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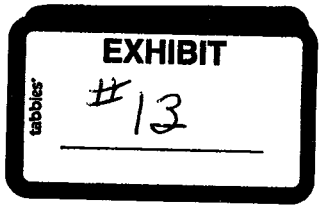
QUALIFICATIONS

WILLIAM R. BRADLEY

INDUSTRIAL HYGIENIST AND TOXICOLOGIST



QUALIFICATIONS

WILLIAM R. BRADLEY

WILLIAM R. BRADLEY AND ASSOCIATES

SCHOOLS

Cornell College, B. A. Degree, Science, Biology, Chemistry

State University of Iowa, College of Medicine, 2 years
Basic Sciences in Medicine.

State University of Iowa Graduate School, Science, 1 year
Master of Science Degree, Biological Sciences.

Buena Vista College, Iowa, one semester, Education.

Wayne University College of Medicine, Detroit, Michigan,
Refresher course, Medical Sciences.

OCCUPATIONS

Detroit Department of Health, Bureau of Industrial Hygiene,
5 years.

Private Industrial Toxicology Laboratory, 5 years.

Fidelity and Casualty Insurance Company, New York City,
Industrial Hygiene, 1-1/2 years.

American Cyanamid Company, New York City, Assistant Director
of Environmental Health, 16 years.

MEMBERSHIPS

Founder and Past President: Michigan Industrial Hygiene Society

Past President and Director: American Industrial Hygiene Association

Member: American Board of Industrial Hygiene

Diplomat: American Academy of Industrial Hygiene

Past President and Director: Metropolitan New York Industrial Hygiene Association

Member: New Jersey Industrial Hygiene Association

Fellow: American Association for the Advancement of Science

Member: American Chemical Society

Chairman: Air Pollution Control Commission, State of New Jersey, 1955 - 1964

Former Member: Air Pollution Control Association

Former Member: Health Physics Society

Former Member: Royal Society of Health, London, England

Former Trustee: American Industrial Hygiene Foundation

Received: Borden Award, 1981. American Industrial Hygiene Association

Received: Past Presidents Award, 1982. Carolinas Local Section, American Industrial Hygiene Association

Received: Award as Founder of Michigan Industrial Hygiene Society 50th Anniversary Meeting, Detroit, Michigan, March 8, 1989

Received: Award as a Founding Father, American Industrial Hygiene Association 50th Anniversary Meeting, St. Louis, Missouri, May 23, 1989

Received: The Warren A. Cook Award of the Carolinas Section, The American Industrial Hygiene Association, October 18, 1990. The award carries $1000.00, one-half to the University of North Carolina and one-half to the University of South Carolina, in the name of the recipient.

SCIENTIFIC COMMITTEES

American Industrial Hygiene Association - Development Committee

Air Pollution Control Association - International Committee

American Board of Industrial Hygiene - Air Pollution Sub-committee

Interstate Sanitation Commission, Air Pollution Advisory Committee

Many others

FORMER MEMBERSHIPS

American Public Health Association

Manufacturing Chemists' Association, Air Pollution Abatement Committee

Manufacturing Chemists' Association, Water Pollution Abatement Committee

Air Pollution Control Association, Technical Committee on Air Pollution Measurements

National Research Council, Committee on Atmospheric and Environmental Health

LECTURER

University of Pittsburgh
University of Michigan
University of Texas
University of Florida
New York University
Columbia University
Colby College

Over 200 unpublished talks and lectures

CONSULTANT: U. S. Public Health Service

Listed in: American Men of Science

Who's Who in Industrial Medicine & Industrial Hygiene

National Register of Scientific and Technical Personnel

DELEGATE: International Conference on Environmental Health Primosten, Yugoslavia - October, 1973.

DELEGATE: International Symposium on Industrial Toxicology Lucknow, India - November, 1975.

