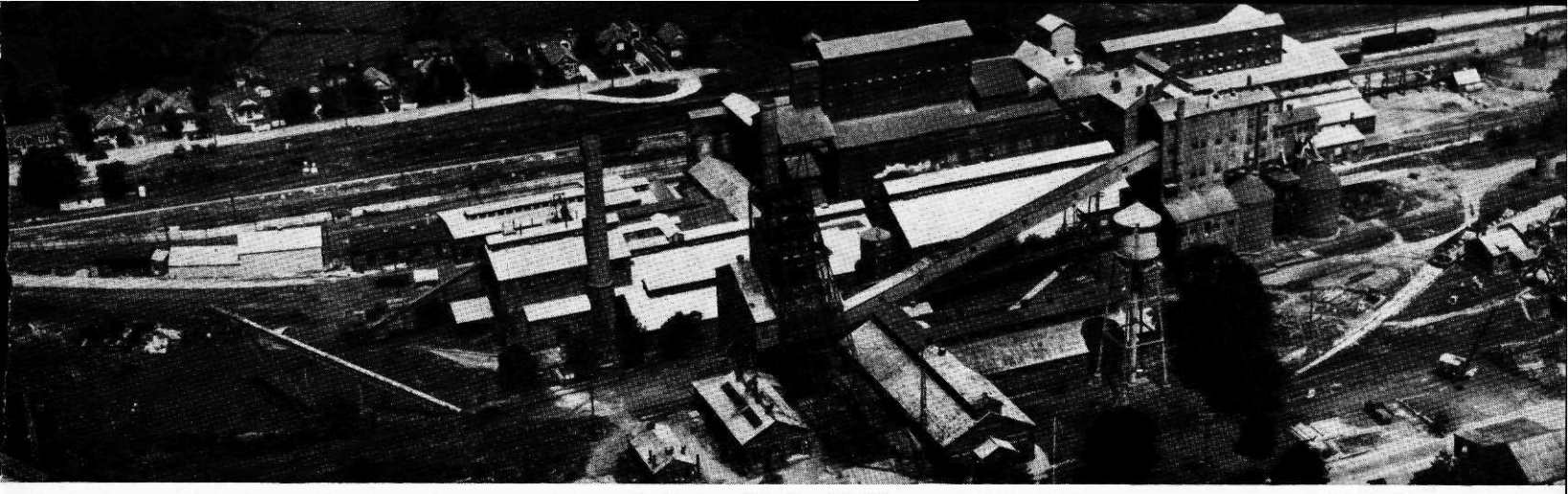
Zinc

DECEMBER, 1954

PALMER SHAFT



Aerial view of the Franklin Mine.

THE STORY OF THE FRANKLIN MINE

THE NEW JERSEY ZINC COMPANY
(ESTABLISHED 1848)

160 FRONT STREET

New York 38, N.Y.

OFFICE OF THE PRESIDENT

The Franklin Mine has had an almost legendary position in the mining industry. This great ore deposit was known and sporadically worked for a hundred years before our engineers devised and put into operation the comprehensive mining system that made possible the efficient removal of the many million tons of ore contained in it. Three major wars made extraordinary demands on the mine's productive capacity, nevertheless it served the needs of American industry on a large scale for more than half a century.

The ore found at Franklin was of a complex character, containing not only several important minerals, but a very large number of other minerals of no commercial value. The separation of these intimately mixed minerals to recover the important ones in a usable state was an extremely difficult problem which was finally solved only by the invention and development of new and amazingly ingenious milling methods by our engineers. The 180 minerals found in the mine, many of them theretofore utterly unknown, made the mine a Mecca for geologists and mineralogists from the entire world.

The natural purity of the Franklin ores enabled the Company to market zinc metal and zinc oxide that for many years were of unequalled quality and to establish its Horse Head as the symbol of quality in the zinc industry.

