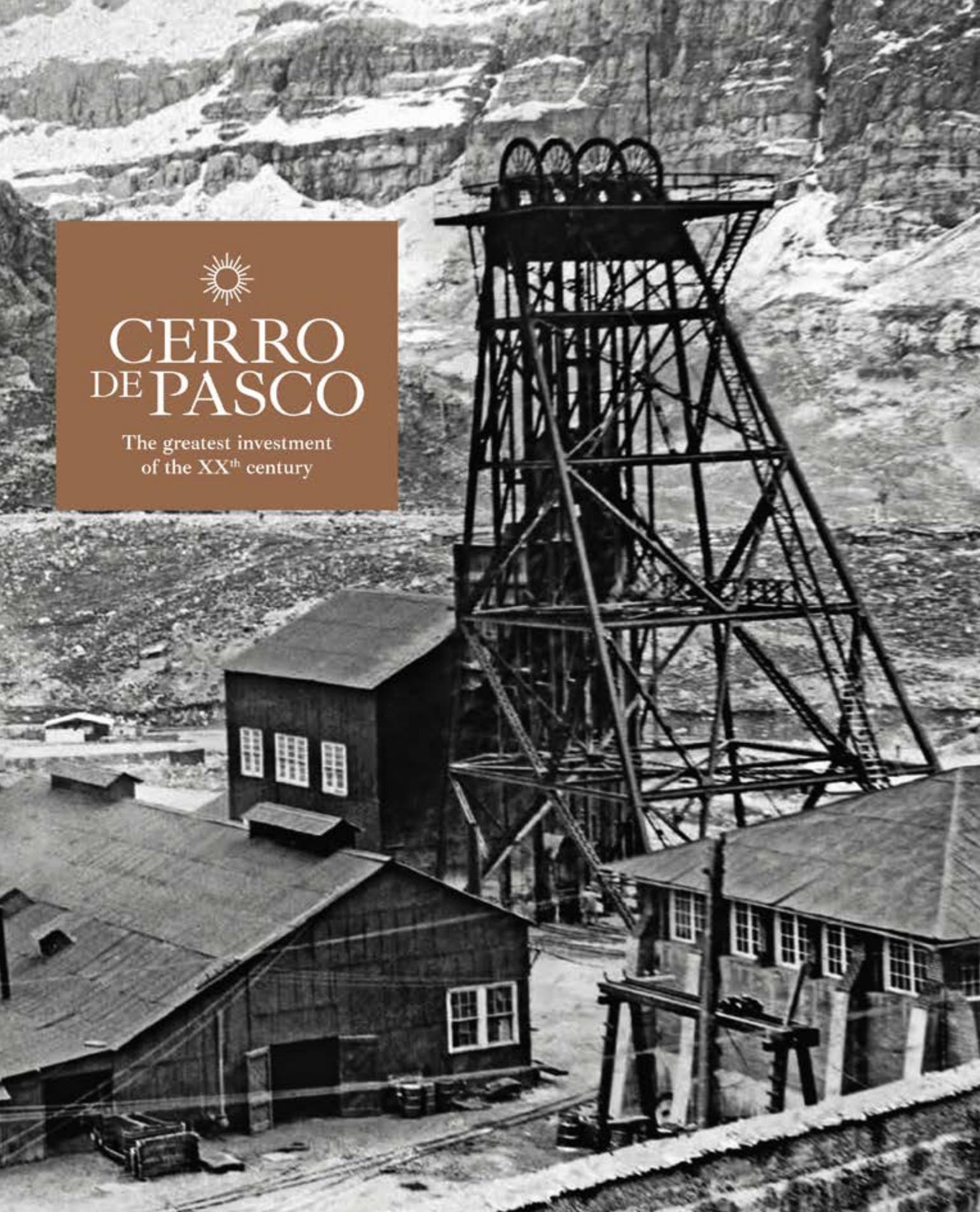




CERRO DE PASCO

The greatest investment
of the XXth century




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DE PASCO

The greatest investment of the XXth century



MARIO SIFUENTES BRICEÑO

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Mario Sifuentes Briceño

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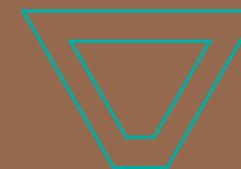
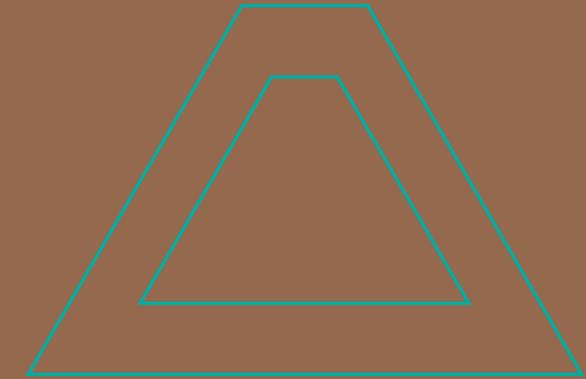
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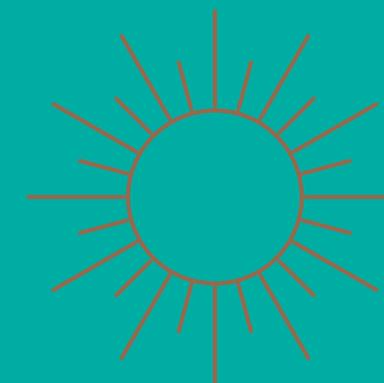
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MINING

OUR BEST CALLING CARD



WHEN IN 1902 THE CERRO DE PASCO CORPORATION was established in the central mountain range, it brought with it the seeds for what would be the greatest investment in Peru in the XXth century, on a scale never seen in South America and becoming the most important for U.S. mining outside of the United States. The company arrived with its electrical motors and mechanical equipment in a centralised, semi-feudal country, where peasants had no property rights, there were no labour laws nor environmental awareness and in regions where the presence of the state was as precarious as the roads connecting to them. Until that moment, the wounds inflicted on Peru by the War of the Pacific had not yet healed.

In the 72 years of its presence in Peru, the growth of Cerro de Pasco was closely linked to the development of the mining corridor of the central Andes and the country. For decades, this was the company that was the biggest investor, taxpayer, and employer after the Peruvian state itself. Furthermore, it contributed to the mining and metallurgical sectors a work model based on four fundamental principles: discipline, research, efficiency and meritocracy. The most outstanding engineers, geologists and metallurgists in the world arrived at this remote location in the highlands, establishing the bases for a sterling reputation among Peruvian professionals linked to mining: “Cerro was a real school”.

Within this framework, where there was no access to industrial scale services and inputs, the corporation acted under a basic guideline, that of autonomy. It accessed power on its own, building more than half a dozen hydroelectric plants; for transportation, it developed hundreds of kilometres of railway tracks and roads; for inputs, it invested seed capital in industrial plants that could guarantee quality products, and fed its employees by planting

pastures and raising cattle; it obtained optimum returns by training its most talented personnel at the best universities in the world and providing access to top quality schools and medical facilities.

Cerro has been subjected to investigations of different kinds, generally linked to contamination, work-related issues and by social scientists. Quite a few of them, it has to be acknowledged, have been fuelled by

Ideological and confrontational passions dating back to earlier times. However, it is not the purpose of this publication to confirm or deny these events. We would rather contribute a complementary point of view, as valuable as any other, seen from an entrepreneurial perspective, and on the positive impacts that an investment on this scale had on Peru. We've accessed documentation, first-hand accounts, and a top quality photo archive that allows us to tell this extraordinary story which we hope will contribute to understanding this Peru that continues to grow dramatically in spite of its unresolved conflicts.

Fifty years after the nationalisation of the company, when we have finally grasped the importance of these investments on Peru's development, we have gained enough perspective to be able to look back, learn and propose a better future for ourselves. Currently, Peru is the world's second largest copper producer, and is among the countries with the largest reserves. It can double its production within the next decades, in light of the constant demand for the most helpful electricity conductor. This is all due to the revitalisation of the renewables industry and the electric car sector. This amenable, malleable, and resistant mineral, which has been intrinsically linked to our culture since times predating the Incas, today becomes in our best option for defeating poverty. We have learned our lessons. We cannot squander a new opportunity. We now have to fulfill our dream of full development. *



Cerro de Pasco was a quiet and cosmopolitan town at the beginning of the XXth century, where mining and livestock raising coexisted. First decade of the XXth century.



O · N · E

THE SILVER MOUNTAIN



GOD'S COUNTRY



Cerro de Pasco had always attracted local and foreign fortune-hunting miners, but the arrival of the Cerro de Pasco Corporation established a momentum and a scale that had never been experienced in any part of the nation.



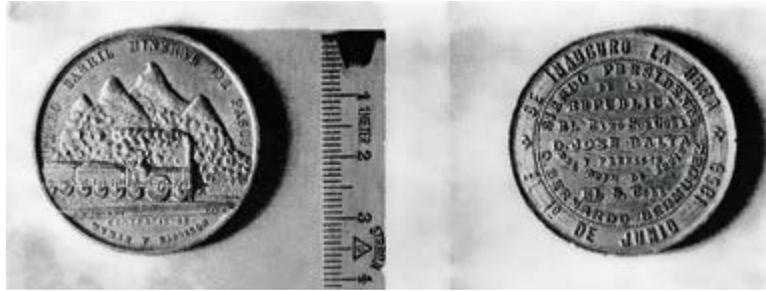
From remote times it was known that the Tinyahuarco –a Pre-Inca people that gave its name to one of the three districts of Pasco– were industrious and skilled in the working of silver, ancient and superb silversmiths whose historical development and lifestyle were interrupted by the abrupt arrival of the Spaniards. The chief settlement of the Tinyahuarco was the town of Colquijirca, which derives from the Quechua words “*golque*” (silver) and “*jirca*” (mountain). Silver mountain. A name that aptly described this region of geological volcanics. There are chronicles of the first Spaniards to these new lands that underscore the abundance of minerals in the area, such as the one written by Miguel Astete, who in 1533, while on a trip to prospect for minerals, encountered a group of Indians transporting hundreds of “*arobas* (old Spanish measure of weight roughly equivalent to 32 pounds) of fine silver and gold to pay for the ransom of the Inca Atahualpa, who was being held captive in Cajamarca.

Some time later, Cerro de Pasco became the capital of the province of Pasco, located on the Bombon plateau, one of the Highland regions of the Andes at an elevation of 4,380 metres above sea level in the zone of Yanacancha. From times predating colonial rule, this region, with its unrelenting climate

and geography, was known for its rich deposits of silver, copper, zinc and lead. This wealth led to the beginnings of a mining town at the end of the XVIth century. According to Cerro de Pasco Corporation’s publication, known as El Serrano, this region was renowned for its mineral potential since the times of Peru’s fifth viceroy, don Juan Antonio de Mendoza, Marquess of Villagarcia. In 1736, Cerro de Pasco was famous for its silver lodes, which were leached and transported to all the agricultural estates after being converted to “*plata piña*” (a term used to denote pure, .999 silver) reflecting that this was a mineral wealth comparable to the mines in Mexico and Potosi, Bolivia.

