

PREFACE: DUTCH CHANDELIERS OF PHILOSOPHY OF TECHNOLOGY

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In the past, Holland brought forth one great philosopher, Benedictus de Spinoza (1632-1677). At this moment there are many philosophers of technology, judging from the significant (quantitative) contribution to the Düsseldorf conference of the Society for Philosophy and Technology in the Fall of 1997. To be honest, today's Dutch philosophers do not have the stature of Spinoza. He had philosophy as an avocation; he earned his living as a technician by grinding and polishing lenses. His Dutch descendants make philosophy their business—today even a concern of the Dutch government. It is the difference between avocation and occupation. The Düsseldorf attendance was predominantly connected to the philosophy departments at the Dutch *technological* universities. A common characteristic of these departments is their claim of a mission to do research in philosophy of technology. In my endeavor to characterize their research for American ears I became aware of the particularities of the general educational system in Holland, and in addition to this of the specific local situation of the respective faculties: how big is the staff, who contributes to the philosophical research program, does the faculty offer a major in philosophy, and other issues of that kind. I shall pass over these relevant details and differences, but I shall mention the e-mail address of the program leaders who would be willing to inform readers who want more detail.

At the University of Delft, philosophy of technology is close to what Carl Mitcham would call engineering philosophy. With the flourish of trumpets they insist on designing as the quintessence of engineering activity. Design and the development of technological products are considered their *pièce de résistance*. They like to follow Friedrich Rapp (1974) saying that "a methodological and even an epistemological analysis of the theoretical structure and the specific methods of procedure characteristic of modern technology" is to be emphasized. Philosophical reflection on designing activities is, in their view, also of utmost importance for discussions of the consequences of technology. Ethics appears within the context of the design and development of products. In other words, engineering praxis is central to their research. This philosophy of design means a

critical evaluation of conditions and assumptions with regard to determinism or to social constructivist interpretations of technology. The prominence attached to the phase of design is a specialty at Delft. Design is cherished as the key to contributing to the real-world problems of controlling and steering technology. Staff: 4 members; e-mail address: p.a.kroes@wtm.tudelft.nl.

Let us next look at Eindhoven, where the engineering activity of design is also written in capitals. Their philosophical interest, however, is not to be confused with that of their colleagues at Delft. In Eindhoven, "philosophy and methodology of the technological sciences" are centered on the methodological analysis of the processes that create products. In this methodological analysis, they deal with the interplay of scientific, technical, economic, political, legal, and aesthetic factors in the engineering process of decision making (S, T, E, P, L, and A factors). This design methodology—interdisciplinary in character—is in a developing stage; concrete projects with respect to specific products are their inspiring examples of the way ahead: e.g., refrigeration apparatus as based on the Stirling cycle, packaging machines, etc. Quality Function Deployment is a specific topic of interest. Research on this topic should be a means for finding concordances between technical realizations and social desirabilities. Again, concrete case studies are done as precursors of a successful and helpful theory on choices within the production process. Staff: 3 members; e-mail address: m.j.d.vries@tm.tue.nl.

An agricultural university is the stage for philosophical reflection in Wageningen. There, agricultural and environmental sciences are the point of departure. Four themes are on the agenda. At Wageningen, the sciences contribute to practices as agricultural ways of living, with references to types of farmers, specific landscapes, and consumer behavior. Given the fact that technologists are in a sense undercover revolutionaries, the Wageningen people want to open the black box of science and technology. Philosophical analysis of the concept of sustainability is their second theme of attention. In their view, sustainability is a matter of the remoralizing of agricultural technology with all its ambivalent problems. A third philosophical topic concerns technological knowledge. In modern society knowledge is not limited to the traditional labs of universities and big corporations like Philips and Shell, but is also generated outside. And, fourth, the dimension of *political participation* in the complex networks controlling and steering technology is the crown of this program. It is a

characteristic feature of the Wageningen philosophy that, starting their reflection from a broader analysis of society, they use it as a departure point for the analysis of the interrelation of technological and ethical aspects in practices and institutions. Staff: 11 members; e-mail address: michiel.korthals@alg.tf.wau.nl.