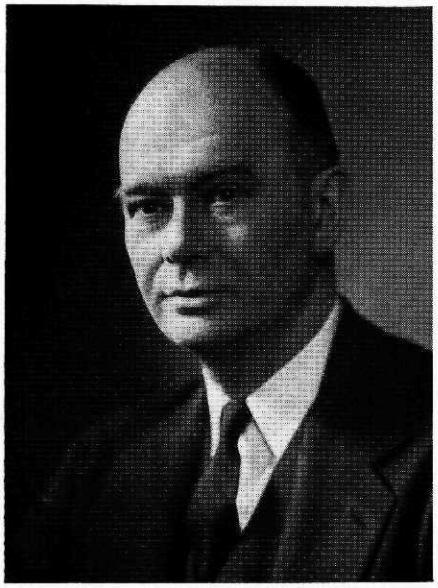
The operation of the mine, with its miles of headings, stopes, and pillars, was carried out with the highest regard for the safety of the men working underground and of those in the surface plant. Scores of men were kept under constant training in mine rescue and safety measures and a safety record far above average for the mining industry was maintained and for this the Franklin management received many of the highest awards granted by safety organizations.

The passage of the Franklin Mine is more than a milestone in the history of the Company. It marks the completion of one of the great mining enterprises of the world.

R. L. McCann

ON SEPTEMBER 30TH, 1954, the Franklin Mine ceased operations with the complete exhaustion of its orebody. The last skip of ore hoisted on that day ended a significant chapter in our Company history and, indeed, in the history of the zinc industry as a whole.

The Franklin Mine was one of the world's great mines. Inevitably the time came when all its ore had been recovered. Its production will be replaced by our Company with that from other mines. Nevertheless the ending of the Franklin Mine is an historic event and the role played by it in our Company and in American industry will long be remembered.



R. L. McCann

RECORDED HISTORY of mining in the Franklin area goes back to pre-Revolutionary days. As early as 1640 there is evidence that a party of Dutch colonists from Nieuw Amsterdam (New York) explored the valley of the Wallkill River for minerals. Certain mine openings in the orebody, found in later years, are believed to have been made by these early explorers.

The deposits at Mine Hill, as the Franklin Mine was known until 1897, and at Ogdensburg, were first worked by the Earl of Stirling who inherited the property in the 1760's under a Grant by the British Crown to his forebears. Mining was tried from time to time for the production of much needed iron for the Colonies, but the unidentified zinc content of the ores made the smelting of the ore impracticable under the techniques then available. It wasn't until the early 1800's when the ownership of the Mine Hill passed to Dr. Samuel Fowler, and later to his son, Colonel Sam Fowler, that its mineral contents were identified and made known to the scientific world.

Both father and son recognized that their properties contained valuable mineral deposits but they lacked the knowledge to turn them to commercial use. Eventually this was made possible by the application of efficient mining methods and by the development of magnetic separators and other improvements.

Actual zinc mining began in 1848 when the Sussex Zinc and Copper Mining & Manufacturing Company (a predecessor of our Company) was formed and acquired mineral holdings at Mine Hill. At that time, so incomplete was Colonel Fowler's knowledge of the nature of his ore properties that he sold us only that portion of the deposit containing "those ores except the metal called Franklinite." A few years later, he conveyed the rights to this ore to another company in the belief that it was a separate orebody—an act that set off nearly five decades of litigation.

FRANKLIN FURNACE—In 1885 the small beginning of the Franklin Borough was the smoky home of an iron furnace from which the section got its name. In the center may be seen the Franklin Pond. Later the plant and furnace were torn down and today this area about the pond has become a fine residential and recreational section of Franklin.

The solution to this long court battle was found in a consolidation of all the companies at Franklin in 1897. Stephen S. Palmer, then president of The New Jersey Zinc Company, was the sponsor of this merger. The consolidation included other mining and plant properties of several companies, in addition to the Franklin and Sterling mines.

From 1897 on, the operation of the Franklin Mine was highly successful.

After the merger, it was found that the confusion of open cut and stope mining employed by the several companies threatened the early exhaustion or waste of the orebody. This situation was studied for several years by Joseph A. Van Mater, then Superintendent at Franklin (1889-1900) and later Manager of Mines (1908-1924).