Even though in the years following Independence, Peru concentrated on the extraction of guano, a form of artisanal small mining developed throughout different parts of the country. By then, Cerro de Pasco produced 65% of Peru’s silver. For example, in that area there were known to be 120 estates and 316 metal milling plants that sprang up in succession all around the city within a 15 kilometre perimeter, as the El Serrano publication pointed out. With all this mining activity, one of the most important investments in the zone was the Cerro de Pasco Minerals Railroad, incorporated on the 17th of December, 1864, during the presidency of Juan Antonio Pezet. As is mentioned by Cerro de Pasco’s writer and historian, Cesar Perez Arauco, the first officially recognised Andean railway was built by the Cerro de Pasco Railway Co. whose inaugural voyage was in 1869. This railway connected our city with the mining estates of Occoroyoc, Quiulacocha, Tambillo and Sacra Familia. All the machinery and tools for the railway were brought on mules and in carts along the Canta route and were assembled at the site. The total journey was of 13 kilometres along a trail 1076 metres high.

Almost the only reminder of that first railway investment is a commemorative medal issued on the day of its inauguration, according to what the Cerro de Pasco publication mentioned on the celebration of its centennial: “A silver medal minted



Silver commemorative medals struck to celebrate the inauguration and start of operations of the Cerro de Pasco railway.

from its own mines three and a half centimetres in diameter portraying in high relief a locomotive at the foot of some snow-capped mountains with a surrounding inscription: Pasco Minerals Railway - Wymer and Harrison Contractors and on the reverse: "Inaugurated on June 19, 1869, under the presidency of the President of the Republic His Excellency Colonel Mr. Jose Balta and the Prefect of the Department of Junin, Colonel Bernardo Bermudez".

At this time, the dwellings were already leaning close to the mine pitheads and were built around or above the mine shafts which accessed the silver veins located at the bottom of the city centre. The works were undertaken in such a ramshackle manner that accidents, landslides and land subsidence were everyday occurrences. Practically no preventive measures were taken. Even at the mining estates, as the mills were called, the method was to process the rock by mixing it with mercury in order to obtain the silver.

During its years of operation, the Cerro de Pasco Mineral Railway had its main offices at La Esperanza estate, where the silver and the few passengers moving between mines would gather, since the cargo being pulled by Manning Wardle locomotives was devoted almost exclusively to this product. Since this railroad was never connected to the coast, Mr. Henry Meiggs, a controversial railway entrepreneur, who had already completed and made delivery of the Arequipa to Mollendo railroad and advanced 140 kilometres (out of the 224 agreed on) on the stretch that would unite El Callao and La Oroya, it seemed an interesting prospect to connect it to the line coming from Callao. But Meiggs was never able to achieve this dream, since he passed away. Thus the concession reverted to the state, which in turn ceded it to the British-owned Peruvian Corporation as part of a deal which included the exploitation of the guano and concessions for all of the country's railways in exchange for payment of the substantial Peruvian foreign debt. The Peruvian Corporation had been founded having as its main partners the bondholders for the national foreign

"Cerro de Pasco Mining Company is the name of the Yankee syndicate represented in this town by Mr. James MacFarlane who will shortly begin operations in this traditional emporium of mineral wealth. Several U.S. employees have arrived who have made the journey via mule wagons. Yesterday the first convoy of wagons arrived bringing luggage and timber".

EL MINERO ILUSTRADO, FEBRUARY 1, 1902

debt deriving from the so-called Grace Contract, which got its name from the leadership and representation of the youngest of the siblings, Michael Grace.

The war with Chile had become a tipping point. It was a watershed event that left the country practically in a state of anarchy after four years of conflict and occupation. Beyond the loss of life and talents, Peru's population was in a deep depressive rut, broken spiritually and emotionally, including its ruling classes. The Chileans seized the territories of Tarapaca in Peru and Antofagasta in Bolivia, both extremely valuable due to the potential of saltpetre as fertilizer in other parts of the world. Actually, the possession of these territories and their wealth had been the original motivations behind the war. The subsequent occupation of almost the entirety of Peru's territory brought with it the looting of scientific artifacts, works of art, and extremely valuable books, seized as war booty by the invaders. After the withdrawal of the southern contingent, Peru had been left adrift, like a ship without its spars caught in stormy seas, virtually drowning in a sea of debt, forced to pay taxes and reparations to Chile, with a devalued currency and a scarcity of hard currency so extreme that financial ruin closed all access to foreign loans. Added to this, the destruction of estates, ports, naval and merchant fleet, the razing of the sugar and cotton plantations, the dynamiting of industries and of all the railways. To top things off, guano was replaced as the main fertiliser for European agriculture (its old regular customers) by new chemical fertilisers and a by-product of saltpetre itself. Even in Cerro de Pasco the minerals railway was completely destroyed, which profoundly affected mining output in the region.

National Reconstruction

After this paralysation, one of the first strategies of Mr. Remigio Morales Bermudez's government three months after gaining power was to stimulate

One of the first properties acquired by the corporation was the La Esperanza estate, where it established its original centre for operations.





LEFT—
Until the arrival of Cerro,
mining works were
executed in an artisanal
manner, and frequently on
the surface.

RIGHT—
Engineer in work clothes
and equipment of the time
during the company's first
years in the country.



mining by creating a legal framework that would promote the exploitation of our resources. With this purpose in mind, on November 8, 1890, legislation was enacted exempting the mining industry from all taxes and duties for a period of 25 years, with the exception of the tax applicable to mining rights, which had been in force since January 12, 1877 and constituted the fees paid for the concession. In this manner, the government took a stance on stimulating the sector and providing an important boost to the country's economic recovery. Since then, mining has historically played an important leading role in projects aimed at national recovery, economic health and development.

It was along the same line, it was of fundamental importance that in 1893 the Central Andean Railway began operations, connecting El Callao, Lima and La Oroya, an uninhabited crossroads 222 kilometres from the sea and practically at equal distance between Huancayo and Cerro de Pasco. The construction and commissioning of this long-awaited railway brought to these highlands the promises of modernity and development by means of a remarkable engineering feat for the time. Considering the rugged geography that the railway had to overcome, this train was considered a feat from the start. The stretch between Matucana and Ticlio alone has 61 bridges, switchbacks, turntables and 65 tunnels, among them the Galera tunnel, 1170 metres long. This bridge crosses Mount Meiggs at the height of Huarochiri, barely passing Ticlio and a height of 4762 metres inside, which for decades rendered it the highest railway tunnel in the world. Even today, the work seems to have been carried out by titans.

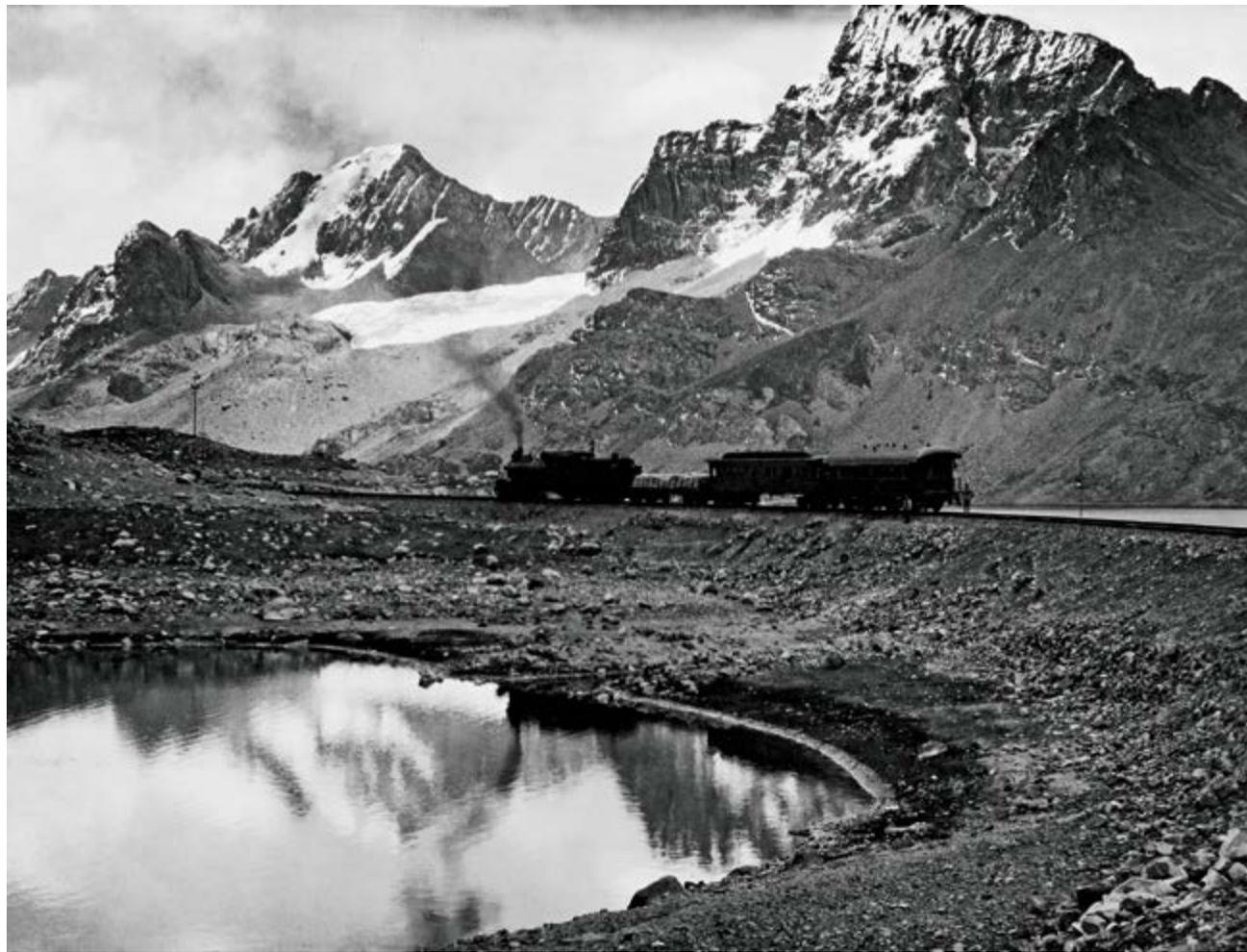
However, other events would contribute to the future consolidation of the mining sector. One example was the founding of the Engineering School. Originally, the name of this flagship university was the "Lima School of Civil and Mining Builders" and was founded by the Polish engineer Eduardo de Habich in 1876. Back then, most of Peru outside of Lima was made up of towns and the times called for the construction of bridges, roads, railways, as well as new

methods and techniques to enhance mineral extraction in order to modernise and industrialise the country. Obviously, the promoter of all these efforts was a state that was accustomed to hire foreign companies and engineers for the construction of major infrastructure works, and occasionally, local engineers who had studied abroad. In spite of having commenced classes some days earlier, the School was officially opened on July 23 in the San Marcos mansion. Almost 80 years later, the school that produced first class professionals during the XXth century, and still does, would come to be known as the National Engineering University, called the UNI today.