The University of Twente is the youngest university. All sorts of philosophical disciplines are collected in a department of systematic philosophy that is doing research under the heading, Philosophy of Technological Culture. The program focuses on a "current affairs" analysis aimed at clarifying our technological culture, and deals with problems and dilemmas—on both individual and collective levels—that result from recently-introduced technologies. These questions range from social relations and ways of life, human possibilities and desires, to experiences of body and nature. In a permanent discussion with and a cautious opposition to the classical philosophy of technology, they want to give more context to their findings. Concepts such as the "megamachine" (Mumford), *technotope* (Ellul), *Gestell* (Heidegger) are only used heuristically and not as *priori* concepts. In this sense the Twente philosophers like to speak about an empirical turn within the philosophy of technology. From a philosophical point of view one can distinguish two main lines: hermeneutics of the technical experience, and social philosophy of technology. Under the hermeneutical heading, attention is paid to the mediating role of artifacts and to metaphors and representations generated by technology. Under the social philosophy heading the relationships between technology and politics are investigated. Scarcity as a constitutive feature of technological culture plays a privileged role. Recently there has been a convergence of interest on medical technology, sustainable technology, and information technology. Staff: 9 members; e-mail address: h.j.achterhuis@wmw.utwente.nl.

In this survey I have so far confined myself to the technological universities, where philosophers explicitly claim to do philosophy of technology. This is a limitation because there is also philosophy of technology outside these departments—although more on an individual basis. On the other hand, I have also passed over those who are doing research in the field of Science, Technology, and Society. They do not claim to do philosophy, but their work could be of utmost importance to the programs mentioned.

I certainly agree that members of the Society for Philosophy and

Technology ought to be less narrow and more ecumenical. What is on parade as philosophy of technology might turn out really to be STS; or vice versa. Among the non-technical universities philosophy of technology is most heavily represented at the University of Maastricht, where it is part of an interdisciplinary STS program.

The Netherlands Graduate School of Science, Technology, and Modern Culture (WTMC) is a formal collaboration of Dutch researchers, who study the development of science, technology, and modern culture. The school has a total of 48 affiliated researchers, who represent a variety of disciplines: philosophy, literature, history, psychology, and sociology. A considerable number of these researchers have been educated in the natural and technical sciences. The principal researchers in the WTMC program are affiliated with the University of Maastricht, the University of Amsterdam, and the University of Twente. However, agreements have also been reached with the University of Groningen, the University of Leiden, and the Agricultural University of Wageningen, which enable researchers from those institutions to participate in the graduate school. The institutes involved in the graduate school conduct the vast majority of the research in this area in the Netherlands.

The increasing interpenetration of science, technology, and modern culture and society implicates five core questions, the answer to which can contribute to a diagnosis of the ills of modern society and culture: (1) What roles do science and technology play in the transformation process in which societies are entangled, and how are these roles to be empirically researched and theoretically clarified? (2) How are science and technology influenced, substantively and organizationally, by the societal and cultural processes in which they are interwoven? (3) How are the boundaries to be drawn between science, technology, and the culture in which they are produced and reproduced, and how are these boundaries to be made visible or invisible? (4) How are normative questions concerning science and technology taking shape, and what does this imply about the way in which these questions are treated? And finally, the reflexive question, (5) how are analyses of the development of modern culture, and especially the position of science and technology, to be legitimated, without appealing to the prevailing epistemological paradigm which itself is a characteristic result of the rationalistic process?

STS or philosophy? Never mind. Ask the scientific director of the school:
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The papers presented here do not represent all of these perspectives. They are, simply, about half of almost a dozen Dutch contributions to the Society for Philosophy and Technology's tenth international conference, held at the University of Düsseldorf in September 1997. For another collection of Dutch contributions to the philosophy of technology, the interested reader can consult the next volume in the series, *Research in Philosophy and Technology*, which should be published in late 1998.