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Asbestos Research
WINNING THE BATTLE BUT LOSING THE WAR

When it comes to coverups, the leaders of US industry make the Watergate conspirators look like a bunch of amateurs. While the Watergate coverup quickly was uncovered, industry has been successfully engaged in covering up occupational and environmental hazards for decades. In so doing it has used medical science to back up its traditional weapons of economic and political power.

The tobacco industry, for example, responded to reports of a link between smoking and lung cancer by funding scientists whose studies invariably found smoking safe
or the evidence for a link to cancer inconclusive. (1) When this tactic no longer worked, industry poured more money into research to fund studies that would draw attention away from the obvious problem, how to curb cigarette consumption. In 1972 industry spent $23 million on research compared to $2 million spent by the US government. (1, 2) As a case in point, Harvard Medical School recently accepted a $23-million grant from eight tobacco companies to study “environmental influences on the lung” and “co-factors” that may trigger lung damage from smoking. (3) By the very definition of the problem, the results of the study, no matter what their technical quality, cannot help but shift attention away from smoking itself.

The plastics industry recently engaged in a classical coverup of polyvinyl chloride hazards. It simply suppressed information for three years that polyvinyl chloride causes liver cancer in rats. (4, 5) Only when three workers died of liver cancer in B.F. Goodrich’s Louisville, Kentucky plant did industry finally admit knowledge of the hazard.

The grandaddy of occupational health coverups, however, is the coverup by the asbestos industry of asbestos hazards. A London physician first reported asbestos disease back in 1900. (6) A historical review of research papers on the subject since then reveals industry’s strategy: Ignore the problem, then minimize or deny it and when all else fails try to shift the blame.

But industry cannot pursue its aims without help from others—doctors, research scientists and academic institutions. In the case of asbestos, scientists and institutions whose research was funded by industry have consistently found asbestos blameless or not a serious hazard, while those not so funded have just as consistently found it to be a dangerous, unhealthy material.

What strategems were used by medical scientists to design and execute studies that apparently exonerated asbestos? How and where did industry locate these pliant individuals? What impediments did non-industry scientists face in gathering information on this occupational hazard? And why didn’t the non-industry scientists bring this situation to public attention sooner?

The answers to these questions illustrate the extent to which occupational and environmental health science is for sale in this country. In a more subtle way, they indicate

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how industry-sponsored research shapes the way scientists look at a problem. Thus even those not biased in favor of industry must work in a scientific context largely shaped by industry—refuting objections raised by industry, examining questions posed by industry, battling with scientists paid by industry. And this takes place within an even larger social and economic context dominated by industry's vast resources of money, influence and information.

Under these circumstances scientists who have not sold themselves to industry have often desperately tried to pursue neutral scientific inquiries in a social setting that is anything but neutral. Not understanding how industry controls the contours of the situation, they generally, as we shall see, limited their debate to scientific journals while workers and the general public were largely kept unaware of the hazards that had been uncovered, thus allowing industry to continue on its merry way.

The evidence in support of these conclusions was gleaned from a study of over 200 medical articles on asbestos published in the US, Canada and Great Britain before 1974. These represent the vast majority of papers printed on the subject in the English language. Papers were located and designated as industry-sponsored or not according to procedures listed in the Note on Method. Roughly one-third were funded by industry.

**ASBESTOSIS: THE FIRST COVERUP**

Asbestosis is a lung disease similar to coalminers' black lung, caused by scar tissue forming around asbestos fibers trapped in the lungs. Its earliest symptoms appear mild—a slight, persistent cough and shortness of breath upon exertion. It usually develops about ten or more years after the victim's first exposure to asbestos dust. If dust exposure continues, the disease can eventually lead to serious lung damage and death, triggered either by common pulmonary infections or by heart failure from overwork of the organ in pumping blood through the diseased lungs.

**Ignoring the Problem**

For three decades the asbestos industry simply ignored reports of occupational disease from the so-called "magic mineral." The first case of asbestosis was diagnosed by a London physician in 1900. (6) The doctor did not even see fit to publish this medical first in a scientific journal; he just reported it to a government commission, which interred the report in its official records. (7) It lay unknown to the medical community for more than two decades.

But what doctors did not know, the asbestos industry certainly did. In 1918, US and Canadian insurance companies stopped selling personal life insurance policies to asbestos workers (8)—a fact of which Johns-Manville and other asbestos manufacturers must certainly have been aware. Many workers, according to later physicians' reports, discovered the hazards of the job soon after being hired and left shortly (9, 10)—again a fact which the companies must have known.

The medical profession rediscovered asbestosis in 1924, when Dr. W. E. Cooke reported in the *British Medical Journal* the death of a 33-year-old woman who had worked since age 13 in an asbestos factory. (11) On autopsy, he found massive deposits of asbestos dust in the woman's lungs. Eleven more such case studies were published in Great Britain during the 1920's. They were reported by pathologists at hospitals in London and Wigan and at medical schools in Leeds and Durham. Many victims
had prior cases of tuberculosis and died within a few years of being hired. But in some cases asbestosis was found at autopsy with no sign of tuberculosis, unequivocally implicating asbestos itself as a cause of the disease. (12, 13)

On this side of the Atlantic, the first case history of asbestosis in the United States was reported in 1930 at the Mayo Clinic, where an autopsy on a cardiac victim revealed heart failure due to asbestosis. (14) In the same year a pathologist at Yale reported another case. (15) By 1935 a total of 28 asbestosis cases had been reported in Great Britain and the United States. (16)

**Minimizing the Problem**

After years of doing nothing, the US asbestos industry in 1929 responded to the drumbeat of medical reports by commissioning the Metropolitan Life Insurance Company to conduct a study on asbestosis. (17) Met Life was assisted by the Department of Public Health at McGill University in Montreal (18), whose cozy relationship with the asbestos industry will be discussed later in this article.

Medical examinations were conducted between 1929 and 1931, but the results were not published until 1935. A total of 126 asbestos workers were selected at random from five plants and mines in the US and Canada, mostly Johns-Manville facilities. 67 of the 126 workers examined were classified as positive cases of asbestosis, 39 as doubtful and only 20 as completely free of any sign of asbestosis. (17) On their face, these figures represent an epidemic of disease. Calculated as percentages, the findings showed 53 percent of the workers having asbestosis, 84 percent with some signs of disease (positive plus doubtful) and only 16 percent with no signs of asbestosis at all. Amazingly enough, however, the authors did not even publish these percentages, so devastating is their impact. Rather, they simply listed the number of workers in each category and hurried on without comment. Short of suppressing the data, they could have done no less.

In addition to minimizing the incidence of disease, the authors also minimized its severity. Time and again, the authors reiterated that the workers appeared healthy, that they were not disabled. Yet their own paper presents evidence to the contrary. Out of 121 physical examinations, 96 workers (79 percent) complained of persistent coughing or shortness of breath, typical early symptoms of asbestosis. But the authors summarily dismiss the response: “Too much emphasis should not be placed on statements of subjective symptoms.”

The US government served as handmaiden to industry in this case by publishing the Met Life study as a Public Health Report of the US Public Health Service. This gave the study the imprimatur of the federal government despite its genesis in industry, its industry funding and its appalling pro-industry bias. (17) Few actions more clearly illustrate the interlock between industry and government.

**Science and Politics**

In 1931, the British government made asbestosis a compensable disease under its workmen’s compensation laws, and some preventive measures were taken to limit worker exposure to asbestos fibers. In the US, where both workmen’s compensation and occupational health programs were under state jurisdiction, similar actions were not taken until the 1960’s.

More important, in neither country did the hazards of asbestos become a major public issue during the 1920’s and 1930’s. Discussion was largely confined to scholarly medi-
cal journals and later to government bureaucracies. The doctors and scientists who uncovered asbestosis did not draw out its economic and political implications in their published papers, although such journals were their main national and international forum for presenting their findings. To be sure, almost all the papers reflected a humane concern for the afflicted workers. But occasional appeals for help in dealing with the problem were invariably directed to industry, whose self-interest was to minimize the hazard and clamp a lid on a public discussion that might alarm workers and customers. Instead of quixotic appeals to industry, what was called for was public, political discussion on controlling the hazards of asbestos—eliminating all unnecessary uses of the material and controlling exposure when its use was mandatory.

This failure to develop public debate about asbestos planted the seeds of our present failure to cope with the problem. Today asbestos, with its thousands of uses in homes and industry, has insinuated itself so thoroughly into daily life that it is difficult to conceive of eliminating its widespread use any more than we can contemplate giving up the automobiles that pollute our air and waste our energy resources.

But back in the 1920's and early 1930's, when asbestosis reared its head as the first of many asbestos health hazards, the asbestos industry was small and the uses of the material still limited. Manufacture of asbestos in commercial quantities only began in the first decades of this century—Johns-Manville was founded in 1901 (20) and the largest British Company, Turner Brothers, in 1916. (21) World production of asbestos in 1920 was only 200,000 tons, 5 percent of present production. In 1925 Johns-Manville's total sales were only $40 million. (20) And as late as 1933, according to a British government report, only 35,000 to 40,000 people throughout the world worked with asbestos. (22)

Before World War I transite water pipe (water pipe strengthened by asbestos) had not yet been developed; today it is the single major use of asbestos. Asbestos insulation for ships did not come into widespread use until the shipbuilding boom during World War II, when several million shipyard workers were exposed, many with dire consequences. (23)

LUNG CANCER: MORE OF THE SAME

In 1935 two doctors at the Medical College of South Carolina reported an autopsy on an asbestos worker who had both asbestosis and lung cancer. (24) Other cases followed, and by 1942 ten had been reported. (25) It appeared that the incidence of lung cancer

Note On Method

A study was made of about 200 medical articles on asbestos published in the United States, Canada and Great Britain before 1974. The search was begun using bibliographies published in the 1972 NIOSH criteria document on asbestos (8), the 1971 National Academy of Science report on asbestos (59) and a computer search of materials in the New York State medical library system. These were supplemented by references found in the original articles. All but about 30 references were found. Articles were designated as industry-sponsored if one or more of the authors gave a company address in the paper, if a grant from an industry or an industrial association was acknowledged in the paper or if the paper was part of a series in which the initial paper acknowledged industry support. In a very few cases papers were listed as industry-sponsored when they were reported as such in "History of Johns-Manville Research," published by the company for the 1972 OSHA hearings on asbestos (18), even though the papers themselves did not acknowledge this support. (This omission has occurred more often in recent years as asbestos has come under increasing attack as a health hazard.) Papers reported at international conferences were excluded from the tally of industry and non-industry articles since new material was invariably published elsewhere in the literature and many papers comprised general talks that offered no new data.
among asbestosis victims was unusually high, leading to the suspicion that asbestos causes cancer as well as asbestosis. Since the asbestos industry was already under attack in the 1930's because of asbestosis, it did not ignore these reports as it had done so long for asbestosis but quickly shot back a denial that asbestos causes lung cancer.