PUBLICATIONS

Over 50 publications in professional and scientific journals covering the fields of:

Industrial Toxicology

Environmental Health

Air Pollution

Radiation

Safety

PUBLICATIONS OF WILLIAM R. BRADLEY

1937

Bradley, W. R. and Jahn, T. L.
ENTAMOEBA PARASITIC IN OPALINA
Die Lehrbook Der Protistenkunda, Germany, 1937

1938

Bradley, W. R. and First, M. W.
THE PHYSIOLOGIC RESPONSE OF PLEURAL SURFACES TO IMPLANTED DUSTS

J. Lab & Chin. Med. 24:44-52 October 1938

Bradley, W. R. and Hyler, M. C.
THE PASOPHILIC AGGREGATION TEST -- As an Early Diagnostic Factor in Lead Absorption and Incipient Lead Poisoning

Indust. Med. 7:184-193, April 1938

1939

McCord, C. P. and Bradley, W. R.
PASOPHILIC AGGREGATION IN THE BLOOD OF THE NEWLY BORN
(a) Laboratory Animals (b) Humans
Am. J. Clin. Path. 9:329-338, May 1939

Bradley, W. R.
CEMENT WORKERS, PLASTERERS, MARBLE SETTERS AND TERRAZA LAYERS IN THE CONSTRUCTION TRADES
(Trade Journal Publication)

1940-1941

Bradley, W. R. and Frederick, W. G.
THE TOXICITY OF ANTIMONY -- Animal Studies
Indust. Med. 10 (Industrial Hygiene Section, Vol. 2 Sec. 2) pp 15-22, April 1941

1944

Bradley, W. R.
POSTWAR INDUSTRIAL HEALTH. Industrial Hygiene Foundation Holds Ninth Annual Meeting.
Chem. and Eng. News 22: 2188-2192, December 25, 1944

1945

Bradley, W. R.
INDUSTRIAL HYGIENE. Published in Plant Magazine
September 13, 1945 (Outline included)

Bradley, W. R.
INDUSTRIAL HYGIENE LECTURE, GRADUATE NURSES CLASS
St. John's University, Brooklyn
November 1945

Bradley, W. R.
INDUSTRIAL HYGIENE SAFEGUARDS EMPLOYEE HEALTH
Prepared for November 1945 Cyanamid Bulletin

1946

Bradley, W. R.
GOOD HEALTH FOR INDUSTRY. Industrial Hygiene
Foundation Holds Tenth Annual Meeting
Chem. & Eng. News 24: 34-38, January 10, 1946

Frederick, W. G. and Bradley, W. R.
TOXICITY OF SOME MATERIALS USED IN THE
MANUFACTURE OF CEMENTED TUNGSTEN CARBIDE TOOLS.
7th Annual Meeting, Am. Ind. Hyg. Assoc. Chicago 1946

1947

Bradley, W. R.
GOOD HEALTH FOR THE LABORATORY WORKER
Published in Plant Magazine, May 1947

Averell, P. R., Hart, W. F., Woodberry, N. T. and
Bradley, W. R.
DETERMINATION OF NITROGEN OXIDES IN AIR:
PERMANENT COLOR STANDARDS FOR USE WITH METHOD OF
PETTY AND PETTY IND. ENG. CHEM., Anal. Ed. 19 No. 12
1040 (1947)

Bradley, W. R.,
PREVENTION OF AIR POLLUTION
Transactions, 35th National Safety Congress
Vol III.
Chemical Section, pp. 36-40 February 1948

1948

Bradley, W. R.
SOURCE OF INDUSTRIAL TOXICOLOGICAL INFORMATION
Presented before the 18th Annual Greater New York Safety Council Meeting, April 16, 1948, New York City

1949

Bradley, W. R. and Hamblin, D. O.
THE INDUSTRIAL HYGIENE PROGRAM OF THE AMERICAN CYANAMID COMPANY
Am. Indust. Hyg. Quarter. 10: 60-63 September 1949

1950

Bradley, W. R. and Gisclard, J. B.
PARATHION, TOXICITY AND INDUSTRIAL HYGIENE FACTORS IN ITS SAFE USE.
Presented at Annual Meeting, American Industrial Hygiene Assn., Chicago. April 27, 1950

1951

Bradley, W. R.
CYANAMID'S INDUSTRIAL HYGIENE PROGRAM
Industrial and Power, pp. 98-100 January 1951

Bradley, W. R.
THE INDUSTRIAL HYGIENE PROGRAM IN CYANAMID
Manuscript prepared for above

Bradley, W. R.
INDUSTRIAL HYGIENE CONSIDERATIONS IN THE MANUFACTURE OF REINFORCED PLASTICS
Presented at the 6th Annual Meeting of the Reinforced Plastics, Division, Edgewater Beach Hotel, Chicago. Feb. 28, March 1, 2, 1951. Published by Industry.