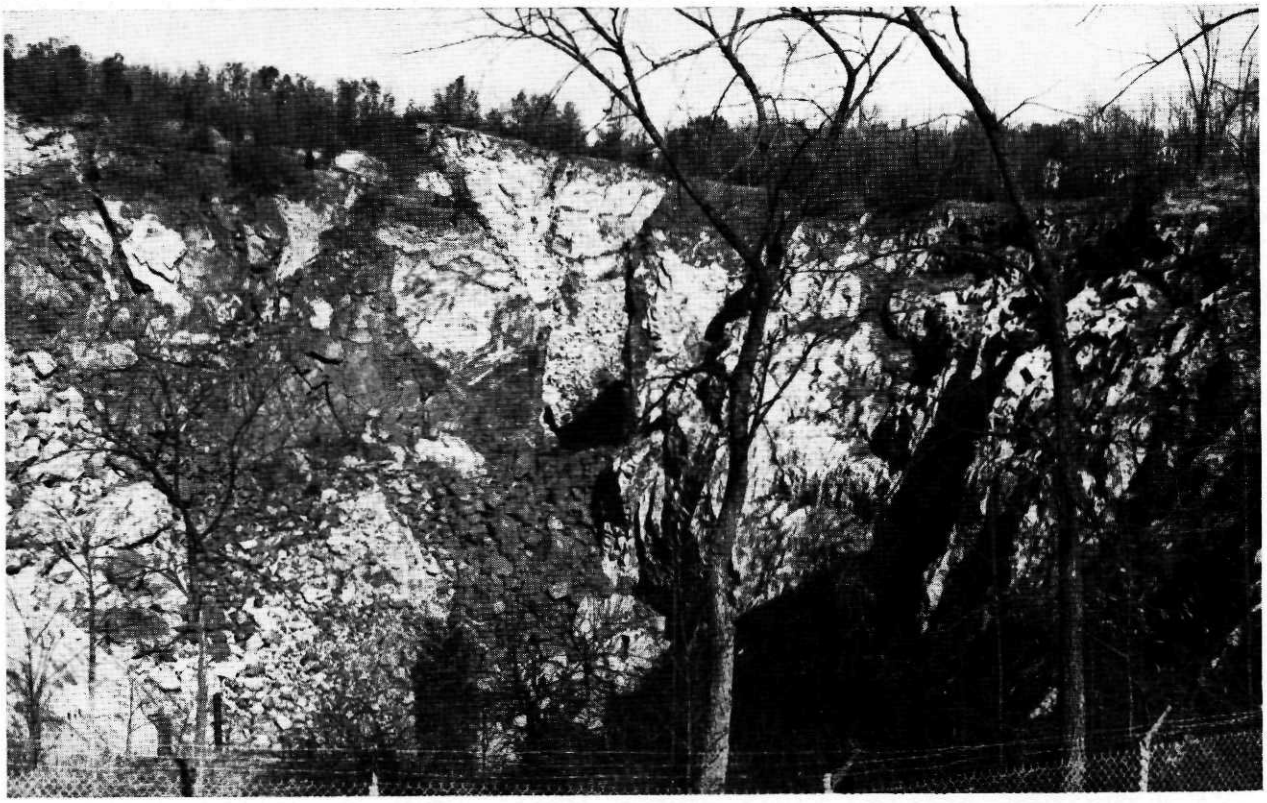
By 1906, Van Mater had evolved a completely revised method of ore extraction for the Franklin Mine. His plans called for a new 1150-foot inclined shaft to be sunk in the footwall of the orebody and for the application of a mining technique that incorporated many established practices of stope and pillar mining. From a series of drifts at fifty-foot intervals in the footwall, it was possible to work the orebody without maintaining drifts in the ore. These changes resulted in almost complete recovery of the orebody at Franklin.

VAN MATER may be called the father of the modern mining methods there, but another outstanding mining engineer, Robert M. Catlin, deserves much of the credit for the practical application of these methods.

