BOOK REVIEWS

Disabilities and Definitions

Deadly Dust. Silicosis and the Politics of Occupational Disease in Twentieth-Century America. DAVID ROSNER and GERALD MARKOWITZ. Princeton University Press, Princeton, NJ, 1991. xiv, 229 pp. $29.95.

The authors of this history conclude on a philosophical note: "We readily accept that the social and political activities of each generation build on the traditions of earlier generations. [But] we tend to think of disease as an objective reality whose existence transcends the boundaries of time and subjectivity. . . . We suggest that the case of silicosis raises questions regarding the exceptional nature of disease. The case of silicosis shows how the social and political environment shapes the variety of questions traditionally seen as the province of science and the laboratory" (p. 217). These musings are overly tentative, and one can question whether scientific ideas in any context represent "objective reality whose existence transcends the boundaries of time and subjectivity." But they highlight the central issue discussed in rich detail in this book: that a diverse and on the surface unrelated set of actors and interests affected what health scientists and others thought about silicosis, and consequently what they did about it. The actors included a variety of health scientists, owners and managers of mining and metal-using industries, politicians, labor unions, and insurance company leaders.

What we now call silicosis was once considered, along with tuberculosis and other diseases of the chest, a variant of phthisis (from Greek, wasting). From ancient times, miners were known to have slowly developed difficulty breathing and, just as slowly, to have suffered and died. With the Industrial Revolution, the experience of other workers—such as sand blasters, construction workers, foundry workers—was the same.

In the early phase of industrial development in the United States, from the late 19th to the early 20th century, mining and metals industries were prominent in developing the economic foundations of this emerging world power. Consequently, events that affected the economic success or failure of these industries, such as an epidemic of silicosis, were likewise important. This condition claimed thousands of lives with epidemics in the "Tri-state" (Missouri, Oklahoma, and Kansas) and other mining areas, among foundry workers, in a tunnel dug near Gauley Bridge, West Virginia, and elsewhere.

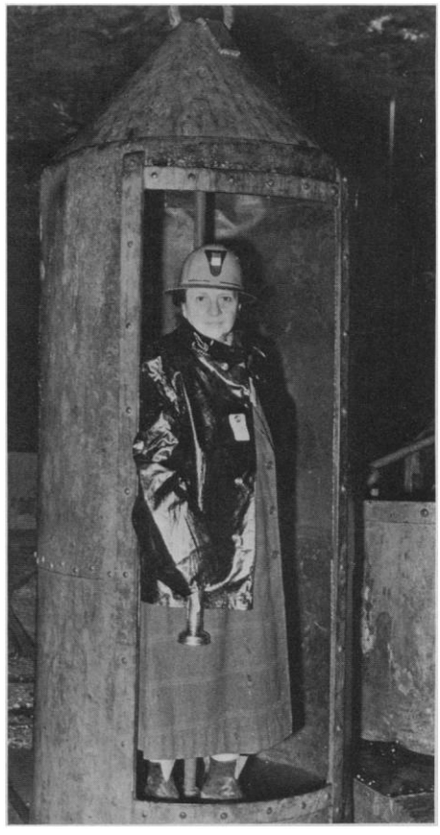
By the middle of the present century the condition was "officially" declared unimportant, and those who spoke about it found it necessary to apologize for "bringing up such a shopworn, dusty topic" (p. 186). This conclusion was reached in spite of an abundance of evidence that the condition was as prevalent as it had been earlier in the century.

Ironically, Robert Koch's success in identifying the cause of tuberculosis probably impeded identification of the cause of silicosis. With Koch's discovery, other health scientists also started looking through microscopes in microbiology laboratories for the cause of miners' phthisis. Many times they found tuberculosis, which diverted their attention from dust. This was because miners often lived in poor housing and had poor nutrition, both of which are risk factors for tuberculosis. Furthermore, as we now know, silicosis itself can lower resistance to tuberculosis.

Scientists should have looked in mines, mills, and foundries and listened to workers. Workers knew by instinct that their disease came from work itself. Hence the common names used to identify this disorder: miners' phthisis, potters' consumption, grinders' rot, granite cutters' phthisis. The cause, crystalline silica, was identified some time before 1915. Curiously, neither a date nor a person responsible for this discovery is documented in the same way Koch is associated with identifying the cause of tuberculosis.

But this history is not merely one of differential medical diagnosis. Workers in their publications and testimony conceived of silicosis in entirely different terms. The "cause" of silicosis, and by extrapolation the cause of any occupational disease, could not be understood merely as the pathological response to a single entity identified in the laboratory. Silicosis resulted from social choices that others, primarily their employers, made. As a consequence, not only should these others be held accountable, the decisions they made should be changed in order to prevent additional cases from occurring.

Similar problems arise with the meaning of "disability." In the newly developing state-based workers' compensation systems, workers who experienced an occupational injury or illness were entitled to compensation. Relative to occupational injuries, occupational diseases were more difficult to identify. Furthermore, illness caused by a toxic substance such as crystalline silica, unlike illness caused by a microorganism, exists on a continuum of physiological response, like most other reactions to chemicals. Disability, many employers argued, also was not a matter of whether a person was responding in some manner to an industrial health hazard but of whether that person was able to work. In addition to defining disability, there were also efforts to claim that the occurrence of silicosis was unique to the individual, due to some hypersensitivity. Sometimes these efforts were clear absurdities. For example, a writer in *Business Week* claimed that "brunettes, who generally have more hair on the body, naturally have more hair in the nostrils, which tends to keep silica dust from reaching the lungs" (p. 182).