Bradley, W. R.
TRAINING FOR DISASTER
Chemical Industries Weekly, pp. 29-30, March 3, 1951

Bradley, W. R.
INDUSTRIAL HYGIENE CONSIDERATIONS IN PLANT LOCATION AND DESIGN
Chem. & Eng. News, 29: 1198-1200 March 26, 1951

1951

Bradley, W. R.
PARATHION VAPOR CONCENTRATIONS IN THE ATMOSPHERE OF CALIFORNIA GROVES DURING AND AFTER APPLICATIONS
American Cyanamid Co., Agricultural Chemicals Division, Publication, September 1951.

Stearns, C. R., Jr., Griffiths, J.T., Bradley, W.R. and Thompson, W.L.
CONCENTRATION OF PARATHION VAPOR IN GROVES AFTER SPRAYING AND EFFECTS OF THE VAPOR ON SMALL ANIMALS
Citrus Magazine, pp. 22-23 September 1951

1952

Bradley, W. R.,
THE BROAD SERVICE OF INDUSTRIAL HYGIENE TO INDUSTRY
Texas Public Health Assn. 4: 38-42, Feb. 1952
Also, Manuscript of above as presented at Regional Conference on Industrial Health, Houston Texas, September 28, 1951.

Bradley, W. R.
CONTRIBUTION OF CHEMISTRY AND TOXICOLOGY TO WORKER HEALTH
Presented at 17th Annual Meeting, Industrial Hygiene Foundation, Mellon Institute, Pittsburgh, Pennsylvania. Institute Publication, Nov. 19, 1952

1953

Bradley, W. R.
AN INDUSTRIAL HYGIENE ANALYSIS
Presented at University of Michigan, Industrial Health Seminar, December 1952, also at AIHA Tri-State Meeting, Philadelphia, January 30, 1953
University Publication.

1954

Bradley, W. R.
INDUSTRIAL HYGIENE CONTROL IN THE MANUFACTURE OF PESTICIDES
Presented at American Chemical Society Meeting, Kansas City, Mo. March 1954

1954

Bradley, W. R.
THE RESPONSIBILITY OF THE PROFESSIONS IN THE HEALTH OF THE EMPLOYEE
Industrial Health Conference, Joint Sessions, AIHA IMA, April 28, 1954. Published by the Conference.

Bradley, W. R.
THE GOALS AND BENEFITS OF AN INDUSTRIAL HEALTH PROGRAM
Environmental Aspect.
Presented at the Pacific Northwest Industrial Health Conference, Portland, Oregon, September 29, 1954.
(for publication, see 1955)

1955

Bradley, W. R.
THE GOALS AND BENEFITS OF AN INDUSTRIAL HEALTH PROGRAM
Environmental Aspect
Industrial Nurses Journal, 9: 15-19, January 1955.

Bradley, W. R.
RESEARCH AND ELIMINATION OF HEALTH PROBLEMS FROM DESIGNS OF FUTURE CHEMICAL PLANTS
Presented at 2nd Industrial Hygiene Conference, University of Texas, Austin, Texas, May 14, 1955.
Conference Publication

1956

Bradley, W. R.
THE AIR POLLUTION CONTROL COMMISSION PROGRAM FOR NEW JERSEY
Presented at Air Pollution Meeting of Control Assoc. Buffalo, N. Y., 1956, State Health Dept. Publication

Bradley, W. R.
MONITOR GRID: PHOSPHATE PLANT"S POUND OF POLLUTION PREVENTION
Chemical Week, pp. 60-61, December 1, 1956.

Bradley, W. R.
CLEANER AIR FOR NEW JERSEY
New Jersey Municipalities 33: 21-24, April 1956,
Together with New Jersey Air Pollution Control Code - 1956.
New Jersey Municipalities 33: 24-25, April 1956.

1956

Bradley, W. R.
THE AIR POLLUTION CONTROL COMMISSION PROGRAM FOR NEW JERSEY
Florida Engineering and Industrial Experimental Station, Gainesville.
Atmospheric Pollution, Bulletin Series No. 83, pp. 56-59, September 1956.

Bradley, W. R. and Grago, A.,
INDUSTRIAL APPROACH TO AIR POLLUTION PROBLEMS
Florida Engineering and Industrial Experimental Station, Gainesville.
Atmospheric Pollution, Bulletin Series No. 83, pp. 39-42, September 1956.