Another of the events that would serve to launch mining before the end of the century was the creation in March 22, 1896 of the National Mining Society, which received official recognition on that date through an official decree of the government of Nicolas de Pierola. The association was the result of a split of the former Society of Agriculture and Mining into three different associations: the Mining Society, the Agricultural Society and the Industrial



THE START OF OPERATIONS FOR THIS LONG-AWAITED RAILWAY EXTENDED THE PROMISE OF MODERNITY AND DEVELOPMENT IN A WONDROUS MANNER FOR THE ENGINEERING OF THAT TIME.



TOP— The Lima-La Oroya-Cerro de Pasco railways were key to the new mining revival in the Central Andes.
RIGHT— View of Casapalca from the railway during the second decade of the last century.



Society. At the first board meeting, the chairman Elias Malpartida (Cerro de Pasco) was accompanied by Mr. Federico Gildemeister (Huancavelica), Jacobo Backus (Casapalca - Lima), Herman Gaffron (Huaraz), with Alejandro Garland as coordinator for government relations and Eduardo de Habich as director of the Engineering School. That same year saw the creation of the Ministry of Development and Public Works, headed by the liberal Eduardo Lopez de Romaña, an engineer specialising in the construction of railway bridges, a discipline he had studied in England. The purpose of this ministry was to restart investments in mining, agriculture, industry and other production sectors. One of the first assignments given by this new ministry to the National Mining Society was the drafting of a Mining Code to bring order and structure to the regulations of this sector that at the time seemed dispersed. Less than a year later, in January 1897, the Society formally submitted the project which after being submitted to a series of reviews, would be approved in 1900 and be enacted the following year.

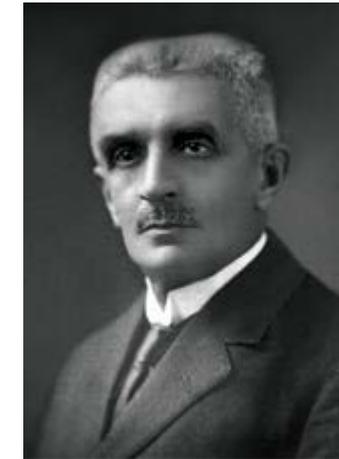
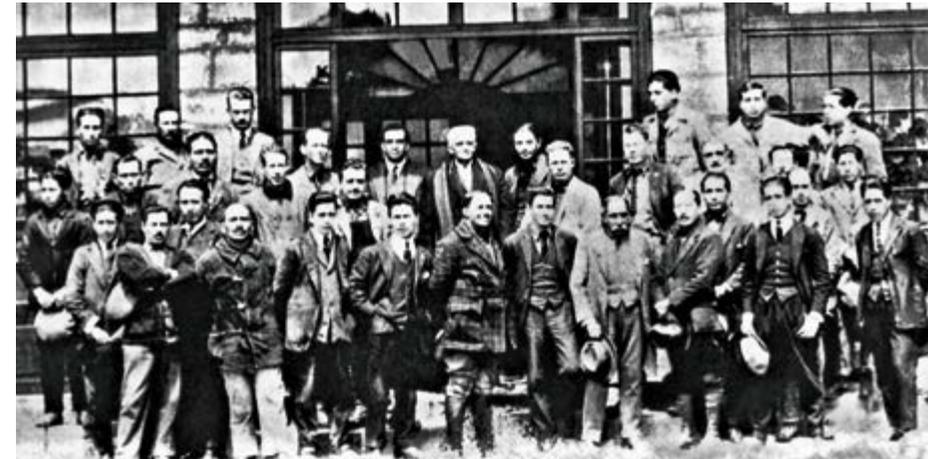
To summarise, the Mining Code established in a clear and simple manner, that a mining property that had been legally acquired could not be revoked and was to be held in perpetuity, as was with any other property. The only tax payable was one of thirty soles a year to ensure ownership rights. This new legal framework was promoted throughout different parts of the country and especially Cerro de Pasco. This resulted in greater foreign investment and unleashed a frenzied search for new veins and concessions in the face of the imminent arrival of foreign capital, which was seen as an unequivocal harbinger of modern mining and the progressive denationalisation of the activity.

Another technical detail was critical for stimulating the rebound of mining activities in Cerro de Pasco. Since 1865, many of the region's mines had flooded, making their exploitation impossible. This is why in 1900, Eduardo Lopez de Romaña, then president of the country signed an agreement with



LEFT—
One of the first
concentrators installed in
Cerro de Pasco, a short
time after the arrival of the
corporation.

RIGHT—
Trusted personnel of
Mr. Eulogio Fernandini in
Colquijirca, in front of the
administrative offices of
the business concern that
had his name.



the Empresa Socavonera del Cerro de Pasco (Cerro de Pasco Mineshaft Company), which undertook to dewater these mining properties by means of building a tunnel. On the Board of the company were prominent local miners of the time, such as Messrs. Baldomero and Ramon Aspillaga, Juan and Isaac Alzamora, Jose Payan, Roberto Pflucker, Ismael de la Quintana and Manuel Ortiz de Zevallos, among others. This was the last local bastion resisting the corporation's attempts to gain control over all that region, since the government recognised their rights over those properties. It was a tough negotiation and Cerro finally agreed to purchase all the properties and mining assets of La Socavonera in exchange for three million dollars' worth of shares in its company, three times what the locals had invested.

The Fate of Colquijirca

After successive exploration and mining works dating back to Colonial times, the Colquijirca mine had ended up being owned by Manuel Clotet, a Spanish citizen, who in 1884 would transfer it to his son-in-law, Mr. Eulogio Fernandini, who was well known throughout all of Pasco and the central Andes. Mr. Eulogio worked with a Germanic discipline, which he had acquired in Germany and Austria, where he had been sent as a teen-ager to treat a serious intestinal infection. At the age of 22 he returned to Peru and found employment at the Gallo brothers' mines and was able to save a small amount of capital. Some years later he would marry Isolina Clotet, daughter of Mr. Manuel. From that moment onwards, he took charge of the Colquijirca mines, which under his tenacity and drive, would reach their heyday. The mining works began in 1886, but it would take him thirteen years to find the famous silver, lead and zinc vein that would make the area famous. Subsequently in 1889 he built the Huaracaca smelter, the second most important one in the country after

Casapalca, then owned by the Backus & Johnston concern. In the company of his close friend, Antenor Rizo Patron he installed two electrical plants that derived their power from the reservoir built at Punrun lake. However, his interests were not restricted to mining. He was also successful in livestock farming and agriculture, with 200.000 sheep and several properties for sugar and cotton growing in the coastal valleys, especially the Comas and Pro plantations in the valley of Lima.

At this point, Cerro de Pasco was already one of the most cosmopolitan cities in the country. In 1872 an office of the Bank of Peru and London had been opened, along with the twelve vice-consulates installed in the city's narrow streets. Among them were those of the Austro-Hungarian Empire, the Consular Agency of the Kingdom of Italy, Spain, United Kingdom, France and the Consulate of Sardinia, representing the Kingdom of Sardinia, which now forms part of Italy. All of these were the zealous guardians and promoters of small investments made by Italians, Germans, Britons, Spaniards, Serbs, French, and Greeks, among others, all lured by the historical mining wealth of the region.

The Spanish of Colonial times were followed by other European entrepreneurs, with British investment occupying a prominent place. It was only at the end of the century, with the arrival of the Cerro de Pasco Corporation, of the International Petroleum Company and the consequences of the First World War that British predominance was to end in Peru. In the early part of the XXth century, the El Minero daily newspaper for the Central Andes noted: "The arrival of great industrial mining can be seen with the presence of numerous U.S. engineers. This only serves to confirm that the "Yankees" have taken over the city, since out of 522 registered mines, the 360 most important ones have been sold". Some time later, in its edition of October 3, 1901, the same paper published: "James McFarland of United States citizenship, has laid claim before the court presided by Dr. Estanislao Solis, the local judge, to



WHEN ALFRED MCCUNE AND JAMES ALI HAGGIN BROUGHT TOGETHER THE MOST POWERFUL BUSINESSMEN OF THE EAST AND WEST COASTS OF THE UNITED STATES THEY WERE CONVINCED THIS WOULD BE THE ENDEAVOUR OF THEIR LIVES.

some empty lots of land on the outskirts of the city and on the pasture lands of the Paria hacienda (estate) for an extension of 640,000 square metres, with the following boundaries: to the north, the meadows of San Judas and Pampaseca; to the south, the road that leads to the hamlet of Quiulacocho; to the east, the railway station and to the west, Quiulacocho Lake”.

The foundation of the Cerro Corporation

When Alfred McCune and James Ben Ali Haggin convoked the most powerful businessmen of the United States’ East and West coasts, they had already collected a great amount of information and designed such a detailed project that they were convinced that Cerro de Pasco would be the endeavour of their lives. At the introduction dinner in New York for the presentation of the proposal, prominent figures attended, such as John Pierpont (JP) Morgan, Henry Clay Frick, Darius Ogden Mills, Michael P. Grace, Hamilton McKown Twombly, who represented the interests of the Vanderbilt family and the widow of a former partner, Phoebe Hearst.

Haggin was a lawyer who has become a landowner and descended from Ottoman Turks and an aristocratic Kentucky family. He became famous when he was given Rancho del Paso as payment by a client. This was a superb property that specialised in breeding racehorses and was located near Sacramento, the capital of California, which by the mid XIXth century had become a sought-after destination for adventurers and fortune hunters attracted by the gold rush. In fact, Sacramento had been founded by John Sutter, a Swiss immigrant on whose property the precious metal had been found after the first appearance of gold nuggets on the American River in Coloma.

Prominent miner George Hearst was one of the few to make a great fortune after arriving in Sutter’s Mill in 1849. He had made the long voyage

Individuals from all parts of the world, attracted by the mineral wealth, adapted to the harsh conditions of Cerro de Pasco without abandoning the habits of their native countries.





The California gold fever unleashed a torrent of migration and provided the initial momentum behind fortunes such as those of George Hearst, whose reputation was that of being the greatest expert in mineral prospection on the Pacific Coast.

