

## How Should We Speak About Art and Technology?

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The factor in the modern situation that is alien to the ancient regime is the machine technology, with its many and wide ramifications.

Thorstein Veblen, *The Theory of Business Enterprise* [15, p.144]

The challenge, then, is to see if one can say something systematic about the matter, to see whether one can order the problem so that it becomes intellectually manageable.

To do so calls at the very beginning for a careful specification of our task.

Robert L. Heilbroner, 'Do Machines Make History?' [4, p.335]

**Abstract.** This paper addresses the assumptions that underlie discourse about art and technology. It traces several competing historical accounts of the etymological and social shifts in the use of the terms over the last centuries. The discussion of technological determinism underlines the need to treat critically assumptions that technological innovation is the primary determinant in cultural developments. The specific challenges inherent in art criticism and technological discourse are outlined before the paper concludes that philosophy may offer the most meaningful and non-reductive approach to the question framed in the title.

### Talk About Talk

The reader may feel that this initial question is in some way illegitimate because one does not normally contrive in advance, or decide, how one is going to speak. It may seem, rather, that one responds to a matter as it arises in the flow of a discussion. Indeed to decide in advance how one should speak suggests that the conversation already entails some formality or some task, that the speech thus produced is goal-oriented, that this speech is self-consciously productive of something more than mere talk. It is therefore implicit in this question that there is something, as yet unspecified, to be achieved in talking about art and technology. The reader may also suspect that the bluntness of this interrogative renders it as a somewhat naïve or ponderous question, but it is one that may hopefully prove itself worthy of consideration.

Firstly, it may be noted that this question suggests that there is no obvious or inevitable manner in which we should talk about the conjunction of art and technology. However, this question does seem tacitly to assume that we should indeed talk about art and technology in some agreed manner. Secondly, and importantly, this question suggests that there is something at stake in choosing to talk about art and technology in some particular manner. Finally, it should be noted that the terms 'art' and 'technology' are quite slippery and polysemic. This is a characteristic that is perhaps determined by their equally ambivalent histories. It has long been established that these terms and their cognates, as employed in European languages, are subject to complex transformations over the last three centuries. Thus the question 'how should we speak about art and technology?' may be seen to be indicative of a broader problematic: the taxonomic organisation and conceptual ordering of human knowledge and activity. This problematic in a sense subtends, implicitly if not explicitly, centuries of development in the epistemic discourses and epistemological models of European societies. Its critical moments are to be seen in the controversies over the medieval curriculum, the contest between the ancients and the moderns, the programme of the Encyclopedists, the nineteenth-century programmatic restructuring of the University by figures such as Humboldt and more recently in the so-called canon-wars of the US academy.

### History and Contingency

It is possible to track the shifts and re-alignments in the deployment of these terms 'art' and 'technology' in a number of ways. Paul Oscar Kristeller made an exceptional and erudite contribution to this historiography in his extended essay on 'the modern system of the arts' [6; 7]. Kristeller takes as his particular focus the taxonomic innovation in the organisation of knowledge whereby the fine arts were constituted as a separate arena of human endeavour, a development he locates in the seventeenth and eighteenth centuries. Kristeller relates these changes in the organisation of knowledge to competing agendas and struggles for social status and value. However, in so doing, he maps a broad-ranging transformation in the organization of knowledge and the displacement of the liberal arts/mechanical arts taxonomies of the medieval universities by modern systems. The construction of the category of the fine arts has subsequently yielded the exceptionally complex and contested term 'art,' often capitalised as 'Art.' This term has subsequently been construed as referring to a universally given arena of human endeavor, associated with terms such as 'creativity' and 'expression,' and related to affective and subjective aspects of human experience.

Raymond Williams, in his famous *Keywords*, maps the transformations of the terms 'art' and 'technology,' pointing to their complex interrelationship with equally dramatic changes in the usage of the terms 'science,' 'culture,' 'civilization' and several others [16]. According to Williams, 'technology' was used from the seventeenth century onwards 'to describe a systematic study of the arts or the terminology of a particular art' [16, p.315]. He claims that it is in the mid-nineteenth century that 'technology' becomes fully specialised as referring to the 'practical arts' in their own right. Williams notes that this is also the period of a new professional specialist, the 'technologist.' Finally, Williams argues that 'the newly specialised sense of both Science and Scientist opened the way to a familiar modern distinction between knowledge (science) and its practical application' [16, p.315].

