Introduction

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1 Background and Questions

The rapid rise of science, technology, and society (STS) studies in East Asia during the past two decades can be characterized by a series of remarkable events. STS studies are beginning to diversify and take on forms within academia both permanent and official; the number of researchers is growing at high speed; several associations and societies have been established. These communities communicate regularly, and since 2002 they have taken turns holding the annual East Asian STS-Network Conference. Moreover, Taiwan’s National Science Council founded this very journal in 2007.

When we trace the trajectory of STS studies in Taiwan, Korea, Japan, and China, we find that philosophy of science has played an important role in the success of this new discipline. In Korea the program for history and philosophy of science at Seoul National University trained many of the country’s leading STS scholars. In Japan the University of Tokyo established its Department of History and Philosophy of Science as early as 1951—though the word society was avoided until the 1980s. During the 1970s Thomas Kuhn’s theory of scientific revolutions influenced and even dominated the third stage of Japanese STS, in large part due to the work of Shigeru Nakayama 中山茂, who had studied with Kuhn (Nakajima 2007). In Taiwan several philosophers of science engaged in promoting the development and growth of STS studies. In China almost all the discipline’s researchers come from philosophy of science and technology—what was long known as the “dialectics of nature.” Anyone who is interested in the development of East Asian STS studies should begin by looking at its relation to philosophy of science.

Despite its rapid ascent, East Asian STS scholarship continues to rely on the theoretical contributions of Western nations—mainly the United Kingdom, the United States, Germany, and France. The scholars in Osaka, Tainan, Seoul, or Shanghai who
investigated Western studies of science would inevitably encounter descriptions of the happy and unhappy interactions between philosophy of science and STS studies. Did these sorts of interactions reappear in the East Asian context? Or did quite divergent histories, cultures, intellectual institutions, and social circumstances ensure that the Asian experience would be something else entirely?

In spite of a deep historical connection, philosophers of science and STS scholars tend to have disparate views and positions that have placed them on opposite sides in the “science wars.” When we cast our eyes toward the future, what sort of relations can we expect? From a normative view, how should philosophers of science and STS scholars treat each other’s work? The special issue is meant to provide a preliminary answer to those questions.

2 Individual Articles

Joseph Rouse’s article, “Philosophy of Science and Science Studies in the West: An Unrecognized Convergence,” suggests a possible path for East Asian scholars. Since Western STS studies and philosophy of science have always provided theoretical exemplars for their East Asian counterparts, that pattern may well continue. However, a suggestion is nothing but a normative possibility; the East Asian story may run slightly differently from its model. Or perhaps one should speak of East Asian stories. To appreciate Rouse’s article most fully, one must be familiar with his previous work.

Seventeen years ago, Rouse wrote an article titled “What Are Cultural Studies of Science?” (1993) in which he identified an alternative approach to science studies—he called it cultural studies of science. Unlike social constructivists, adherents of the cultural approach denied that science was essentially “scientific”; rejected a purely explanatory stance toward scientific knowledge; insisted on the local, material, and discursive character of scientific practice; demonstrated that traffic streams constantly across the boundaries that allegedly divide scientific communities from other spheres; and reframed long-standing philosophical debates on realism and value neutrality. Cultural studies of science have a strongly cultural and political engagement and do not eschew epistemic and political criticism.

Twelve years later, in a review of historian John H. Zammito’s A Nice Derangement of Epistemes: Post-Positivism in the Study of Science from Quine to Latour, Rouse (2005) faulted Zammito for failing to examine alternatives to the sociology of scientific knowledge, in particular those anthropologically-conceived approaches known as cultural studies of science.