IN 1887 HAGGIN AND McCUNE DECIDED TO SET UP A CORPORATION; THEY AGREED ON A PARTNERSHIP WITH HEARST TO EXPLORE THE POSSIBILITY OF EXPLOITING THE MINERALS OF A LAND AS DISTANT AS PERU. HEARST WOULD PASS AWAY FOUR YEARS LATER WITHOUT SEEING THE PROJECT COME TO FRUITION.

to California after his father's death and shared Higgins' love for raising thoroughbreds at his Rancho Piedra Blanca property, located in San Simeon. He added more ranches to Piedra Blanca, and built Hearst Castle which served as a reference for the famous film *Citizen Kane*. The film has as the lead character Charles Foster Kane, based on Hearst's son, William Randolph, whom years later would found his family's media empire beginning with the San Francisco Examiner newspaper. Orson Welles played the role of this character superbly.

The friendship between these two tycoons naturally resulted in the creation of the Hearst, Haggin, Tevis and Co. company, where the third partner was an old associate of James B. Ali, Lloyd Tevis. At the time, Hearst had already earned the reputation of being the best-known prospecting expert of the West Coast and a great innovator in the mining of quartz and other minerals. Within a short time, this company would become the greatest mining concern in the United States.

On the other hand, Alfred McCune had been born in India to British parents, was a railway builder, owner of retail businesses with investments in mining, and like a good Mormon, had established himself in Salt Lake City, Utah, becoming the first multimillionaire of the young state. In 1887 he partnered with Haggin to explore the possibility of exploiting the minerals in a land as far away in Peru. Four years later, Hearst would pass away without having the chance of seeing the project come to fruition.

The year prior to the New York dinner, in July of 1901, McCune had travelled with his family to Peru, spending several months there to familiarise himself with the territory and with the intention of purchasing the main mining estates and prospects in Cerro de Pasco. All of the basic information had been provided by James McFarlane, a mining engineer who had acted as a scout on several opportunities during fourteen years, evaluating the mining potential of

the Central Andes and waiting for the right moment to make the investment. However, on his visit in 1901, to confirm the initial reports, it would be essential to convince these great investors. To do so required studies on the geography and the mining potential that had been carried out by other researchers such as Mariano Eduardo Rivero and British engineer Richard Trevithick, both in 1828; Alejandro Babinski in 1876, Maurice du Chatenet in 1879, Antonio Raimondi in 1885 and the U.S. engineer A.D. Hodges in 1888, Ricardo Garcia Rosell in 1892 and Pedro C. Venturo in 1898.

Even though this had been historically renowned as a region that was very rich in silver, these monographs showed that there were also vast quantities of copper and coal. This is why Haggin and McCune felt that their patience had been rewarded. From the beginning of their exploration work, the best conditions for getting involved in this business became increasingly evident. The Callao-La Oroya Railway had been completed, with only a few kilometres remaining for it to access the mining territory. On the other hand, in the United States and Europe there was an increasingly widespread use of electricity, public and private transmission lines, tramways, manufacture of generators and circuits and construction of power plants, among others, all of which would increase the demand for copper for decades. The impact was so great that the price per tonne, which was GBP 40 in 1893, shot up to GBP 73 in only six years. McCune and Haggin, who were savvy businessmen understood clearly that with a precious metal such as silver they could cover operating costs and that copper extraction would represent pure profit once its demand began to grow.

The political moment was also ideal. In 1899 Eduardo Lopez de Romaña had been elected president. He was a liberal who had been educated in London, specialising in railway bridge construction and who had a very favourable view of foreign investment. He intended to provide an important stimulus to the productive sectors of the country, especially agriculture, industry, and mining.

RIGHT—
Pay day for the workers at the
La Esperanza estate in the
early part of the last century
in Cerro de Pasco.

In order to promote the latter, a Mining Code, known as the 1900, was being prepared, but that only would only be enacted the following year. Among the innovations, the new norm established that that ownership of mining properties which had been legally acquired was final and in perpetuity, with the only condition that the mining contribution (canon) be paid. In the same fashion, tools, machinery and inputs for the development of the activity were exempt from the payment of import duties. In addition, ten years before, the government of Remigio Morales Bermudez had made mining activity tax-exempt for 25 years.

It was unlikely that things could go wrong at that dinner with a good part of the most powerful men in the United States in attendance. During that single evening, Haggin and McCune were able to raise the impressive sum of ten million dollars of that time to put the project in motion. Three million were contributed by Haggin himself, McKown Twombly pledged two million, and the rest of the guests came in with a million dollars apiece, thus confirming the required amount. Throughout the rest of his life, Haggin would control the company with a 34% share. He would be considered the brains behind this unusual and enormous enterprise which would be the largest in South America by far and until that moment the greatest U.S. investment outside of that country.

However, the most noteworthy aspect of Haggin and McCune's design was not that it had brought together the most powerful men of the mighty nation of the north, but that their participation ensured the strategic coverage of the most complex needs requiring solutions. Haggin and McCune were the experts in exploration, operation and development of mining technology; McCune, McKown and Twombly and J P Morgan owned the main railway lines in that country; Henry Clay Frick, partner of Andrew Carnegie had the largest and most efficient steelworks and coal-fired engines in the country;



JP Morgan was a notable financier and key player in different parts of the world, as was Darius Ogden Mills, then the wealthiest banker in California and who from an early age acquired an in-depth knowledge of the mining business.

It was a practically invincible group which from inception established within this business the bases for a philosophy that would guide the destiny of Cerro de Pasco Investment Company to the very end: self-reliance and autonomy. The birth certificate of this enterprise would be sealed with its official registration on June 6, 1902, although construction and exploitation would begin in February of that same year in our central highlands. In this way, suddenly and at a late date, Peru would fully enter the industrial age, during a period characterised by the swift expansion of world capitalism. *

THE FOUNDERS



ALFRED W.
MCCUNE

(1849–1927)

Born in India and by the end of his days he had become a railway builder, mining operator and U.S. politician. He owned mining properties in Canada, Montana and Utah. Since 1887, he began to investigate the potential of the Pasco region, in a partnership with James Ali Haggin, and during the last three decades of his life he focussed on this part of Peru. In 1902, he took the initiative of founding the Cerro de Pasco Investment Company, and that same year the Peruvian government granted him the concession to build the Huacho-Cerro de Pasco railway.



JAMES B. ALI
HAGGIN

(1822 – 1914)

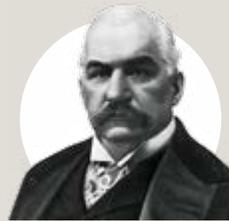
U.S. lawyer, rancher, and investor, he made a huge fortune at the end of the gold rush in his country. Together with his partner, the attorney Lloyd Tevis, he acquired the Rancho del Paso in Sacramento and created the Hearst, Haggin, Tevis and Co. investment fund, which would go on to become the largest mining corporation in the United States and owner of the Anaconda Copper Mine in Montana, the Ontario Silver Mine in Utah and the Home Stake Mine in South Dakota.



PHOEBE
HEARST

(1842–1919)

At the age of 19 she married mining and finance tycoon George Hearst, known as the greatest expert in mining prospecting on the Pacific coast and a promoter of the Hearst, Haggin, Tevis and Co. fund. Phoebe was the benefactor of many educational institutions, especially the University of California at Berkeley and is also remembered as one of the first women activists in U.S. politics. Along with other courageous women she led the suffragettes' movement, which in the end would achieve female voting rights in the United States.



JEAN PIEREMONT
"JP" MORGAN

(1837–1913)

A successful U.S. banker and financier who drove its industrial consolidation in the second half of the XIXth century. Thanks to his devotion to efficiency, he contributed to the modernisation and transformation in the way of doing business in the United States. By the end of his life he had shares in fifteen great industrial corporations in different sectors: mining, electrical, telephone, trade, steel, naval, etc. and in 25 railway lines throughout the United States.



DARIUS
ODGEN MILLS

(1825–1910)

He was a prominent U.S. banker and philanthropist, born in New York. In 1849 he went to California along with two of his brothers, attracted by the gold rush. In Sacramento he founded his own bank, the Gold Bank of D.O. Mills and Co., chiefly financing railway construction and mining companies. Some time later, along with other investors he founded the Bank of California, and acted as its president for two terms. While he lived, he became the richest man in California.



HENRY
CLAY FRICK

(1849–1919)

A prominent figure in the steel and coal sectors in the heyday of the industrial era. He founded Frick and Co., a leading producer of coke, a key component in the steel industry, where he was a partner of Andrew Carnegie. He was chairman of the Carnegie Steel Company and became a very controversial figure among the union members due to his attachment to safety standards, the reduction in the labour force and his obsession with efficiency.



MICHEL
P. GRACE

(1842–1920)

British entrepreneur who resided in Peru, chairman of W. R. Grace and Company and Founder of Grace Brothers and Co. After the War with Chile he created a consortium that would finance the reconstruction and stabilisation of Peru. He crafted the controversial Grace Contract which, among other things, paid off Peru's international debt in exchange for the cession for a period of 66 years of the railways and the exploitation of the mineral resources and the guano. Grace's business concerns would extend southwards to Chile where he created Grace & Co. to exploit the saltpetre there.



HAMILTON
MCKOWN
TWOMBLY

(1849–1910)

He was a businessman who had graduated from Harvard. He first became a financial adviser to William Henry Vanderbilt, an entrepreneur who owned some twenty railway companies (New York, Chicago, New Jersey, etc.). He subsequently became Vanderbilt's son-in-law on marrying his daughter, Florence Vanderbilt Twombly. When his father-in-law passed away he was appointed director of the companies of the railway empire and representative for the many business interests of the Vanderbilt clan. He died "of a broken heart" after the demise of his son, Hamilton, Jr. in an accident.

Timeline

1876/ 1901



1876

[July 23]

Eduardo de Habich founds the Lima Engineering School in the San Marcos Mansion.

1883

The War with Chile leaves the entire national production capacity destroyed and the economy in ruins.

1890

Mining is granted exemption from all additional taxes excepting the property tax for national reconstruction.

1897

The Mining Society presents the proposal for a new Mining Code requested by the Ministry of Development and Public Works.

1901

The new Mining Code is enacted, creating a favourable environment for investments.

1877

Ben Ali Haggin, Alfred McCune and George Hearst set up a partnership in the Cerro de Pasco Syndicate to explore the possibility of developing the deposits in the Peruvian highlands.

1889

Mr. Eulogio Fernandini builds the Huaracaca smelter near Colquijirca.

1893

The Lima - La Oroya Railway is inaugurated. It functioned under the administration of the Peruvian Corporation.

1896

[May 22]

The Agricultural and Mining Society is created to promote the development of both production activities.

1900

President Lopez de Romaña, acting on behalf of the State, hires Empresa Socavonera de Cerro de Pasco to build a mining drainage tunnel.



Work team at the concentrator plant of La Esperanza estate. A good number of the workers are youths between the ages of 15 and 24.



T · W · O

THE COMMISSIONING



CLOSED CIRCUIT



The operation of the Cerro de Pasco Mining Co. demanded the connection of the mines via railways, the availability of reliable power sources and labour. However, they never thought the culture shock would be so great.



