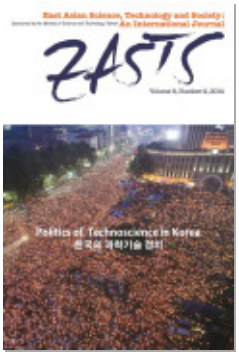
From Politics to Academics: Political Activism and the Emergence of Science and Technology Studies in South Korea



Mathieu Quet, Marianne Noel

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From Politics to Academics: Political Activism and the Emergence of Science and Technology Studies in South Korea

Mathieu Quet and Marianne Noel

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Abstract Science and technology studies (STS) is now a mature field in many countries, and it is important to understand its historical and political roots in a wide variety of national contexts. The present contribution to such a vast project links a number of South Korean activist groups involved in a critical reflection upon science and technology in the 1970s and the 1980s to the academic developments of the STS field in the 1990s. A focus on the activist roots of South Korea's STS counterbalances more institutional and less politicized histories of the field; it also enlightens the specificity of critical approaches to science in the context of an emerging power that was a military dictatorship. The authors describe how a group of students and professors, most of whom had been trained as scientists and engineers, created a discussion circle to foster a critical and political discourse on science. They then trace the emergence of the new field through the dissemination of texts and their reception. The academic aspects of Korean STS are then compared, over three periods, with similar currents in Europe and the United States. The conclusion shows that the critique of science that

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M. Quet (✉)
Institut de Recherche pour le Développement, UMR 196 and Institut Francilien Recherche Innovation Société, 19 rue Jacob, 75006 Paris, France
e-mail: mathieu.quet@gmail.com

M. Noel (✉)
Université Paris-Est Laboratoire Techniques, Territoires et Sociétés (UMR CNRS 8134), et Institut Francilien Recherche Innovation Société, 77454 Marne-la-Vallée Cedex 2, France
e-mail: noel@ifris.org

emerged in South Korea took a form substantially different from critiques elsewhere, linking this difference to political and institutional causes.

Keywords South Korea · comparative history · critique of science · science and technology studies · student movement · 1970s · 1980s

1 Introduction

One valuable—yet often underrated—aspect of science and technology studies (STS) lies in the history of this academic field, which is rooted in social and political movements and largely inspired by the radical critique of science that emerged during the 1960s and 1970s in most industrialized countries. Of course, those events in themselves hardly give an account of the whole story. At the least, one cannot disregard the importance of Robert K. Merton's sociology of science or Thomas Kuhn's philosophy of science. The emergence of STS specialists in the United States after World War II—a "professional-managerial class"—was also of singular importance, as was the positivist faith that guided STS in those postwar years, which considered science to be a neutral activity (Werskey 2007). Yet, notwithstanding these factors, it has been shown on many occasions that STS had strong links with the social movements of the 1960s and 1970s, links that are sometimes forgotten as the field evolves (Song 2010).

These historical links with scientific activism are clearly attested by a range of important publications, including Rose and Rose 1972, Nowotny and Rose 1979, Hess 1997, and Dubois 2001. While some have celebrated this history (Werskey 2007), others have dwelt on the drawbacks of such an academization (Martin 1993). Such studies remind us that the origins of science studies are political and critical, an important lesson given the political implications of science and technology (S&T). The radical critique of positivism from which so many insights arose also explains some of the main controversies in the field—regarding interdisciplinarity and relativism, for instance.

All too often, STS researchers seeking academic legitimacy or funding overlook the political history of their discipline (Dubois 2001). The great success of nanotechnology projects as measured by the recent financial rush has involved the enlistment of social sciences in a scientific project that has jettisoned, all too often, critical and independent thinking (Colin-Detcheverry 2011). That is why one should pay special attention to the history of STS, particularly to the historical and political roots of this academic field, to encourage critical attitudes toward contemporary S&T trends (Pestre 2004).

The social history of the critique of science and science studies in Europe and the United States has been told at various stages (Pancaldi 1980; Hess 1997; Rip 1999; Dubois 2001; Quet 2013), along with STS histories that are more indifferent to politics (Bowker and Latour 1987) and texts focusing on the critique of science (Mendelsohn 1994; Petitjean 1998; Peiffer 2000; Agar 2008; Moore 2008) or some aspects of the radical science movement (Rose and Rose 1979; Beckwith 1986; Martin 2000). But this type of history is rarer for the other parts of the world, and while some scholars have addressed Asian, Latin American, and African countries (Elzinga and Jamison 1986; Krishna 1996; Song 1999; Rajan 2005), much remains to be written. STS is now

a mature field in many countries, and it is important to understand its historical and political roots in a wide variety of national contexts. Furthering our understanding of the history and mechanics of activism in science may help keep that tradition alive.

In South Korea, the extreme tension of the 1970s and 1980s gave rise to a proliferation of social movements opposed to the dictatorship. Civil society and student groups played a crucial role in the democratization of the country by multiplying the forms of protest. At that time, even if in most cases the dictatorship remained the activists' main concern, various themes entered the public debate or were renewed. The theories propounded in Western countries to account for new social movements can in some ways be applied to the South Korean case (Inglehart 1977; Mellucci 1982).

As many historians have shown, those two decades also corresponded with intense economic, scientific, and technological growth in South Korea. S&T was seen mainly as an instrument of growth, and a positivistic ideology was so widespread that even activists who were eager to engage in multiple social issues were discouraged from criticizing S&T. This did not happen in Europe and the United States, where the political role of S&T was often criticized and debated by activists (Mendelsohn 1994).