Leo Marx, while drawing on Williams's work, makes a different case in his interpretation of the shifting uses of the terms 'technology' and 'science.' He argues:

In the discourse of the educated elite of the West between 1750 and 1850, the idea of progress often seems to have been exemplified by advances in scientific knowledge; at more popular levels of culture, however, progress more often was exemplified by innovations in the familiar practical arts [10, p.240].

Thus the emergent modern sense of 'technology' marks the priorities of 'the common-sense practicality of everyday artisanal life as represented by tools, instruments, or machines' within a discourse of progress.

Francois Matarasso, in a recent contribution to a colloquium on Art and Science, claims with a somewhat different emphasis from both Williams and Leo Marx that '[i]t is widely thought that the fracture between art and science occurred during the nineteenth century, in a society under pressure of industrial revolution fuelled by rapid scientific advance' [11, p.1]. Pointing to the mid-nineteenth century, Matarasso argues that 'if art, science and technology began to follow separate paths, they were still equal partners in progress' but that '[a]fter 1900, any sense of common purpose was forgotten' [11, p.1].

Returning to our initial question then, there is much to be gleaned from these competing historical interpretations. Extrapolating on the basis of changes in discursive conventions, it does seem reasonable to suggest that the radical separation of art and technology is a historically recent achievement. (It would of course be possible to mobilise a much broader range of historical evidence, but issues of discourse are for the moment central to our purpose.) Indeed their radical separation seems to be integral to their contemporary particular constitution as arenas of human knowledge and activity, especially as these pertain to questions of practicality, utility and goal. This is to say that the fine arts have been constituted as 'Art' precisely in as much as they have been removed from other modes of activity and enquiry such as technology or science. Furthermore, it is apparent that this radical separation proceeds from no single explicitly framed project but is rather enmeshed within the complex historical processes of modernisation.

Thus by way of preliminary answer to our question, it may be hazarded that we should talk about art and technology with an alertness to the historical contingency of the conjunction, of the 'and' that marks a separation even as it may seem to propose a meeting or crossing. That is to say, we should acknowledge the historical character and contingency of our project, to talk about art and technology within the same frame or text.

## Technological Determinism

Accepting the different emphases in these competing accounts, it is apparent that 'technology' was at one point in its history a term not unlike other 'ology' terms, with the connotation of systematic knowledge. The root word '*techne*' (common to the word technique) referred to art, not in the modern exalted sense of art, but in the older sense of art as 'making' and 'doing.' Technology was a knowledge of the rules of making and doing, but it became a specialised term taking over the description of the practical, utilitarian, and mechanical arts. In changing its meaning, it also extended itself to include the actual machinery of these arts. This historical change in the role of the word happened across centuries of social, economic, cultural and, of course, technological change: the period loosely designated as modernity. It may seem obvious enough that a period which saw the proliferation of new machines, materials and manufacturing processes should also spawn a new set of words, or a new way of using old words, to capture the novel elements in lived experience.

There is thus a straightforward explanation available for a change in language use: as technologies become more numerous, important and powerful so the need to identify and characterise the abstract idea of 'technology' becomes felt, and an available word is modified to capture this. In one sense this argues that the very fact of technological change forces a linguistic change. In this instance, so it appears on one account, technology determines a cultural change. This is a very reduced expression of a mode of historical description and explanation called 'technological determinism.' Leo Marx makes the point that such an account, while initially persuasive, is perhaps deficient. He argues:

To be sure, we intuitively account for the currency of the word in its broad modern sense as an obvious reflex of the increasing proliferation, in the nineteenth century, of new and more powerful machinery. But . . . that truism is not an adequate historical explanation. It reveals nothing about the preconditions – the specific conceptual or expressive needs unsatisfied by the previously existing vocabulary – that called forth this new word. Such an inquiry is not trivial, nor is it 'merely' semantic. The genesis of this concept, as embodied in its elusive prehistory, is a distinctive feature of the onset of modernity [10, p.241-2].