Once the deal had been sealed and money changed hands, there was no going back. McCune himself, as operator of the mining syndicate, returned to Peru to deliver on the offer he had made to the landowners a year earlier. The first one to willingly accept the offer was the British miner George Edward Steel. He was followed by Elias Malpartida (who had been elected to Congress on several occasions, was a former mayor of Lima, Minister of Finance under president Candamo and Prime Minister under president Billinghurst). After him, the agreement was signed by Felipe Salomon Tello—a pioneer of the electrical power generation industry in Peru—who sold the Toril and Tajo Santa Catalina mines. The Languasco family, of Italian origin, followed suit, as did Ignacio Alania, Matilde Push de Villaran, Herminio Perez, the Gallo brothers, Romualdo Palomino and the Ortiz family, among others. The highest priced property to be sold on that first visit was the one belonging to Miguel Gallo Diaz, for which 100,000 pounds sterling were paid. However, not everyone agreed to sell. Among those who kept part or all of their properties were Mr. Eulogio Fernandini de la Quintana, owner of Colquijirca, who was already operating the Huaracaca smelter, the Lercari brothers, the



Many houses in the small city were still made of stone, with thatched roofs and prone to fires. This is why corrugated metal roofs began to be used.

Alania brothers, the Arrieta brothers, Tomas Chamorro, Juan Azalia, the Proaño family, Mr. Elías Malpartida himself, Toribio Lopez, Alfredo Palacios, Mr. Agustín Arias Carracedo and Antonio Xammar, among others, almost all of whom combined agricultural, commercial and mining interests. The U.S. investors also shared the area with Compagnie des Mines de Huaron, a majority French-owned mining complex located in the district of Huallay, and with the Backus & Johnston Company, which would divest its small mines in Cerro de Pasco and remain with Casapalca, located in the Lima highlands. Within a decade the Cerro de Pasco Corporation would rapidly acquire 80% of the mining estates in the area, equivalent to some 70,000 hectares.

The early migration of people of different nationalities, attracted by the mineral wealth of these highlands, would already contrast the cultural and educational gaps between them and the communities inhabiting the Andes since ancient times. Because of this, the immigrants would more fully assimilate the great changes that were about to take place in the region, since in those days Cerro de Pasco resembled more a small village than a city. Before the arrival of the company, the thatched houses extended their way to the heavens and often fell victim to fires caused by bolts of lightning or improvised electrical connections that were becoming popular in the town. Slowly the roofs thatched with *ichu* grass were replaced by galvanised iron roofing also referred to as corrugated iron. The streets were narrow, shiny and cobblestoned, with a cement gutter in the centre for the water from the frequent rains to drain across and the pack animals to avoid with their tired gait.

However, this rustic setting contrasted with other, cosmopolitan features. In the superb work by Neydo Hidalgo, a historian specialising in Peru's electrical heritage, who published on the occasion of the 100th anniversary of the La Oroya Hydroelectric plant, he mentions the presence in 1910 of Frank Carpenter, a journalist invited to visit the region and the company installations



LEFT—
The work of the smelter's laboratory was vital to for the research observations on the complexity of the minerals and making decisions with regard to their refining.

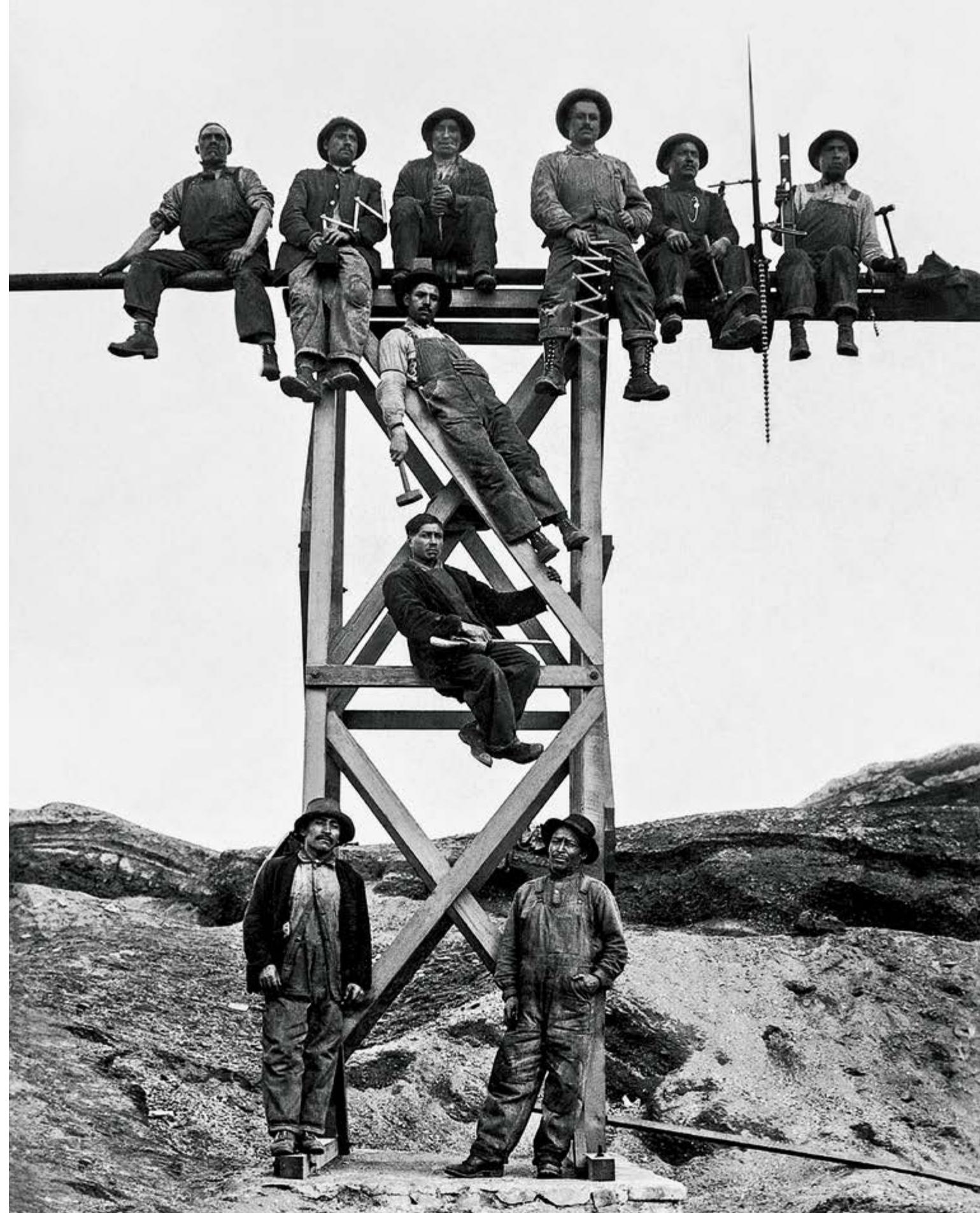
RIGHT—
A group of workers poses with its tools at the bases of the new shaft in Cerro de Pasco.

carried out by the company itself. This journalist published several articles on his voyage in various U.S. publications, including the *Omaha Daily Bee*. Among other things, he wrote that the town had 15,000 inhabitants and that in the stores on the main streets he saw “California fruit preserves, Oregon salmon, Massachusetts cotton cloths and various well-known brands of U.S. sewing machines. There were also many articles of native manufacture, such as ponchos made from sheep and llama wool, crude sandals worn by the Indians and roughly made shoes”.

That image alone portrays the difference between these two worlds, whose habits and mindsets would clash over decades, but whose persistent roots are still to be found in our society long before the arrival of the multinational, even dating back to Colonial times. To this social reality with its semi-feudal traits, accompanied by a series of fractures, inequalities and prejudices, arrived this monumental investment with the forms and trappings of the developed world. By then, in Peru, the landowner was an all-powerful being, endowed with all sorts of economic and political advantages, while the indigenous for the most part, illiterate, lacked access to education, a decent meal, and even the right to vote.

We have abundant evidence of the presence on the estates on the coast and in the highlands of forms of serfdom, the use of the stocks and other kinds of slavery concealed under the guise of paternalism. In the case of mining, prior to the company's arrival there was the “enganche”, a form of indentured servitude applied only to indigenous peasants hired as mine workers. It consisted of the advance of money, food and other goods in exchange for working off the debt under inhumane conditions and often against their will.

These practices not only underscored the inequalities, but they also planted inside the weakest the seeds of a simmering resentment which in the future became the basis for intractable social conflicts. The “enganche”





THE EIGHT NEWSPAPERS THAT CIRCULATED IN CERRO DE PASCO HAILED THE ARRIVAL OF THE MINING SYNDICATE. THE ECO DE JUNIN PUBLISHED “OUR CITY WILL THUS ADVANCE ALONG THE PROSPEROUS ROAD TO OPULENCE”.

issue has historically and systematically been attributed to the Cerro de Pasco company as a scheme incorporated by the latter. The truth is it wasn't so. If initially the system was adopted by the company (which it subsequently publicly admitted to be a mistake), it was already prevalent in Peruvian mines. The U.S. corporation was the first mining company in the country to abolish this system, as it considered it to be inefficient. In his 1917 book titled “Travelling through the Republic, Impressions and Facts about Cerro de Pasco”, Marcial Helguero Paz Soldan, the words of Paul Sidney Couldrey are quoted: “Much has been said about the “enganche” system. They have tried to slander us because we used this scheme with the Indians. But are we actually guilty? We didn't introduce this custom. In Peru it has existed since time immemorial. In the beginning, we made use of it. Nowadays, no longer, since it has produced poor results. The company has lost more than twelve thousand pounds because the workers employed did not live up to their commitments and left with the money they had received as an advance”.

A caravan of modernity

The arrival in Cerro de Pasco of the first contingents of people, machinery, and tools associated with the company was an event comparable to the parade of a great circus. A long caravan of wagons and carts drawn by mules and other four-legged beasts of burden camped on the outskirts of an astonished town. Notwithstanding the weariness resulting from a five-day trek from Callao along the Yangas, San Buenaventura, Canta, Obrajillo, Huaros and Huallay, these bearded, blue-eyed “gringos” dressed in overalls set up a camp that had been designed in every detail with a swiftness and practical sense alien to the rhythm of highland towns. In the midst of the installations one could clearly make out a headquarters or work office, the tents of the workers' detachment



Gradually, the tents that the “gringo” engineers used for their explorations would become a familiar sight.

and the service areas. But the main source of amazement for the Cerro community was the concentration of these tireless men on their tasks and the precision of their movements. Doubtless it was a carefully choreographed sight very much resembling the movements of a machine.

