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The Pneumoconioses

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Director Emeritus and Professor Emeritus
Institute of Industrial Medicine
New York University

Formerly Senior Surgeon U.S.P.H.S.; Chief Surgeon, U.S. Bureau of Mines; Medical Director, General Motors Corporation; Special Staff Member, International Health Board, Rockefeller Foundation (Industrial Health Government of Australia); Colonel, M.C. U.S. Army, in Charge Division of Occupational Health



New York • London

Grune & Stratton

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CHAPTER 2

Asbestosis

BY KENNETH W. SMITH, M.D.
Medical Director
Johns-Manville Corporation

Historians have recorded the fact that the ancient world was well aware of the peculiar properties of the asbestos fibre, chiefly its resistance to fire and the ability of the fibres to be spun into cloth. In Plutarch we read about the vestal virgins who had lamps with "perpetual" wicks; elsewhere we find reference to lamps with incombustible wicks made from "Carpathian flax," derived from a mineral found on islands near Cyprus. Pliny refers to the "funeral dress of kings" which apparently were shrouds of woven asbestos used in funeral ceremonies of the nobility. When Marco Polo travelled through Siberia he found a fossil substance which "When woven into cloth and thrown into the fire, remains uncombustible."

The term "asbestos" is generally used to describe several fibrous magnesium silicates which are different in their chemical composition and physical properties. The most important types of fibres are chrysotile, amosite, crocidolite, anthophyllite, actinolite and tremolite. Deposits of various types of this mineral are found in many countries, but the largest mines are located in Canada, Africa and Russia. About 90 per cent of the fibres produced today are of the chrysotile variety.

Open pit or underground mining methods are employed to obtain the asbestos fibre. The fibre-containing rock is transported to the mill where it is dried, crushed and the rock separated from the fibre by screening methods. The fibres then are opened, cleaned, graded and bagged for shipment. It is estimated that there are between 12 to 15 thousand people in North America employed in the production and primary manufacturing of asbestos. No estimate has been made of the number of people who handle finished asbestos products.

Individual chrysotile fibres are white, but when seen together as they occur in the veins of serpentine rock their colors vary from green, to yellow-green, to amber. Amosite fibres usually are yellow-

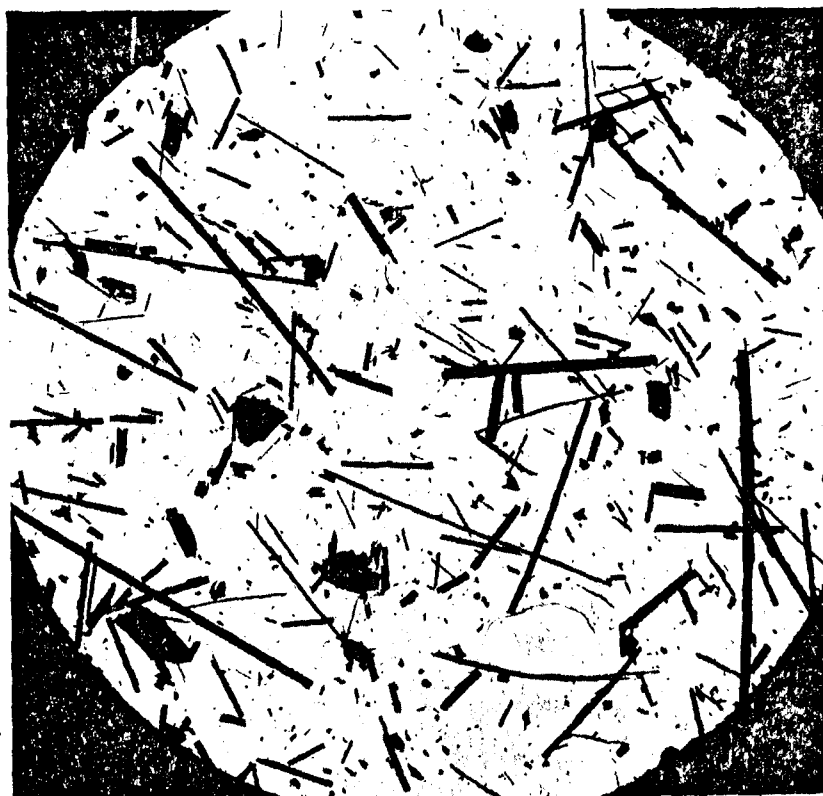


Fig. 3. Electron micrograph, crocidolite asbestos; x 4000.

Therefore, it seems more appropriate to use the term "asbestos" bodies rather than "asbestosis" bodies, signifying exposure to the fibres but not necessarily indicating disease. In addition, the finding of occasional asbestos bodies, singly or in clumps in pulmonary tissue does not definitely indicate generalized parenchymal asbestosis.

If increasing quantities of the fibres are continually inhaled, the tissue reaction progresses, and a generalized, diffuse fibrosis gradually appears throughout the lower lobes of the lungs. With additional exposure, this fibrosis will spread to the other lobes, eventually causing respiratory embarrassment and finally cardiac failure.

