Black Lung: Dispute about Diagnosis of Miners' Ailment

Black lung is the graphic common term for coal workers' pneumoconiosis (CWP) and is usually defined as the accumulation of coal dust in the lungs that leads to harmful structural changes in lung tissue, often accompanied by disabling respiratory diseases. In 1969 Congress enacted a federal, black lung benefits program to provide special aid in the form of monthly cash payments to coal workers totally disabled by CWP as a result of their work in underground mines. Now, the rejection of more than half the 300,000 requests for federal benefits for black lung is resulting in a direct challenge by miners to the philosophy behind all U.S. workmen's compensation laws.

Apparently it is difficult to distinguish medically between CWP and other respiratory ailments. A central issue in the current dispute is that, in order for a coal worker to collect federal black lung benefits, he must show the Social Security Administration, via a chest x-ray, that he has coal dust in his lungs. Social Security holds the chest x-ray to be the only way to determine that a miner's disabling lung disease is caused by his on-the-job exposure to coal dust.

Miners and their allies contend that the cause-effect link demonstrated by mandatory x-ray cannot be strictly adhered to for CWP. The requirement, miners say, stems largely from traditional U.S. philosophy governing workmen's compensation which requires that there be demonstrable direct connection between a person's disability and what happened at work.

The challenging of the cause-effect clause in the federal black lung program has drawn the attention of President Nixon, who has made it known that he opposes any attempt to alter the traditional basis of workmen's compensation laws. "I want to emphasize very strongly," the President said in a statement in 1969 on signing the bill setting up the program, "that Title IV [the black lung program] is temporary, limited, and unique and in no way should it be considered a precedent for future federal administration of workmen's compensation programs."

The cause of CWP is difficult to pinpoint partly because medical knowledge of the complicated disease is limited and uncertain. Physicians are still not even sure of CWP's full effects and precise symptoms. Shortness of breath, coughing, and wheezing—common symptoms among miners—do not necessarily denote CWP. These symptoms are nonspecific and can be caused by several other respiratory diseases. At a conference on black lung in New York City (see box, page 134), some scientists pointed out that black lung, as it is classically known, is just one of the chronic respiratory afflictions of miners, others being emphysema and chronic bronchitis. Furthermore, occupational influences are not easily separated from other influences such as general air pollution, cigarette smoking, and individual susceptibility.

Some physicians and miners have argued that Social Security should stop trying to assess cause and should not rely on the x-ray—which served as the basis for 62 percent of the rejected federal claims filed as of 30 April 1971—as the sole reason for the denial of black lung disability requests. A miner who cannot walk across a room, the critics of Social Security say, should not be denied federal black lung benefits simply because he does not have a positive x-ray.

Disabling lung impairment is determined not by x-ray, but through pulmonary function tests. These tests are used for diagnosing disability, but, as physicians point out, the tests cannot indicate the cause exactly. The important point, most physicians concede, is that coal miners unquestionably have an excess of respiratory disease symptoms and impairments. If a miner with a disabling lung disease has spent a number of years in an underground mine and displays symptoms like shortness of breath, critics of Social Security say, he should get compensation because in all probability his impairment is due to his mine work.

Congressional sponsors of the original black lung benefits program recently introduced legislation that, if passed, would prevent Social Security from denying claims solely on the basis of a chest x-ray. A group of eastern Kentucky miners filed a suit in U.S. District Court in August, asking that the x-ray cease to be the sole basis for denial of black lung disability claims. The court suit points out that the x-ray requirement was not in the original law, but was written into the regulations for administering the law by the Department of Health, Education, and Welfare, of which the Social Security Administration is a part.

Miners contend that the black lung program was specially designed to give them much needed financial relief, and that Social Security has used the scientific confusion as a means to thwart their efforts to receive benefits.

Scientific knowledge of black lung disease is inadequate largely because it was only recently that the medical profession and U.S. government acknowledged black lung as a major medical problem among coal workers. The British identified black lung as a separate and distinct disease in the 1940's; up to that point, black lung, which had been first detected in the early 19th century, was held by most medical and government officials to have no relation to coal dust. The U.S. medical profession was largely won over after an x-ray study in the 1960's revealed CWP in miners who worked with coal relatively free of silica, the previously believed cause for lung disease prevalent among miners. In the past, it had been widely held in official medical circles that miners did not suffer from lung diseases in any greater proportion than nonminers. In fact, as late as 1956, a respected U.S. textbook stated that coal dust actually benefited coal workers by preventing tuberculosis.

Compensation and preventive measures continued to lag in the United States until a disastrous mine accident in 1968—which had nothing to do with black lung disease—claimed 78 lives in Farmingdale, West Virginia. The incident resulted in the enactment of the Federal Coal Mine Health and Safety Act of 1969 which, among other things, provided for the unique federal black lung program.