Some individuals and groups nevertheless became interested in critical reflection on S&T issues and joined environmental groups or student circles dedicated to the problems raised by S&T in society. Most were science and engineering students, but not all; some came from the social sciences or the humanities. Their involvement slowly led to the emergence of crucial questions on the social role of S&T, from both a political and an academic point of view. By the 1990s, some of those student activists had become STS researchers, and the same topics they had raised in the late 1960s were coming up in journals like this one.

Other influences should also be taken into account. For instance, history and philosophy of science provided an essential basis for the development of STS: the Korean History of Science Society was founded in 1960, before the development of the movements analyzed here. Research agencies and policies promoted technocratic thinking and affected the development of STS.

Because personal stories, as rich as they are, do not allow us to explain the institutionalization process that interests us, we present the trajectory of a few tiny student groups, focusing on the links they had with the academic world. This will reveal the importance of the political roots of STS. We underline the importance of socio-economic and political conditions even as we insist on the role of internationally disseminated texts and persons. In the analytical section of our article, we draw some points of comparison between South Korea and European countries, following Sheila Jasanoff's (2005) call for cross-cultural comparison. We demonstrate that important differences distinguish South Korea's critical reaction to S&T from analogous movements in Europe and the United States.

The research presented here is based on a literature survey and a limited number of interviews conducted in South Korea in August 2010. The scholars and activists interviewed were (and most still are) decisive actors in the emergence of South Korean STS as an academic field. They were selected by purposive and convenience sampling, based on a connection with the activism of the 1970s and 1980s and on availability. We have chosen to name the subjects we quote, with their permission. The question of the dissemination of texts and influences was specifically addressed during the interviews.

The first part of this article introduces the economic and political context of the 1970s. The second part traces the emergence of a critical discourse on S&T. The third part presents the discussion groups that developed in the early 1980s thanks to the democratization process. The fourth part, which starts in 1988, is devoted to the span of time when STS became a formally acknowledged discipline.

2 The Dictatorship of Growth

2.1 The Park Regime (1961–79)

The economic and political context in the 1960s and 1970s has been widely studied by historians. It was a context of "rapid industrialization" (H.-A. Kim 2004) with considerable support from the United States (US$6 billion between 1945 and 1978, according to Bello and Rosenfeld 1992). For geopolitical reasons, the country was one of the major recipients of US aid, along with South Vietnam and Israel. When General Park Chung-hee (박정희) seized power in 1961, he announced the first five-year economic development plan to mobilize national resources in establishing a self-supporting industrial economy, thus leading to the construction of a modern capitalist economy (Hamilton 1986).

Growth in the scientific and technological sector began, in the years after World War II, from scratch. As Sang-Yong Song (1999) has pointed out, Korea had fewer than fifty scientists trained at university level in 1945, the year the country was liberated from thirty-five years of Japanese colonial rule. Expertise was inadequate even to maintain the existing industrial facilities, since many of the skilled technicians and engineers who had manned them were Japanese. The Ministry of Education therefore reformed the higher education system, creating a new infrastructure to foster S&T. Six universities and eleven vocational and medical colleges, including Seoul National University, were founded or reorganized between 1945 and 1947 (Sohn and Kenney 2007).

During the 1960s, the government emphasized the importance of research and development (R&D) in furthering industrialization. Creating centralized institutions devoted to R&D was part of a development plan aimed at shifting the national economy from agriculture to industry. The Korea Institute of Science and Technology, modeled on the US Battelle Memorial Institute, was established in 1966 in Seoul (only four years after the bold five-year economic development plan launched in 1962). Its R&D activities started in 1969. About twenty research institutes sponsored by various ministries were created in the 1970s either as spin-offs of the Korea Institute of Science and Technology or through the reorganization of various existing research operations. These ministry-supported institutes were presented as contributions to national technological capability (Sohn and Kenney 2007).

The dark side of these industrial and scholarly developments was the government entity that drove them: the Park regime, which came to power through a coup d'état on 16 May 1961. Authoritarian and repressive, it allowed no form of dissent whatsoever. The drive toward economic growth was accompanied by very harsh working conditions and repression of any kind of protest. Independent trade unions were bent to the will of the Korean Central Intelligence Agency, created in 1961 to break the labor

and student movements (Cumings 1997). In the early 1970s, the South Korean state entered its most authoritarian period, as the Yushin Constitution made any expression of dissent particularly difficult (Brazinsky 2007).

2.2 Democratization

The social and labor movements nevertheless mounted a very active resistance in the early 1970s (S. Kim 2000; Koo 2007), and criticism of the dictatorship became more visible under the name Jaeya (재야) (Hyun 2005), which brought together intellectuals and politicians and roughly corresponded to what today would be called a civil society movement.[1] Jaeya was the main source of criticism of the regime during the 1970s. However, at the beginning of the 1980s it was overtaken by the student protest movement, which grew steadily from the 1970s to the end of the 1980s and came into its own during the Chun Doo-hwan regime (1980–87). A number of universities in Seoul (Seoul National University, Korea University, and Ewha Womans University) and in other cities (Gwangju, Busan) played a central role in the protest movement. After the student protest movement peaked in 1987, the labor groups took over—still, students remained a driving force.