There is no allergic response of the skin or respiratory tract membranes to contact with the asbestos fibre. Thus poisoning or similar toxicological effects of the fibre should not be considered.

The theory of mechanical irritation is interesting. Will the asbes-

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pational diseases because of the serious Workmen's Compensation implications. The term "asbestos worker" has been used too freely in recent years by many physicians. When alluding to an asbestos worker one would naturally assume that the individual used asbestos fibre in his occupation. Any physical disability in this person then might be attributed to his inhalation of the asbestos fibre.

Unfortunately, the term "asbestos worker" very frequently is used to denote a member of the asbestos workers union, a group of people whose chief occupation is the application of insulating materials. Many years ago, the asbestos fibre was the only insulating material commonly used. Today, mineral wool, glass fibre, magnesia, and a host of other products are used in the insulation industry, but the applicators still are called "asbestos workers" because of their union affiliation. Hence, when the literature presently available is reviewed, it would be advisable to ascertain the true occupational job title.

Some observers in the past few years have associated various conditions such as lung cancer, bronchiectasis, emphysema and bronchitis with the asbestos worker. No attempt was made to associate the disease with the clinical, radiological and pathological entity, known as asbestosis. The occupational title of the individual was sufficient to associate a certain disease with the asbestos fibre. Clear-thinking and diligent authors have associated other pulmonary diseases with asbestosis. It is unfortunate that less accurate authors have generalized their comments and thereby confused intelligent readers. Perhaps with more accurate reporting the alleged association of inhalation of asbestos fibre and other intercurrent disease conditions would be clearer today. It is entirely possible that the asbestos fibre may be a carcinogen, or a co-carcinogen. However, the true relationship will remain obscure until responsible reporters can evaluate the relationship between agent and disease and not just job title and disease.

This author's experience has extended over a period of eighteen years, during which time over 50,000 physical examinations and chest X-ray films have been observed among workers in the asbestos-mining, milling and fabricating operations. Among these workers, who were exposed only to chrysotile fibre, there were no more cases of pulmonary malignancy than among the general population.

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Tribute

Anthony J. Lanza, MD

1884-1964

I have been asked to write a tribute to Tony Lanza. Such was my relationship to this great and gentle man that the account must of necessity be a personal one. We were professional associates for the last 16 of his 80 years, and, much of this time, I not only shared his office, but served as his physician as well.



ANTHONY J. LANZA, MD

So productive was the career of Dr. Lanza, and so seemingly diverse in its range of activities that the obituary writer for *The New York Times* was hard pressed to assemble his story for edition time. Only when it was suggested that he review Dr. Lanza's professional life as a succession of five careers with the fabric of occupational medicine common to all did the mass of biographical material fall into place.

Tony was a most energetic individual, with inexhaustible courage and drive. Severely handicapped in 1954 by a stroke, he fought through a long paralytic period to virtually complete restitution of motor function and most important, to resumption of productivity. Not a crusader, he was capable of being mighty earnest about his convictions. He would often introduce one of his many confidences to me with the phrase "Damn it, David," frequently accompanied by the resounding bang of his fist

upon the desk. This was always the cue that the discourse which was to follow was on a subject for which he had deep feelings. His modesty was nicely expressed in the following retort to an expression of praise for one of his accomplishments: "In a land of blind men, a one-eyed man is king." As a raconteur, he often held his vocal fellow Ramazzinians in silence with the wisdom and warmth of his reminiscences, but, most vividly, I remember Tony for the vitality of his sense of humor. There was the day in University Hospital, in December, 1963, when Tony was two days convalescent following three episodes of cardiac arrest, dramatically reversed by the defibrillator. Tony's daughter, Mary, came to visit him and found him dozing. In hushed whispers, I tried to answer her questions about the pacemaker and the alarm monitor with its continuous oscilloscopic display of the electrocardiogram. At this juncture, Tony awoke and inquired about the "lecture", to which Mary replied that she had just been looking at the "movie" of his heart. "Ah," said Tony, with an impish twinkle in his eyes, "let's entitle it 'The Story of My Broken Heart,' and of course," he added, "don't forget the appropriate sentimental musical accompaniment."

Anthony Joseph Lanza was born in New York City in March, 1884, the son of Manfredi and Clara (Hammond) Lanza. His maternal great-grandfather, grandfather, and uncle were physicians. Indeed, his grandfather, William Alexander Hammond, who died in 1900 when Tony was 16 years old, had been Surgeon General of the Army during the Civil War and was one of the founders of American Neurology. Manfredi Lanza died when Tony was a small boy and there can be no doubt that the influence of the Drs. Hammond upon Tony's future was great.

Graduation from George Washington University Medical School in 1906 was followed by an internship at the Eastern Dispensary and Casualty Hospital. In 1907 Tony embarked upon the first of two distinguished careers in the service of his government. Commissioned in the Marine Hospital Service (later the United States Public Health Service), he served, consecutively, at the Marine Hospital in San Francisco, as a ship's surgeon in the Revenue Cutter Service, as Inspector, Immigration Service to the Port of San Francisco, and, at length, at the Marine Hospital Tuberculosis Sanatorium at Fort Stanton, NM. This last assignment was doubly significant. Not only did he acquire the interest and skills in diseases of the lungs from which developed his later major contributions to the knowledge of the pneumoconioses, but he also met and courted (on horseback) Laura Kate Thomas whom he married in 1913, in Washington, DC, following his transfer to the Hygiene Laboratory there.