**Denying the Problem**

The industry position was presented in a 1938 paper by Arthur Vorwald and John Karr (26) of Saranac Laboratory, a tuberculosis facility in upstate New York. The paper did not speak of industry sponsorship, but the relationship among Vorwald, Saranac and the asbestos industry was longstanding. Between 1930 and 1946 Saranac was the site of animal studies by L. U. Gardner, funded by the Quebec Asbestos Mining Association (QAMA), on the effect of asbestos on tubercular and normal lungs. (27, 28) After Gardner's death in 1946, Vorwald became director of the Laboratory and continued Gardner's animal studies under QAMA sponsorship. (29) Johns-Manville Corporation in its *History of Johns-Manville Research* points proudly to its long association with Saranac.

Vorwald and Karr dismissed the case studies linking lung cancer with asbestosis because the group of workers examined, asbestosis victims, were not a typical, random group of asbestos workers. It was quite possible, they argued, that asbestosis victims might be especially susceptible to lung cancer.

Based on medical knowledge at that time, the Vorwald and Karr argument could not be dismissed out of hand. Scientists could not definitely prove or disprove the lung cancer-asbestos link based only on case studies of asbestosis victims. What was clearly called for was a large-scale, plant-wide study—an epidemiological study in which an entire population of workers employed at some particular date was followed for a period of years and all cases of disease recorded. But the Catch-22 was that the asbestos companies had custody of the personnel records on which such a study would necessarily be based, and they did not want the study to be conducted. Scientists did not protest the industry's denial of access to this information or insist in their scientific papers that epidemiological studies be carried out.

True to their professional codes, they kept silent. So nothing happened—except 20 more years of growing profits for the asbestos industry.

Despite more evidence of lung cancer among asbestosis victims after World War II (30, 31), industry kept silent. Then in 1955 a British scientist conducted the plant-wide study that was clearly called for in 1938, and found an unusually high rate of lung cancer among all asbestos workers. (32) The scientist, who was a member of England's prestigious Medical Research Council, drew his data from records kept by the British government after enacting legislation on asbestos in 1931.

**Still Denying the Problem**

In what for them was a lightning fast response, the Quebec Asbestos Mining Association commissioned a study the next year of lung cancer among asbestos miners in Quebec. This was 21 years after the first reports linking asbestos and lung cancer. What industry badly wanted was a whitewash job—and it got one.

The study was conducted under a QAMA grant by the Industrial Hygiene Foundation (IHF, now called the Industrial Health Foundation). IHF, located in Pittsburgh, performs occupational health studies for corporations. It is openly pro-management (see BULLETIN, September, 1972), and is supported almost entirely by major US industries. Within the last decade it has become affiliated with the Carnegie-Mellon Institute, a small, prestigious university in Pittsburgh, and has maintained close ties to the Department of Industrial Health at the University of Pittsburgh. (Most IHF senior staff hold appointments at the University of Pittsburgh.)

As in the asbestosis case, the contrast is striking between the enormous size and scope of this experiment and that of the non-industry case studies—a fact that lent credibility to the industry study. The IHF investigation was an epidemiological study of a group of 6,000 asbestos miners from the two largest mines in Quebec. All workers with five or more years of exposure who were on the employment rolls in 1940 were followed until 1955, and their medical records, death certificates and insurance records examined for evidence of lung cancer.

(Continued on page 20)
Oil Refineries

The petroleum industry is hated by millions of Americans. Oil-soaked beaches, air pollution, high prices and exorbitant profits are among the abundant reasons for the public's justified anger.

Oil refinery workers have also traditionally not been enthralled with the industry. A primary reason is that refinery workers spend much of their lives working amidst toxic fumes, vapors and dusts, oppressive heat and deafening noise. Most directly of all Americans, they face the lethal consequences of the industry's drive for maximum production.

The oil companies attempt to instill an image of oil refinery operations as devoid of human labor power. While this image is untrue—almost 90,000 workers are now employed in US refineries and more will be in the future due to new construction—it serves a useful purpose for the industry; this image conceals the fact that technological progress under capitalism has brought not safer workplaces but increased disease and death.

The Bad Old Days

Refineries operating at the turn of the Century were extremely hazardous places. The occupational dangers of running a new industrial technology involving flammable liquids and vapors at extreme temperatures and pressures were learned through experience. Explosions and fires were frequent.

On the 15th of July, 1915, the still cleaners at Standard Oil's Bayonne, New Jersey refinery walked off their jobs. (A still is a distillation chamber.) They struck in part over demands for better working conditions. Five days after the strike began, the New York Times reported that even the scab still cleaners hired by Standard had quit because they "found those conditions unbearable." (1) The still cleaner's job was particularly perilous. Dressed in an asbestos suit for protection from heat as high as 250 degrees Farenheit, it was their responsibility to chip away at the coke that remained on the surfaces of the chamber once the gasoline had been separated out. Paid $2.00 to $2.40 a day for their labor, stillmen probably developed black
lung, the disease of the coal miner, from constant exposure to coke dust.

The workers at the Bayonne refinery struck because the company forced them to enter the stills before they were safely cooled. For every minute the stills were shut down, Rockefeller and Standard Oil lost profits. The strike was eventually lost by the workers, whose ranks were broken by the company through the use of an army of strikebreakers, police and the courts. The strike left nine workers dead and about 50 injured. Still it was the beginning of strikes in the oil industry for safe working conditions.

In the not-so-good old days, exposure to hazards was not limited to the still workers. A corporate history of Standard Oil of Indiana describes another process at the refinery as follows: "The noxious sulphur dioxide produced in roasting the copper sulphide and the fine floating dust made the millhouse an inferno. It was the dirtiest and most unhealthy work in the refinery... The work was done mostly by foreigners. Workmen had to wear respirators, and most men could stand only a few days of it. If they stayed too long, the fumes ate the skin off their faces, turned their hair green, and made their eyes bloodshot. One of the great curiosities about the refinery was an old white horse that hauled the copper sulphide to the dump. Its white hair had turned green." (2)

"I think you need recognition of the fact that every plant is in business to make money, and it takes a team effort. Oil is not our product; money is."

William Miller, Sun Oil Company
National Petroleum Refiners Association
1973 Refinery Maintenance Conference

In 1941, H. N. Blakeslee, then Director of the Department of Accident Prevention for the American Petroleum Institute, the industry’s trade association, looked back at early refinery work: "Twenty-five years ago it was customary for men cleaning tanks to work in relays. Each man came out of the tank as he became dizzy from breathing the vapour. He would rest for a short time until his dizziness had passed and then replace some other man in the tank. Occasionally, a man stayed too long and had to be dragged out and revived by artificial respiration, that is, if someone were present who knew how to perform artificial respiration... . Some refineries even maintained rescue squads to do the rescue and resuscitation work. An individual attached to one of these squads says that rescues became so common that they ceased to be exciting." (3) One of the few statistical indications of the high refinery accident rates at that time came from the Baytown, Texas oil refinery of Humble Oil Company, where in 1920 there were 2,266 accidents among a thousand employees. (4)

The Worse New Days

In the old days a typical oil refinery was identified by the great black clouds of dense smoke pouring forth from its stacks. Today refineries look a lot cleaner with little visible evidence of pollution.

Open tanks of toxic chemicals have generally been replaced by mazes of pipelines and closed vessels. Because oil may continuously flow from one unit to another by pushing a button, there is thought to be less worker exposure to dangerous chemicals. For those workers who, like the stillmen and tank cleaners of old, are exposed to toxic agents, modern respirators offer protection.

Despite this reassuring appearance, oil refineries may actually be more dangerous workplaces today than they were in the first half of the 20th Century. Not only do workers still face the likelihood of fire and explosion, they are also exposed daily to a vast array of toxic agents, among them chemicals that can asphyxiate and produce skin and lung diseases and cancer.

These occupational safety and health problems have become more severe since World War II. During and immediately after the war years, new processes based on new technology were introduced to increase production of petroleum products. Yet after the widespread use of the new technology began and refineries grew in size, the industry drastically reduced the size of the refinery workforce and the level of maintenance. While these two factors account for the occupational dangers of the American oil refinery, a more basic explanation is the profit maximizing goal of industry.
Between 1946 and 1971, United States consumption of petroleum products rose from under five million barrels per day to over 15 million barrels per day, an increase of 200 percent. This growth reflects increased demand created by World War II and the Korean War for high-octane aviation fuel; increased air travel, which brought greater demand for kerosene-based turbine fuel; the replacement of coal with oil; and construction of large buildings that used residual fuel oil for heating. Post-War highway construction increased demand for asphalt, and the development of a huge petrochemical industry—making thousands of petroleum-based products, from plastics to synthetic fibers, out of feedstocks such as liquefied petroleum gas—also contributed to industry growth.

The single most important reason for the growth in demand of petroleum products, however, has been the increasing reliance on motor vehicles as the dominant means of transportation. In 1940, the motor vehicle to people ratio was 1:4; in 1950, 1:3; and by 1970, 1:1.9. This trend resulted in an increase of over 200 percent in gasoline demand between 1946 and 1971.

Technological change and expansion of capacity have enabled U.S. refineries to increase their input by almost 225 percent between 1946 and 1971. Thus an understanding of the industries' new health and safety hazards depends upon an understanding of the technological changes responsible for increased production and profits.

Technology to the Rescue

Before World War II, the petroleum industry's profits were limited by relatively simple refining techniques; only a very limited quantity of hydrocarbons suitable for direct use in high-octane aviation fuel and motor gasoline could be refined out of a barrel of crude oil. But with large military demands for aviation fuel and with motor-vehicle gasoline in short supply and high future demand being predicted, the industry developed the technology to produce increasingly profitable "light ends," such as gasoline and natural gas, and less of the not-so-profitable heating oils, a trend that has continued to the present. Of the new processing methods the most important has been catalytic cracking (cat cracking).

The appeal of catalytic cracking to the industry is its ability to make more gasoline more efficiently from a wide variety of feedstock materials. The method involves the breaking down of large hydrocarbon molecules into new compounds which may vary from simple hydrogen gas to gasoline to heavier fuels.