With the assassination of Park in 1979, many believed that a new liberal political system was coming. But after a few months of liberalization under the interim government of Choi Kyu-hah (최규하)—a period known as the "Seoul Spring"—the dictatorship tightened its grip. The popular uprising at Gwangju was put down in May 1980 (Choi 2006), and the arrival of General Chun Doo-hwan (전두환) as president three months later ensured a revival of Park's iron-fisted policies. From then on, dissatisfaction with the regime grew continuously.

Yet the 1980s were essentially different from the 1970s, thanks in part to the revocation of the Yushin Constitution (N. Lee 2009). Marxist texts banned in the earlier period circulated in Korean intellectual circles, and the works of Marx, Engels, and neo-Marxists such as Herbert Marcuse, Louis Althusser, and Georg Lukács could be found at any university.[2] New tools of protest appeared, as antiauthoritarian ideologies proliferated and Marxist doctrine intensified—somewhat similar to Europe in 1968.

2.3 What about Science and Technology?

Throughout the years of protest, the regime's critics called for democracy and individual freedoms. Few people within the student and labor movements were interested in the political problems connected to the development of S&T. The belief in the neutrality of S&T was widespread, discouraging any thought of a critique; the dominant discourses promoted development and "technological self-reliance," values that were shared even by many dissident intellectuals and opposition politicians, as shown by Sheila Jasanoff and Sang-Hyun Kim (2009) in their study of nuclear issues. One of

[1] It may be anachronistic to use the notion of civil society to describe the Korean social movement of the 1970s and 1980s. However, even in the mid-1970s South Korea had a lot of social and political groups, and the development of a large number of nongovernmental organizations occurred from the late 1980s on (Katsiaficas 2012).

[2] Hong Sungook, interview by the authors, 19 August 2010, tape recording.

our interview subjects attributed widespread faith in S&T to Japanese colonization: "On science itself, in our society there is a bit of a unique perspective compared with other societies. We believe it is because of lack of science that we have been colonized by Japan and that we are behind in the modernization of society. This idea is deeply rooted in our minds. So antiscience is not popular."[3] In this respect, the 1970s was a golden age for S&T rather than the "long decade of protest" seen in Europe (Bonneuil 2004; Quet 2013).

Significantly, the students and teachers who were most involved in the protest movement came mainly from the social sciences and humanities. Reflecting the traditional split between the humanities and the natural sciences, they showed no interest in the social integration of S&T. Lecturers in the sciences often discouraged their students from engaging in activism; they considered it a good scientist's duty to be politically neutral. In the 1970s, even when one acted on behalf of the state, one was expected to proclaim one's political neutrality (DiMoia 2012). Furthermore, even though the country had philosophers and historians of science (Song 1997, 1999), until the early 1980s very few of the important foreign texts on science and societal issues were available in South Korea.

Still, in spite of such conditions, from the mid-1970s a more critical conception of S&T was nevertheless visible among intellectuals and activists. The following is dedicated to the emergence of the critical conceptions they built.

3 Heterodox Criticism and Environment (1975–80)

3.1 A *Hakhoe* for the Sciences

At the end of the 1960s a group of students at the College of Engineering of Seoul National University created the Research Group on Industry and Society (산업사회연구회).[4] This group spawned others in the early and mid-1970s, among them the Research Group on Industrial Technology in Developing Countries (hereafter, the Research Group). Such neutral names were chosen to avoid attracting the attention of the government. Around 1976, several students started studying the pollution occurring around industrial complexes. This led to an interest in the links between S&T and politics; as students and teachers pursued this topic, they found that they wanted to include politics in their learning and teaching.

Within the Research Group, discussions addressed science, democracy, social issues (rural life, urban poverty), and the history of post–World War II revolutionary movements. A magazine whose title can be translated as *Science Generation* (과학세대) went through two issues, published in 1977 and 1979.[5] Science Generation was also the name of the group that supported the magazine. The group's work prompted many to reconsider their careers, switching to the social sciences:

[3] Cho Hong-Sup, interview by the authors and Sang-Hyun Kim, 24 August 2010, tape recording, trans. from Korean to French by Ko Min-Jeong.

[4] Cho Hong-Sup, e-mail message to the authors, 7 May 2013.

[5] Kim Hwan-suk, Park Jin Hee, and Kim Dong Kwang, interviews by the authors, 23 August 2010, tape recording.

> In the beginning, in 1975, this [Science Generation] was the only group that was really interested in science and society and the democratization of society and so on. But I was somewhat different from this group. There was a tendency among such students that they wanted to become social activists, or if they would like to be at the university, they wanted to be social scientists, not scientists. I was somewhat different from these students: I wanted to become a scientist, and as a scientist, I wanted to participate in the democratization movements, I wanted to participate, to improve or to invent, if you allow me to use this kind of word, to invent new sciences, for example, or new technologies.[6]

Such discussion groups were common in those years. Some grew out of *hakhoe* (학회), the seminar groups affiliated with each university department. *Hakhoe* served as important places for educating and recruiting future student activists (Hyun 2005). Twice a year students traveled to rural areas for special activities known as *nonghwal* (농활). Students lived and worked in villages for one or two weeks in summer and winter; they were expected to provide farmers with useful scholarly knowledge. These stays were intensive, and a strict timetable called for agricultural labor from early in the morning and critical discussions late in the evening. In the 1970s, activities sometimes included *gonghwal* (공활) for factory activities (Park 2005, 2008).