1957

Bradley, W. R.
INDUSTRIAL HYGIENE PRACTICES IN THE REINFORCED PLASTICS INDUSTRY
Presented at 12th Conference of the Society of Reinforced Plastics Industry, February 7, 1957.
Company Publication.

Bradley, W. R.
DEVELOPING WIDE INTEREST IN AIR POLLUTION ABATEMENT
Presented at Manufacturing Chemists' Association, 1957 Pollution Abatement Conference, Washington, D. C. April 4-5, 1957.

Bradley, W. R.
INDUSTRIAL HEALTH
Annual Meeting Industrial Nurses Association, St. Louis, Mo. April 1, 1957.

Bradley, W. R.
AIR POLLUTION CONTROL OF NEW JERSEY
New Jersey State Dept. of Health Publication, November, 1957.

Bradley, W. R.
INDUSTRIAL APPROACH TO AIR POLLUTION
Indust. Wastes, 2: 143-47, November-December 1957.

1958

Bradley, W. R.
INDUSTRY LOOKS AT AIR POLLUTION CONTROL
Presented at the Ohio Valley Air Pollution Control Council, Ind. Dinner Meeting - May 15, 1958.

1959

Bradley, W. R.
AIR POLLUTION CONTROL IS GOOD BUSINESS
Presented at the 51st Annual Meeting of the Air Pollution Control Association, Philadelphia, Penna., May 25-29, 1958. Journal of the Air Pollution Control Association, August 9, 1959.

Bradley, W. R.
THE IMPACT OF AIR POLLUTION CONTROL ON OUR ECONOMY AND SOCIETY
By-Product recovery and Development.
Presented at the National Conference on Air Pollution, Washington, D. C., November 18-20, 1958.
Proceedings - National Conference on Air Pollution
U.S. Government Printing Office, May 15, 1959.

Bradley, W. R.
AIR POLLUTION - INDUSTRY'S CHALLENGE
Engineering and Mining Journal, 160: 72. July 1959

Bradley, W. R.
Industry's Challenge in Air Pollution Control
Presented at Public Health Service, Taft Engineering Center, Cincinnati, Ohio
November 13, 1959. Company Publication

1960

Bradley, W. R.
WORKING AGAINST AIR POLLUTION
Presented at Plant Maintenance & Engineering Conference, Philadelphia, Penna. January 25-27, 1960
Maintenance Journal Publication.

1960

Bradley, W. R.
INDUSTRIAL HYGIENE CONTROL IN THE MANUFACTURE, DISTRIBUTION AND USE OF PESTICIDES
Presented at Symposium on Pesticides, American Institute of Chemical Engineers, Annual Meeting, Atlanta, Georgia - February 22, 1960.
Company Publication.

McHenry, C. R., Charles, H., Bradley, W. R., and Grago, A.
ATMOSPHERIC FLUORIDE MONITORING WITH SPECIAL NOTES ON METHODS AND TECHNIQUES
Presented at 3rd Annual Meeting of Air Pollution Control Association, May 22-26, 1960.

Bradley, W. R.
CONTROL THE OUTPUT OF YOUR SMOKESTACKS
Industrial World, pp. 45-46, June 1960.

Bradley, W. R.
INDUSTRY LOOKS AT AIR POLLUTION CONTROL
Plant Maintenance & Engineering, Vol. XI, pp. 63-66

1966

Bradley, W. R.
LIVING WITH NOISE LAWS AND REGULATIONS
Proceedings - Industrial Hygiene Foundation, Pittsburgh, Penna., October 1966.

Am. Ind Hyg. Assoc J 51(5) A-338-A-340 (1990)

PIONEERS IN THE PROFESSION

William R. Bradley, CIH

JOHN A. PENDERGRASS, CIH

William Robinson Bradley was born January 31, 1908, in Minneapolis, Minnesota.

Winafred Skerman, head librarian of the Saint Paul-Minneapolis school system knew of the birth and advised her friends, William Edwin Bradley, M.D., and his wife, Eva Robinson Bradley, who had been looking for a child to adopt. At the age of nine days, young William rode the Minneapolis and Saint Louis Railroad to his new home in Estherville, Iowa. Dr. Bradley was a pioneer physician and surgeon in this small County Seat town in northwest Iowa. The Bradleys were good Christians who helped build the Presbyterian Church and a small hospital. Mrs. Bradley was the superintendent of the primary department of the sunday school for 42 years. And so began a life that became a pioneering adventure in the maintenance of good health for people gainfully employed.