In this process, a catalyst and hot oil vapor are mixed and then heated to a high temperature in a large reactor vessel where the oil breaks down into lighter products. Catalyst and vapor are then separated, the catalyst flowing into another large vessel, the regenerator, and the oil vapor further separated by distillation into its various fractions. In the regenerator, the coke that had formed on the catalyst during the earlier stage is burned off. The regenerated catalyst is then recycled to the reactor for more contact with oil vapor, and the process begins again.

Catalytic cracking found its first application during World War II in the manufacture of aviation gasoline. Today it is the most important process used to make automotive gasoline. The early history of the process' introduction suggests why new technology in the oil industry is associated with increased work hazards.

In 1942 Standard Oil (New Jersey) built the first commercial fluid catalytic cracker (FCC), the type of cat cracker most commonly used today, after cooperating on research and development with six other oil companies. One estimate suggests that between 1928 and 1952, $50 million was spent on the development of the fluid type unit alone. The development of the fluid catalytic cracker has been described as a project smaller only than the building of the atomic bomb.

In the rush to get new units in operation, some things were neglected. Errors in design had to be corrected on units in service, not just in future models. The impact on the health of refinery workers brought about by this new process would not be considered by the industry until cat crackers had been operating for a number of profitable years. Even
today, although catalytic cracking remains the most important refinery process, all the long-term effects of these units on the health of those working in or living near the refinery are still not known. There are, however, some worrisome clues.

**Cat Cracking and Cancer**

By the turn of the Century it was known that exposure to certain petroleum products, such as wax paraffin oils and cutting oils, could cause cancer. (14)

In 1942, the same year the first commercial catalytic cracking unit went into operation, scientists at the Barnard Free Skin and Cancer Hospital in St. Louis, Missouri found that samples of some high boiling catalytically cracked oils caused cancer when applied to the skin of mice. (15) In 1945 the carcinogenic (cancer-causing) properties of these oils were confirmed in other experiments. (16) In 1947, five years after the introduction of the catalytic cracking unit, scientists in the Medical Department of Jersey Standard Oil concluded that "... a potential cancer hazard existed where man came in contact with these oils." (17) And in 1951 Standard reported that measures for minimizing worker exposure to carcinogenic oils, such as better personal hygiene practices, keeping units closed and painting pipelines containing these oils orange had been instituted. (18) While it is unclear to what extent carcinogen exposure was really minimized at Jersey refineries, it is certain that other oil companies did little or nothing to prevent contact with such potentially hazardous hydrocarbons.

Yet the industry was worried about the problem; it was one that could threaten its use of what was fast becoming the most important and perhaps most profitable refinery unit. Prodded by the earlier efforts of Jersey, the American Petroleum Institute (API), the industry’s trade association, funded a study in 1949 at the University of Cincinnati’s Kettering Laboratory to find out the cancer-causing potential of intermediate and finished petroleum products. (19) To do this, the Kettering researchers experimented with mice and surveyed company medical departments to find whether cancer was a problem afflicting refinery workers.

The Kettering scientists tested about 120 different oil fractions by applying them to the skin of mice and then observed whether, and within what period, cancer developed. Mice rapidly developed cancer from some fractions, confirming the results of previous research by Standard. The primary carcinogenic agents in these oils were found to be certain polycyclic aromatic hydrocarbons. According to the study, the new catalytic cracking processes produced greater concentrations of these carcinogens than did the older thermal cracking processes, which were increasingly being replaced by catalytic units. (20)

The most potent carcinogens—the ones that most rapidly caused tumors in mice—were located in the heavy gas oils and residual products of catalytic cracking. A potential danger also existed at all refinery units processing oils distilling at over 675 degrees Fahrenheit (including crude distillation), or near pipelines transporting these fractions. In final products, potent carcinogens were found in the heavy gas oils used for fuel in power plants, ships and large buildings.

**The Subversion of Research**

While experiments with mice and analysis of carcinogens in petroleum fractions could help define a potential health problem for humans, API’s Medical Advisory Committee wanted to know how many refinery workers actually developed cancer. In 1950 the Committee sponsored an epidemiological study to determine the number of workers who had developed cancer. (21) The Kettering Lab collected records of cancer cases from company files and began a current case registry, a central file for keeping and analyzing cancer records as cases are found. Initially 1,200 cases were received from 14 companies. (22) These cases formed the historical survey. Six years later, only 2,108 individual case records had been sent to the current case registry. (23)

The low number of reported cases did not prove that workers were at low risk; the explanation was that the oil companies refused and/or were unable to cooperate with the study. In 1955 a report by the Subcommittee on Carcinogenicity of the API’s Medical Advisory Committee, which supervised the project, commented: “It is ... discouraging to realize that only sixteen of twenty-five companies have participated in this effort and that in the last few years the number of participants may have diminished even more than this. For instance, in 1954 only twelve companies participated in the epidemiologi-
A careful study of this project it is doomed to failure through no fault of Dr. Phair [the scientist at Kettering conducting the study], but strictly due to the failure of cooperation on the part of the participating companies and their medical directors on the Medical Advisory Committee. . . . if we are unable to obtain cooperation the epidemiological studies might just as well be terminated.” (24)

In 1956, the Medical Advisory Committee ended the survey, concluding that there was ”. . . no evidence of occupational cancer within the population surveyed.” (25) Given the small number of cases reported due to the lack of company cooperation, the conclusion was inevitable. The conclusion also reflected the fact that, whereas it may take 20 or even 30 years after exposure for cancer to be detected, the study ended in 1956, ten years or so after the widespread use of catalytic cracking began.

“The number of people examined and found healthy by our medical physicians gives eloquent light to the fact that this is not a hazardous occupation.”


The Medical Advisory Committee, composed of oil company medical directors, did not seem particularly concerned, at least as reflected in the Committee’s minutes, about the study’s six years of wasted effort and the fact that no conclusive results were reached. But the scientists who had worked on the project were concerned and were willing to explain their failure. According to their reports, now located in the API library, marked ”For Information Only—Not for Publication,” there were two principal reasons why “active steps could not be taken”: ”. . . certain of the companies had no centralized medical department to collect the necessary data past or future,” (25) and ”. . . all outside or unusual investigations were postponed because of the high priority of technological changes in refining operations brought about by the Korean emergency. Consequently, it proved impossible to secure serious consideration of simple requests for access either to records or workers.” (27)

The first comment speaks for itself; some company medical departments were conveniently useless. The second statement is a rationalization, the use of so-called national security concerns to cover up corporate irresponsibility. Even after the Korean War, information was not forthcoming from the companies, and so the study had to be terminated.

Although much of the blame for the API study’s failure can be traced to its member companies’ uncooperativeness, some of it belongs to the shortsightedness of the scientists who conducted the research. The most distressing shortcoming was their failure to consult the workers themselves concerning contact with possible cancer-producing chemicals. Despite the scientists’ healthy suspicion that certain hydrocarbons were likely to produce cancer, their abiding faith in the good intentions of industry resulted in their falsely assuming that ”. . . high engineering standards and good housekeeping, with respect to this modern automatic equipment has, in general, restricted the contacts of workmen with these products.” (28)

But had the scientists spoken to oil workers, their suspicions would have been heightened and new research directions suggested. They would, for example, have discovered that cat crackers were not, as the industry had claimed, totally closed systems. Pumps and other equipment leaked oil mists and vapors during normal operation. They also would have discovered that during maintenance shutdown, workers enter vessels and clean pipelines where sludges or residues containing potent carcinogens remain.

In 1947, before its cancer prevention program began, Standard surveyed six of its refineries to determine how many workers were exposed to carcinogenic oils. It found that lab personnel, sample collectors, dock workers and tank-car loaders were subject to daily exposure; that cracking unit operators, tank cleaners and pilot plant operators were exposed frequently; and that maintenance mechanics and pipefitters were exposed every few days. (29)
Today—30 years after the introduction of cat cracking—the extent of the cancer danger to workers is still unknown. Certainly the industry has the economic resources to do better. Industry profits from catalytic cracking between 1942 and 1957 exceeded $350 million. (30) In contrast, the API spent less than $750,000 studying the hazards of cat cracking. (31)

Although the actual extent of cancer among refinery workers remains cloudy to this day, some frightening new evidence has been found about the health of people who lived near refineries. In 1974, three scientists at the University of Southern California School of Medicine announced the results of a study of cancer death rates among people living near refineries in Los Angeles County. They found that among males living in areas near refineries and chemical plants in 1968 and 1969, 40 percent more than the norm died as a result of lung cancer. (32)

**Dark Future**

That health and safety issues are not a vestige of the past in the oil industry can again be seen in the problems surrounding a currently intensifying hazard to oil workers—the refining of high-sulfur-contented crude oil. Much of the crude oil refined in the future is likely to be from the Middle East, South America or parts of the United States that produce crude with naturally high sulfur contents.

Depending on its source, crude may contain from 0.1 to 7 percent sulfur by weight. The removal of some sulfur during refining has been necessary to meet pollution standards for sulfur oxides, to prevent sulfur poisoning of refining catalysts, to inhibit corrosion of pipelines and processing units and to increase the octane-raising potential of lead gasoline additives.

Through a number of processes, sulfur compounds are converted to hydrogen sulfide and mercaptans (other sulfur compounds). About 50 tons of hydrogen sulfide (H₂S) are extracted from 20,000 barrels of high sulfur crude oil in processing. (33)

A description of its effects upon health is provided by Stellman and Daum in their book, *Work Is Dangerous to your Health*: “At concentrations above 700 ppm, the body cannot cope with the excess gas, which reaches the brain and causes breathing to stop. Suffocation occurs in a matter of minutes unless the victim is removed and given artificial respiration. Long-term exposure to low levels may cause chronic lung disease.” (34)

When mingling at cracking units with carbon monoxide, another chemical which deprives the body of oxygen, the combined effect can be especially dangerous. When not converted to elemental sulfur, H₂S is disposed of through burning at the flare. This releases another dangerous pollutant, sulfur dioxide.

Major disasters have occurred as a result of H₂S exposure. Ray Davidson of the Oil, Chemical and Atomic Workers Union reports one incident as follows: “In April, 1968, an accident in the American Oil Company refinery at Texas City, Texas, resulted in three deaths and fourteen injuries directly attributable to hydrogen sulfide. C. L. Lester, 28, and C. L. Wenning, 23, were sent to make a repair on a piece of refining equipment. It was supposedly clear of all fluids and gases, but somewhere along the line an error was made—H₂S in large volume was in the vessel. The two men unbolted a flange and the gas flogged out. They collapsed on a working platform twelve or fourteen feet from the...”