During the 1960s and 1970s a historical approach dominated philosophy of science: the program was known as history and philosophy of science (HPS). Most of the philosophers involved were rationalists who insisted that we should explain the development of science by viewing it as autonomous—many called them “internalists.” During the same period, practitioners of the sociology of scientific knowledge (SSK) showed that knowledge was the result of social construction—they were known as “externalists.” However, as Rouse shows, the next generation of philosophers of science (I shall refer to this movement as “post-HPS”) and scholars in cultural studies of science have gone beyond the earlier opposition, moving toward a convergence.
Unfortunately, neither side has the slightest idea that this has happened. Rouse sighs, “Most North American or European philosophers writing science do not read or cite this work [i.e., cultural studies of science].” Furthermore, “Scholars in science studies outside of philosophy are similarly unaware of these philosophical developments and how they might speak constructively to their own concerns.” Long a champion of the cultural approach, Rouse now hopes that by introducing STS scholars to complementary developments in post-HPS he can encourage a fruitful conversation.

Four interconnected themes that have recently appeared in philosophy of science now mesh constructively with cultural studies of science. They are a belated but welcome escape from a neo-Humean account of causation that invokes “laws”; an inquiry into the role of models in science and laboratory practice that challenges the emphasis upon scientific laws of the logical empiricists and early postpositivists; a demonstration that the articulation and use of scientific concepts has turned out to be empirically and practically localized in models and experiments; a renewed challenge to the “scientific image” of nature as impervious to norms. Having outlined these important themes, Rouse rehearses Zammito’s account, using it as a foil to show how philosophy of science can approach cultural studies of science. This demonstration is a grand engineering feat that readers can appreciate in itself.

Now let’s leave the West and advance on East Asia.

Although the flourishing of STS studies in Taiwan has created a second identity for a few Taiwanese philosophers of science such as myself, it has also left us uneasy. What worries us is the negative remarks STS scholars have made about certain philosophical debates (for example, the discussion of realism versus constructivism that took place during the science wars). In my view, such comments are symptomatic of a general skepticism about the need for philosophy of science. So in my article I connect this sort of skepticism to the uneven development of philosophy of science and STS studies—the latter have taken the lead and are not looking back. I call this phenomenon the “STS challenge.” As a philosopher of science, I deploy a long and circuitous argument for the importance of my own discipline. The theoretical development of STS studies cannot do without it, and for their part Taiwanese philosophers of science should extend their concerns to embrace topics in line with STS studies. In a nutshell, I treat the challenge as a moment to redirect and reshape both disciplines.

My argument for the development of distinctively Taiwanese approaches implies a general ambition. I open by proposing to treat STS studies as a science, then I set out to trace the development of European STS theories—developing the narrative according to the methods used by a philosopher of science observing the development of more conventionally scientific theories. Based on these observations, I suggest a normative model based not on puzzle-solving but on the proliferation of what I call “theory versions.” And since philosophical considerations are necessary for the proliferation of STS theory versions, it follows that contributions from philosophy of science are essential to the growth of STS studies. However, my argument depends on viewing STS studies as a science. Is such a view adequate? In their responses, Francesca Bray and Sean H.-L. Lei raise important doubts.

Bray makes two important points. First, she points out that science, technology, and society studies is a project and a spectrum of exercises rather than a consolidated discipline or a science: “It is a shared goal, namely, the unpacking and challenging of technocratic authority, that gives coherence to the field of STS, rather than any
aspirations to a unified theory, or any agreed bounding or framing of the object of analysis.” She describes the diversity of STS practices and concludes that the discipline is essentially political. Second, she suggests that STS scholars may be better served by philosophers of technology than by philosophers of science, let alone analytical philosophers of science. In addition to inviting STS scholars to weigh in on the border between technology and science, Bray also poses a new problem to philosophers of science who want to intervene in the development of STS studies.

Lei’s response to my article also makes two important points. Contradicting my assessment of the field, he declares that STS scholars in Taiwan usually regard philosophy of science as useful. And while he agrees that STS studies pose a challenge to philosophy of science, he views that challenge as limited—addressed only to some traditions. And he criticizes my suggestion that philosophy of science take on the duty of providing to the public a general image of science as a whole. Such a task runs counter, he says, to much of the recent scholarship in STS studies and history of science. He winds up with the following words: “If philosophy is to be the weapon of the weak, the general image of science is hardly the best candidate to serve this liberating function.”