The eight papers circulating in Cerro de Pasco greeted the arrival of the mining syndicate, as the local writer and historian Cesar Perez Arauco noted in his Pueblo Martir blog. In its edition of February 1st, 1902, the Eco de Junin notes “A ray of hope shines for our mining, and consequently for our city, that will thus follow the trail of opulence. We have no doubt that not only ourselves, but also neighbouring towns such as those in the Mantaro and Huanuco valleys will have greater opportunities to trade with Cerro de Pasco, which will additionally provide the opportunities for wealth and bounty for those who wish to provide service to the new company”.

For its part, El Industrial, in its edition of that same day, underscored the future possibilities for the region: “We are at the threshold of a new takeoff of the economy and jobs, the two pillars of our land. From the plans they have disclosed, we can be certain that this U.S. company will establish a mining monopoly in our city. This is a scheme not known until now, since formerly it was a group of different owners, and thus the competition among them, that determined that our progress would be slow. Now, with the capital and new technology they bring, we have no doubt that we will see good results for our land”.

Buoyed by enthusiasm, the Bank of Peru and London offered its good offices so that the foreign newcomers could conduct their operations with ease. But the “gringos” would not allow themselves any distractions. According to reports from El Comercio newspaper of that period, that was closely following the activities of that new economic player on the national stage, on February 2, two days after their arrival, the company began drilling on the Noruega

Relations between the community and the U.S. managers and employees would become increasingly commonplace. However, the differences would take time to disappear. First decade of the 20th century.





THE CERRO DE PASCO COPPER CORPORATION, AS IT WOULD BE KNOWN FROM 1915 ONWARDS, WAS THE GREATEST U.S. INVESTMENT IN PERU DURING THE 20TH CENTURY, UNTIL IT WAS NATIONALISED IN 1974.

skylight, fifteen days later on the Diamante skylight, as well as Yanacancha, and on June 4, work began on the famous Lourdes shaft in Huascacocha, where the headframe that held the shafts could be seen. That shaft was already one of the city's landmarks by the beginning of the 20th century. In barely a few weeks, the outdated processes for mineral extraction were replaced by mechanical equipment, modern technology, and later on by metallurgical plants with the capacity to treat previously unimagined amounts of minerals.

For a project long-awaited for a decade and a half, there was no more time to lose. Even though activities began in February, it wasn't until June 6, 1902 that Cerro de Pasco investment Company was legally incorporated, almost immediately becoming a holding for two distinct companies, the Cerro de Pasco Mining Company, which as its name indicated, would be devoted to the management, development and trade for the entire mining project, and the Cerro de Pasco Railway Company, which would be in charge of the other task critical to the success of the operation, the construction of the railway lines needed to transport the mineral to Callao.

Railway to the sky

The process implemented by the Cerro de Pasco Company from drilling in the mines through the processing of an export product in the foundry mainly took place in three different spaces. Extraction took place in the mines, where concentrator plants were built; at the Tinyahuarco Smelter the ore was melted. The energy source for these operations was extracted from the coal mines at Goyllarisquizga, this being the fuel needed for the smelting of metals, as well as relieving the cold and filling other needs at the camps.

The company was aware that it was just as important to find a clear railway connection to Callao as it was to interconnect this production circuit, whose

bases lay at considerable distances in order to haul the ore, the coal and all the inputs required for the production and logistics of the different units. Prior to that, transport from Cerro de Pasco had been carried out using llamas or mules all the way to La Oroya, where the train had arrived in 1893. For this it was essential to build the entire railway infrastructure. By then, studies had already been published comparing the cost of hauling a tonne of ore with the traditional mule and llama trains compared to the railway system along this route. To use pack animals was twice as expensive and much riskier.

After the death of Meiggs and the devastating war with Chile, the main parties interested in the construction of a railway linking La Oroya with Cerro de Pasco were Messrs. Backus & Johnston of Casapalca, an operation that relied on its own smelter and owned several mining properties in Pasco. This is why in 1898 they requested the Peruvian government a concession to build the railway themselves. However, their request was turned down because it was too vague. The following year, on May 5, 1899, the Peruvian government organised a public tender, with the concession being granted to the sole bidder, Mr. Ernest Thorndike, who hastened to close a deal with the Peruvian Corporation, albeit unsuccessfully. At the beginning of 1901, another entrepreneur, Julio Villanueva requested the government to rescind the contract with Thorndike in order to build the railway himself, since to date not a single stone had been moved, but his request was declined.

However, shortly before the concession expired and aware that he would be unable to carry out the project, Thorndike transferred his rights to James B. Haggin, who was acting on behalf of the Cerro de Pasco Syndicate. He did this in January of 1902. To carry out the project, the U.S. investors would set up the Cerro de Pasco Railway & Co. in July, 1903. The plans and the project profile were approved by the government on September 19 of that same year. The construction of the railway began as soon as the company was granted the rights, under the state supervision of Eng. Santiago Basurco. The pace was frantic,



The highland railway that transported the ore from Cerro de Pasco to La Oroya was built in record time, with the steel and ties brought from the United States.



Each important station along the railway line had a water tank to cover the needs and emergencies of the passengers.

NOBODY IN THE WORLD HAD BUILT A SMELTER AT THE ELEVATION OF TINYAHUARCO (4,276 METRES ABOVE SEA LEVEL) AND NO ONE KNEW THE CHALLENGES IT COULD PRESENT.

to such a point that by January 16th, 1904, provisional cargo traffic on several stretches of line had begun, while provisional passenger traffic was initiated at the end of March. It should be pointed out that among the partners of the company there were several investors, railway construction companies, owners and administrators of the main railways of the United States. By July 26, the route was opened for the permanent transport of cargo and passengers along this railway, with the official inaugural voyage planned on the occasion of Peru's National Independence holidays which took place two days later.

The length of the railway's main line from La Oroya was 132 kilometres. However, in order to connect its main operating units, the company built two additional branch lines. One of these led from the Goyllarisquizga coal mines leaving at the Vista Alegre station, one of the highest on the route, with a length of 42 kilometres. This line was fully operational as of the 15th of November of 1907. The other branch line led from the city of Cerro de Pasco to the Tinyahuarco smelter, a distance of 32 kilometres.

On its journey from La Oroya to its final destination in Cerro de Pasco, the railway went from an elevation of 3,740 to 4,330 metres above sea level, making it for many decades the world's highest railway. Its modern locomotives were complemented by five passenger coaches and 138 freight cars of different sizes and functions, half of which were flatcars. In his book "Railways of Peru" Rodriguez Levesque notes that the regular journey from La Oroya took six hours and twenty-five minutes, while the special service took only three hours and thirty-five minutes, quite an accomplishment for the early 20th century. Along its route, the railway crossed 37 steel bridges measuring between 3 and 76 metres, and with load capacities of up to 700 tonnes. The most important stations along the main line were La Oroya, Chulec, Tingo, La Cima, Junin, Carhuamayo, Tambo del Sol, Shelby, Ricran, La Fundicion, Vista Alegre and Cerro de Pasco, according to railway specialist Elio Galessio.

All this investment in railways led to a highly functional and profitable infrastructure for the Company, and in its turn would become one of the greatest hopes for social and economic development in the central highlands for many decades to come, when it played a key role in the movement of people, goods, machinery and the transport of minerals such as copper, lead, zinc, bismuth, antimony and vanadium, among others.

The Tinyahuarco Smelter

Once the mines had begun production, the Cerro de Pasco company was aware that it would need a smelter to process the ore. The metallurgical plant needed to be located near the operations area; to this end, they hired Frank Klepetco, the general manager of Amalgamated Copper Mining to come from the United States as consultant for the planning and development of the project. William Kennedy, an important member of the consulting team, was made responsible for execution of the Tinyahuarco project, an enormous extension to the south of Cerro de Pasco and at a height of 4,276 metres above sea level, and abutting the mountains of Unish and Puntacmarca, a property acquired from Mrs. Isabel Gongora de Durand.

Until then, no smelters had ever been built at that elevation and there was little knowledge of the problems that could arise from building installations of this kind at a very high elevation, with rain, hail and snow during at least two hundred days of the year. It was speculated that the chief technical challenge that might be encountered could be in heating the furnaces, since hypothetically, it would be difficult to maintain the flames and achieve the minimum temperatures required for smelting in the rarefied atmosphere at that elevation. Over time, these doubts would be dispelled.

Kennedy would begin construction of the plant in 1903 on the slopes of Marcapunta (the name Puntacmarca was known by) mountain, using gravity



LEFT—
Crane at the copper workshop.
Nothing like this had been seen
in the early 20th century.



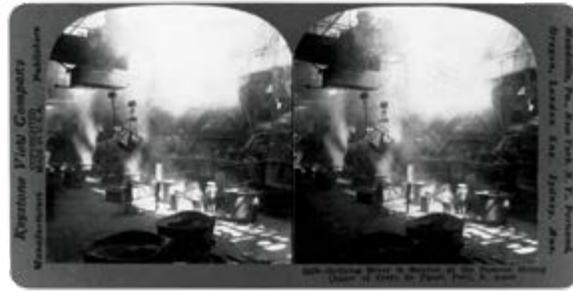
RIGHT—
The railway transported the
concentrate to the Tinyahuarco
Smelter to obtain a metal with
higher grade.

to divert the ore downwards to the furnaces. The project was also conceived with ample space, ensuring that in the future each independent unit could be expanded. After that, twelve ore storage facilities with a 2,000 tonne capacity apiece were built, along with the smelter, the warehouse, the carpentry, the moulding workshop and the laboratory. On top of this solid architecture of steel, stone and masonry, the most modern machinery of the time was installed, much of it equipped with mechanical loaders and almost all of them operated with automatic controls. The smelter began operations in November, 1906 and started operating at full capacity in 1907, recording an output by the end of 1920 of almost 661 million pounds of high-grade refined copper, almost 46 million ounces of silver and 193,000 ounces of gold.

The smelter was equipped with an automatic sorter, which separated the fine metal from the coarse. The coarse metal was transported with 50 tonne hopper wagons to 24 hoppers located at a higher elevation, and from there sent directly to the blast furnaces in small four tonne cars. Each of these five furnaces had the capacity for 350 tonne loads a day.

In addition, the plant was equipped with fourteen McDougall roasters 18 feet height and diameter with six hearths that allowed for rabbling the ore, thus ensuring that the sulphur would oxidise. There the fines were smelted in four open hearth furnaces which handled loads of 150 tonnes per day. There were also six Dwight-Llodydy grinders that prepared the ore for smelting in the blast furnace and converting the metal fines into a low-sulphur feed. The feed coming from both processes was converted by three Pierce Smiths into 98% blister copper that was the final product exported by the company to undergo electrolytic refinery processes in the United States.

All of this mechanical process was complemented by Root blowers, Gordberg compressors, a six-tonne capacity scoop, three mobile cranes—one with a 75 tonne lifting capacity while the others had a 40 tonne lifting



The dimensions and the mechanisation of operations at the Tinyahuarco Smelter were unheard of by the country's industrial community.