In 1914, Dr. Lanza was appointed as Chief Surgeon to the Bureau of Mines and assigned to the Joplin, Mo district. The mission was "to investigate and report on the prevalence, causes, and methods of control of pulmonary disease among miners" in the lead and zinc mines of that region. Prior to this study, miners' phthisis or miners' consumption had received little attention from mining men and physicians in the United States. The results, published in a number of technical bulletins of the United States Public Health Service, underscored the wide prevalence of pulmonary disease among miners. These and similar studies in the copper mines of the Butte district, Montana, made medical history and established Dr. Lanza's lifelong preeminence as an expert in occupational dust diseases of the lung.

The Butte, Mont, investigations were interrupted by World War I. In 1918, Dr. Lanza became Director of the Division of Industrial Hygiene of the United States Public Health Service and concerned himself with the health of workers in factories and munitions plants, establishing ten branches of the Division in as many cities.

In 1920, after 13 years with the Public Health Service, Dr. Lanza resigned to become Medical Director of the Hydraulic Steel Company in Cleveland, Ohio, from which post he was lured, in 1921, by an invitation from the International Health Board of the Rockefeller Foundation to organize and establish a division of industrial hygiene in the National Health Service of Australia.

His next important career began in 1926 with appointment as Assistant, and, later, Associate Medical Director of the Metropolitan Life Insurance Company. His responsibilities were to provide industrial medicine and industrial hygiene services to companies whose group life insurance policies were held by Metropolitan. This assignment, which was to last until his retirement from the company in 1949, plunged Dr. Lanza into the whole spectrum of occupational disease problems. Especially, it provided him with the opportunity to apply his knowledge and expand his skills in the pneumoconioses. Studies for the asbestos industry as well as silicosis investigations in the tri-state mining area of Kansas, Missouri, and Oklahoma yielded a series of significant publications. The clinic in Pitcher, Okla. became the base for further collaborative efforts with the Public Health Service and, most important, collaboration with Dr. Leroy Gardner, Director of the Saranac Laboratories. The respect and admiration which Drs. Lanza and Gardner held for each other knew no bounds. Actively associated with these two giants was the distinguished Dr. R. R. Sayers of the United States Public Health Service who had succeeded Dr. Lanza as Chief Surgeon of the Bureau of Mines.

Another career, also with the common thread of occupational health, presented itself with the advent of World War II. On leave from Metropolitan Life, Dr. Lanza was commissioned, in March, 1942, Lieutenant Colonel (later promoted to Colonel) in the Office of the Surgeon General of the Army. His assignment to head the newly organized Occupational Health Division of the Preventive Medicine Service under the direction of the late Gen James S. Simmons was a colossal one. It involved the occupational health of over 900,000 civilians in the many installations ranging from chemical warfare and ordnance plants to ports of embarkation. Dr. Lanza established the Army Industrial Hygiene Laboratory in The Johns Hopkins University as well as the Armored Force Medical Research Laboratory at Fort Knox. For these and many other successful activities, Dr. Lanza was awarded the Legion of Merit, and, in 1946, the Knudsen Award.

After World War II, Dr. Lanza returned to the "Met" and was graciously "loaned" half time to New York University Medical Center to plan a new unit, the Institute of Industrial Medicine. In 1949, upon his retirement from Metropolitan Life, he began another career as Director of the Institute and the first chairman of the Department of Industrial Medicine in the Postgraduate Medical School. It seems more than coincidence that Tony's grandfather, General Hammond, held the first chair in neurology at the Bellevue Hospital Medical School and was one of the founders, in 1882, of the same postgraduate medical school.

Dr. Lanza wrote two text books and innumerable scientific publications, served on many committees, and held many honorary positions. He was a trustee of the Trudeau Foundation, a trustee and chairman of the Medical Committee of the Industrial Hygiene Foundation, and served successively as member, chairman, and chairman emeritus of the American Medical Association Council on Industrial Health (now, Council on Occupational Health).

In 1954, at the age of 70, Tony became professor emeritus, but this was by no means a retirement. Indeed, it was another career, his "editorial period." He served

on the Advisory Editorial Board on the History of Preventive Medicine in World War II, right up to the time of his last illness in March, 1964. He was also Editor-in-Chief of the *Modern Monographs in Industrial Medicine* published by Grune & Stratton, Inc., the first of which appeared in 1958. *The Pneumoconioses* was the seventh and final monograph in the series of which he was both Editor and a major contributor. So successful were these last efforts that Dr. Lanza was given the 1964 Adolph Kammer Merit-in-Authorship Award of the Industrial Medical Association. While the award was presented posthumously, he had been informed of this citation before his death, the knowledge of which was a source of great happiness to him.