As described in the above quote, the Research Group and the Science Generation with which it was interacting were groups that specifically questioned the relationship between science and society, with members interested in the societal impacts (or misuses) of S&T. They were friendly with another band of Seoul National University student activists, the Natural Philosophy Study Group. These students from the College of Natural Sciences read and discussed the literary review *Creation and Criticism* (whose editorial line was close to the *New Left Review* but was mostly dedicated to literature and poetry) and articles on the Vietnam War by journalist and scholar Rhee Young-hee (이영희). It was primarily through *Creation and Criticism* that they discovered "national literature," a movement devoted to the depiction of Korean sociopolitical reality (from the partitioning of the Korean Peninsula to problems associated with poverty). Their interest in science and development issues led them to pay particular attention to the works of J. D. Bernal (*Science in History*, 1954), Herbert Marcuse (*One-Dimensional Man*, 1964), and E. F. Schumacher (*Small Is Beautiful: Economics As If People Mattered*, 1973). Discussions centered not just on Asian and Western philosophical texts; Asia's current events often preoccupied the group.

Many study groups explored Marxist writings during this period. Although they were still banned at the end of the 1970s, students scrutinized *Das Kapital* and *The Communist Manifesto*, copies of which were surreptitiously passed from hand to hand. Possession of such books might be punished with a year's imprisonment—at the minimum (N. Lee 2007). Determined to participate in a critical discourse on capitalist society, students who had digested a ration of Marx applied his theories to a heterodox assortment of texts, from works on appropriate and alternative technologies to the anticolonial papers of Léopold Sédar Senghor. But in spite of their familiarity with

[6] Lee Pil-Ryul, interview by the authors, 24 August 2010, tape recording.

such books as *One-Dimensional Man*, these groups did not develop coherent nonpositivist critiques of S&T.[7]

3.2 Premises of the Environmental Movement

Some members of the Research Group and the Natural Philosophy Study Group were also connected with the environmental movement that emerged at the end of the 1970s. One of the leaders of this movement was Cho Hong-Sup (조홍섭). He matriculated at Seoul National University in 1975 and was one of the first, from 1977, to militate actively in the field of ecology, initially within the Study Group on Pollution, a group created in 1979 by activists at Seoul National University's College of Engineering. Cho had become interested in the issue of pollution in about 1978. At the request of interested Christian nonprofit organizations, he wrote reports on regions suffering from industrial pollution. While some have identified the formation of the Study Group on Pollution with a "blossoming" of environmental groups (S.-H. Lee 1999), on crucial issues such as nuclear politics the environmental critique remained weak until the democratic transition of the late 1980s (Jasanoff and Kim 2009).

At the end of the 1970s, the antipollution movement symbolized, above all, the appearance of environmental concerns in the public sphere. It was also a concrete example of the involvement of the Science Generation group in politics. Finally, it marked a change from the 1970s, characterized by the importance of Jaeya, to the 1980s, dominated by student activism. Cho placed himself at the interface of these two domains of militancy.[8]

By the end of the 1970s, the Science Generation had acquired a certain maturity and entered a phase of evolution. Some of its members left college to work in factories, taking the lowest jobs so that they could experience a worker's life firsthand. This was a frequent choice among the participants of the social movement. Others became teachers in vocational secondary schools, hoping to teach the future workers who would organize a labor movement. Such decisions, and an interest in forming an alliance between intellectuals and the masses, reflected the influence of Maoism (N. Lee 2009). This was also the time when Park Chung-hee was murdered, prompting a strong backlash against the various movements for social justice. Some of the leaders of the student movement were imprisoned.

4 The Student Movement and Dependency Theory

4.1 A Theoretical Revival

At the turn of the 1980s, the democratization movement became more active. Demonstrations and militant actions alternated with the work of translating and discussing foreign political treatises. Even in colleges of engineering, students were involved in militant activities more frequently. Both academic and political works on S&T

[7] In an interview with the authors on 23 August 2010, Kim Hwan-suk said that the student groups "did not have strong ideological perspectives."

[8] Cho, interview.

became available. In 1982 Lee Pil-Ryul (이필렬) and Cho Hong-Sup, who were then working at UNESCO's Korean National Commission, translated *Kagaku to shakai no gendaishi* 科学と社会の現代史 (*Modern History of Science and Society*) by the Japanese historian Shigeru Nakayama. In January 1984 an important environmental study edited by Cho was published by Hangilsa: *Hyeondaeui gwahakgisulgwa inganhaebang: Minjungeul wihan gwahakgisullon*현대의 과학기술과 인간해방: 민중을 위한 과학기술론 (*Contemporary Science and Technology and Human Liberation: Theories of Science and Technology for the People*).[9] The book assembled a collection of translated texts by the British activists Hilary Rose and Steven Rose, the French ecologist André Gorz (who wrote under the pseudonym Michel Bosquet), the social scientist Charles Morazé, and Bill Zimmerman, a member of the US group Science for the People. Because it endorsed Marxism, the book was banned very shortly after publication. Despite that prohibition, some of the people we interviewed had read it and considered it influential within the student groups. It provoked Park Jin Hee (박진희), who entered Seoul National University in 1982, to take up the question of the relevance of science to the people.[10]

With these new forces, actions and theoretical reflections were revived. Seminars were organized to stimulate reflection on S&T and on their integration into society. And in 1984 the first training program devoted to the history and philosophy of science was initiated at Seoul National University by Kim Yong-Sik (김영식). Although this professor promoted a very academic approach, the program quickly drew students with science backgrounds who were interested in the philosophical and political issues related to technological development. "I [was one] of the first students who entered that program," Hong Sungook (홍성욱) told us.