Technological determinism refers to a broad range of positions which attribute a degree of primary determination to technological innovation; put more crudely, it is the idea that technology drives history and/or structures social relations. This, like all determinisms, admits of a variety of species and types. Thus there are strong and weak versions, macro and micro versions and so forth. Technological determinism is of importance for the current question, in as much as it arguably provides the dominant and pervasive way of talking about technology, and as such it extends fully into the ways in which the conjunction of art and technology are discussed. This is to say that even where technological determinism is rejected as an explanatory or theoretical model, the language available for the purposes of discussion is already complicit with technological determinism.

This may be illustrated with reference to Neil Postman's classic attack on the 'surrender of culture to technology,' which simultaneously attempts to unmask the ideologies of technology while employing historical interpretations that privilege technology as an autonomous agent of transformation and thus employ technological determinism as a descriptive device [12]. In the discourses of the visual arts, technological determinism is to be found everywhere. The following three examples are merely indicative of the ways in which the dominant discourse of technology as autonomous agent of change has informed and structured various frameworks for integrating art and technology. Consider Florian Rotzer's essay on 'The Virtual Body' in which the technologically mandated project of virtual corporeality is presented as a definitive paradigm for artistic work:

But no matter what technical solution is chosen, nothing can alter the basic situation of being in two bodies at once: the one in which

we are materially 'em-bodied,' and the other into which we project ourselves. To the artist, the task of exploring this unbridgeable gulf, playing with its manifold possibilities and making its variations and dimensions visible, poses a major philosophical and aesthetic challenge [13, p.141].

'Dunne + Raby' is the working title for a collaboration between an industrial designer and an architect who define their own project in a technologically deterministic manner. They explain:

Our dissatisfaction with the focus of our discipline has led us into the fuzzy space between architecture, industrial design, research and fine art. Our practice is concerned with making visible the invisible dynamics of interaction with electronic technology, and drawing attention to how electronics shape and limit our psychological and social experience of everyday life [3, p.46].

Interestingly, within the visual arts there has been, since at least the late 1960s, an ongoing dialogue on the question of the relationships between art, science and technology. An early attempt to document this dialogue is to be found in Stewart Krantz's somewhat oversized tome on 'science and technology in the arts,' a book that promises 'a tour through the realm of science/art.' It is interesting to note that Krantz attempts to construct a new term 'science/art,' abandoning the use of the 'and' between his two original terms, as a way of marking the total fusion of disciplines that he envisions for the future. Krantz rehearses some alternate future scenarios in his introduction, but he commits himself clearly on one point: '[I]n essence, the contention here is that the movement toward a continuing synthesis of art and science is already inexorable' [5, p.29]. The technological determinist elements in this text co-exist uneasily with a celebration of artistic creativity and even a liberal use of the now suspect category of 'genius.' Earlier Krantz's text has asserted the primacy of the artist-creator. Krantz explains that the development of the 'spectator-participant art' of the 1960s while owing much to various technologies had as its 'essential ingredient' the presence of 'the talented artist' [5, p.29]. Krantz's celebration of 'science/art,' in a way similar to Postman's lament of the abandoning of culture to 'technopoly,' employs technological determinism while perhaps wishing to disavow the primacy of technology in favour of a belief in the abiding force of human agency [12].

Returning to our initial question then, we may note that there is an already pervasive model for discussing art and technology which is structured by certain key assumptions or tacit principles: technological determinism. These tacit principles or implicit, indeed founding, assumptions may require articulation and critique. It is therefore of some consequence whether we choose to speak in a manner that opens out such tacit principles and makes these available for criticism. More simply stated, we must choose between speaking and speaking critically. If we choose to speak critically, it is important to register the difficulty that this may introduce into our discourse. Speaking critically can become a matter of speaking haltingly, as the task of criticality makes demands on our attention and energies that may interrupt the smooth untroubled flow of language. Criticality is a notoriously thorny issue. Whether one chooses to track the ideal of criticism through the famously 'critical' philosophy of Kant, through the vicissitudes of 'method' in science or indeed through the so-confidently 'critical' thought of critical theory, it is apparent that claims to speak critically may become, in their own special way, as controversial as claims to speak the truth. Controversies over what constitutes speaking critically have been endemic to the humanities in general over recent decades, a typical example would be the pedagogical debate over 'critical thinking' in education studies. The criticism of the visual arts is another example that might reward consideration in the current context.