President Palmer called for the assistance of Catlin in 1906 after learning of his successful gold mining career in South Africa. The Vermont-born Catlin tackled the sinking of a new shaft — the Palmer Shaft — and the mine

Panoramic view of Borough of Franklin today.

OPEN CUT MINING—Above is the Franklin open-cut mine about 1907 showing much activity and the old mill (right). The picture below shows the cut as it appears today.



Walter F. Evans, General Superintendent at Franklin and Sterling.

Jackson S. Pellett, General Plant Superintendent.

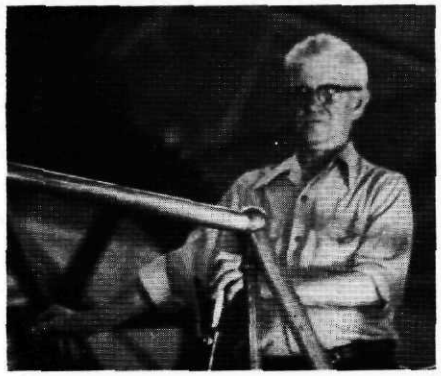
Clarence M. Haight, Mine Superintendent.

development work with an energy that spurred his fellow workers. After completion of this program in 1910, he remained to supervise the Franklin Mine and the Sterling Mine for two decades. Several veteran miners and supervisors now at Franklin and Sterling gained their early experience under Catlin. Civic improvements at Franklin during this period were due largely to his initiative and leadership. Foremost among these was the well equipped Franklin Hospital founded by the Company in 1908, which will continue to serve the communities of that general area.

However, without improvement in milling methods, the increase in mine production would have been in vain. Any mention of the use of modern methods at Franklin would be incomplete without the name of Lewis G. Rowand. A brilliant man and Mill Engineer (1906-1932), Rowand improved the original Wetherill magnetic separators, and designed the layout and construction of the new Franklin mill. Its completion was timed to coincide with the accelerated production of ore coming up the Palmer Shaft.

As mentioned previously, several of the present-day Franklin employees came to the mine early in its modern development. Principal among these is Walter F. Evans, present General Superintendent of Franklin and Sterling. Mr. Evans joined the Company as a mine surveyor at Franklin in 1907 while the Palmer Shaft was under construction. His entire career, with the exception of a few years at Friedensville during World War I, has been spent at Franklin. In 1918 he became Surveys and Titles Assistant, and in 1930 was made Superintendent of Services. After becoming Assistant Superintendent in 1936, he advanced to his present post in 1944.

Two other employees who joined the Company at Franklin during this early period were Jackson S. Pellett, Plant Superintendent and Clarence M. Haight, Mine Superintendent. Mr. Pellett came to the Company in 1907 and has served continuously with the exception of the period from 1912 to 1915. Mr. Haight began as an assistant mine captain in 1913.

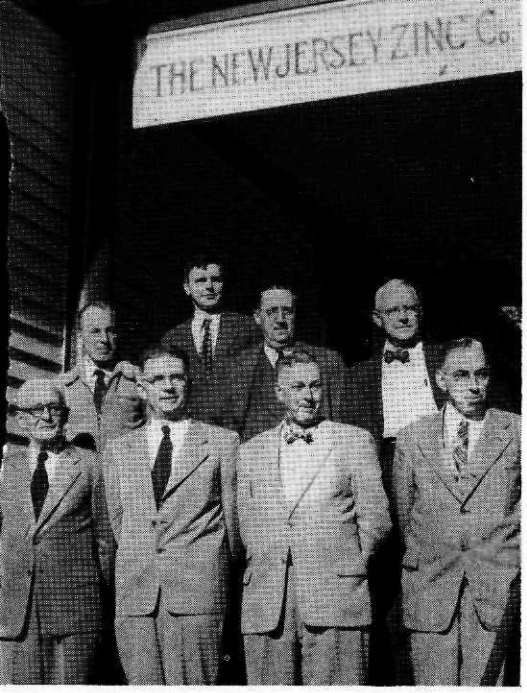


***FIRST AND LAST SKIP**—Jack Devine, Franklin* hoist engineer, was at the controls of the Palmer Shaft as the last skip of ore came up at 3:00 p.m., September 30th. In April, 1910, Jack was at the same controls when the first skip of ore came up the new shaft.