> But, you know, I remember that, for example, the philosophy of science that I learned in that program was quite different from what [my friends in the group] wanted to know more about. For example, they wanted to know more about the dialectics of nature—Engels's dialectics of nature, Lenin's empiricism and materialism, something like that. They wanted to know more about the scientific foundations, how this society works, something like that, but the philosophy of science that I was learning was closer to the American sort.[11]

These were also very important years for the dissemination of texts. In the early 1980s, the spread of Marxist literature was still banned, but through Koreans living abroad, published books that would have been banned at home were smuggled into the country. Texts were translated and published in Korean. As it was also a period when many recent graduates in the humanities could not find jobs, many turned their hand to translations, often receiving no compensation. The proliferation of books in the early 1980s was so great that some people have called it "the era of the great circulation of texts" (N. Lee 2007). "People read and translated the texts," we were told by Cho Hong-Sup. "In the 1980s many highly educated people were unemployed. At that time, the unemployed were working hard translating texts. The 1980s were considered

[9] Kim Hwan-suk, e-mail message to the authors, 9 July 2013.
[10] Kim, Park, and Kim, interviews.
[11] Hong, interview.

the golden age of social science literature. When I started work on the translation, I did not expect to be paid."[12]

Since students led the protests, theoretical discussions were an essential part of political involvement. Not unlike the student movement in Europe in the late 1960s, students read theoretical and political texts in equal numbers (Gilcher-Holtey 2000). Discussions touched on the harm done by industrialization and the responsibility of scientists toward society, but the key issue in the first half of the 1980s was technological dependency. The issue was brought to the attention of the student circles by a publication that was selected "article of the year" by the university, written by Lee Tok Hee (이덕희), a biology student who had enrolled at Seoul National University in 1977. In July 1982 Kim Hwan-suk (김환석), a researcher at the Korea Institute of Science and Technology who had graduated with a degree in the social sciences from Seoul National University, wrote his master's thesis in sociology on dependency theory, titled "Technological Dependence in the Third World: The Case of South Korea." Lee's and Kim's work attracted the attention of science and engineering students, and the issue of dependency was launched in those circles. Since the ideas presented in the two works gave technology an essential role in distributing power, student groups began endorsing the integration of scientific and technological issues into their political discussions. They also promoted the heterodox Marxist view of technology, now conceived mainly as a means of perpetuating the dependence of poor nations and the "development of underdevelopment" (Park 2008).

4.2 The Dooriam Group and Orthodox Marxism

In 1985 a new discussion group called Dooriam (두리암) began meeting at the YMCA in Seoul. At the outset, the core consisted of between twenty and thirty graduate students in mathematics and physics. They met almost weekly to discuss current political issues, Marx, and Marxist authors (Engels, Lenin, Marcuse, Erich Fromm). Some of its activities remained secret, to avoid government repression, and the organization was segmented to prevent information leaks. Dooriam, although primarily a student organization, was at the same time a political resistance group. Members tried to expand the group and give it more visibility. The organization acquired official existence and changed its name in 1988 to the Organization of Young Scientists and Engineers (청년과학기술자협의회). The group had one hundred members in 1989.

It was in the mid-1980s that antipositivistic currents, including new left critiques of S&T, began to be introduced and discussed by student activists majoring in science and engineering. According to Hong Sungook, around 1988 the Organization of Young Scientists and Engineers (hereafter, Young Scientists) returned to a particularly orthodox reading of Marx and equated science with the productive forces, which are neutral.[13] Priority was given to political activism, and all theoretical discussions were based on the precepts of Marxism. The question then became "who" uses S&T. At the time, the Soviet Union endorsed the collection of ideas known as the Scientific

[12] Cho, interview.
[13] Hong, interview.

and Technological Revolution, which argued that scientists and engineers belonged to the labor force.

Why had the Young Scientists chosen orthodox dogma over dependency theory? Perhaps it was a purely strategic move. Despite the importance of dependency theory, S&T issues had little meaningful relation to the main political goals of the student movement, still very strong at this time. This drove the Young Scientists toward a focus on productive forces. Swinging to what they considered a "right" shift, the Young Scientists adopted a position that connected with the struggles of working people. In sum, the shift can be explained by both ideology and the evolution of the activists' agenda, which led to the marginalization of the initial heterodox themes of the critique of S&T.

At the time, labor unions played a leading political role and were less involved in defending their own interests than in confronting the regime and protesting the presence of American troops on South Korean soil. Their numbers peaked in 1989 (Koo 2001). The activities of the Young Scientists were shared between the publication of a semiregular newsletter, *Science and Labour*, and field activities, which included the organization of unions in engineering, high technology, and computer companies, along with *nonghwal* and *gonghwal*. In 1987 the first independent union of scientists and engineers was founded at DACOM, a private telecommunication company linked to the state.[14] The union leader, without being an active member of the Young Scientists, was closely linked to the group. The following year, unions were formed at the Electronics and Telecommunications Research Institute in Daejeon and at the Korea Institute of Science and Technology in Seoul. At the latter, the union organizer was a member of the Young Scientists and was fired from his post shortly after the union was created. Through unionizing activities, students penetrated large corporations, and an important activist network emerged.

