal within Vita Activa and the Victory of Homo Faber (p. 294-304); Section 43, The Defeat of Homo Faber and the Principle of Happiness (p. 305-313).

3. Paul van Dijk, *Anthropology in the Age of Technology. The Philosophical Contribution of Günther Anders*, Rodopi, Amsterdam, Atlanta GA, 2000; Chapter III, "The Core Thinking of Anders", sections 1-8, p. 27-82.

4. Hans Jonas, *The Imperative of Responsibility*, Chicago University Press, Chicago, 1984; chapter II, Parts I to IV.

5. Andrew Feenberg, *Questioning Technology*, Routledge, London, New York, 1999; chapter 8, "Technology and Meaning".

6. Samuel Scheffler, "Individual Responsibility in a Global Age", *Social Philosophy and Policy*, 12, **1**, Winter 1995, p. 219-236.