In their effort to demonstrate the inadequate execution of the federal black lung program, critics point to the fact that coal workers from Pennsylvania, which has had a state black lung com-

pensation program since 1965, have been far more successful in qualifying for federal benefits than miners from West Virginia and Kentucky. Among those who applied for federal benefits as of 30 April 1971, Pennsylvania had 33 percent of its applicants rejected while in Kentucky and West Virginia 78 and 62 percent, respectively, were turned down by Social Security.

The wide disparity, miners say, is because, unlike the states of West Virginia and Kentucky, the State of Pennsylvania and its medical profession are not dominated by the coal industry; therefore Pennsylvania has adequate medical facilities for black lung examinations, and its miners are assured of fair medical evaluations.

A report compiled by the General Accounting Office on the disparity said that Pennsylvania miners had an advantage over others in that much of their already compiled state evidence could be used for federal claims and that applicants from Pennsylvania had, on the average, spent a greater number of years underground and frequently mined a form of coal more likely to induce CWP.

But even some Pennsylvania miners have found it harder to qualify for federal benefits than for their state black lung aid. Of those who applied for federal benefits, one out of five that had been awarded Pennsylvania state aid, according to the director of Pennsylvania's division of occupational health, were refused federal benefits for black lung disability by Social Security.

Social Security is also criticized for its failure to provide adequate medical facilities for lung impairment tests and for permitting physicians untrained in diagnosing pulmonary impairment to test and evaluate coal workers' disability claims.

"The coal industry runs this state," Arnold Miller, an ex-miner from West Virginia told *Science*; "it's difficult to find a doctor in the coal fields who will be just fair." In West Virginia, said Miller, who heads the national Black Lung Association, 12 miners who showed negative chest x-rays during a government-sponsored examination turned up severe CWP on x-rays taken by a private physician. In Kentucky, according to a local miner spokesman, a miner who was considered to have CWP as a result of an x-ray in 1968 for an insurance claim, had a government-sponsored x-ray examination in 1970, but the same doctor who detected CWP in 1968 could find no evidence of the disease on the government x-ray. Once contracted, CWP remains in coal workers' lungs for life.

Applications for federal black lung benefits have exceeded even the top predictions of miner spokesmen. As of 1 September 1971, Social Security had received a total of 320,000 applications out of which 145,000—slightly less than half—had qualified for benefits. Many of the successful claimants have been widows, who are eligible for benefits if they can prove that their husbands' deaths resulted from black lung. Living miners, in order to collect benefits, must be "totally disabled," that is, unable to engage in any gainful work. Most of the applicants come from the depressed Appalachian coal fields of Kentucky, West Virginia, and Pennsylvania. Most are jobless and poor.

The average monthly pay of a working coal miner is about $700 a month. The most a miner can get under the federal benefit program is $306.10, and that amount only if he has a wife and two dependent children. Black lung benefits, one ex-miner told *Science*, "are a little above the poverty level."

Social Security maintains that its testing program for CWP has been "adequate in terms of quality of exams and reports." In all cases, Social Security determines disability, but it gets the actual x-ray film only in controversial cases; thus, in most instances, the evaluation of the x-ray by local physi-

Outstanding Science Library to Close

Unless nearly $1 million can be raised in the next few months, the New York Public Library's Science and Technology Division, one of the world's major collections of scientific material, will be closed to the public on 1 January.

Despite its name, the New York Public Library, at Fifth Avenue and 42nd Street, receives only a small portion of its funds from public sources. The largest part of its income is the interest on its $60 million endowment. In recent years, however, the library has fallen into an ever-increasing financial crisis, first necessitating a cutback in hours to the point where the library is now open only from 10 a.m. to 6 p.m. on weekdays, and then the impending cancellation of all services at the Science and Technology Division, as well as at the collections at the Lincoln Center for the Performing Arts.

Robert Grossman in *New York Magazine*

According to officials of the Science and Technology Division, the closing would mean that the 300 readers and researchers who visit the division daily, as well as 100 or so telephone reference requests, would be turned away.

According to Robert G. Krupp, chief of the division, the collection in some respects surpasses the Library of Congress, in that it contains millions of dollars worth of rare books and journals. "We're hoping for funds from the organizations that use us as a last resort collection," Krupp told *Science*. These include large corporations and universities. But to date, no money has been forthcoming.

If it is necessary to close the division to the public, Krupp said, the staff will continue collecting materials and maintaining the collection. "If we ever stopped doing that," he said, "it would be an irreversible decision."—R.J.B.