Of all the many honors which Tony received, the one he valued most was also known to him before his death but scheduled by fate to be conferred posthumously. On Jan 27, 1964, the Board of Trustees of New York University decided to name after him the University's laboratories located near University Valley in Sterling Forest. On May 13, 1964, at the formal dedication, the laboratories were designated the Anthony J. Lanza Research Laboratories for Environmental Medicine.

Dr. Lanza died on March 23, 1964, and, befitting his long service to his country, was buried in Arlington National Cemetery. As it was said of his grandfather, General Hammond, so it can be said of the grandson. "A truly remarkable man, he was a credit to his country and to his profession."

This great man's life was eloquently epitomized in 1960 by Dr. Norton Nelson, his successor as Director of the Institute and Chairman of the Department at the Medical Center, when Tony was awarded the Presidential Citation of New York University: "Behind this bare recital of dates, titles and geography are those qualities that help make the man those around him have known: The warm understanding, the unfailingly perceptive intellect, the unassailable integrity and, most of all, the calm and steady wisdom."

DAVID H. GOLDSTEIN, MD

It has been said that "all history becomes subjective; in other words there is properly no history, only biography." Insofar as this is true of the general systems of law and science and culture concerning which it was written, it is also true of the special system of principles and rules and guides that are distinctive of industrial medicine, particularly in their development period. As with all movements that have grown into maturity, industrial medicine had its years when the men who were fashioning its form and shaping its future, themselves made its events, each distinguished by the addition of a timely talent or a needed ability as its possessor laid it on the altar of his dedication. The history of those years is the combined biographies of those men, and the order of industrial medicine that evolved from their work is the result of their combined contributions. Many of those men are gone, but a few have survived to see their field of endeavor become a profession.



Profiles in Occupational Health

Anthony J. Lanza, M.D.

1884-1964

One of the few is Anthony J. Lanza — "Tony," for so "this side of our known world esteems him." His contribution was an aggregate of contributions, a lifetime of them. That is an objective estimate. His own preference is to characterize his career in terms of one accomplishment rather than many. The nearest he can come to this singularity is to describe his part in the development of industrial medicine as having been principally that of a "catalyzer." It is an apt expression. If the catalyzer concept be transferred from substance to circumstance, and given the working arena of human instead of material contacts, the term may comprehend an action or reaction induced or accelerated by a personal presence, and in that sense it is applicable to much of what this man has been doing for nearly fifty years. The term is his, but the biographer could not have found a better one to describe a part — and only a part, but perhaps in some respects the better part — of his many activities. It is probable that, in "catalyzer" capacity, Tony Lanza has converted more physicians and industrialists to the philosophy of industrial medicine, reconciled more opposing views, made more

Dr. Anthony J. Lanza, a distinguished pioneer in occupational health, died in New York City on Monday, March 23, 1964.

In the November, 1960, issue of this journal, there appeared a living tribute to Dr. Lanza. Since it appears unlikely that any more suitable tribute might be prepared after his death, that 1960 Profile is here reproduced.

recommendations in a greater variety of situations, softened away more arguments, attended and presided at more meetings and conferences formal and informal, been chairman of more committees, and guided more discussions into constructive channels than any other man in the field of occupational health. His contributions echo in a thousand places.

Unfortunately for the record as to many of his "catalyzer" accomplishments, however, "echo" is about all that remains in the way of identification. Their details have been obscured by time, and there is practically no documentation in anything he has, nor any guide to it elsewhere in

what he will admit. He possesses no diary, no scrapbook of clippings, no files of copies or reprints. As to such reminders his comment is that he can't bother with them. If, for reasons of merit, and regardless of whom they concern, they are worth keeping, their preservation is the business of those who staff the archives. This attitude extends to all of his contributions, but it has an added meaning for such of them as have the catalyzer connotation. The catalyst has a use but no history. It comes and goes unchanged. For it to assume that it did more than that, and to buttress the assumption with accumulated proof, might savor of supererogation. And so he preserves few contacts with the past. Among his meager concessions to the permanence of time that is gone are the copies he has in his library of the books of which he was author or editor. Chronologies of the "Who's Who" type he can't escape, but it is suspected that his feeling toward them is acquiescence as much as pride.

The reason for this is not modesty or indifference. Rather it seems involved with temperament and sense of values. About the time he graduated in medicine he was deeply impressed by a statement he found in an essay by Sir William Osler to the effect that if one performs each day's work to the best of his ability he need not be unduly concerned for the future, as it will take care of itself. That, in general, has been his philosophy — "each day's work to the best of his ability." In particular, and in keeping with the sense of finality — almost fatalism — implicit in such discipline, he considers that what is done is done, "and that's an end of it," and now to go on from there. This applies in whatever he undertakes. If he were a bridge player he would treat a hand played as a hand played, and have no interest in the prompt postmortem. Sufficient unto the occasion is what it was; its importance is the score at its end. If that is deserving of a lasting place, the future will put it where it belongs. And Kismet then will be *amanuensis*.