“In our analytical lab alone we’ve had one case of blood cancer, the man passed away. A man in another section had cancer of the bladder: it’s been removed. We have two men whose blood vessels have been eaten away due to the chemicals, and one has plastic tubes for arteries and veins in one side of his body.”

A Refinery Worker, Texaco Refinery. January, 1973
ground. Later appraisals were that they died instantly, but fellow workers who did not know this instinctively rushed to the rescue. One after another they approached the accident scene and collapsed of hydrogen sulfide asphyxiation."

More Sulfur, More Problems

Many American refineries were not built to process crude containing over 1 percent sulfur. The metallurgy of crude distillation units built to handle sweet (low in sulfur) crudes cannot withstand the corrosive action of high-sulfur, or sour crudes, which eat away at pipelines, valves and vessels. A 1973 industry survey found that in 47 of 200 refineries, crude distillation units could not resist corrosion from high-sulfur crudes. (36)

With any relaxation of air-pollution standards for sulfur dioxide, many refineries will process higher-sulfur crudes and will pollute the community as well as the workplace even more. In refineries built with special corrosion-resistant metals and extensive sulfur-removal equipment, so long as there is more sulfur in the crude, there is still a greater danger of exposure to H₂S and SO₂ gases. Additional maintenance will be required to combat greater corrosion; it is unlikely, however, that companies will hire the necessary people to do this work. Furthermore, even the sulfur-removal units installed for pollution control have their dangers. If poorly maintained, they will be a major source of additional H₂S gas.

The Economics of Maintenance

Because of industry negligence in investigating probable cancer-producing health hazards, it has not been conclusively established that such dangers exist from catalytic cracking. When it comes to unsafe working conditions caused by poor equipment maintenance, however, the record is a convincing and unequivocal indictment of the oil industry’s disregard for workers’ physical well-being.

The lack of necessary maintenance and the delays involved in the little maintenance done means that refineries, with few exceptions, are in bad condition. Workers complain that they literally live in benzene, a hydrocarbon that causes blood disease, probably including leukemia. This is due to poor maintenance of catalytic reforming units, the refinery process that produces benzene for blending into high-octane gasoline. Thousands of pounds per day of different hydrocarbons such as benzene leak from the average refinery. (38)

Although refineries have become increasingly automated during the last quarter of a century, the ability of refineries to produce gasoline and other products remains dependent on human labor. Workers must replace leaking pump packings or sulfur-corroded pipelines, clean out the lead sludge from gasoline storage tanks, soak up oil spills and rig scaffolds high against the great vessels of cat crackers. A Public Health Service study of refinery air pollution emissions says that “improved housekeeping” is “... often the only practical control method for some [pol-
sources, such as pipeline valves, pump seals, and sampling operations." (39) And a National Petroleum Council report suggests that "Processing leakage . . . is best controlled by good housekeeping to detect and repair leaking flanges, valves, and stem packing and shaft seals." (40) With explosive materials under high pressure and at extreme temperatures, refineries require an adequate number of skilled workers capable of carefully operating and diligently maintaining the complicated processing units. Yet, management has not allowed workers to operate refineries safely.

The reason maintenance is ignored is not hard to discern—it is expensive. Hydrocarbon News reports that maintenance comes to 15 percent of the total costs of refining. (41) Recent maintenance costs for Continental Oil's five US refineries have come to 13.7 percent of operating and overhead expenses. (42) Donald Hepburn, a refinery maintenance manager with Caltex, says that "Direct maintenance repair costs account for 30 to 35 percent of the controllable [emphasis added] refinery expenses." (43) Any way you measure it, maintenance costs money. While the oil companies increased the amount of oil refined by 240 percent between the years 1945 and 1971, maintenance material and labor expenditures have decreased by almost 10 cents per barrel of oil from 1946 to 1969. (44) In-plant pollution controls have not been added and working conditions have, therefore, worsened. How this affects health can be appreciated from an examination of the day-to-day problems workers face at the refineries.

Turnarounds

Refinery managements have reduced the frequency and length of turnarounds, the period when a unit is completely shut down for cleaning and repair. According to J. F. Hilton of Standard of California: "In recent years the run lengths of petroleum processing plants have increased dramatically. Not too long ago, a standard turnaround for plants was only one year. Many plants were not able to run that long. Now two or three years is not unusual, and we look forward to continuous plant runs of even longer than this." (45)

For many units, four years of uninterrupted operation has become an aim, if not a reality. At Gulf Oil's Philadelphia refinery, for example, two crude distillation units were once shut down annually; now they are slated to run for three years, although both are over 20 years old. (46)

Eugene Peer, formerly with Exxon, now a refining specialist with the Federal Energy Office, has stated that "the tendency now is to run a unit until it practically takes itself off line." (48) Old units in particular are run without maintenance until they fall apart. Management accepts the risks of sudden failure, instead of shutting units down for preventive maintenance; shutdowns are costly. To turnaround a large crude distillation unit for a week, which also shuts down units "downstream," may result in losses of over a million dollars. Standard of California reported a few years ago, before oil prices rose dramatically, that the normal shutdown of one 80,000 bpd (barrels-per-day) catalytic cracker might cost $1.25 million in expenses and lost profits. (49)

Industry claims that additives that reduce pipeline corrosion, better onstream inspection techniques and stronger pipelines safely allow longer run lengths and minimize hazard-out start-up and shutdown periods. However true in theory, workers in many refineries are unable to inspect thoroughly the thousands of miles of pipeline for corrosion. A Mobil Oil official says, "the general condition of a process unit can be established during a major overhaul when thorough inspection of all equipment is made. Unfortunately, such extensive inspection is costly. Thorough examination of equipment can now be supplemented by 'onstream' inspection, although these facilities are limited by accessibility and are, therefore, limited in their application." (50)

Clearly they were limited, for example, at Shell Oil's Pasadena, Texas plant in 1968, when a corroded pipeline the thickness of a beer can, carrying sulfuric acid and propylene, exploded, killing two men and causing serious injury to two others. (51) At the Delaware City, Delaware refinery of the Getty Oil Company a pipeline rupture in February, 1972 almost destroyed an entire coker. (52) Fortunately, no one was injured. Both incidents suggest that pipeline monitoring was inadequate and/or that units were left on-stream for too long.

In past years, many processing unit failures or repair difficulties would have brought an immediate shutdown by management. Today, workers are ordered to "get it while it's
running,” like fixing your car as it travels down the highway. A member of the Oil, Chemical and Atomic Workers Union (OCAW) describes the results of this policy at Texaco’s Westville, New Jersey refinery: “Several years ago, a man was severely burned on a job that was supposed to be done while the unit was down, and they [management] said, ‘We’ll get it while it’s running.’ The union had warned them about this and told them not to weld on units when they were running; we’d never done that in the past. . . . The company insisted on doing this; right across the bargaining table they said, ‘We’re going to weld on units.’ One week after they made that statement the welder struck an arc and burned this man from his toes up to his waist. He spent most of one year in the hospital with his legs all burned up. Six other men also suffered burns.” (54)

**Preventive Maintenance**

In addition to minimizing the number and length of maintenance turnarounds, reducing preventive and daily maintenance is another opportunity for cutting costs while maintaining profits. For one refinery manager, “To achieve a peak of efficiency for a scheduled maintenance scheme...it is necessary to reduce inspections and scheduled repairs to a minimum compatible with preventing breakdowns.” What this means, in the words of one Sun Oil worker, is that “Safety comes first—as long as it doesn’t interfere with production.” At one refinery, in regard to maintenance work, “A backlog of about three to six weeks for the whole of the labor force is considered to be ideal.” (55) At the Phillips Petroleum refinery in Bartlesville, Oklahoma, management considers a six- to eight-week delay to be appropriate. (56)

Refinery workers know that maintenance cannot always wait for days, not to mention weeks or months, without resultant dangers. A leaking pump emitting a few pounds of hydrocarbon vapor daily may not be an urgent concern to management because the cost of the wasted oil is less than the cost of shutting down the pump to replace or repair it. To those who work around leaking pumps, however, such conditions are a hazard that should qualify as a job for emergency maintenance.

At Texaco’s Westville, New Jersey refinery a few years ago a pipeline on a unit froze and cracked. A pipefitter repaired the line and wrote a work order for an insulator to cover it. The company sat on the work order request. Some days later the line froze again. This time a valve blew out and sent aromatics into a nearby heater, resulting in an explosion that destroyed 40 percent of the unit and caused a foreman to suffer a fatal heart attack. (57)

Management would prefer to redefine most cases of emergency maintenance as jobs that can wait. Donald Hepburn, a maintenance manager with Caltex, describes a project aimed at improving maintenance efficiency: “I forget the exact numbers, but...the first day I think there were 37 jobs and by the time we left two weeks later, it had come down to three on the last day, because somebody was defining for the people in the field what was an emergency job. This had a very dramatic effect, and the operations people in that refinery began to re-educate their people. They did it effectively and it kept down the number of emergencies.” (58)

Caltex’s desire to end “unnecessary” emergencies holds true for all oil companies. An official of American Oil’s Whiting, Indiana refinery says that, “We too prefer not to do emergency jobs, because of their inefficiency and make every effort to question the operating people to ascertain if it really is an emergency.” (59) According to an executive of Total Leonard, an independent refining company, “We make every effort to question the necessity of doing the work. Emergency work is inefficient.” (60)

Adequate maintenance means the employment of adequate numbers of maintenance personnel. During the OCAW strike against

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“The total reduction [of refinery employees] since 1959 is 3650 or over 36 percent. At today’s labor rates, that represents a savings of $37,000,000 per year, and is equivalent to the average net profit of sales of almost $500,000,000.”

Shell Oil Company internal memo.
June 1, 1966
Shell Oil in 1973, the company equated the union's demands for more maintenance workers with featherbedding. The charge will not stand up to scrutiny, but an examination of its implications will tell us a great deal about the economics of plant maintenance and by inference the politics of occupational health and safety.

**Fewer People, More Money**

Since the end of World War II, management, through layoffs and attrition, has continuously reduced the number of workers employed in US oil refineries. In 1947, there were 146,000 US refinery workers; by 1972, but 89,000, a 39 percent reduction over 25 years. (61) This workforce reduction cannot be explained by the reduction in the number of refineries (from 399 in 1947 to 247 in 1972) because total refinery capacity during this period has increased by almost 150 percent.