Jack Pellett is a recognized authority on the processing of ores and his invention of the intricate Pellett Classifier used in the Franklin and Sterling mills received widespread attention. Mr. Haight was co-author with B. F. Tillson in 1917 of an exhaustive American Institute of Mining and Metallurgical Engineers paper on zinc mining at Franklin which is still widely read by mining students.

Another name prominent in the story of the modern Franklin Mine is that of our President, R. L. McCann. Mr. McCann came to Franklin as a mine surveyor in 1917 and thirteen years later, upon Mr. R. M. Catlin's retirement, assumed the post of General Superintendent. He held this position until 1941 when pressure of his duties as General Manager of Mines required his full attention.

OLDEST EMPLOYEE—Not quite so spry nowadays because of a recent hip injury, big Jim Stephens looks forward to visits by former fellow workers and reminiscing over mining days at Franklin.



The hosts of other Franklin employees, those men working in the mine and the mill, also the mechanics and maintenance men, are too numerous for mention here. Space permits mention of only a few, some pensioners who have spent their entire lives in and about the mine.

Patriarch among these retired men is master mechanic James C. Stephens, who at 92 years of age, is the oldest retired employee in our Company. He began working at Franklin in 1891 and retired as Chief, Mechanical Division, in 1932. Another veteran is John G. Devine, hoist engineer, who retired October 1st after forty-seven years' service. He saw the mine reach its peak production during World War I and closed out his career there with the shutdown last fall. Arthur G. Watt, retiring General Mine Foreman, also can look back on forty-seven years of service at Franklin.

Whether these men of Franklin worked with drill or wrench or saw or pencil, each can recall his service at Franklin with the satisfaction of a job exceptionally well done.

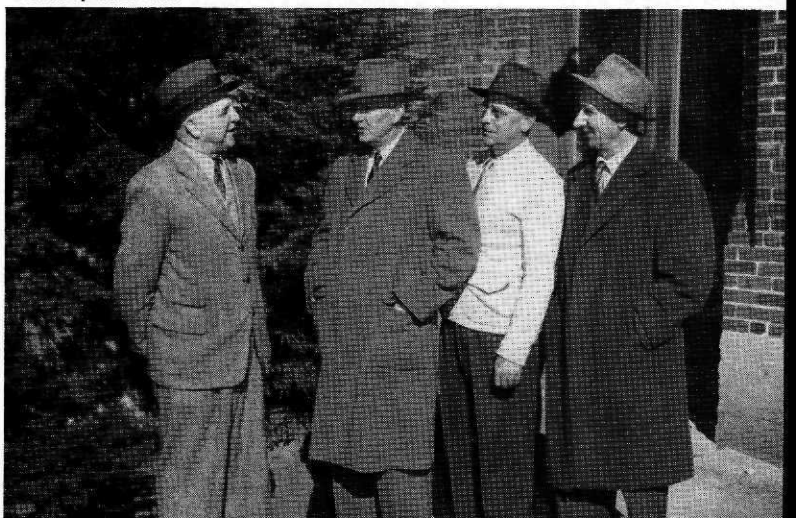
DIVISION CHIEFS AT FRANKLIN: First row, l. to r., R. H. Seip, Personnel Chief; G. F. Woods, Engineer Chief; D. McKechnie, Mill Chief; and L. G. Hooker, Chemical Chief. Back row, H. P. Hermance, Surveying Chief; J. L. Baum, Resident Geologist; F. D. HasBrouck, Supply Chief; and O. Fagerstrom, Real Estate Chief. Absent: R. E. Thompson, Accounting Chief who was on a training assignment to Palmerton.

MINE FOREMEN—Seated, left to right: J. Scymanski (retired); J. Rowe; Arthur G. Watt, retired General Mine Foreman; Matthew Stephens; G. F. Meyers; standing, left to right: R. J. Sparnon (retired); T. Jones (retired); J. Bennett, Surface Shift Foreman; W. Martin (retired); M. Mickosawich; H. Reynolds; and J. Ramage (retired).