In terms of his philosophy, and subordinating the "catalyzer" characterization, Tony Lanza's career in industrial medicine is a half-century multiple of "each day's work to the best of his ability." Examination of the "day" in its repetitions, and the "ability" in its manifestations, may, therefore, prove revealing.

Doctor Lanza was born in New York City in March, 1884, the son of Manfredi and Clara (Hammond) Lanza, and was named Anthony Joseph. His father died when he was a small boy, and the family moved to Washington, D. C., where he grew up with the ambition to add one more to the three successive generations in which a family member had practiced medicine in the United States. Successful in a competitive

examination for one of the scholarships established by William Corcoran, founder of the Corcoran Art Gallery, he enrolled at George Washington University Medical School, and graduated M.D. in 1906. After a period as Chief Resident at the Eastern Dispensary and Casualty Hospital, he was commissioned in the Marine Hospital Service (later the United States Public Health Service), and in 1907 was assigned to the Marine Hospital in San Francisco. There he had the unforgettable experience of finding in the surgical ward a case of bubonic plague, diagnosed postmortem, whereupon, "all hell broke loose." When the confusion was compounded by the discovery, also in his ward, of a second case, likewise diagnosed postmortem, the Surgeon General sent Doctor Rupert Blue to take command of antiplague operations. Doctor Blue recognized the situation, brought it under control, and the "plague epidemic" aborted.

In 1908 Doctor Lanza was detailed as Ship's Surgeon in the Revenue Cutter Service, now the Coast Guard, and made several cruises to the Aleutian Islands and the Bering Sea on the Cutter *Rush*. He also served on the Cutters *Manning*, *McCullough*, and *Bear*. The tour of duty on the *Bear* was another experience to be remembered, for the *Bear* — even then recognized as "the stoutest ship ever built" — was to become famous as Admiral Byrd's flagship in the Arctic in 1933.

Following his Revenue Cutter assignments, Doctor Lanza was appointed Medical Inspector in the Immigration Service, Port of San Francisco. As Boarding Officer he examined immigrants under the same medical regulations as those that governed entry at Ellis Island. After about a year he was detailed to the Marine Hospital Tuberculosis Sanitarium at Fort Stanton, New Mexico. There he became interested in clinical tuberculosis, and in tuberculosis as an occupational disease. That was the beginning of his lifelong identification with industrial medicine.

In 1913 he was sent from Fort Stanton to the old Hygienic Laboratory in Washington, antecedent of the National Institute of Health, and already famous for the work of its distinguished physicians in connection with the principal health problems of the time: Stiles, in hookworm; Goldberger, in pellagra; Lumsden, in typhoid; Francis, in tularemia; McClintock, in Rocky Mountain Spotted Fever. At the Laboratory, under preceptors of their quality he received intensive instruction in biological diagnosis and research techniques in general, and when this was finished he was appointed to the Bureau of Mines as Chief Surgeon. From then on his work in the Public Health Service was to be in connection with occupational diseases.

His first assignment as Chief Surgeon was to take over the investigations of health conditions in the lead and zinc mines in the Joplin, Missouri, district, which had been started by the Public Health Service but in 1914 were assumed by the Bureau of Mines. There was an extraordinary prevalence of tuberculosis among the miners, and, accompanying it, was an underlying occupational disease which they themselves recognized and labeled "miner's con." Doctor Lanza examined the miners at a clinic established for that purpose at nearby Webb City, and, with Edwin Higgins, Mining Engineer, made extensive studies of ventilation, temperatures, and dust conditions underground. His first report (with Higgins), published in 1915, covered the pulmonary diseases among the miners and their relation to rock dust in the mines. His second, in 1917, was on "miners' consumption." And his third (with Harrington), in 1921, had special reference to lung conditions in the Montana area.

About the time Doctor Lanza began the Joplin studies, the Public Health Service established its Division of Industrial Hygiene, under Doctor Joseph Schereschewsky, who, as head of the Office of Field Investigations of Occupational Diseases, had just completed an exhaustive study of the health of garment workers in New York City. When World War I interrupted the mining investigations centering in Butte, Doctor Lanza was assigned to the Laboratory Station in Pittsburgh, under Schereschewsky's direction. He was followed as Chief Surgeon of the Bureau of Mines by Doctor R. R. Sayers, who had been associated with him in the Joplin and Butte investigations. In January, 1918, Schereschewsky was given charge of the USPHS Division of Scientific Research, and Doctor Lanza succeeded him as head of the Division of Industrial Hygiene. While the war continued, this Division's principal concern was the health of the workers in munitions plants and the environment in which they lived and labored.