An informal survey of ten refineries by the National Petroleum Council found that workforce size had been reduced by an average of 46 percent between 1956 and 1966. (63) Ray Davidson, Assistant to the President of OCAW, describes the effects of this trend on a butane recovery unit at ARCO’s Houston, Texas refinery: “During a slack period, part of the unit was shut down and the workforce was cut from six down to two. When business recovered, the company not only reopened the entire unit but also added another section to it—and kept the workforce at two men. Then an entire new unit . . . was built adjacent to the butane recovery unit. This new equipment with a separate function was tied in with the butane recovery unit . . . and one man was added to the workforce. Now three men operate facilities at least as twice as large and complex as those formerly operated by six men.” (64)

Similar situations prevail at other refineries. M. L. Fahrmann, an official of Standard of California, spoke for the entire industry when he said, “The concept of operating on the basis of a planned shortage of manpower has frequently been used by maintenance management, and with good results.” As he described his company’s practice, “Preventive maintenance, tank repairs and other routine maintenance work are advanced or deferred.” In summary, “Higher management is generally interested in maintaining the company workforce below that required by the basic work load [emphasis added].” (66)

One way to accomplish this is to assign more tasks to each worker. For example, gas testing is key to safety in a refinery. The gas tester is responsible for checking for explosive and hazardous concentrations of benzene, hydrogen sulfide, carbon monoxide and other substances. Without notice from the gas tester that vapor levels are safe, entry is not allowed into vessels and tanks, and welding or use of electricity is prohibited. At Sun’s Marcus Hook refinery there have in the past been 21 gas testers. The company has eliminated 12 of them and plans to train unit operators to do the monitoring. (67) While in theory this is beneficial for individual workers who acquire additional skills, in practice it means that workers lose the benefits of the specialization of the gas tester, who is familiar with this work on a daily basis. Other companies also plan to eliminate the gas tester’s jobs.

Cross-crafting carries this practice one step further. As the workforce is reduced, there are fewer people to maintain greater capacity. For maximum efficiency, the companies attempt to abolish craft lines. Instead of being a welder, a pipe fitter or a rigger, a worker would be a mechanic with several skills. And unit operators are expected, though not always trained, to do maintenance work. Since
training is inadequate, all kinds of workers have difficulty working safely. In an industry replete with dangers that make a virtue of specialization, cross-crafting can be a menace.

At turnaround time there are not enough people available to shut down and clean the units fast enough for management. Outside contractors are hired to do part or all of this work. The contracting crews, which rush from one job to another, are not aware of refinery hazards, especially those associated with unfamiliar equipment.

Some refinery workers believe that the companies hire outside contractors to take advantage of a provision of federal safety and health law that makes the contracting employer, not the oil company, responsible for death or injury on the job.

Contractors' employees are rarely aware of the meaning of gas warning alarms; sometimes the alarms may sound without the slightest notice being taken by the contracting crews. Other unsafe contracting crew practices include not having standbys, working without permits and entering vessels without gas testing.

Labor force reductions also result in fewer people being around when a unit fails. According to Hugh Robinson, Managing Engineer for the Oil Insurance Association: "It is quite astonishing to walk through many large refineries today and note just how few personnel are at the units. When the process is running under proper conditions there is no doubt that this represents a cost savings. When abnormal conditions arise, then we believe there is more than what used to be considered the normal potential for loss. Not only are there fewer operators available for correction of the abnormal conditions, but should a piece of machinery or a control or piping fail, there are fewer personnel immediately available for fire fighting activities." (68)

The industry claims that workforce cutbacks have been made possible through automation. However, O. L. Hurley of American Oil says, "With less equipment, fewer people have been required. Much of the change, however, has been the result of the need to reduce processing costs in any way possible to meet an ever tightening squeeze on profits [emphasis added]." (69) Robinson of OIA, while more aware than Hurley of the dangerous results of such decisions, offers a similar explanation for both manpower and maintenance reductions: "You might ask why we [the Oil Insurance Association] are complaining about ... losses at this time? Haven't we always been plagued by such events? True, but seemingly not on the same scale nor in areas where so much value was exposed to the resulting effects of the breakdown. Neither have we had the strain on available maintenance personnel in the past that we seem to have today. Much too often, we believe, maintenance programs are being neglected in the overall push for economy." (70)

From 1946 through 1972, about 30 of the largest oil companies (virtually the entire American oil industry) together made more than $94 billion in profit. (71) Such a profit was based in part on the sacrifices working people were forced to make of their safety and health. Oil workers are increasingly refusing to make such sacrifices.

The Shell Strike and Beyond

Oil workers, like coal miners, have not been complacent about unsafe working conditions. Workers have often organized unions because of them. According to Harvey O'Connor, in his History of the Oil Workers Union—CIO: "Unionism found its origin in the fires and accidents that swept through the Shell plant, built [in Pasadena, Texas] in 1928-29. A safety and welfare committee demanded protection. They asked for gas masks, asbestos hoods, goggles, remote controls and air control valves to make refining processes safer. They wanted two men on dangerous jobs to help one another in case of accident. They asked for a new ambulance to replace a broken down vehicle, nurses on all shifts, and jobs for widows of men killed on the job." (72)

Bitter strikes against workforce reductions were waged at the Gulf, American and Shell Oil refineries in the late 1950's and early 1960's. The strike at Shell's Pasadena refinery lasted just under a year, but was ultimately lost due to the company's ability to maintain production using supervisory and technical personnel.

Today there is a rising level of worker consciousness about the nature of job hazards and the importance of controlling the productive processes that cause them. During collective bargaining, many unions are increasingly less willing to accept deteriorating working conditions in return for higher wages. As one Shell worker put it, "We rec-
ognize that all the things we have gained in the way of wages and everything else, if you die getting them, they are not going to do you any good.” (73)

In 1973 4,000 Shell Oil workers represented by the OCAW called their first national strike over occupational health and safety issues. After five months the strike was settled. While the giant oil company made some concessions and countless numbers of other union workers and environmental and consumer groups learned about the realities of oil industry work, the final settlement did not satisfy the Shell workers. Shell Oil retained final decision-making power over health and safety policy.

OCAW’s original industry-wide bargaining program in 1973-74 comprised a sweeping set of demands, including establishment of joint management-labor safety and health committees, safety and health monitoring and employees’ training programs and access to information indicating the chemical identity of all substances used in the refinery. In addition, OCAW demanded all available morbidity and mortality data, appropriate free medical tests for workers and the right of workers to refuse work endangering their health. OCAW also proposed a special fund for health and safety research and education, to be financed by management contribution and maintained jointly by OCAW and the industry. (74) OCAW’s demands were relatively extensive, given that little previous national oil bargaining had occurred over health and safety issues.

While many oil companies agreed to at least some of the demands (not including the fund proposal or the right to refuse work clause), Shell refused to bargain seriously for months and was the only company struck. (75) Finally Shell agreed to establish committees and to provide OCAW with morbidity and mortality data.

The Shell strike experience shows that victory will not be easy. While refinery technology does not offer much in the way of health protection to workers, it does make the oil companies less vulnerable to traditional union strike strategies.

The major oil companies control the sources of oil, its production, transportation, refining and marketing over much of the nonsocialist world. Twenty corporations control 86 percent of US refining capacity. (78) And the major oil companies are now really energy companies, controlling supplies of coal (which can be converted to gasoline), oil-bearing shale and uranium. So when a strike reduces output, the struck corporation may speed up production at its refineries elsewhere in the world or may secure supplies of finished products from friendly “competitors.” Or it may provide coal from its mines to power plants that have switched from burning oil.

The political impact of the industry is enormous. Striking oil workers face not only company resistance but generally unsympathetic...
tic public officials and government agencies as well. The industry has been successful in convincing many administrators and legislators, both Republican and Democratic, that "What's good for oil is good for America."

Despite the hurdles to be overcome, the five-month Shell strike renewed an intensified struggle between those who direct production and those who actually produce our goods and services. The strike was significant because OCAW was willing to step into an arena of work policy and plant control where unions have often feared to tread. As health conditions continue to deteriorate in the oil industry, strikes and other worker actions over health and safety issues are inevitable. Given the limited effectiveness of the strike weapon, oil workers will have to develop new strategies and tactics in order to win better working conditions and to resist the further deterioration of the refinery workplace planned by management. Oil workers, through the leadership of the OCAW, are increasingly aware of the nature of refinery hazards and of the need to struggle to end them. This struggle, to be really successful necessarily involves workers eventually taking control over the nature of technological change, operating rates, maintenance levels and the size of the workforce in refineries. Genuine workers' control of refineries would place safety and health, not profits, first on the agenda. Such priorities would likely prove place safety and health, not profits, first on the agenda. Such priorities would likely prove.
Asbestos
(Continued from page 6)

All of this sounds impressive until one examines the IHF report itself. (33) Among numerous errors in method was one central, scientifically inexcusable flaw—the investigators, Daniel Braun and T. David Truan, virtually ignored the 20-year time lag between exposure to an agent causing lung cancer and the first visible signs of disease (the so-called latent period). They studied a relatively young group of workers, two-thirds of whom were between 20 and 44 years of age, well under the expected age for lung cancer. Indeed only 30 percent of the workers had been employed for 20 or more years, the estimated latent period for lung cancer. With so many young people in the study, too young to have the disease if they had been exposed, the careers of those who have conducted major industry-sponsored studies have prospered, despite the fact that their findings have consistently been contradicted by independent studies.

A. J. Lanza, who directed the Metropolitan Life study on asbestosis in 1935, rose from Assistant Medical Director at Met Life to become Chairman of the Institute of Industrial Medicine at New York University Medical School. Until his death in the early 1960's he wrote textbooks on lung disease and maintained his liaison with industry as a consultant and writer for the Industrial Hygiene Foundation. (19)

Arthur Vorwald, chief author of the 1938 Saranac study on lung cancer, carried out
hallmark of epidemiological studies funded by the asbestos industry. It allows the study to look credible, while avoiding the feared result. This was true in the 1935 Metropolitan Life study on asbestosis, which was why the scientists there did not find asbestosis in its advanced, most critical stage. Even in the 1970's researchers funded by industry continue to conduct studies on young workers, despite scores of experiments by non-industry scientists showing that the various asbestos diseases take anywhere from 10 to 30 years to develop. The culprit clearly was not scientific ignorance, but economic self-interest—that of industry and of the scientists who do its bidding.