TINYAHUARCO'S HEYDAY WAS DURING THE FIRST WORLD WAR. THE BOOM WAS SUCH THAT THE SOL REACHED AN EXCHANGE RATE OF SIX DOLLARS AND WORKERS WERE PAID IN GOLD COIN.

capacity each— and other hydraulic loading equipment. Thus, the coal coming from Goyllariquizga and Quishurcancha —crushed and washed at the smelter itself— was transformed into coke through the use of seventy Beehive furnaces. Toward 1917, it was planned to build an additional 28 furnaces. The Smelter was something akin to an industrial powerhouse, a majestic infrastructure on the desolate plain of Tinyahuarco.

The golden age for the operation and the most productive for the smelter took place during the First World War. While Peru declared its neutrality during the early part of the conflict, it maintained constant cooperation with the Allied powers, which laid the foundations of future commercial relations with the United States at the expense of the United Kingdom, which experienced certain decline after the war. If at the onset of the conflict, in the light of uncertainty, Europe stopped buying from Peru, shortly afterwards raw materials saw a surge in prices, especially of cotton, sugar and minerals. The temporary boom that took place saw the Peruvian sol costing six dollars, and for a time, the workers were paid in gold coin. This rise in Cerro de Pasco was reflected in growth and an increase in imports of all sorts of goods at very low prices, including the most luxurious ones. Among these were period furniture, velvet drapes, delicate sets of fine china and even sterling silverware.

The Smelter also had a laboratory furnished with the best equipment and inputs of the time, where all the raw materials were recorded and the refined products were analysed. There was also a hospital with a resident physician to look after minor accidents and illnesses —serious cases were sent to Cerro de Pasco— and a warehouse for supplies. In addition, there were two hotels, one for single people and the other for families. There was a workshop on the premises, thus minimising the need to send machinery abroad for repairs.

The town known as Campamento Tercero alone accommodated close to five thousand people who had some relationship to the smelter. To service

it, the corporation built and maintained a market, fostered the activities of a theatre, several schools (some funded by the government and others by the company) as well as social and sporting clubs, including a rowing club, since the Cerro company had two boats that could be used for recreation in one of the lakes. Similarly, another town known as Alto Peru was established, with more comfortable housing and which was projected to become an important city.

Nonetheless, the end of the war was accompanied by a sharp decline in demand and in prices, and the Cerro company had to seek alternatives to increase production. To do so, they fast-tracked the Morococha project in Junin and acquired Casapalca, a large production unit located in the Lima highlands from Backus & Johnston, who were pressured to sell precisely because of the contraction in demand. With Morococha starting operations and the purchase of Casapalca, the Smelter became less attractive due to its distance and being in the opposite direction from Callao.

While it was operating, the surroundings of the smelter began to be rapidly populated by Peruvians from different parts of the country who were anxious to find employment. This reached a point that on December 4, 1911, a law was passed for the foundation of a town named Fundicion (smelter), said law being ratified six years later on September 6, 1917 by means of legislation creating the district of Fundicion de Tinyahuarco (Tinyahuarco Smelter), which included the towns of Pasco, Visco and Cochamarca, the hamlet of Sacra Familia and the estates of Huaraucaca, Diezmo, Racracancha, Cuchis and Angascancha.

Aware that their mining activities in the central highlands would outlast them and persist for decades, the Cerro executives decided to build a smelter and a refinery in a place roughly equidistant between Cerro de Pasco and Casapalca, and they chose the crossroads known as La Oroya, a bare plain allowing strategic access to the railway and located at an elevation 500 metres lower than the Tinyahuarco smelter.



THE GOYLLARISQUIZGA COAL DEPOSIT WAS SO LARGE THAT IT INCLUDED THE DISTRICTS OF YANAHUANCA AND CHACAYAN, A DISTANCE OF 16 KILOMETRES BETWEEN ONE AND THE OTHER.

Thus, in 1922, the La Oroya Smelting and Refining facility was inaugurated and by the following year, Fundicion had already become a ghost town. Decades later, the cold winds and the snow had fashioned wavy furrows among the crumbling walls and barely a few bewildered sheep would indifferently pass among the rubble of those ghostly remnants.

Goyllar, the black star

Goyllarisquizga –“where a star fell”, translated from the Quechua words “Ccollor Ishquishga”– is a settlement 35 kilometres from Cerro de Pasco at an elevation of more than 4,200 metres above sea level in the province of Daniel Alcides Carrion. This community has the historic reputation of being known for two centuries as the world’s highest coal-mining capital. Its best years were precisely when the Cerro de Pasco company began extracting this resource. From there, some 270 thousand tonnes of raw coal were shipped and used at the Tinyahuarco and La Oroya smelters, as well as for domestic consumption throughout the region. Before the arrival of the U.S. corporation, coal production on an industrial scale was practically non-existent, since there were virtually no production or manufacturing activities in the country. For all the demand for coal in the region, there were the Quihuarcancha and Vinchuscancha mines in the department of Junin. However, the construction of the coal railway to Goyllarisquizga would greatly boost its production, which lasted throughout the entire 20th century until 1992. This branch of the railway began its activities in 1905, winding from Vista Alegre –between Cerro de Pasco and the Smelter– along a stretch of 42 kilometres.

The coal deposits of this mine were so huge that they encompassed the districts of Yanahuanca and Chacayan, covering a distance of sixteen kilometres between one and the other. This was all part of the same group. At

its initial stage, the company acquired some twenty square kilometres where close to 600 mining properties were located, since it was estimated that these reserves would be enough for the first years.

The main route of the mine was called Pique Grande (Big Shaft), a sloping mine gallery over three hundred metres long that allowed the movement of cable-driven cars and mining drills. Starting from that gallery, many perpendicular ones were made that went down for five levels. Before the end of ten years, that coal seam was exhausted and the engineers built another slope of the same length and used the same technique for perpendicular galleries and called it Pique Chico (Little Shaft); further along, an even more inclined gallery was built from the end of the second shaft, allowing it to reach the bottom of the seam, and which was known as the H2 Shaft.

To extract coal from this last level through three sloping surfaces demands powerful machinery and high costs, which is why it was decided to establish a connection from the surface to the lowest point in the mine, which came to be known as the Chontas vertical shaft. This work in its time, became one of the most complex and striking structures of its kind in South America, since it was over 320 metres deep with three chambers, two of which were devoted to coal movement and the third one for people as well as all the services that were grouped around it. All traffic in the system was driven by powerful electrical motors and six winches distributed to suit the needs of the jackhammer drills or the compressed air cutters that allowed incredible advances for the time, up to two metres every twelve hours.

From the three previously mentioned galleries twenty horizontal levels were formed between the surface and the bottom and from each one a tertiary raise was developed, following the inclination of the seam, forming solid walls that could be identified for extraction of the product. Goyllarisquizga did not stand out just for its engineering on the surface, but additionally, on the inside,

RIGHT—
“Goyllar” pithead toward
the end of the thirties. This
mine would provide coal for
different uses over a period
of nine decades.

it was a true underground city with its main and side streets, which made it possible for electrical and mule-driven cars to move about.

Another particular feature of the operation was that in order to ensure production and reserves, a premise was followed that the new coal exposed needed to exceed that which had been previously extracted over the entire period. Thus it is that before 1920, the reserves on the surface exceeded two million tonnes, enough to guarantee the company ten years of production without the need to access new sources of fuel.

This profusion of tunnels and galleries demanded a series of safety measures to protect against mine collapse. The main one was the use of pine timber beams for support, but also with eucalyptus from Huancayo. Rarely, spruce timber was imported from the United States. These measures were needed due to the unstable nature of the host rock. In spite of this, as with every coal mine in the world at that time, accidents were frequent. Falling rocks or the derailing of cargo wagons caused some of them; to a lesser degree, the emanation of poisonous gases such as carbon monoxide or carbonic acid; however, it was coal dust and firedamp that were the most serious causes, since they would produce explosions followed by fires and dense columns of smoke. These gases were responsible for some notable accidents in 1910. On January 23, an explosion killed 169 miners, which led to a mine closure of six months, until new safety rules were implemented and various government inspections had taken place. However, the worst was to come when the mine reopened on August 10 of the same year. An even more intense explosion occurred at Level F, leaving 72 dead, 60 injured and 168 mine workers missing. The commission in charge of investigating the causes of the accident determined that the workers lacked the capacity to supervise the most common drilling system, known as “shooting the solid” and questioned the use of oil lamps instead of alcohol or benzene, in addition to a lack of water to dampen the galleries.



In light of these events, Congress reactivated a project for a Workplace Accidents Act which dated from 1905, and in October 1910 approved Law N°. 1378, which stated: “The business owner is liable for the accidents occurring to his workers and employees at the workplace or directly arising from it”, thus replacing earlier legislation dating back to the Civil Code of 1852, in which work accidents didn’t even qualify for compensation. This change in the law became, in turn, the cornerstone for workers’ rights. *

Timeline

1901/ 1907



1902

Ernest Thorndike transfers the rights for the construction of the Cerro de Pasco-La Oroya railway to Ben Ali Huggin.

[February 26]

Works on the Cerro de Pasco mines, from where the company would adopt its name, begin.

[June 6]

Official incorporation of the Cerro de Pasco Investment Company in New York, with its mining and railway companies

1906

The old Tinyahuarco Smelter pours its first bars of blister copper.

1906-48

Gold is obtained from the valuable impurities that accompany the blister copper that is refined in the United States.

1901

Alfred McCune begins to acquire properties and estates around Cerro de Pasco.

1904

[July 28]
Railway transport of passengers and cargo between La Oroya and Cerro de Pasco initiates its activities.

1906-27

Silver is recovered from refined blister copper by ASARCO and the American Metal Corporation.