POWER AND SHOPS FOREMEN—Kneeling left to right, S. Paddock, Carpenter Foreman; C. McEntee, Electrical Foreman; R. Walters, Power Foreman; Standing, left to right, A. Horr, Power Foreman; B. Penberthy, Shop Foreman; Art Kinney (retired); A. Treloar, Repair Boss; and C. Kantenwein, Electrical Foreman.

MILL FOREMEN—Left to right, L. Doland (retired); A. Elchin; G. Dowd (retired); W. McEntee (now at Sterling); E. Carroll (now at Sterling); H. Fletcher; L. Doyle (now at Sterling), and S. Storms (retired).

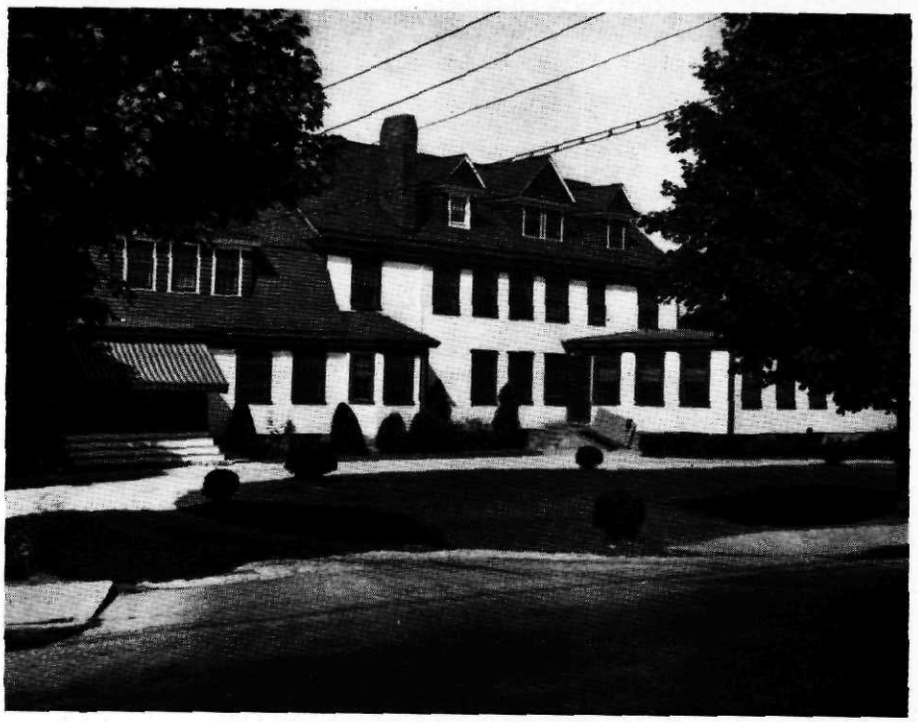
SERVICE FOREMEN—Left to right, Sidney Hall, Safety Chief; J. H. Robertson, Testing Foreman; E. Smith, Real Estate Foreman, and W. Townsend, Forestry Foreman.



NO OTHER MINE in the history of zinc ore mining is as celebrated as the Franklin Mine. The list of "firsts" in the zinc industry that are traceable to Franklin ore reads like a veritable history of that industry.

The first sets of standard weights of the United States Bureau of Standards were made in 1835 of brass, the zinc content of which came from the mineral zincite mined in the open cut at Franklin. Its ore was used to make the first zinc oxide by the American Process in 1852. Early in the 1850's, zinc pigment from Franklin ore was blended into the first ready-mixed paints placed on the market, the forerunner of today's $1.4-billion paint industry. The Franklin ore was notable in that most of its principal minerals were unique in mineralogy. Franklinite was one of the raw materials for the Company's production of zinc oxide, with spiegeleisen as a valuable by-product; willemite was smelted to produce slab zinc; and zincite, a natural zinc oxide, also went to the production of metal.