4.3 A Network of Activists

Another activist group that played an important role in developing antipositivist, new left critiques of S&T was the Anti-pollution Movement Association (APMA) (반공해운동협의회), founded in 1984 by former Natural Philosophy Study Group members, including Cho Hong-Sup and other student activists. The relationship between Dooriam and APMA, and their relation to the student activism of the 1970s, was quite complicated and cannot be briefly summarized. Both groups engaged with the new left critique via various channels in the early and mid-1980s.

In the mid-1980s the Young Scientists held discussions with an agricultural organization interested in alternative technologies. Members of this group of farmers had reached out to the Young Scientists to learn more about S&T. Discussions that addressed chemical fertilizers, organic methods, and the use of herbicides and insecticides in turn sparked a multitude of meetings in which activists, students, and young scientists and engineers excitedly discussed branching out to embrace the environmental movement in 1987.

[14] Hong, interview.

Environmentalism was primarily an antipollution movement supporting workers and farmers affected by pollution. It is important to bear in mind that, until the 1970s, the agricultural population in South Korea accounted for more than 50 percent of the total population. The antipollution movement took place during a sharp decrease in the agrarian population, and it grew independently from movements linked with technological development issues.

Another organization linked to the Young Scientists was the Korea Pollution Research Institute, founded in 1982. The institute was largely supported by Christian associations but was also linked to members of Jaeya, who regularly held meetings in the institute's offices. Cho Hong-Sup was very active in the movement to investigate pollution in the fields; he taught courses at the institute and mentored many activists. In the mid-1980s the institute played a decisive role in the controversy that arose when industrial pollution poisoned a fishery in Onsan, a village on the southeastern coast. Many Japanese metallurgical companies were based in the region because of deposits of nonferrous metals. In 1983, about one hundred people complained of illnesses they blamed on cadmium discharged into coastal waters by local factories. The government investigation concluded that the evidence did not show a connection between the two. Students, employees, and members of an environmental group went to Onsan to conduct independent surveys. In 1985 the Korea Pollution Research Institute issued a series of epidemiological reports and published a book presenting in full the evidence linking the Japanese plants to the outbreak of sickness. There were demonstrations, legal action was instituted, and Jaeya provided both experts and financial support. Ultimately, thanks to the combined efforts of several groups, forty thousand people were moved, rehoused, and provided with cash compensation.

But this very dynamic period, filled with activism and meetings, lasted only a decade. In the late 1980s a schism split the Young Scientists. A divide within the student movement had long been visible: the National Liberation current was at odds with the People's Democratic Revolution current, and this was as true for Young Scientists as for other student groups (Park 2008). Those who endorsed the former worked for the reunification of North and South Korea, the withdrawal of US armed forces from the peninsula, and national independence. Partisans of the latter were committed above all to the struggle against capitalism. Another divisive factor was the internal process of reflection on S&T, which drove a wedge between heterodox Marxists and positivist orthodox Marxists. The latter managed to impose their highly positivist conception of science, alienating those more interested in alternative technologies and people's science, both of which had been a priority in the first period of protest. The third factor was the general fatigue of student activists. Many people, at the turn of the 1990s, felt exhausted by the endless debates and quarrels. Also, the nation's democratic transition had begun more openly since 1987, and the role of the student movement had become less important. For all these reasons, things came to a head between 1987 and 1989. The Young Scientists were not to survive this conflict.

5 Toward the Institutionalization of STS

5.1 Influences from Abroad

At the time of the split, many people left the Young Scientists. Among those who elected to continue studying S&T, some pursued doctoral degrees, which typically meant foreign studies. This was the case of Park Jin Hee, who was tired of disputes and set up a translation office to translate books related to science. After the lack of opportunities and money led her to bankruptcy, she embarked on a PhD program and left Korea for Germany in 1992. Similarly, in 1988, Hong Sungook started his PhD program and gradually moved away from the movement. He went to Canada in 1991. Thus, the militant movement of reflection on science disappeared, and STS gradually began to take shape as a discipline in Korea.

Another interesting path is that taken by Kim Hwan-suk, a sociologist who joined the university in 1973. He was hired in 1979 by the Korea Institute of Science and Technology and joined the first working group on research policy. Very interested in technological dependency and the organization of engineer unions, he soon established contact with a number of the activist groups gravitating around Seoul National University. However, he was older than the others and less engaged in activism. From October 1983 to December 1988, he studied in England under the supervision of Dorothy Griffiths, a leading member of the British Society for Social Responsibility in Science. This permitted him to meet Gary Werskey, John Ziman, and Robert Young.[15] Having earned a doctorate in sociology, Kim returned to the Korea Institute of Science and Technology, where he hired young researchers in the history of science. At this point, the Science and Technology Policy Institute moved to recruit researchers trained in the history and philosophy of science; as these new arrivals shared a critical perspective on technological development, an institution with formal ties to the government took on an unexpected appearance. For some time, Kim Hwan-suk served as the head of the Division of Research on Industrial Innovation at the institute.

In 1991 Kim Hwan-suk organized an informal working group on STS. This group, however, came into increasing conflict with the direction team of the Science and Technology Policy Institute, and in 1994 Kim left to join the University of Ulsan, then Kookmin University. From that point on, he became more involved in STS research. Two years later he organized a working seminar on the *Handbook of Science and Technology Studies* that attracted many participants. That seminar is considered the birthplace of South Korean STS.