**THE LID BLOWS**

By 1960, medical research on asbestos was at a watershed. By then a total of 63 papers on the subject had been published in the US and Canada and Great Britain. The 52 papers not sponsored by industry, mostly case histories and reviews of case histories by hospital and medical school staff, indicted asbestos as a cause of asbestosis and lung cancer. The 11 papers sponsored by the asbestos industry presented polar opposite conclusions. They denied that asbestos caused lung cancer and minimized the seriousness of asbestosis. The difference was dramatic—and obviously dependent on the further studies for industry and in 1946 became director of the Saranac Laboratory. Later he was a faculty member in industrial medicine at Wayne State University in Detroit.

Daniel Braun, chief author of the 1958 Industrial Hygiene Foundation study on lung cancer, also didn't suffer for his affiliation with the study, although his paper was publically criticized by other scientists and later contradicted by many other studies. Braun is now President of IHF and Chief Medical Director for US Steel, one of this country's largest corporations.

J. C. McDonald, director of the 1971 McGill study on asbestos miners, continues to conduct industry-sponsored studies and is now Chairman of the Department of Epidemiology and Public Health at the McGill Medical School.

In the early 1960's the research picture changed dramatically as a result of three separate studies. In 1960 a new malady was added to the lexicon of asbestos diseases: mesothelioma, a rare and invariably fatal cancer of the lining of the chest or abdominal cavity. At that time a South African doctor found an unusually high incidence of mesothelioma among asbestos workers and their families, as well as those living near asbestos mines. (36)

In 1963 a study of lung smears from 500 consecutive autopsies on urban dwellers in Cape Town, South Africa showed that the lungs of 26 percent had asbestos bodies, the characteristic bodies originally found in the lungs of workers with asbestosis. (37) Both studies received extensive publicity and raised the specter of asbestos as a modern environmental hazard affecting all citizens.

To top this off, in the early 1960's Dr. Irving Selikoff and his associates at Mt. Sinai Medical Center in New York broke industry's hegemony over medical and personnel information by using the welfare and retirement records of the asbestos insulators' union as the basis for conducting an epidemiological study. Now for the first time in the US, scientists not beholden to industry conducted large-scale definitive studies on groups of asbestos workers. Beginning in 1964 the investigators reported an unusually high incidence of lung cancer and mesothelioma among asbestos insulation workers, with time lags of 20 and 30 years, respectively, between exposure and disease. (38-41) By focusing on workers with 20 or more years of exposure to asbestos, these studies highlighted its hazards. Together with the South African studies they made the "magic mineral" front-page news throughout the world.

**Industry Fights Back**

The asbestos industry was in trouble and they knew it. The slow pace of research studies in the past would no longer suffice to keep the lid on what had become a steaming cauldron of unfavorable publicity. Now asbestos companies decided to pour money into research. Johns-Manville, giant of the asbestos industry, for example, spent $8.5 million on research and development in
1972, a large fraction of which went to outside medical research centers. (42) In contrast the National Institute for Occupational Safety and Health (NIOSH), the federal government's main research agency in the field, spent a mere $260,000 on a grand total of three outside asbestos research grants that year. (43)

As a result, an industry that had only managed to generate 11 research papers on asbestos in the three decades before 1960 has come up with 33 in little more than a decade since then. The recent studies are just as self-interested as ever. Industry has stopped denying that asbestos causes lung cancer, mesothelioma and asbestosis (although it has not publicly admitted it, either). But research proposals that industry thought would minimize the problem or shift the blame have been given unstinting support.

Minimizing the Problem

A major industry effort was a massive epidemiological study published in 1971 by J. Corbett McDonald and his associates at the Department of Epidemiology and Public Health at McGill University in Montreal. This was funded through a grant from the Institute of Occupational and Environmental Health of the Quebec Asbestos Mining Association. (44) The subjects were miners in the two largest asbestos mines in Quebec.

Over 11,000 miners were traced, those who were born between 1891 and 1920 and who had worked in the mines for at least one month sometime before November 1, 1966. Of these, about 2,500 had died before 1966. The cause of death on each death certificate was recorded.

Like the earlier IHF study on asbestos miners, this one looks quite impressive until it is examined carefully. Then we find as before that the workforce studied has had relatively limited exposure, that the long latent period for cancer is virtually ignored and that many other serious methodological errors were made.

Consider the duration of exposure of the workforce. The data presented by McDonald and associates shows that many of the miners worked in the mines for only a short time and then left. One-third of the miners in the study had worked less than a year in the mines, two-thirds had worked less than 10 years. (44) (In contrast, almost all workers examined in Selikoff's studies had at least 20 years of exposure. (38-41)) Since most workers in the McGill study had limited exposure to asbestos, it is not surprising that their mortality was not much different from that of the general population. McDonald went even further: "The findings suggest that our cohort of workers in the chrysotile mining industry had a lower mortality than the population of Quebec of the same age." (44) (Chrysotile is the name of the type of asbestos fiber mined in Quebec.)

To check whether miners with heavy exposures had a higher mortality rate than those with lesser exposures, the McGill group compared mortality rates among groups of miners with different levels of exposure. In so doing, they acted as if the latent period for cancer had gone out of existence, thereby thoroughly befouling the comparison. For example, a worker with a particular exposure who had worked between 1910 and 1915 was put in the same category as one who had received an equal exposure while working from 1960 to 1965. Yet the first person might have developed asbestos disease, while the second couldn't possibly have done so, since not enough time had elapsed since first exposure. Nevertheless, the data presented by McDonald showed the lung cancer death rate for those most exposed to dust to be five times greater than those least exposed.

Other members of McDonald's department at McGill have also published articles minimizing the hazards of asbestos. Philip Enterline and M.A. Kendrick published an epidemiological study on workers at an asbestos factory which, by their own admission, looked at a young group of men who had worked at the factory for a relatively short time. (45) The authors further excluded from their study those over age 65, who had of course retired and left the plant, thereby eliminating those most likely to show the ill effects of working with asbestos. As a result, they incorrectly concluded that low dust concentrations are not dangerous. When Enterline moved from McGill to the University of Pittsburgh, he was rewarded for his earlier work with a coveted prize from Johns-Manville, access to the company's records to conduct an epidemiological study of its retired employees. The study was also financed by Johns-Manville, according to its History of Johns-Manville Research, al-
though Enterline does not acknowledge such support in his paper. (46) No surprise, this study also came up roses—reporting only a small increase in death rate (15 percent) for retired employees.

**Credibility Gap**

In contrast to the above studies, those not supported by industry consistently found asbestos to be a serious health hazard. While Braun and Truan, McDonald and Enterline all found no increase in mortality rate due to asbestos or only small increases up to 20 percent, studies not financed by industry reported an increase in mortality rate among asbestos workers of from 200 percent to 9,000 percent above that of the general population. Non-industry studies in addition to those by Selikoff and associates were conducted by Doll, (32) Mancuso and Coulter (47) and Dunn and Weir. (48) (All of these except Selikoff's were carried out by staff members of government agencies.)

After at least a dozen epidemiological studies, the gap between industry and non-industry results persists. And as long as industry can find researchers whose work for them looks scientifically credible, the gap will continue. The name of the game is not truth, of course, but delay. It has been so for over 50 years. Delay for industry means time to make more money, and since the research of the early 1960's time to diversify and seek alternatives to asbestos.

**Shifting the Blame**

Another way to gain time is to try to shift blame. So pro-industry scientists have recently concocted one after another theory purporting to prove that asbestos workers and their families were not dying from asbestos but from some impurity, some contaminant or some unusual type of asbestos.

**It's Trace Metals**

One of the early theories was that trace metals were contaminating asbestos and causing the diseases attributed to asbestos. In 1967 Paul Gross of IHF reported in an industry-sponsored study that rats breathing asbestos fibers artificially contaminated with trace metals developed lung cancer, while those breathing unadulterated asbestos didn't. (49) The theory seemed implausible to many scientists, who pointed out that the two groups of rats were exposed under significa-

- Despite the implausibility, Gross persisted in his research, with the support of industry, and his theory gained some support from other pro-industry scientists. Gross' experiments continued until six years later, when he performed a carefully conceived experiment that finally laid his own theory to rest. (51)

- **No, It's Special Fibers**

Another theory not yet laid to rest is that certain types of asbestos fiber are dangerous, while others are safe. Ninety-five percent of the asbestos used in the US and Canada is of one type, chrysotile. Since the
bad-fiber theory has its origins in industry-sponsored research, it comes as no surprise that fiber types other than chrysotile have been blamed for asbestos disease. For example, McDonald and associates invoked this theory to explain the difference between their results and Selikoff’s. The discrepancy could be explained more simply of course: McDonald and associates carried out a poor study and their results are invalid. Nevertheless, since there are five different types of asbestos fiber and each has different physical and chemical properties, it has been difficult either to prove or disprove the theory. Because the theory if true would have important practical consequences, many scientists have felt obliged to investigate. Today it is discussed and debated in virtually all asbestos papers, industry and non-industry. Recently Selikoff and Hammond conducted a major study on amosite fiber largely to address this problem and found no difference in mortality between amosite and chrysotile workers. (53) The discussion and experiments go on and on.

No, It’s Storage Bags

Probably the ultimate in fishing around for something else to blame was the theory propounded by Gibbs of McGill and funded by the Quebec Asbestos Mining Association, that the polyethylene bags in which asbestos is stored are contaminating the asbestos. (54) This idea died of its own weight, without need of others to shoot it down. Nevertheless, it lasted long enough to be funded by industry, printed in the literature and delivered as a paper at the 1969 Johannesburg International Conference on Pneumonoconiosis.

The single proposal from industry sources that appears to have some plausibility is that the so-called asbestos bodies commonly found in the lungs of city dwellers may in fact be caused by fibers and particles in the air other than asbestos. Gross at IHF has induced “asbestos bodies” in rat lungs with other minerals and fibers (55), and debate still rages on whether most of the bodies in humans are or are not due to asbestos.

While industry has lost most of these battles, the eventual outcome of each is less important than the fact that each salvo has tied up scientific resources, defined research issues and bought time. In the case of almost every industry proposal, some non-industry scientists have had to conduct experiments in rebuttal, using up some of the meager resources in the process.

STILL BUYING TIME

Following passage of the federal Occupational Safety and Health Act in 1971, major attention was focused on the new national standard for asbestos. Following an emergency appeal by many labor unions, a hearing was held in 1972. George Wright, Johns-Manville’s chief science advisor, was able at the hearings to call on five studies backing up J-M’s contention that the standard of five asbestos fibers per cubic centimeter should be maintained, not lowered. Of the five studies, four had been funded by the asbestos industry. (For more details, see BULLETIN, March, 1973.)