In 1920, after thirteen years in the Public Health Service, Doctor Lanza resigned to become Medical Director of the Hydraulic Steel Company, at Cleveland, Ohio. This was an unusual company. All its executives were young men — none was over forty; and its labor relations and social and personnel policies were decades ahead of their time. Being the head of its Medical Department was a comfortable job. But Destiny hadn't been preparing this man for that kind of a life. It allowed him a year of it, and then the International Health Board of the Rockefeller Foundation, which had been arranging to set up a Division of Industrial Hygiene in the National Health Service of Australia, offered him the position of Special Field Officer. He promptly

accepted, and — with Wilbur Sawyer who afterward became head of the International Health Board, and Frank Longley, Engineer — set sail for "down under." He was stationed in Melbourne, the capital; his Chief was Doctor H. L. Cumpston, Director General of Health. Australia, however, was not ready for industrial hygiene supervision on a national scale, and the undertaking resulted in not much of permanent value. The State of New South Wales established its own Industrial Hygiene Division, which is still active; but it took the exigencies of World War II to demonstrate to the general economy the advantages of doing the same. After a little more than three years — during which he had visited mines and factories in all parts of the continent, seeing and learning, and had ventured a published comment on his observations — Doctor Lanza felt that he had accomplished all he could, notified the International Board, and returned to the United States. He was thinking of going back into industry as a Medical Director — not, however, for Hydraulic Steel, as it had lost its identity in a merger — when the opportunity to join Metropolitan Life Insurance Company as an Assistant Medical Director presented itself. He says of this: "Fortunately for me, I had the good sense to accept."

At Metropolitan, together with the late Doctor Wade Wright, he conducted a consultation service in industrial medicine and industrial hygiene for the benefit of the many concerns whose group life insurance was carried by his company. Among those who worked with him side by side throughout the twenty-three years he was with Metropolitan were J. Wm. Fehnel, experienced in industrial hygiene, and Doctor Wm. J. McConnell, quiet, capable possessor of vast wisdom in industrial medical matters, freely shared when it would serve a need. The varieties of working conditions with which these men became familiar were all that could be imagined, and the problems they presented ran the gamut of the possible and sometimes nudged the impossible. A soon-discovered relation between the problems and the kind of industry in which they occurred led to the inauguration of industry-wide studies, and beginning with its survey of occupational pulmonary disease in the asbestos industry, the Metropolitan group became distinguished for its industry-wide analyses of the hazards to health in foundries, potteries, chemical plants, the making of steel, and many other kinds of work.

In 1925 the Metropolitan Life organization, together with the Mine Operators' Association, the Public Health Service, and the Bureau of Mines brought about the establishment, at Picher, Oklahoma, of the Picher Clinic for the further investigation of miners' diseases and

working conditions in the Tri-State area (Kansas, Missouri, Oklahoma). Two years later, at age forty, Dr. Leroy U. Gardner, already distinguished as a pathologist and authority on tuberculosis and pneumoconiosis, became Director of the Saranac Laboratory, at Saranac Lake, New York, and thereafter, at Doctor Lanza's behest, he and his Assistant Director, Donald Cummings, gave invaluable aid to the Picher Clinic in advice and counsel, and by way of scientific research that brought the Saranac Laboratory into enduring fame. Reports of the Picher enterprise are found in various governmental publications. Doctor Lanza and Doctor Gardner became great friends, and each was a source of inspiration to the other. Considering the unusual ability both possessed to inspire others in general, this was a high-voltage relation. The remarkable success of Doctor Gardner's Symposia on Silicosis in bringing together scientists and researchers from all over the world owed much to Doctor Lanza's cooperation, and reflected, to an extent, his international acquaintance among those who were interested in the pneumoconioses. During the 1930's Doctors Lanza and Gardner, together with Doctor R. R. Sayers, of the USPHS, who had succeeded Doctor Lanza as Chief Surgeon of the Bureau of Mines, were "a persuasive triumvirate" in widespread educational activities among medical and technical societies, industrial organizations, and legislative groups, aimed at bringing about a better understanding of occupational diseases in their clinical as well as their compensation aspects. Doctor Gardner died in 1946, at age 58, untimely taken in his brilliant prime.

At the outbreak of World War II, Doctor Lanza, on leave from Metropolitan, was commissioned Lieutenant Colonel in the Office of the Surgeon General of the Army, and put in charge of the newly-created Division of Occupational Health, Preventive Medicine Service, under the direction of the late General James S. Simmons, who afterward became Dean of the Harvard School of Public Health. This was an entirely new enterprise for the Army, and it necessitated much reshaping of traditional attitudes regarding the functions of a military physician. The Army quickly became owner of all types of manufacturing plants, and the operator of most of them, the others being run by contractors. Doctor Lanza's Division was concerned only with the Army-operated plants, but these produced ordnance, airplanes, chemicals, clothing, food and food containers, munitions, quartermaster supplies, and whatever else the Army needed, and, at the peak of the war effort, employed more than a million people, about forty percent of them women. Here again Doctor Lanza had the benefit of the abilities and services of Doctor Wil-

liam McConnell, who was charged with the responsibility of health supervision in the ordnance plants. Under Doctor Lanza's Division of Occupational Health were the Army Industrial Hygiene Laboratory, first set up in the School of Public Health at Johns Hopkins, under the direction of the late Doctor Raymond Hussey, and the Armored Force Medical Research Laboratory at Fort Knox, better known as the Tank Laboratory, a most successful enterprise headed by Doctor Willard Machle.