As Mr. McCann points out in his letter, our mine safety practices at Franklin were among the best on record. A vigorous mine safety program was in effect there since 1912. An early pioneer in such work was B. F. Tillson, who, in addition to his Company duties, served as chairman of the mining section of the National Safety Council in the World War I era.

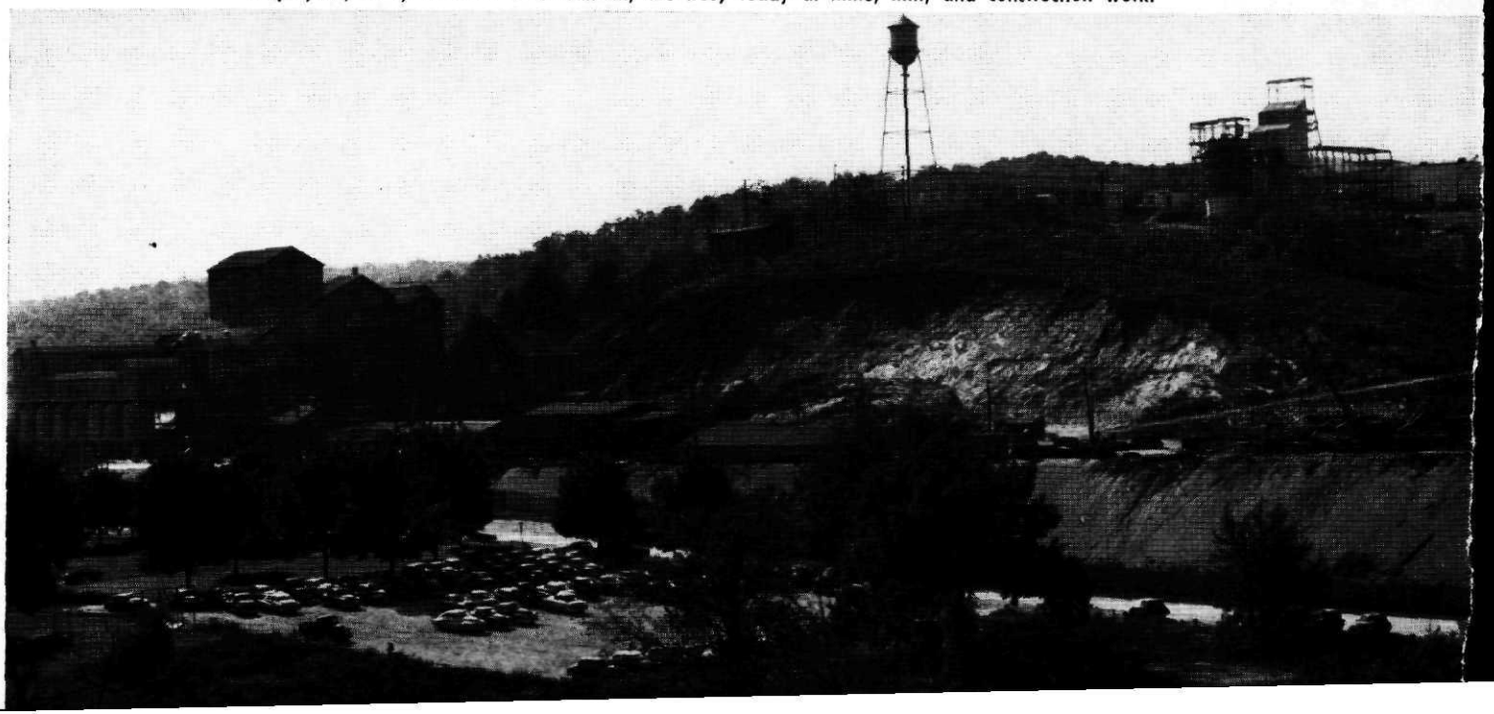


MAIN OFFICE IN FRANKLIN—The Company's local administrative offices will remain at this location.