But most important, industry’s studies, despite their faults, helped put a scientific cover over industry’s interests. Industry could not prevent the asbestos standard from being lowered to two fibers per cubic centimeter, but it contributed to a delay in its effective date for four years until 1976. Thus the asbestos industry won precious time to regain its initiative in this struggle. For workers too, the time lost was critical. Dr. Selikoff estimates that this delay could eventually take as many as 50,000 lives. (56)

But even when the fiber limit comes down the battle is not over yet, not by a long shot. The 1972 NIOSH report on asbestos bases its two-fiber recommendation primarily on the British standard. But the British standard is based entirely on a single study. (57) This study turns out to be an epidemiological study performed at Turner Brothers Asbestos Company, Great Britain’s largest, by the company medical director! (21) This is the equivalent of a Johns-Manville study determining the US asbestos standard. The flack that has now developed over the standard has nothing to do with its British industrial auspices, however. What has happened is that Turner Brothers’ new medical director has recently re-examined the workers at its Rochdale plant and they show a far greater incidence of asbestosis than previously observed. (21) This startling discovery was not made in the industry paper, but is based on an analysis of the data presented there by Dr. Selikoff and others. Apparently the company’s medical director didn’t realize the implications of his own data—it was presented
Creepy Cralley

Lewis Cralley was a top US government official in occupational health until his retirement last year, and through his affiliation with the Industrial Hygiene Foundation (IHF) was an important link between industry and government research. Starting in 1964 Cralley directed a US Public Health Service study of health conditions in the asbestos industry and suppressed its findings for six years until they were released by other NIOSH officials over his objections. Between 1968 and 1972 he published four papers with Gross and deTreville at IHF, although during the last two years he was NIOSH project director for various asbestos grants, at least one of which was to IHF. As a specialist in lung disease, he played an important role at NIOSH in funding and directing government asbestos research. He recently edited a book on occupational health with his twin brother, Lester Cralley, Assistant Director of Environmental Health Services for Alcoa and board member of IHF.

Upon retirement he was presented with the US Public Health Service Meritorious Service Medal, "in recognition of his research into developing safe worker exposure levels to such potential occupational hazards as uranium, asbestos, silica, beryllium, and diatomaceous earth dust."

(For a more detailed discussion of Cralley's activities, see Chapter 4 of Expendable Americans (Viking, 1974) by Paul Brodeur and the Health/PAC BULLETIN, September, 1972.)

in the article in a complex set of graphs and tables—and furiously denies that he showed an increase of asbestosis over the earlier experiment. But government and academic scientists in England and the United States clearly do not agree, and official reconsideration of the two-fiber standard is likely to take place soon.

**THE ACADEMIC PAYOFF**

While its sponsorship of medical research has been buying time for the asbestos industry, it has also been spurring on individual scientific careers. Most prominent among these are Paul Gross of the Industrial Health Foundation and J.C. McDonald of the Department of Epidemiology and Public Health at McGill University Medical School. The asbestos industry sought and found these individuals at institutions with which it had friendly relationships over the years. IHF had carried out pro-industry research on lung diseases for many years, including the 1958 Braun-Truan study. The Department of Epidemiology at McGill had assisted Metropolitan Life in its 1953 asbestosis study and very probably aided Braun and Truan in their study of Quebec asbestos miners.

The large influx of money also helped transform what started out as typical medical research empires into institutional bases for asbestos industry research. Today McDonald is Chairman of the McGill Epidemiology Department and Braun is president of IHF. (Paul Gross is retired.) These centers now stand as academic havens for pro-industry scientists and help bring other scientists into the industrial research orbit. From McGill during the last decade papers on asbestos have poured out that are supportive of industry interests and in many cases openly financed by industry.

The studies at IHF during the last decade have been more closely associated with three people, Gross, deTreville and Lewis Cralley. Gross and deTreville were IHF directors and Cralley was a US government official in occupational health. Until his retirement last year Cralley was an important link between industry and government research through his connections with IHF. Between 1968 and 1972 he published four papers with Gross and deTreville at IHF, even while as a government official he played an important role in funding and directing government asbestos research (see box above).

A measure of the central role of McGill and the IHF in industry-sponsored research is the fact that these two institutions conducted 25 of the 33 studies supported by the
The asbestos industry and published since 1960. What industry hoped to get from this research was perhaps best characterized by Ivan Sabourin, then attorney for the Quebec Asbestos Mining Association, quoted by Paul Brodeur in his book, *Expendable Americans*. Sabourin told a 1965 meeting of the Asbestos Textile Institute that QAMA sought “alliance with some university, such as McGill, for example, so that authoritative background for publicity can be had.” (58)

The asbestos industry may also be developing a base on the West Coast through the consulting firm Tabershaw-Cooper Associates, directed by Irving Tabershaw, former president of the Industrial Medical Association and now editor of its journal, and W. Clark Cooper, former director of the US Bureau of Occupational Safety and Health and editor of the 1971 National Academy of Sciences report on asbestos in the environment. (59) Both are retired professors of Occupational Health at Berkeley School of Public Health. For years, Cooper and now Tabershaw-Cooper Associates have been recipients of asbestos industry grants, funded mostly through the National Insulation Manufacturers’ Association. (18) The firm, despite or perhaps because of its industry connections, also has held at least one NIOSH contract to write federal standards for a hazardous chemical. (60)

**The Scientific Failure**

This year is the 50th anniversary of W.E. Cooke’s report in the *British Medical Journal* on a worker death due to asbestosis, an event that marked the rediscovery of asbestosis by the medical profession. (11) Since then over 200 medical articles on asbestos have been published in the English language—and the number of victims of asbestos-related diseases has increased steadily.

Lung cancer due to asbestos was first reported in 1935. Mesothelioma due to asbestos was reported in 1960. And the learned scientific debates go on, with industry’s mercenary scientists trying first to deny the hazards of asbestos, then to minimize them or else to shift the blame. Against them, non-industry scientists have been demonstrating the hazards of asbestos and trying to clinch the scientific case against it, but never quite succeeding against industry’s enormous resources.

Meanwhile, tens of thousands of lives have been lost to asbestos-related diseases, and the end is not in sight. Today the many hundreds of thousands of people who worked in shipyards during World War II are facing an epidemic of cancer caused by the use then of asbestos insulation. Families of asbestos production workers are now being found to develop the same diseases as their breadwinners in the factories. (61) Two years ago, Selikoff and associates confirmed another disease to be caused by asbestos, gastrointestinal cancer. This is the fourth asbestos disease, and if the past is any guide, others are still to follow.

Looking back at the medical debates that have raged, it is clear that asbestos research was only one factor in a much larger social and economic picture. To the extent that medical scientists in the late 1920’s and early 1930’s, when asbestos was already known to cause asbestosis, the industry was still relatively small. If medical people had not then limited themselves to operating within narrow professional roles and had taken their information about asbestos to asbestos workers and the public, the expansion of the asbestos industry might have been nipped in the bud and thousands of lives might have been saved.

Even today, while some medical scientists work with labor groups and communicate their findings to the public, their scientific papers still narrowly focus on the medical issues and fail to expose the very real scientific-political strategies used by companies against them and on behalf of more pliant scientists. If this is not done, scientists in other occupational health fields will not be able to learn from the lessons of the asbestos struggle and will end up repeating many of the errors of the past, sometimes at great cost to human life.

The vast majority of scientists probably still wish to keep their labs untouched by the outside world, narrowly pursuing circumscribed scientific questions. But if they refuse to acknowledge and interact with the worlds of economics and politics, they may, as in the case of asbestos, win the battle to discover truth and lose the war to save human lives.

—David Kotelchuck (Robert Phillips, an intern at Health/PAC this past summer and a medical student at Mt. Sinai Medical School, surveyed much of the medical literature referred to in this article.)
While everyone talks about preventive health on the shopfloor, someone is actually doing something about it. This packet includes four Bulletins which provide for the first time an analysis of how industry and government have dealt with the problem; case studies of occupational diseases—of white lung disease and of the most terrifying occupational health plague— asbestosis; and a profile of the miners' struggle with black lung disease. (September, 1971, March, 1973, September, 1972, November—December, 1974.) $2.00.
Vital Signs

SWIMMING IN BEDS

While nearly everyone agrees that there is a growing excess of hospital beds, hospital construction is nevertheless undergoing a boom unparalleled in the rest of the economy. US Department of Commerce statistics show hospital construction for the quarter ending June 30 up 9 percent over last year, while private construction has dropped 3 percent in the same period. Many attribute this to the ending of wage and price controls for health care in April of this year.

PSRO: TO BE OR NOT TO BE

This year's raging debate in the AMA has been whether doctors are more damned if they embrace the creation of PSRO's (Professional Standards Review Organizations) than if they don't. (For discussion of PSRO's, see BULLETIN, July/August, 1974.) In Los Angeles County, it would seem that the latter is the case.

While the LA County Medical Association studiously ignored the advent of PSRO's, presumably hoping they would thereby go away, the Interns and Residents Association of Los Angeles County Medical Center, headed by militant housestaffer Rex Greene, was the sole applicant to form a PSRO. With no contenders, the federal government was obliged to give the group a PSRO planning grant.

When the medical community became aware of this development, it was up in arms. Threatened with "students running the teachers," physicians are mounting a full-scale fight to quash the nascent PSRO. The housestaff group must show 25 percent support among county physicians to receive conditional recognition by HEW. Then upon notification, if 10 percent of the county's physicians object, a vote must be taken. The group must then receive majority support, or the whole process starts over again.

Some physicians have threatened to strike, several hospital officials have voted to boycott PSRO efforts and several hospital directors and department chiefs have written their staffs urging them not to "wander into his [Greene's] clutches." The battle will be an uphill one for the housestaff group, but meanwhile interest in PSRO's has never run so high in Los Angeles County.

At the same time the Senate Appropriations Committee has moved to allay fears that other troublesome PSRO's will come into being. On September 11 it voted to slash $28 million from the $58 million PSRO budget for Fiscal Year 1975. If the measure passes Congress, officials claim that no new PSRO contracts will be awarded. Currently some 40 to 60 new PSRO areas want to come into the program and others are waiting until more money becomes available.

KENNEDY MANPOWER BILL DEFANGED

Senator Edward Kennedy suffered a resounding defeat on a health manpower measure containing some sweeping precedents for the medical world. Kennedy's bill would have authorized some $5.1 billion for health manpower training over the next five years while requiring (1) every entering medical stu-
dent to serve two years in areas of medical shortage (on pain of loss of license for failure to follow through); (2) regulation by HEW of the number, type and location of all internships and residencies; and (3) establishment of national standards of licensure and relicensure of physicians every six years. The measure, passed by the Senate Labor and Public Welfare Committee, was defeated 57-34 on the Senate floor.