William was a good student. In his senior year in high school, the State of Iowa Historical Society sponsored an essay contest for seniors. Three prizes were to be presented for the best essays or stories of local history. William's essay told of a recent meteorite that flew over a city park band concert and landed on his uncle's farm about three miles out of town. The essay won the $100 second prize.

He continued his education at Cornell College, Mount Vernon, Iowa, graduating in 1929 with a B.S. degree in biology and chemistry. His post high school education took a number of turns. Some were due to his developing academic interests, some to personal desires and circumstances, and others to the economy.

Before getting into the chronology of William's education, it is necessary to make an introduction. In his sophomore year, William signed up for Biology I. A freshman girl, Elizabeth Marion Skewis, was also a member of that class. Bill noticed that she was very pretty. The first lesson was an introduction to the microscope. Professor Kelly asked the class to look at their microscopes and tell him what the magnification would be. While the rest of the class made guesses of three to ten, Bill waited for his turn to respond. He had learned about microscopes from his father. Bill's answer was, "Professor, I have a 10X ocular and a 10X lens, so the magnification is 10 times 10, or 100." Professor Kelly and Miss Skewis were both favorably impressed. Apparently Professor Kelly was not aware of the impressions that William and Elizabeth had made on each other. He assigned seats and laboratory space alphabetically. There were not enough tables in the main laboratory for all of the students, so Elizabeth and two other students were assigned to tables in an adjoining

laboratory. A little later, William asked Doctor Kelly if he cou be moved to the small laboratory, as he believed he could co centrate better without the noise of the main laboratory. I Kelly agreed. William and Elizabeth studied biology and g better acquainted. They were married on August 28, 1931. B that is getting ahead of the story.

After receiving his bachelor of science degree, William w accepted to the University of Iowa College of Medicine. For next two years, he studied the basic sciences of medicine. By th time he was convinced that he did not want to return to his hor town and go into practice with his father. Bill and Beth we married that summer.

Jobs were not easy to come by in the early days of the Gre Depression. Teaching in the public schools was a possibili More education was needed, so Bill enrolled in Buena Vis College in Storm Lake, Iowa. He qualified for a teaching certi cate after one semester of education courses. For the next thr years, Mr. Bradley was a high school science teacher. His intere in the medical sciences continued. Seeking a background toxicology, he enrolled in the University of Iowa, Departme of Biology.

Three summer schools were spent doing graduate work the Iowa West Okaboji Lake, University Biology Departme Laboratory. Studies included botany, biology, protozology, i sects, and general flora and fauna of the lake and the country sid

EXHIBIT #9 tabbies

In one of several projects, Bill studied frogs that migrated from a nearby swamp into the lake at a point where "Swimmer's Itch" occurred. He found two parasitic protozoans in the frogs, one parasitic in the other parasite. The study was written up and, along with pictures and drawings, was sent to Germany where it was published in *Das Lehrbuch Der Protistenkunda* in 1937. This was the first of many scientific publications for William R. Bradley.

It was at medical school that William got a first hint of occupational medicine. The professors kept two occupational disease cases to confuse the young diagnosticians. One was frank lead poisoning and the other an equally obvious case of silicosis. William asked the doctors how the lead and silica got into the body, how they caused illness symptoms, what organs were affected, and was there a cure for these diseases. The answers were that the doctors did not know and were not interested in finding out.

In spite of this introduction, in July 1937, Bill Bradley joined the newly organized Bureau of Industrial Hygiene, Detroit, Michigan, Department of Health. There he worked with William Fredrick, Ph.D., Herbert T. Walworth, and Carey P. McCord, M.D. Dr. McCord was the half-time director of the bureau. Of particular concern were the large numbers of lead intoxication cases in the automotive industry. There were needs for new trace analytical chemistry techniques, new instruments, and positive mechanical exhaust hood enclosures to be tried and perfected. Industrial toxicology was another special need.

At their own expense and outside of their Detroit Department of Health duties, Bill Bradley and Bill Fredrick developed a t[illegible]ology laboratory. Space was rented, cages built, and e[illegible]pment purchased. Their experiments were done on guinea pigs, white rats, mice, and a few rabbits. They bred the rats and mice that were used in their experiments. About 3000 animals were used in the testing of chemicals found in Detroit industries.