In 1942, Doctor Lanza was promoted to the rank of Colonel. When he left the Service three years later and returned to his position at Metropolitan Life, he left to his successor, Colonel Leigh Cook, the well-organized industrial medical program he had established in the Army. This has been continued, and for a long time has had its counterparts in the Navy and the Air Force. The Industrial Hygiene Laboratory became the Environmental Hygiene Laboratory, located at Edgewood, New Jersey. Doctor Lanza was awarded the Legion of Merit.

In 1947, Doctor Lanza was asked by New York University if he would be interested in organizing an Institute of Industrial Medicine in its Post Graduate Medical School. This he considered a challenge and an opportunity he could not refuse, and so, through the cooperation of the University authorities and Metropolitan Life, it was arranged that he would give half his time to each until his retirement from Metropolitan which, under Company regulations, would be due in 1949. At the start the Institute was part of the Department of Preventive Medicine, of which Professor Edward Melany was Chairman. After two years it was set up independently, with Doctor Lanza as Director and Professor of Industrial Medicine. The Institute was successful in bringing together as faculty members a young and enthusiastic group, both full-time and part-time; and when Doctor Lanza, under the University's compulsory retirement system, retired in 1954 as Professor Emeritus he left it solidly established, with Doctor Norton Nelson as its able and energetic Director, and Doctor David Goldstein, Medical Director of *The New York Times*, its Professor of Industrial Medicine.

Although compulsory retirement age has overtaken him twice — at 65 at Metropolitan Life, and at 70 at New York University — the third time is not yet, for now, at 76, Doctor Lanza is still active, still interested, writing and editing within his beloved field. In addition to other commitments, he is Editor-in-Chief of the series of Modern Monographs in Industrial Medicine (Grune & Stratton) now appearing from time to time. One wishes he would pen the narrative of his long and varied experience. There is more

than the suggestion of drama in many of his "catalyzer" episodes. Their stories all would be interesting, and some could have definite value, particularly those of his contacts with the military mind — which knew nothing and cared less about industrial medicine, and couldn't conceive of an Army doctor in any other relation than as serving troops. What he did, and the fact that he did it, are history, but the firsthand account of *how* he did it could prove useful in many places.

Doctor Lanza's thirteen years in the Public Health Service, 1907-1920, coinciding as they did with the years of industrial medicine's most rapid and intensive growth, brought him into contact with practically the whole range of its problems; and his investigative, analytical, and retentive mind stored up an encyclopedic knowledge of their causes and solutions. This, as the years were to prove, was excellent scientific equipment for a long future as consultant. The year or so as Medical Director for Hydraulic Steel reinforced his practical background, and his temperament and special abilities furnished all else that was needed to make that long future a successful one. Interestingly, it does not appear that such a future was the one he sought — there was even a period, just after his return from Australia and while he was in an advisory capacity with the National Health Council, during which the comparative security of a Medical Directorship in industry seemed much more attractive. However, it was the future for which he had been prepared and the Guiding Hand that had led him thus far was not to let him stray. Industrial medicine already had consultants — in surgery, diagnosis, toxicology, administration, research, occupational diseases, techniques in general. But, even so, there was the feeling that more were needed, although what for was only dimly seen. Tony Lanza's emergence was a sort of cumulative answer. It was gradual, almost imperceptible as it came to pass; the successive needs he filled had a way of seeming to appear tangible only after he had met their demands, or quelled their latent threats. And so his progress toward the eminence that is his was little noted as it went along, and thus was unrecorded. And by the time it was realized that he had become a consultant of such abilities as gave new meaning to the term, it was much too late for timely memos on how he got that way. In review, however, and because there is no alternative, something of a record may be attempted from several objective sources.

One of these sources is the recollections of the many who have worked with him or have seen him in action. He was always a "team" worker; never a "cause" man, or crusader; never protagonist in any individualistic purely Lanza

enterprise. The matter in hand was his only concern; and his attitude toward it was objective, his interest in it proportional to its value in the development of industrial medicine, his treatment of it impersonal. In his contacts with organized medicine, grudgingly aware of the new profession growing in its midst, and with industry, interested but unconvinced, he was the perfect liaison. Unselfish, sincere, plain spoken — sometimes almost blunt — his presence was felt, even when his part in what was going on was only the undramatic "passiveness of a catalyst in the result." Granting the "catalyzer" role, he gave it his own distinction. Whether active or passive in the action or reaction, he left something of himself in it and added something to his own experience from it. He was too forceful to be present without the one; too sensitive to leave without the other. The influence of his personality was almost tangibly and measurably a quiet, palpable, centripetal force, impelling toward the center of whatever was in hand.