"Secretary of Labor Frances Perkins inspects the Ballard Mine of the St. Louis Smelting and Refining Company near Baxter Springs, Kansas, while attending the Tri-State conference, April 23, 1940. The tub she rode in usually held five people." [From *Deadly Dust; St. Louis Post Dispatch*]

The persistence of cases of silicosis among the work force of one employer was thus blamed on the disproportionate number of blonds among his workers.

The distinction between illness and health, the determination of whether a person was able to work, and identification of the cause of disease translated directly into whether a worker was entitled to compensation and thus into the magnitude of an employer's liabilities. When wealth was at stake, these issues of health assessment were not abstract issues.

For most of the period covered by this history, neither state nor federal government possessed the authority to enter and inspect workplaces or to set and enforce standards of performance. It was not until passage of the Coal Mine Health and Safety Act in 1969 and the Occupational Safety and Health Act in 1970 that the federal government had these rights. Thus government agencies had to limit their activities to investigation and persuasion. In the first half of this century, the U.S. Public Health Service preferred private discussions with employers, out of the glare of publicity. But the Labor Department, under Roosevelt's Secretary of Labor, Frances Perkins, adopted more public methods, attempting to shame employers into better dust control and greater responsibility in caring for the victims of silicosis. Today, the strategies of these two agencies are reversed.

The events covered in this history include a National Silicosis Conference held in Washington in the spring of 1936, a Tri-state conference on silicosis held in Joplin, Missouri, in 1940, formation of the Air Hygiene Foundation (later the Industrial Hygiene Foundation), and labor-organizing efforts of the International Union of Mine, Mill, and Smelter Workers. A dominant tension through these events concerned whose understanding of silicosis and of disability would prevail.

The Air Hygiene Foundation, founded in Pittsburgh in 1934 for the plainly ideological purpose of selling not products but "the system that makes those products possible" (p. 106), played a dominant and triumphant role in the 1936 conference. This conference concluded with a report that trivialized the silicosis problem and, more important, declared that only those who are competent (that is, only professionals) should speak to its causes, prevention, and treatment. This clearly excluded labor organizations and workers from the discourse. Though labor and its allies were present and prepared a dissenting report, they were ignored.

Four years later in Joplin, the heart of the Tri-state mining region and the center of a major epidemic of silicosis, another conference was held in the wake of a decade of labor conflict. In the midst of the Great Depression, employment in mining in the Tri-state region plummeted from over 7000 in 1929 to 1331 in 1932. Silicosis and tuberculosis alike were common. With new rights gained from the National Labor Relations Act of 1935, the left-wing International Union of Mine, Mill, and Smelter Workers initiated an organizing drive in the region that was bitterly opposed by the mine owners. Silicosis was a prominent issue, and it soon brought national attention and eventually gave rise to another conference. At this conference labor unions played a more prominent role and fresh life was breathed into the union's organizing efforts.

If there is a paradigmatic tale of occupational health, in which actors and issues appear at their assigned times and play out their roles as if in a Greek tragedy, *Deadly Dust* is it. Surprisingly similar stories—concerning the meaning of "scientific" terms and attribution of responsibility—could be and have been told about asbestos-related diseases, "black lung," byssinosis, cancers caused by occupational exposures, lead poisoning, and others, but seldom have they been presented with such attention to detail and documentation.

James L. Weeks
Laborers' Health and Safety Fund of North America, Washington, DC 20006

Donorism

Giving Blood. The Development of an Altruistic Identity. JANE ALLYN PILIAVIN and PETER L. CALLERO. With the collaboration of Louise Keating, Brian Koski, and Donald Libby. Johns Hopkins University Press, Baltimore, 1991. xxvi, 313 pp., illus. $50. Johns Hopkins Series in Contemporary Medicine and Public Health.

The structure of blood banking in the United States has changed significantly in the last two decades and seems certain to change even more. Perceived or actual risk of blood-borne infections is the primary catalyst. In the early 1970s Richard Titmuss in a highly influential book, *The Gift Relationship*, comparing the U.S. and British blood-banking systems concluded that payment for donations significantly increased the hazards of hepatitis transmission. Largely in response to that book, and at the urging of nonprofit blood banks, the federal government enacted regulations that virtually eliminated commercial whole-blood banks in the United States.

Titmuss's conclusion that the higher rates of hepatitis transmission in the United States were the result of the use of paid blood donors has since been challenged by Harvey Sapolsky (*Daedalus* **118**, no. 3, 149 [1989], who argues that transfusion hepati-

Vignettes: Complexities and Simplicities

It was once thought that science would make that mysterious and intricate complex, called Nature, somehow simpler and easier to grasp for the mind. Instead science has become a structure which, as a whole, is not at all simpler than Nature. . . . It is easier to find one's way in the woods than in botany.

—*Ludwik Fleck*, "Nauka i srodowisko," 1926, as quoted by Ilana Löwy in *Organisms and the Origins of Self* (Alfred I. Tauber, Ed.; Kluwer Academic Publishers)

In New York there are ninety different Christian denominations; each one confessing God the Lord in its own way without being led astray by the others. In science, indeed in research in general, we must achieve this, for what can it mean when everyone speaks of liberality and then wants to prevent others from thinking and expressing themselves in their own way?

—*Johann Wolfgang von Goethe*, "Ueber Naturwissenschaft im Allgemeinen," as quoted by Karl J. Fink in *Goethe's History of Science* (Cambridge University Press)

If you cannot—in the long run—tell everyone what you have been doing, your doing has been worthless.

—*Erwin Schrödinger*, as quoted in *The Business of Biotechnology* (R. Dana Ono, Ed.; Butterworth-Heinemann)