Academic expatriation was crucial to this generation in several respects. Above all, the experience of a break with the student movement led to the discovery of new literature. For example, Hong Sungook discovered Bruno Latour while in Canada, as well as Derridean deconstruction, postmodernism, and cultural studies, all of which strongly influenced his intellectual trajectory.

Other actors helped build an STS culture through such activities as translating key works. Kim Dong Kwang (김동광) confronted the dictatorship as a student activist

[15] Kim Hwan-suk, e-mail message to the authors, 7 July 2013.

and joined the labor movement in Incheon in the 1980s.[16] He turned away from the movement in the early 1990s, when he decided to return to his initial interest in literature, sociology of literature, and the theories of the Frankfurt School, something impossible during his years of involvement in the movement, when intellectual work could be considered a betrayal among militants. He met Park Jin Hee in 1991, discovered through her the Young Scientists group, and started reading texts addressing these issues. At this point, a niche market had emerged for science publications. Kim Dong Kwang started working for Park's translation office, which had five or six members. Together they translated about a hundred books, including authors as different as Richard Dawkins, Isaac Asimov, and George Basalla (*The Evolution of Technology*, translated in 1996). Most of these books could hardly be described as STS publications, but their publication reinforced and fed a growing interest in science, technology, and their relations with social issues.

During the 1990s, more and more of the contributions to a growing interest in STS arose in academic settings (Song 1999). In 2000 an international network within East Asian countries was established with the creation of the East Asian STS Network. Today the Korean STS Society has about 150 members and the Association of History and Philosophy of Science around 200. The institutionalization of the field has encouraged diverse strategies and produced tensions between those who want to legitimize the field and encourage openness to varied questions, and those who insist on a commitment to political issues and the need to maintain links between science and the activism through which the Korean STS field was formed (Hong 2007).

5.2 An Essential Commitment

As recent initiatives have shown, South Korean STS has retained its commitment to public engagement. This is patently clear in the case of the Center for Democracy in Science and Technology (CDST), which welcomes members from the STS community. The CDST was established in 1997 under the intellectual influence of the Loka Institute headed by Richard Sclove. That same year, Kim Hwan-suk traveled to Europe with a journalist from *Hankyoreh*, South Korea's main left-wing newspaper. They wrote a series of articles on the democratization of S&T in Denmark, the Netherlands, and France, describing consensus conferences and science shops. The CDST thus imported the idea of citizens' conferences and consensus conferences.

In 1997 the cloning of Dolly the sheep triggered an alert about the dangers of cloning. Kim Hwan-suk suggested the organization of South Korea's first citizens' conference on biotechnologies, proposing it take place completely independently of the government (in the form of a workshop). The conference was a great success, and in November 1997 some of the participants founded a group devoted to S&T. Three consensus conferences were organized around the CDST. The first, hosted by the Korean National Commission for UNESCO in 1998, addressed genetically modified food. Several activists from the center participated. The second addressed cloning (1999), and the third, nuclear power (2004). A citizens' jury on epidemic diseases was organized in 2008.

[16] Kim Dong Kwang, e-mail message to the authors, 21 June 2013.

The CDST was welcomed into the People's Solidarity for Participatory Democracy (PSPD), a nongovernmental organization established in 1994 oriented mainly toward the protection and encouragement of minority shareholders in their dealings with *chaebol* companies (large Korean conglomerates involved in multiple business fields, equivalent to *zaibatsu* in Japan) (S. Kim 2000). Today the PSPD is one of the largest Korean nongovernmental organizations. At the time, it was heavily involved in promoting participatory democracy, and the committee devoted to science wished to implement these discussions in its work in the research field. They welcomed an appeal from the CDST, which began meeting in a room on its premises and effectively became a wing of its host. When PSPD subsequently became a very large organization, internal coordination became a challenge. Its leadership invited some branches to become independent. In 2005 the CDST was the first group to leave. The reasons were several: first, the CDST members were not entirely comfortable with the style of PSPD activism (intense activism, including direct actions) and preferred an intellectual approach; second, they were far less interested in economic and social issues than in issues focusing on S&T; and, finally, some within the PSPD adopted positivist positions and saw S&T as a "productive force," which was obviously not the case in the CDST.

The CDST's ideological characteristics are related primarily to a critical perspective on S&T, basically a critique of capitalism and corporate power. In this respect, it is quite different from previous, much more positivist groups. Most group members feel the need to democratize the practice of science. Moreover, the CDST, which brings together STS scholars, scientists and engineers, and undergraduate and graduate students of colleges of science and engineering, includes influences from feminists, ecologists, and Western Marxism. The originality of its outlook guaranteed that the group would never garner wide public support, but it is remarkably open to a range of different activist sensibilities (S.-H. Kim 2011). Its activities extend across various fields, ranging from science education by middle school teachers to citizen participation, gender issues in the workplace, and the monitoring of biotechnologies. There was a strong emphasis on biotechnology from the very beginning, and the CDST joined a network of organizations to promote the regulation of biotechnologies. They managed, in December 2003, to get a law passed on biosafety and bioethics; nowadays the network's activities focus more on the nuclear sector. An "editorial board of citizen science" oversees publication of a bimonthly journal called *Citizen Science*.