Bill Bradley dosed the animals, performed autopsies, determined pathology, while Bill Fredrick did the chemistry and record keeping. The LD_{50} data that they developed were most useful in their industry studies. Unfortunately, general publication was not permitted by the companies from which the chemicals were obtained. Private studies involving tracheotomy introduction of chemicals, free silica, and asbestos into lungs were done and published. During this time, Bradley took a few refresher courses in second year medicine at Wayne State College of Medicine in Detroit.

Looking back on Detroit, Bill remembers a four-month study of eight cases of premature infants. These studies demonstrated that the basophilic aggregation cells found in the blood of people exposed to lead were the same as in the premature infants. It was deduced that lead stored in the long bones was interrupting the hemopoietic system. When the concentration of these cells reached a certain level, toxic symptoms would develop. The basophilic aggregation cell blood test was widely used to determine if a lead worker was about to enter the early stages of lead intoxication.

It was during this same study that Bill noticed that there was a high death rate of premature babies born during the winter months. He developed a portable "preme ambulance" that Public Health Nurses could use to keep the baby warm while transporting it to the hospital to be placed in an incubator. Several of these were used by the Detroit Department of Health, and the death rate dropped dramatically among the premature infants. The design was copied and used in other cities.

During the Detroit days, Bill and Beth adopted two infants, a boy and a girl. As Bill's parents had done, these children were adopted soon after birth and directly from the hospital. The boy was named Charles William and the girl, Caroline Beth. Charles did not have any children, but the Bradleys have enjoyed being grandparents and great grandparents to Caroline's children and grandchildren.

On January 1, 1943, Bill joined Frank Patty at the Fidelity and Casualty Insurance Company in New York City. This phase of their careers ended abruptly on June 30, 1944. Bill declares that they were fired because they had done too good a job in controlling occupational disease among the insured. Insurance brokers were losing money on premiums. Nevertheless, Bill immediately went to American Cyanamid in New York and Frank to General Motors in Detroit. Both reported to medical directors, Bill to Donald Hamblin and Frank to Clarence Selby.

During his nearly 17 years at Cyanamid, Bill built a highly respected industrial hygiene group. One major challenge was the Arco, Idaho, Spent Fuel Chemical Reduction Plant built and operated by Cyanamid. Bill's staff increased to 10 industrial hygienists and 15 health physicists. No overexposure cases developed during Cyanamid's operation of the facility.

The introduction of the organic phosphate insecticides presented an entirely new set of problems for industrial hygiene. Not only did the workers who manufactured these products have to be protected but also those who would be using them. Under Bill's leadership, programs were developed and implemented to provide information to users along with training, blood tests, and site visits. Several species of animals, including a few cows, were confined in the citrus groves of Florida, Texas, and California. Blood samples were collected before and after spraying. Air samples were collected from the spraying vehicles during their operation. From these studies and some human blood data, it was determined that malathion could be safely used as a general area spray insecticide. Later similar studies were conducted to determine the precautions necessary to safely use "Thimet," another but more toxic organic phosphate insecticide.

For those of us who were a part of the industrial hygiene program at Cyanamid, it was evident that Bill had gained the respect of management from the president all through the company. What industrial hygienists said was regarded as fact. The industrial hygienists had, through Bill, authority to shut down operations if we felt that it was necessary to protect the health of the workers.

A tenet of industrial hygiene at Cyanamid under Bill Bradley's direction was evaluation of the problem. Included in the many extensive studies that were conducted in addition to the organic phosphate pesticides were nitroglycerin-ethylene glycol dinitrate, fluorides, formaldehyde, and chlorine.

Shortly after World War II, Bill acquired an interferometer. This was an instrument that could be used to measure the concentration of organic vapor in the air. To say that the instrument was rare is an understatement. Its use in industrial hygiene was

even later. This interferometer was about 3 feet long, 8 to 10 inches in diameter, and moderately heavy. It did not come with a carrying or shipping case; instead, a golf bag was pressed into service for transport and protection of the instrument. As with so many instruments of the period it could not be checked as baggage on airplanes or trains. Invariably there were comments about the golf bag.

Air pollution control was a part of industrial hygiene at Cyanamid. What was being done within Cyanamid caught the eye of the governor of New Jersey. He asked the president of Cyanamid if Bill could be loaned to the New Jersey Department of Health for one day a month to draft air pollution control regulations for the state. The governor also wanted Bill to chair an air pollution control committee whose members were from both industry and government. This lasted 10 years, until the federal government decided they could do a better job than the state in writing laws for New Jersey.