Now let us turn our eyes to China.

Li Xia reports on the general state of China’s philosophy of science and STS studies, focusing on the period after 1990. Unlike the situation elsewhere, in China philosophy of science and STS studies work side by side. But Li does not expect this to last long: he believes that the two will have less in common over time. Responses from Liu Huajie and Liu Bing address the historical and institutional aspects of Li’s discussion, teaching us a great deal about the distinctive aspects of China’s contributions. Liu Huajie explains that a widespread scientism has been conducive to certain kinds of research. Liu Bing describes the institutional and academic limitations faced by STS studies but concludes that its connection with the ideological apparatus and society gives STS studies a great advantage.

Scholarly studies of science undertaken in China tend to look different from the work being done in Western countries, Korea, Japan, and Taiwan. For instance, there is no discernible border among philosophy of science, philosophy of technology, and STS studies, because almost all of the researchers in the three fields were trained in the tradition of “dialectics of nature,” an outgrowth of Marxist philosophy that held sway over science studies in the 1950s. According to Liu Bing, dialectics of nature was essentially philosophical research on the natural sciences, technology, and nature. What would be called philosophy of science in the United States did not flourish in China until dramatic reforms began in 1978. And for a long time Chinese scholars responded to ideological pressures by continuing to label as dialectics of nature everything from philosophy of science, philosophy of technology, and natural philosophy to history and sociology of science, ethics in science and engineering, and even science and technology policy. They call this academic system the “Big Bag.” In due course Chinese scholars came to believe it would be best to align with international standards, and they suggested replacing the name “dialectics of nature” with “philosophy of science and technology,” a move the state bureaucracy approved in 1990. Nonetheless, several important journals still retain the old term in their names.

The Big Bag style can be seen as the second distinctive feature of philosophy of science and STS studies in China. So big is the bag that it can hold disciplines at the
frontier of the natural sciences—including the so-called three old theories (cybernetics, informatics, and system theory) and three new theories (catastrophe theory, hypercycle theory, and chaos theory)—which may seem strange to scholars looking on from abroad. Increasing contact with the West in the 1990s exposed Chinese scholars to the sociology of scientific knowledge, postmodernist studies of science and culture, phenomenological research on science and technology, and so forth. Some Chinese scholars have proposed labeling the response to these trends the “second wave of philosophy of science” to distinguish it from the old tradition of dialectics of nature. Even Liu Huajie seems to use “philosophy of science” and “STS studies” interchangeably. Accordingly, when we think of these fields as they function in China, we need to view their relations as internal rather than external.

The third distinctive feature is the strong scientism noticeable in Chinese STS studies. As Liu Huajie points out, many Chinese scholars still believe that the main task of modern STS studies should be the advancement of technological innovation and productive forces. Because science was and is considered unimpeachable—the fullest display of human rationality—associated disciplines should work to serve it. Liu Bing explains that the dialectics of nature tradition is marked by extraordinary attention to practical issues, which usually means supporting the official policy on science and technology. This has tended to render the succeeding disciplines formalist, theoretically superficial, and uncritical.

While Li Xia praises Chinese scholars for “substantial progress” in philosophy of science and STS studies, his respondents supply critical reflections. Nonetheless, the latter regard the Marxist tradition as a rich resource for both institutional and theoretical reflections, and they call on Chinese scholars to embrace the dialectical tradition. Does this run the risk of reviving the official ideology and the strong scientism hidden in the dialectical tradition?

3 A New Agenda for Philosophy of Science and STS?

The scholars who contributed to this special issue have presented a range of questions that will permit us to rethink philosophy of science, philosophy of technology, and STS studies. I hope that readers from those fields will find our efforts stimulating. But I am very sorry that we have not been able, due to a variety of factors, to publish articles that evaluate the situation in Japan or Korea. I hope that such articles will appear in EASTS in the near future.

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1 Scientism in China may be traced back to the May Fourth Movement that preceded the establishment of People’s Republic of China in 1949. See Chen 2010.
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