All this, throughout the years, built up a second source from which, with search and patience, the record as to Tony Lanza's place in the development of industrial medicine may be confirmed. This consists of the impressively large number of references to him, items about him, and comments on his work that one comes upon in the literature of industrial health, occupational diseases, and industrial hygiene — "comes upon" because they are not indexed and mostly they occur in identification with co-workers and associates, or with the subject of the text. An example is found in a reference to "a world review and evaluation" of "Silicosis and Allied Disorders." One reads: "This report was prepared by the (Industrial Hygiene) Foundation's Medical Committee, under the leadership of its Chairman, Dr. A. J. Lanza, and brought together for the first time a practical summary of what was known and remained to be learned about dust diseases." Another occurs in connection with industrial medicine in Western Pennsylvania; he is named as one of four distinguished men who "figured prominently in its development." There are many similar allusions to his part in whatever was going on. But much more numerous are such capsule encomiums as: "pioneer in the investigation of industrial dust hazards in the United States"; "distinguished for long and instructive experience in industrial hygiene"; "leader in the development of industrial medicine in the United States and the world." Students of the published material on occupational diseases and industrial hygiene encounter recognitions of this kind so frequently and in so many contexts that they take them quite for granted as fittingly phrased and properly placed. In the permanence

of the printed word, "A. J. Lanza" is an often-met and much-respected name.

A third source from which information about this man may be derived is the formal, indexed account of the books he has to his credit, the addresses he has made, and the articles, reports, and technical papers he has produced. These are listed in several chronologies. Their texts confirm his distinction as indeed a pioneer in the investigation of dust diseases in general, and the identification of silicosis in particular. His books include *Silicosis and Asbestosis* (1938) — "the still definitive book in this field" — and *Industrial Hygiene* (with Jacob Goldberg, 1939). The timing of his articles and reports shows the second half of them published in 1933-35 (the last two in *J.A.M.A.*), after which it seems that the "catalyzer" part of his work grew into first attention. His continuing interest in occupational diseases, however, is evident from his organization affiliations. He was a Trustee of the Trudeau Foundation, and of the Industrial Hygiene Foundation, and in the latter, Chairman of the Medical Committee. In the New York Academy of Medicine he was Chairman of the Committee on Industrial Health; in the American Public Health Association, Chairman of the Committee on Pneumoconiosis; in the American Institute of Mining and Metallurgical Engineers, member of the Committee on Health and Safety in Mines; in the New York Tuberculosis and Health Association, Chairman of the Industrial Hygiene Committee. He was a member of the Medical Subcommittee of the Pennsylvania Commission on Compensation for Occupational Diseases, which made its report in 1933, and a member of the Committee on Prevention of Silicosis through Medical Control, established by the Secretary of Labor in 1936. The American Medical Association's Council on Industrial Health, established in late 1937, added him to its membership a year later.

If they mention it at all, the long-time chronicles of industrial medicine no doubt will consider it pure coincidence that the middle thirties, when Doctor Lanza was beginning to be really effective in his self-styled role as "catalyzer," saw the start of a remarkable spreading out of industrial medical programs among industries of all kinds. This was clearly reflected in the upsurge that began about then in the membership of the industrial physicians' association. From the lowly 1935 total of 257 — survivors of the twenty-year doldrums in which the average had been barely more — the number of members grew to seven times that many ten years later, and then went on to double that in the next ensuing ten. The economic influences then at work will be credited, of course, but it is within the memory of many who

lived in the thirties that there were also the influences of powerful personalities, and that these had so much to do with the happenings of the period — in big affairs and little — as to make its truest history properly biography. Tony Lanza was one of them; and the Knudsen Award, industrial medicine's highest honor, given him in 1946, was one of the ways his medical colleagues had of telling him, and the world, that they knew him to be so. He was the seventh recipient of this Award. The citation stressed his leadership. But a "catalyzer" leader? Easily enough, when the leadership is less of leading than of being followed. In this man's case it was effectively that. Unmatched skill in unifying; a positive genius for enlisting the aid and cooperation of those with whom he worked; the "with" that pervades the chronology of the things he accomplished; the results obtained, with the credit shared equally by all — these characterized the many years of days in which he did "to the best of his ability" whatever fell to him to do.

At the meeting of the Permanent Committee and International Association on Occupational Health on the day preceding the official opening of the Thirteenth International Congress on Occupational Health, at New York, July 25-29, 1960, Doctor Lanza, along with Doctor R. R. Sayers (United States) and Professor F. Koelsch (Germany), was made an Honorary Member of the Permanent Committee. This brought to five the number of Honorary Members, only W. R. N. Kranenburg (Holland) and Alice Hamilton (United States) being the living holders of that distinction at the time of the meeting. And on July 27, 1960, at a reception at New York University Medical Center, Doctor Lanza was the recipient of a New York University Presidential Citation "for his leadership in the field of industrial medicine and his service to the University." Some three hundred of his colleagues, many of them delegates to the International Congress on Occupational Health, attended the ceremony. After stating that Doctor Lanza in 1947 became the first Director of the University Medical Center's Institute of Industrial Medicine, and, in 1949, the first Chairman of the newly-organized Department of Industrial Medicine in the NYU Post Graduate Medical School, the citation continued: "Throughout his career Doctor Lanza's guidance has been sought by many. He has served as adviser in industrial medicine to many industries and other organizations. . . . Behind any recital of dates, titles, and geography are those qualities that help make the man those around him have known: the warm understanding, the unfailingly perceptive intellect, the unassailable integrity, and, most of all, the calm and steady wisdom."

—A.D.C.