A number of us have enjoyed having Bill as a mentor. Bill Andresen was one of the first. He moved over from chemical engineering to industrial hygiene. It wasn't long before Bill Andresen combined chemical processing with local exhaust ventilation for the control of exposures. He created a book of engineering drawings of control techniques that became a bible for process and design engineers. Bill Bradley was quick to recognize when the people who worked for him had a good idea. He encouraged and supported his staff in special projects. Sometimes it would take months of effort before the results were evident. Bill Bradley understood the importance of keeping current work up to date, but he appreciated that some investments required more time to mature and reach their full value.

Charles McHenry and I joined Cyanamid about the same time. We were the beneficiaries of a well respected industrial hygiene program. We were young and with limited experience, but that did not stop Bill Bradley from giving us opportunities to practice industrial hygiene in a first class manner.

It happened that we left Cyanamid at about the same time to initiate industrial hygiene programs in Xerox and 3M Company, respectively. Someone visiting 3M a few years later, who was acquainted with the Cyanamid industrial hygiene program, would no doubt recognize the similarity. I intentionally took to 3M those practices that I learned worked so well at Cyanamid. I know that Charles did the same thing at Xerox.

Bill Bradley is a pioneer in industrial hygiene, and he was likewise a pioneer in the professional societies that were developed and nourished by those who created our profession. Bill was one of the founders of the Michigan Industrial Hygiene Society in November 1937. The American Industrial Hygiene Association (AIHA) was formed in 1939. In 1989 William R. Bradley received an award as one of the founders of the AIHA. Bill served as president of both. In 1952 he was the fourteenth president of AIHA. He was one of the founders of the American Board of Industrial Hygiene (ABIH). Bill served on that board from 1961 through 1968. He is a diplomate of the ABIH, certified in the comprehensive practice of industrial hygiene with certific number 2.

When you start with the grass roots there is a tendency remember them. While Bill served in the national organizati of the professions, he also has been active in local affairs. He been a member of three AIHA local sections. He was a direc and president of both the Metropolitan New York Section a the New Jersey Section. He has been active in the Califor Section in more recent years.

Bill carried the messages of industrial hygiene outside profession into the business world and academia. He has bee member of American Chemical Society, American Public Hea Association, Manufacturing Chemists Association (serving the Air Pollution Abatement and Water Pollution Abatem Committees), the Air Pollution Control Association, Natio Research Council, Interstate Sanitation Commission, Hea Physics Society, and the Royal Society of Health in Lond England. He was a Fellow of the American Association for Advancement of Science. Bill was one of the original trustee the American Industrial Hygiene Foundation and a membe the Founders Club from 1981 through 1985.

Bill's contributions to industrial hygiene have been knowledged by honors and awards such as an honorary me bership in AIHA in 1977, the Borden Award in 1981, Foun of Michigan Society of Industrial Hygiene in 1988, and Found Father of American Industrial Hygiene Association in 1989 1982 Bill was the recipient of the Carolinas Section Award t member who is a past president of the AIHA.

Bill encouraged those who worked with him to beco active in professional organizations. Almost everyone served committees of the national AIHA and as officers of local sectio Two were directors of the national organization and one ser as president.

Bill has over 50 publications in the fields of industrial to cology, environmental health, air pollution, radiation, saf and of course, industrial hygiene. He has lectured at the Univer of Michigan, University of Pittsburgh, University of Tex University of Florida, New York University, Columbia Univ sity, and Colby College.

Bill is an international traveler. He recently complete cruise of the Balkan countries where he studied biology, pale tology, and geology. He has been a delegate to the Internatio Conference on Environmental Health in Primosten, Yugosla and to the International Symposium on Industrial Toxicol in Lucknow, India.

Bill's career in industrial hygiene continues in an active c sulting practice. In March 1960 he resigned from Americ Cyanamid and started his own consulting firm, William Bradley and Associates. The firm has been busy since the do opened and will remain so until Bill decides challenging lawy is not as enjoyable as fishing, traveling, or stamp collecting.

We salute William R. Bradley, CIH, industrial hygien toxicologist, scientist, teacher, mentor to many, a friend founder, and a pioneer in the greatest sense of the word!