Scientists Meet Coal Miners

New York. When the coal miners arrived at the posh Starlight Lounge of the Waldorf-Astoria Hotel, the speaker at the conference inside was discussing the atomic absorption spectroscopy of coal dust, but the miners had other things to talk about. Some 40 of them, all residents of Appalachia and all suffering from pneumoconiosis—the dreaded black lung disease caused by years of inhaling coal dust—paid an unexpected visit on 13 September to the New York Academy of Science's International Conference on Coal Workers' Pneumoconiosis to press demands for adequate diagnosis and just compensation for black lung victims. Their action was sponsored by the Black Lung Association, a grass roots miners organization that sustained a month-long strike of West Virginian coal mines in 1969 to force the state to pay higher compensation to victims of the disease.

At first, conference officials tried to turn the miners away: "It's a pretty high-level scientific conference . . . you'd be bored . . . and anyway, the program is full."

But the miners persisted. "Us being coal miners," said Hobert Grills, the chairman of the Black Lung Association in Harlan County, Kentucky, in a soft mountain drawl, "We think we know as much about the disease as the scientists."

Indeed, the complaint of the miners—that the disease is often not diagnosed properly—closely paralleled one of the principal scenes of the conference. For the scientists, the problem, discussed at length at the conference, is the complex etiology and physiology of black lung, including its interrelation with the other ailments afflicting miners that often make it impossible to say for sure whether a man has this disease. For the miners, the problem is that they cannot get compensation, even when they are short of breath and unable to work.

Once allowed to address the meeting, Grills said that "the majority of doctors in the coal-mining areas are not on the miners' side. The coal miners have been done wrong by crackerbox breathing tests and snapshot x-rays." Grills was referring to the two types of tests used by the Social Security Administration to test miners for benefits under the 1969 Coal Health and Safety Act. All of the miners and a good number of the scientists at the conference believe that the two tests often fail to detect serious cases of pneumoconiosis.

Another speaker from the Black Lung Association, William Worthington, a veteran of 34 years in the mines, told the conference that the miners "don't want anybody to give us anything. We're proud of our identity as coal miners, even if we're disabled. But if we have the disease, then we deserve to get paid." Both speakers called for special miners' clinics near the coal fields to test men for black lung and a replacement of the x-ray and breathing tests with more sophisticated blood-gas tests. The miners quietly left the conference after making their presentation.

The reaction of the scientists to the intrusion of some of the men whose problems they were discussing varied from disgust to jubilation.

Conference Chairman Irving J. Selikoff, of Mount Sinai Medical School, said that the working population was really the constituency of the conference. "It's good to have them here," he said. "By upsetting the scientific calm, they should impress on the scientists the immediacy of the problem."

At a press conference held at the conclusion of the meeting on 17 September, Selikoff announced that the consensus of the delegates at the conference was that the "x-ray as the sole determinant of black lung disease will have to be reevaluated."

Because the conference was "a group of individuals," he left off there, and the conference made no specific recommendations for government action.—ROBERT J. BAZELL

cians figures heavily in the final disability decision.

Social Security has been accused of giving lung impairment tests that are very unlikely to turn up CWP-induced disability. A West Virginia specialist in pulmonary disorders contends that miners suffer most from an inability to transfer oxygen from the lungs to the blood stream—a defect that shows up in lung tests more complicated than the simple "breathing tests" ordinarily required by Social Security which only evaluate the ability to breathe air in and out. Many miners, spokesmen say, repeatedly score well on "breathing tests"—thereby having their benefit claim rejected—while they are found to be totally disabled on the more complicated tests for lung function.

These findings have caused Social Security to undertake a "pilot project" to find out whether "additional methods" and better medical facilities can be set up in Appalachia for the evaluation of total disability. Meanwhile some miners will continue to suffer from officials' difficulty in reconciling the letter and spirit of the law.

—JOE PICHIRALLO

APPOINTMENTS

Robert E. Keohane, acting dean, Shimer College, Illinois, appointed dean of the college. . . . **Egon Brenner**, dean of graduate engineering, City College, City University of New York, to dean, School of Engineering at the college. . . . **Arthur Grad**, dean, Graduate School, Illinois Institute of Technology, to president, Polytechnic Institute of Brooklyn. . . . **Richard R. Bond**, vice president and dean of faculties, Illinois State University, to president, University of Northern Colorado. . . . **Wharton Shober**, president and chief executive officer, Joshua B. Powers, Inc., New York, to president, Hahnemann Medical College and Hospital. . . . **Elliot H. Weinberg**, director, physical sciences division, Office of Naval Research, Department of the Navy, to director of research, ONR. . . . **J. Leonard Azneer**, professor of education, Youngstown State University, to president, College of Osteopathic Medicine and Surgery, Iowa. . . . **John O. Eidson**, president, Georgia Southern College, to vice chancellor, University System of Georgia.