A much watered-down substitute sponsored by Glenn Beall (R.-Md.) was subsequently passed. The measure would authorize $454 million in capitation grants to medical schools over the next three years while requiring that 25 percent of a school’s students agree to serve in areas of medical need after graduation. It would also limit the number of foreign medical graduates admitted to internships and residencies (eventually not to exceed 25 percent); expand the National Health Service Corps and authorize $165 million in scholarships over the next three years; and require that schools administer three-year residency training programs in primary care and family practice. The measure now goes to the House.

**SOUTHERN EXPOSURE**

A recent study by the Southern Regional Council has found the health status of 11 Southern states lagging behind the rest of the country on almost every significant index. Infant mortality was lowest in Arkansas—19.6 infant deaths per 1,000 live births (still higher than the national average of 19.2)—and highest in Mississippi—29.1 infant deaths. Nonwhite infant mortality was universally higher than white, ranging from 25.7 in Arkansas to 39.7 in Mississippi.

The ratio of primary care physicians to population falls far below the national average of 1:781. Mississippi and Alabama had 1:1,860, South Carolina had 1:1,829 and Arkansas had 1:1,821. Four Southern states rank among the five in the nation having the fewest primary care physicians per population.

The report attributed the low health status of the South largely to the related problems of poverty, housing, sanitation, environment and nutrition.

**A TOUCH OF CLASS**

Some of the frustration and prejudice encountered by foreign housestaff in the US was highlighted by former President Nixon in his recent hospitalization for phlebitis. Upon meeting Dr. Robert Toumajian, a third-year surgical resident of Armenian descent who was treating him, Nixon suggested, “If you want to be rich, you should go into the Armenian restaurant business.” Toumajian commented later that the remark “bugged me a little,” and he thought Nixon “was condescending.” “The stereotype of an Armenian is that you have to be cleaning rugs or running a restaurant,” Toumajian said.

**DO IT YOURSELF**

Trouble with transportation to and from medical facilities? A patient at Roosevelt Hospital, New York City’s busiest midtown hospital, devised his own solution. As hospital authorities reconstruct the event, the youth, admitted earlier in the evening for being drunk and disorderly, apparently found the hospital ambulance (complete with keys in the ignition) parked in the hospital parking lot, and drove home. While the hospital used a back-up ambulance, the police found the missing vehicle two hours later parked in a residential neighborhood in Brooklyn. A new twist in self-help.

**O.R. WORKERS BEWARE**

Operating room workers are subject to higher than expected rates of cancer, spontaneous abortion and birth defects among their children, apparently as a result of breathing anesthetic gases, a startling study done by the National Institute of Occupational Safety and Health and the American Society of Anesthesiologists has revealed. A survey of 29,000 doctors, nurses, anesthetists and technicians revealed far higher rates of cancer and miscarriages than normally expected among women, increased rates of liver and kidney disease among both men and women, and increased rates of birth defects among children born to both men and women operating-room workers. The two groups that sponsored the study are now seeking to establish criteria for safe operating-room conditions.

**NEW WOMEN’S HEALTH PUBLICATION**

The Fall issue of Health Right, a publication of the Women’s Health Forum, has made its appearance. The first issue leads off with an article entitled “Women’s Health Movement: Where Are We Now?” Other articles deal with attempts at limiting women’s rights to abortion and an interview with a nurse about the role of consumer participation from a worker’s perspective.

Subscriptions to Health Right are $5 a year. The address is: 175 Fifth Avenue, Room 1319, New York City, N.Y. 10010.
PHANTOM SALES, REAL PROFITS

The nursing-home industry is coming in for some sharp scrutiny in New York State, in part due to a recent series of hard-hitting exposes in the New York Times. Aside from patient neglect, often verging on the scandalous, the Times has focused on schemes designed to enhance nursing-home owners and operators by bilking New York State’s Medicaid program. Medicaid provides 90 percent of nursing home income in the state and paid $560 million for nursing home care last year.

These schemes include payroll padding, nepotism, kickbacks from suppliers, falsification of costs and withholding of services paid for by Medicaid from patients. Chief among them, however, is sale and leaseback—the practice of selling a nursing home to oneself or one’s associates and then leasing it back at a higher rate. The operator, thus having incurred additional expenses in rent, mortgage payments and/or depreciation, can then apply for and generally count on getting an increased reimbursement from Medicaid, which pays on a cost-plus basis. This practice no doubt accounts for the fact that over half (200) of New York State’s 378 private nursing homes applied for changes of ownership last year alone.

The practice of sale and leaseback is exemplified in the case of Eugene Hollander, former President of the Metropolitan New York Nursing Home Association, who attempted to sell his four nursing homes to Touro College, a small, newly established liberal arts college in Manhattan, for $23 million. Mr. Hollander then leased back the homes at approximately $1.4 million a year, yielding Touro an estimated $100,000 a year in income. He then applied to Medicaid for an increase in reimbursement rates. Medicaid surprisingly turned down the request, stating that it did not see why it should contribute to Mr. Hollander’s favorite charity.

While the sale of the Hollander homes was presented in his application to the State as a fait accompli, there has now come to light an earlier agreement between Hollander and Touro College that would automatically cancel the sale if the State refused to grant higher reimbursement rates. When charged with being less forthright about the sale, a lawyer for Touro College denied “the impression that Touro College was engaged in some unethical scheme, which it was not.” He continued, “I need hardly point out that such operations have become almost classical procedure and are a major source of income to many of our leading colleges.”

Dr. Bernard Lander, President of Touro College, is no newcomer to the nursing home business. Before coming to Touro, he was the former Director of Medic-Home Enterprises, a large out-of-state nursing home chain known to have links to at least 38 other nursing homes in the City. And if Touro’s trustees were newcomers, they are no doubt being quickly initiated. They include former US Representative Emanuel Celler, whose law firm represented Touro in the nursing home transaction. New York City Mayor Abraham Beame, Senator Jacob Javits, State Controller Arthur Levitt, State Assembly minority leader Stanley Steingut and, until recently, State Attorney General Louis Lefkowitz, who just resigned to investigate—you guessed it—the sale and leaseback of nursing homes in the state. Meanwhile, seeking horizons beyond the nursing-home business, Touro is applying to the State for a charter to establish a medical school.

CHARITY EXCLUDES POOR

Voluntary hospitals stayed off a potential threat to their mode of operating financially when the federal Court of Appeals for the DC Circuit on October 9 reversed a ruling of the DC District Court that had required as a condition of tax-exempt status that private, nonprofit hospitals provide free or below-cost services to persons unable to pay (see BULLETIN, May/June, 1974.)

The Court of Appeals upheld an Internal Revenue Service interpretation of the word “charitable” in the tax law that found the promotion of health per se to be a charitable purpose and that permitted hospitals to qualify for tax-exempt status as charitable institutions if they maintained an emergency room open to all and provided hospital care to all those able to pay, either directly or through third-party reimbursement. The court took the IRS at its word that it requires hospitals under this ruling to accept Medicaid patients, a notion that Medicaid recipients in many parts of the country would dispute. The court also ignored the fact that an estimated 20 million Americans have no coverage, public or private, for the cost of hospital care. The American Hospital Association, which had stayed clear of the suit during its earlier stages, participated as friend of the court in the appeal.
Dear Health/PAC:

The rush in which we wrote our article ['"Southern Empire: Hot-Handed Duke," BULLETIN, July/August, 1974] allowed several errors to creep in, as well as several omissions. Because of this we would appreciate your printing this letter.

First, Tim McGloin, the article's co-author, was incorrectly identified as a member of the New American Movement (NAM). He is not. He is a member of the Citizens Concerned About Durham Health Care (CC), a community organization that has been working for several years to improve Durham's health system.

Two significant omissions concerned us. First, the final form of the article did not concentrate enough on the actual organizing work going on. Insufficient credit went to the CC for the role they played in organizing the early hearings before the Health Planning Council for Central North Carolina. No attention at all was given to the unionization campaign underway at Duke. This union effort is mobilizing many workers at Duke and the unions are playing a major role in organizing opposition to the expansion plans.

Another important omission is the fact that NAM is an openly socialist group and that we are central to the organizing effort. This is no accident. Our socialist perspective provides us with the essential tools in understanding the actual realities of class and power in Durham. The situation here, where private interests are clearly manipulating the public interest and the public purse for private gain, exposes the myth of the "private sector." Duke's money comes from its workers, its patients, and the taxpayers. Its policies directly influence the public's welfare. Because of a legalism, Duke claims that it is private and that no one can tell it what to do. As socialists we are saying what people already know: Duke is a public, i.e., social, institution in the profoundest sense of the word and that it must meet the people's needs. Because people already feel this way they respond to us. By strongly arguing the issue on the basis of class (i.e., a rich man/corporation vs. workers approach) we have gained a real following and excited the interest of many people at Duke and in Durham. Because we talk about organization and political power we are taken seriously.

We have not found the much-feared reaction of people turning off at the mere mention of the word "socialism." Some are put off, but many others are curious about what we mean. It is easy to point to the issue we are all working on as an example of how society is divided into unequal classes. And it is quite obvious in this case that those not in the ruling class must organize to win their rights. A surprising number of folks agree that they are socialist too.

Our strategy, in this city where the largest industry is health care, is to bring together a wide variety of groups into a multi-racial working class coalition. This is the only way we will be able to beat Duke.

An important question haunting many people across...
the country is whether to surface now as socialists, that is, whether the working class is "ready." It appears, at least in Durham, N.C., that the working class is just as ready as the Left. We'll keep you posted.

—Paul Bermanzohn for the Durham Health Collective

—NAM

Health/PAC replies:
We know that attribution is a sensitive matter in many articles, so we are sorry that Tim McGloin was misidentified. We must point out, however, that we signed the article according to the authors' written instructions.

The two omissions cited in the letter were not accidental. Although some information on organizing in Durham was included in the authors' first draft, we did not feel the facts about Citizens Concerned and unionization presented in that draft were adequate or well substantiated. Furthermore, they were not germane to the major theme of the article, Durham's medical empire and its relationship to local and national elites. This omission was made in consultation with the authors.

The fact that the New American Movement is an "openly socialist group" was omitted because we did not feel the authors were concrete about how this nomenclature affects their organizing—either helping or impeding it.

We think the letter raises important issues which are worthy of discussion in their own right and could not be addressed adequately in the Durham article.

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