Hard hats, imported from England, were tested by safety engineers at Franklin in the 1920's. After numerous improvements as a result of such tests, the hard hat was made compulsory wearing at Franklin in January, 1929, probably one of the earliest mines in the country to require such protection. Elsewhere in this issue you will find the story of the radio voice communications system which underwent its Company indoctrination in the Palmer Shaft.

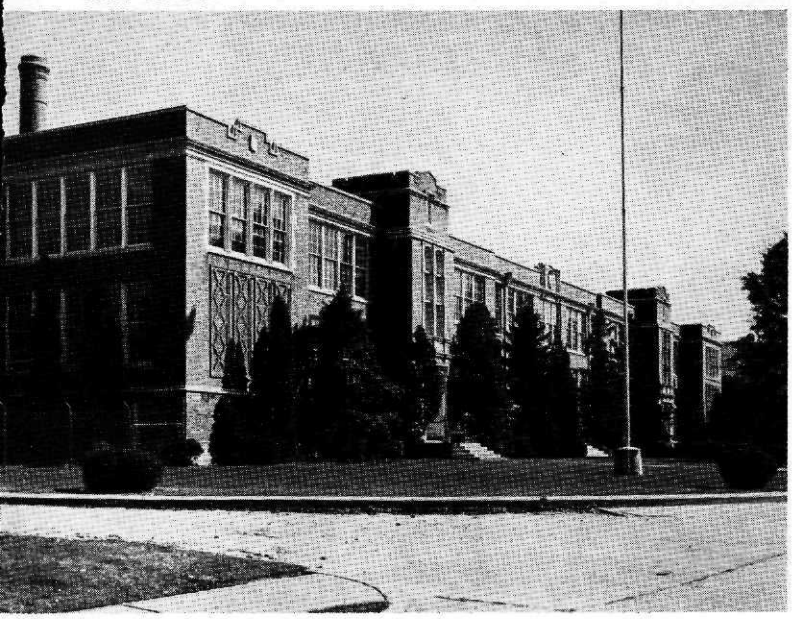
With the shutdown of the Franklin Mine, our mining activities in northern New Jersey will be centered in the nearby Sterling property. Only three miles south of Franklin, this mine continues to produce high grade zinc ore. An extensive program of mine development work and construction of a crushing and grinding mill is now underway there and will result in greatly increased productive capacity.

STERLING MINE—A distant view of the Ogdensburg mining property where nearly five hundred employees, many of them from Franklin, are busy today at mine, mill, and construction work.



Scenes About Franklin

HIGH SCHOOL

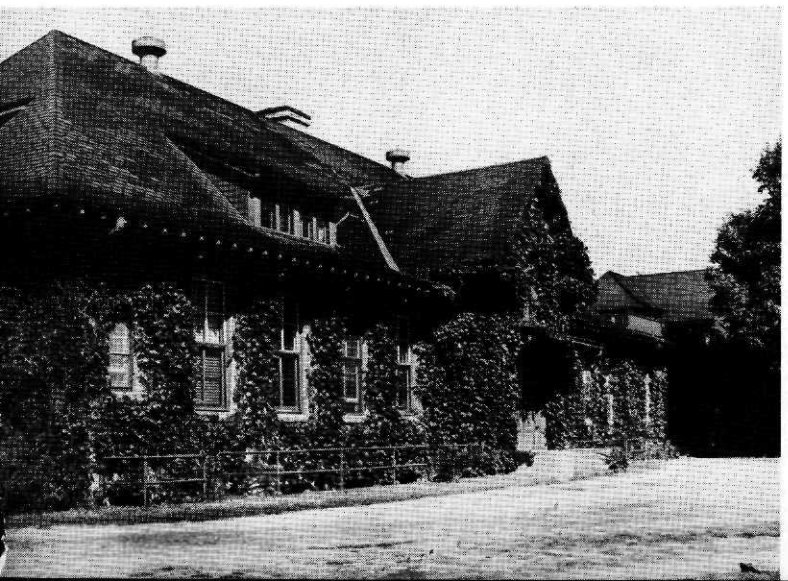


WALLKILL GOLF COURSE

BANK

BOROUGH HALL

HOSPITAL



NEIGHBORHOOD HOUSE