The CDST has launched a major initiative to translate important STS texts and cultivate academic critics. One chapter from Richard Sclove's *Democracy and Technology* (1995) was published in a collective book with texts by Brian Martin and Bruno Latour. The CDST also published a translation of Sheldon Krimsky's *Science in the Private Interest* (2003). Despite many unfortunate experiences, the center had some success with a science shop dreamed up by a researchers' union based at the Korea Advanced Institute of Science and Technology; it operated most actively between 2004 and 2006.

The example of the CDST shows that critical reflection on S&T is being sustained, and not just in universities. Many who are engaged in both academic and political issues stress the need for approaches skeptical of the perennially sunny claims made for science.

6 Conclusion

This short history has considered three main periods in the emergence of South Korean STS. During a short period, from the mid-1970s to the end of the decade, a critical discourse on S&T emerged, with much thought given to what might be called use and abuse. That was the nation's first environmental movement. Then, between 1980 and 1987, the student movement rose to prominence. Theory was revitalized, and much debate revolved around the issue of technological dependency. Around 1988 the activist groups devoted to S&T evolved from heterodox to orthodox positions, which was one of the conditions for winning the approval of the student movement. From 1987 to 1989, the student movement split; some of its participants became academics, doing doctoral work and studying or working abroad. Over this same span, STS moved progressively toward institutionalization.

Nonetheless, some STS scholars still maintain their links with their activist roots, and many are now concerned with participatory democracy issues. The critical thinking associated with STS has, without directly affecting national research policies, stimulated the development of regulatory practices. As a result, the Korea Institute of Science and Technology Evaluation and Planning, the national leader in technology foresight, organizes citizens' consensus conferences, a task mandated by a special law on S&T passed in 2001 (Chang and Han 2009).

In conclusion, this history questions the familiar model of relations between academic and political fields. We attempted to explore the multifaceted and multilayered relationships between the emerging field of STS and political activism in Korea. Some key observations can be made briefly on the specific nature of the combined history of STS and the critique of science in South Korea.

The first concerns the existence of a critical movement regarding S&T. It is quite interesting to note that this movement appeared in Korea in the mid-1970s—shortly after the United States and Europe. For instance, the first discussion group in France to address such topics, the National Center of Young Scientists, was created in 1965, and critical groups became more active after May 1968. The best-known groups were founded in the early 1970s: Science for the People founded in the United States in 1969 and the Radical Science Collective founded in the United Kingdom in 1972 (its *Radical Science Journal* was first published 1974).

The second observation concerns the theoretical conceptions. In Europe the Marxist critique of S&T was distinctly positivist until the late 1960s and early 1970s; the National Center of Young Scientists is a typical example. But it was the 1970s that produced the much more radical critiques of the political status of science, culminating in Robert Young's article "Science Is Social Relations" (1977), which shows the intrinsically political nature of science, against more neutral views on the nature of S&T. In South Korea, a similar process took place, with a shift in the conception of S&T from neutral to intrinsically political in the mid-1980s. But the new critical discussion about S&T gradually became marginalized because of conflicts between the orthodox Marxists and the less doctrinaire students concerning, above all, national liberation.

To some extent, the process of academization of Korean STS seems quite similar to that of European countries, the United States, and Australia (Martin 1993; Quet 2009). There was both continuity and rupture during the academization of STS, as a field

initially interested in pressing political issues turned to more abstractly academic problems. One of the processes described by Brian Martin (1993) also occurred in the South Korean case: the replacement of political references by more academic ones. In Korea, academics' sojourns abroad in the early 1990s, along with the translation of books and the work done on *The Handbook of Science and Technology Studies* in the mid-1990s, led to the replacement of Marxist influences with ones that were less politically engaged.

Despite some similarities, the South Korean situation differs from that of Europe and the United States mainly because of the political trajectory—an authoritarian state that yielded to advocates of democratization—and the rapid economic transition from farming to industry. The initial activist base grew from the campaign for democratization, and as the student movement groped for the tools needed to think about industrialization, it found a critique of science that focused mainly on means—rather than impact—of the country's industrialization. Activists insisted on the need for technological independence—they had in mind the United States—and for an industrial development serving the interests of the people. At the same time, radical science movements in Europe and the United States questioned the very notion of industrial development, denouncing the impact of industrialization on both society and nature. Thus, in different places the critique of science has taken on quite different forms, depending on the context.

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Mathieu Quet is a full-time researcher at the Institut de Recherche pour le Développement and associate researcher at the Institut Francilien Recherche Innovation Société. In 2009 he was awarded a PhD by the Centre Koyré for his work on participatory democracy in the field of science and technology in France during the 1970s. His current research focuses on activist movements in science and technology (radical science in the 1970s, France's "antinano" groups, health activism, and the regulation of drug markets in India).

Marianne Noel is the head of international affairs at Institut Francilien Recherche Innovation Société (IFRIS) and has been a research engineer at the Centre National de la Recherche Scientifique since 2002. She holds a PhD in physical chemistry and a master's degree in history of science, technology, and society from the Centre Koyré and has extensive industrial experience. Before joining IFRIS and the Laboratoire Techniques, Territoires et Sociétés, she was scientific attaché at the French embassy in South Korea (2004–8), where she coordinated and supervised joint French-Korean scientific projects. Her research addresses the historical changes in scholarly work at research institutions and universities.