## Artspeak

In framing the question How should we speak about art and technology? there is a risk that we overlook the arguably separate and prior questions 'How should we speak about art?' and 'How should we speak about technology?'

Consider for instance the dilemma of speaking about art. Talk about art is notoriously problematic and subject to suspicion as either charlatanism or elitism. This is further complicated by the fact that many would hold that art, especially visual art, resists discussion and defies the attempt to harness the central experiences of art within the yoke of language: this is a legacy of nineteenth-century Romanticism. It would perhaps be more appropriate to speak of a number of conflicting discourses of art, each constituting its object in a significantly divergent manner. The degree of fragmentation here may be clearly illustrated by reference to title of one article, 'A Beginner's Guide to Art Bollocks,' which appeared in the newly prominent British journal, *Art Review*, and which presents a sustained and vitriolic attack on what are seen to be the absurdities of art discourse [1]. The very title signals the degree of contestation and conflict occasioned by discussions of contemporary art and its values, while the publishing context indicates the degree to which the artworld is internally riven on the question of how appropriately to discuss art. This is a situation that has been aggravated in recent years as artwriters have imported and adapted discursive frameworks from other discourses such as literary criticism, psychoanalysis, structuralism, anthropology, political economy, sociology, psychology and of course discourse analysis.

It is symptomatic of much that is written and said about the relationship between art and technology that it reduces the complexity of central thematics in art discourse. Thus Roy Ascott discussing the 'Digital Museum' and the reorientation of art practices claims:

This marks a shift in art from an overarching concern with appearance, the surface look of things, to apparition, dealing with invisible relationships and the processes of coming-into-being. Overweening analysis and narcissistic self-reflection give way to collaborative construction and self-creation . . . [2, p.185].

This may be taken as a somewhat bombastic, but nonetheless typical, example of the reduction of the inherent complexity of art discourse to the point of caricature and chronic distortion. Thus one species of modernism, with its attention to the optical and formal qualities of the work of visual art, becomes distorted into the defining characteristic of art in general. Analysis and narcissism become twinned in a manner that obscures one of the key art-theoretical developments in recent decades which has been the critique of subjectivity and other related humanist values. Finally, the modernist project of self-fashioning with all its diversity and multiple historical trajectories, is erased in a rhetorical move whereby it is suggested that the self as project is in some sense both radically new and contingent on new technologies.

Returning to our initial question, clearly there is something at stake in how we speak about art and technology, which, in part at least, proceeds from a question of sensitivity and alertness to the internal complexity of art discourses. In speaking about art and technology, there is a need to engage the sophistication of art discourses without necessarily endorsing such complexities as inherently valuable. Rather it is a question of avoiding a crude reduction of a complex field to a limited and ahistorical set of overburdened clichés about subjectivity, expressivity and creativity.

## Techno-babble

The discussion of Krantz's work on 'science/art' above may have suggested that the terms 'science' and 'technology' had somehow become simply interchangeable. While it is often conventional in everyday language to shift between these two terms as if they were straightforward equivalents, it should be apparent that such a way of proceeding is not favoured here. However, it may prove salutary to consider the multivalent uses of the term 'technology.' It may on the one hand be defined in opposition to 'science,' the latter construed as research without specific practical end, and on the other hand it is often positioned as the natural correlative and product of scientific research. 'Technology' may often be taken as referring directly to material objects, the machine-like and machine-based material constructions that seem ubiquitous within the contemporary world. Such an account of technology is often consistent with technological determinist models. Against this tendency, certain social theorists, critics and historians have proposed a layered conception of technology. In this account, the artefactual content of a technology is identified as one layer of the total technological system. The technological system also includes such layers as the immediate context of utility for the technology, that is to say, the project that lends meaning to the deployment of the particular technology in question. The topmost layer of this account is then the social world or system necessary to the production and maintenance of the technology and the project that provides its immediate context [9].\* A further extension of this account of the nature of technology produces the cultural studies reading of technology-as-text. This is an interpretation of technological entities which proposes to read a given technology as a symbolic structure, as a text [8].

Having noted the historical contingency of the usage of this term, 'technology,' it would seem ill advised to proceed by attempting simply to fix upon a single dominant and cohesive definition for the term. But it is apparent that, indeed, the question as to how we should speak about technology should not be overlooked in addressing the larger question that is presented here.

Furthermore, it should be noted that speech about technology is itself prone to falling subject to the same suspicions as art discourses. Hence the popular currency of the expression 'techno-babble' as a means of articulating anxiety and distrust in respect of the specialist jargons of technology. This is an especially salient issue in the marketing of technology products such as home computers and entertainment devices. Again there is a need not to exclude the specialist languages of technology from due consideration, even though there are again the same tendencies to displace the complex specificity of such discourses in favour of crude reduction and caricature. Such tendencies are perhaps aggravated by the popular mediation of both science and technology. Here also, it is a question of being alert and sensitive to the historical trajectories of the representations of the technologist and new technologies, and again resisting the imposition of overburdened clichés.

## Answering the Question

C. P. Snow famously initiated the discussion of the need to bridge the gulf between two cultures in his *The Two Cultures and the Scientific Revolution* of 1959 [14]. Currently there is, as Matarasso has indicated, a broad range of government-led initiatives to promote a dialogue and intersection among art, science and technology [11]. If, as I have argued, the radical separation of art and technology is itself historically contingent, and indeed if this development proceeded from no single defining programme or project, then we must surely inquire as to why it is that the project for their reintegration should now be a central task of governmental agencies whose missions lie variously in education, economic development and cultural policy. This is but one of many questions that requires examination in our discussion of art and technology.

In attempting to respond to the question as to how we should speak about art and technology, I have proposed three key strategies: history, criticism and a sensitivity to the specificity of the discourses particular to each heading that refuses any crude reduction of complexity. But in my attention to the usage of key terms, there has also been signaled a commitment to acknowledge the constitutive role of discourse itself. Even as we hope to speak of 'art and technology,' we may be constituting the object of which we speak.

Thus it may seem that the critical question becomes that of asking to what ends do we wish to construct this object or situation, this crossing of art and technology. However, this is to adopt already a means/ends approach to our conversation. This is to privilege a technocratic or instrumental mode of reasoning. This is a mode of reasoning that may already be suspicious of the value of talk in its own right, and perhaps especially skeptical of any attempt to speak about the terms of speech itself, as I have attempted to do here. This question of how to speak leads not towards the establishment of rigid definitions but rather to the kinds of reflective enquiry traditionally associated with philosophy. Thus if art and technology are to cross each other, if they are to meet, one arena in which they may meet and engage is that of philosophy.

There is one final consideration that must be presented here and that is to acknowledge the urgent claims on our attention that a philosophical critique of technology might make in this context. Throughout the twentieth century many key figures (Heidegger, Adorno, Horkheimer, Benjamin, Krackauer, Foucault, Habermas, Mumford, Ellul) have attempted to map the relationships and conflicts between the values enshrined in the apparatuses of technology and the values particular to critically reflective thought and indeed, philosophy.\*\* Recurrent among the various claims of these writers is the suspicion that the imperatives of efficiency and time management inherent in technological systems and technocracy are in some way corrosive of the possibility of critical thought. This is an urgent claim, though not an inevitably correct one, that must be addressed in trying to establish what it might mean to speak critically about art and technology.

## Notes

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MacKenzie and Wajcman argue that this 'social shaping of technology' thesis has become well established within the social sciences but point out that 'the success of the idea in academic circles . . . has had little resonance in the wider culture' [9, p.xv]. They thus lend support for the argument that technological determinism requires critique within the project at hand vis-à-vis the discourse of art and technology.

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While it may, at first blush, appear appropriate that this well-known and diverse body of philosophical work should mark the point of departure for the current essay, rather than appearing summarily referenced in the terminus of the discussion, it may be helpful to register why this is not the case. In the course of this essay it has been maintained that the discursive construction of the separate and apparently autonomous spheres of 'art' and 'technology' is historically contingent and requiring of careful consideration. This is no less the case for the arena of philosophy. Furthermore, philosophical discourse, through the deployment of such terms as the 'aesthetic' and 'techne' has been



implicated in the discursive construction of both 'art' and 'technology,' even in their everyday usage. It is therefore not appropriate simply to adopt and engage the given philosophical frames of reference without applying some prior consideration to the contours of our question, as has been attempted here, and as is consistent with an opening gambit.

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