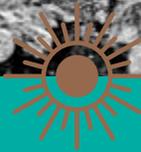
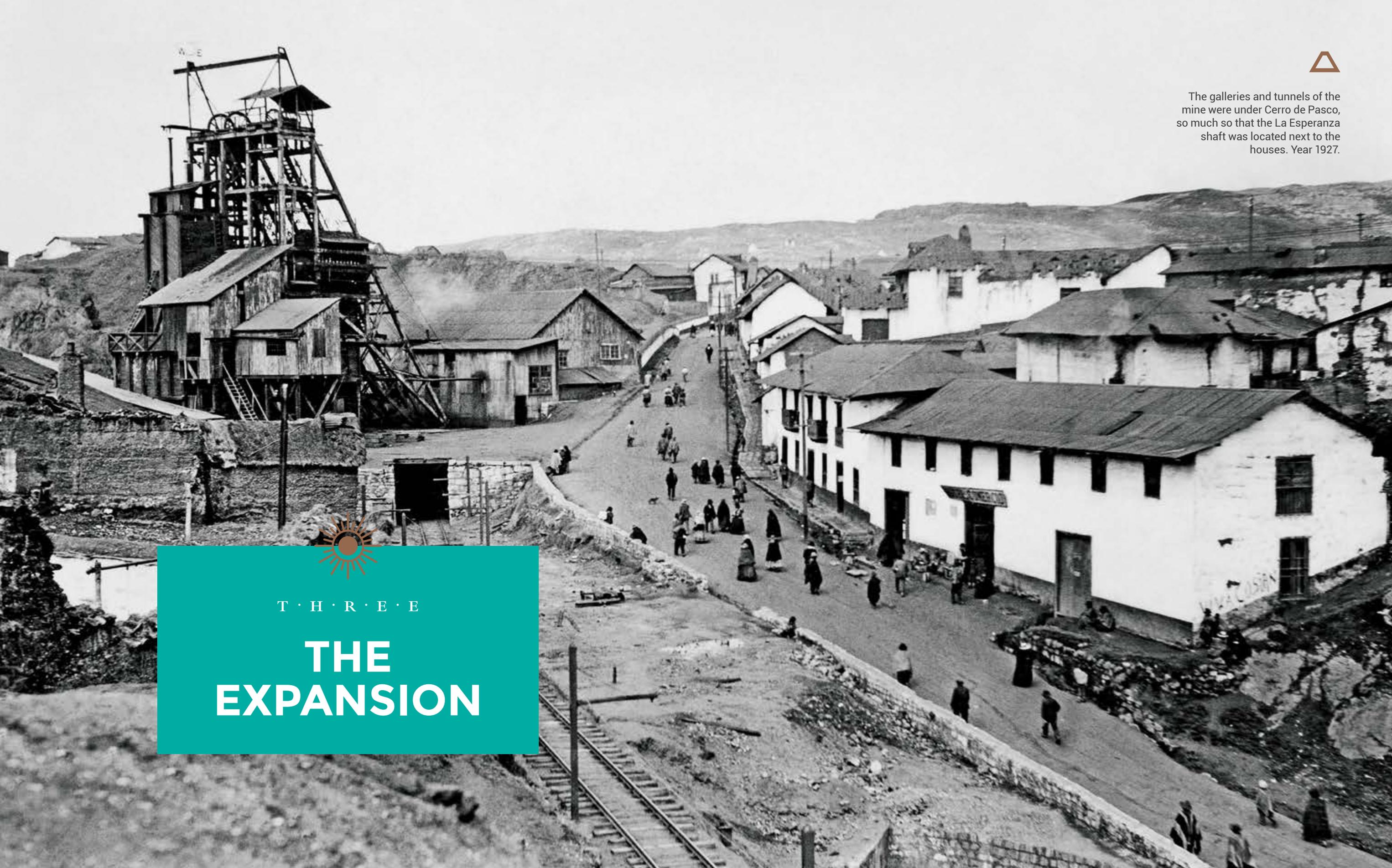
1907

[September]
The Rumiallana drainage tunnel in Cerro de Pasco is completed.

[November 15]
The railway uniting Cerro de Pasco to the Goyllarisquizga coal mine is completed.



The galleries and tunnels of the mine were under Cerro de Pasco, so much so that the La Esperanza shaft was located next to the houses. Year 1927.



T · H · R · E · E

THE EXPANSION

A TIME TO GROW



The first years of the corporation were marked not only by frenetic activity, but also by the company's ambitious purpose to deploy a mining corridor from its headquarters to Callao. They achieved their purpose in a few years.



The U.S. syndicate did not take long to adapt to the conditions of Cerro de Pasco and consolidate its operations and its relations with the community. Something similar happened with the community, which after a while was no longer surprised by the display of logistics, as well as the transport of minerals and inputs, or the presence of English speakers in the narrow, shiny streets of the city. In order to shorten a phrase, the inhabitants had got used to referring to the company as “the Cerro” and they could recognise the employees by their blue denim trousers that wrinkled over their leather work boots, held together by a tangle of laces and suspended over the rubber soles. Underneath a heavy woolen coat they wore a thick wool sweater to keep warm. It was a common occurrence to see them huddled in their green Chevrolet lorries with the company logo that would drive by in convoys. Although the dawns in Cerro de Pasco still filled the sky with bluish-pink hues, the fluorescent colours reflected on the snow, bore witness that the cityscape had changed forever.

During the second decade of the 20th century, Cerro must have been, after Lima, the city with the largest number of foreign inhabitants. Young

people would walk along the streets with their breath producing small clouds of condensation through the scarves that covered their noses while they would sip glasses of mint and barley tea to keep warm. Lining the streets were houses with two or three curved wrought iron balconies, small windows and tall gates that normally allowed passersby to see the hallways. As was traditional, the social areas were grouped around a courtyard, with the service areas behind, while above a balcony surrounded the entire perimeter with the bedrooms behind.

Along the winding Marques Street one would arrive at Chaupimarca Square, the commercial hub of the city. Along Lima Street one could get to the Las Culebras store of Sibile Co. across from the monument to the Unknown Soldier, erected in honour of the Pasco Column, a contingent of local youths that fought the Chileans during the War of the Pacific. On that same street one could locate Dieguez Co., where the new employees of Cerro and students arriving at the city for the first time to do their internships would find accommodation. Right across from the Europa Hotel, they were all recommended not to move about very much, remain at home on the first day, and have on hand their altitude sickness pills to chew on. If the symptoms persisted, they were to go to the La Esperanza Hospital that was supported by the mining company itself. Behind the houses of the foreign management, there was the Commissary, the only place where the distinguished wives of the engineers would deign to do their shopping. Behind this retail store, there was a bare football pitch that was very popular on weekends among the locals. Once in a while, on some weekends, the Spanish Beneficent Society organised bullfights along with all the traditions associated with this activity. These were very popular among the Peruvians but shunned by the foreigners, who considered them a blood sport. They preferred to spend their weekends at the golf club.



The centre of Cerro de Pasco.
In the background you can see the
commissary of the Gallo Brothers and
on the left side the Union Club with its
shield on the front. Year 1927.

RIGHT—
The Casa de Piedra (Stone House),
administrative headquarters of
the Cerro de Pasco in the city, was
completed in 1907 and remains
standing to this day.

The future is today

Once installed in the territory, one of the key objectives of the mining entrepreneurs was to ensure new veins that would allow them to project long-term production and growth. In the case of Cerro, in order to reach the programmed levels of production for the Smelter and to rapidly finance the acquisition of more deposits—in addition to its own output—the company decided to gather ore from various local producers. Familiarity with the production of each allowed it to acquire the most suitable land and mining estates. This is why, in 1906, the U.S. conglomerate had already invested six million dollars in buying mines, four on the installation of the smelter, three on the construction of the railway from La Oroya to Cerro de Pasco and in the branch line to Goyllarisquiza; another three were spent on the introduction of technical innovations, the installation of machinery, water pumps and the timbering of the mines.

It was clear that the corporation would remain in Peru for decades, and that implied building suitable installations. This is why on their arrival they selected La Esperanza estate, property of George Steel, at the time Consul General of His Britannic Majesty; on the shore of a lake that had given the estate its name, he had built a brick factory which had earned him a fortune. One of the McCunes, Alfred, had lodged there in 1901 and shortly after he made an agreement to purchase the property. The next step was to drain the lake, giving birth to the La Esperanza neighbourhood. By 1904 they had already built in that area, to the south of the city, the main train station to La Oroya, allocated spaces for workshops, for the first homes of U.S. professionals, as well as the residential camp for the workers, the sports fields and schools; that is why they decided to build their administrative headquarters there, which, at the same time, had to be very solid and functional. The draining of the



lake also allowed the company to expand its mining activities. To build their new headquarters, they summoned Mr. Agustín Arias Carracedo, a Spanish migrant who was knowledgeable in stone constructions, as he had grown up in a town next to a quarry called Albergueria. With his design and direction, the work on this large, robust building with a European style market place was completed in 1907, and looks impressive to this day.

Another relevant factor came into the equation that same year, when the price of copper suddenly fell from 25 to 12 cents a pound. Several of the small private miners in the area were forced to sell their properties to avoid bankruptcy and the U.S. company, which continued to increase its net worth, took advantage of the purchase opportunity, increasing its future potential. Shortly before the fall in prices in 1905, the company had struck a strategic blow in the region. Despite the fact that it was a deposit outside the geographical area of Cerro de Pasco, it acquired the Morococha mine, a unit that had been operating for more or less half a century and whose destinies were led by the Pflucker family, of German origin and with a deep-rooted mining tradition. Going from Lima, the mine was located before La Oroya, in the province of Yauli, in the department of Junín, and 140 kilometres from

RIGHT—

Mr. Agustín Arias Carracedo built the Casa de Piedra, managed the limestone quarries for Copper for decades, becoming a prominent miner in Peru.

the capital. The property was well-known since the mid-18th century for its high-quality copper and silver veins. The rise in the price of minerals before the arrival of the 20th century had excited miners Octavio Valiente, David Stuart and Lizandro Proaño, who encouraged the estate of the Pflucker brothers to reinitiate the exploitation of the mine together with them. They created the Compañía San Miguel, but in the surroundings there were also properties of independent miners with significant amounts of copper such as Natividad, Gertrudis and San Francisco. It was James A. Haggin himself, enthusiastic over the promise of these deposits, who personally negotiated the purchase of these properties. But he could only do it piecemeal. It started with the San Francisco mine belonging to the Pfluckers and 50% of the Natividad mine, leaving the other half in the hands of Backus & Johnston. But it would not take long to take over the other important mines such as San Miguel, Gertrudis and Cecilia. With all of them he would form, in 1908, the Morococha Mining Co., which would become the first subsidiary company of the Cerro de Pasco Investment Co., a legal figure that would remain in place until the expropriation of the company by the Peruvian State almost seventy years later.

Despite having acquired the mine in Junin, the company would only begin to exploit these properties in the middle of the following decade, since with the completion of the Rumiallana drainage tunnel in Cerro de Pasco, the first units and tunnels of the mining company in that area could be exploited more easily. For a time, this justified the postponement of operations in mines that were more distant from the Tinyahuarco smelter. To give us an idea of the magnitude of the work, the drainage tunnel allowed the central shaft and the Excelsior Mine to be drained at impressive speeds, thanks to large pumps that managed to vent 1,100 gallons per minute.





WITH THE DISTRIBUTION OF ELECTRIC POWER TO ALL THE COMPANY'S UNITS, CERRO DE PASCO WAS ALSO HAD LIGHTING AND THE CREATION OF VARIOUS SMALL BUSINESSES WAS FOSTERED.



The miners lived in Cerro de Pasco with their families and were integrated into that setting. Ernesto Baertl Montori playing as a child in Colquijirca.

Another of the important properties acquired by the company in 1907 was the Quishuarcancha coal mine, destined to make the coke needed for the Tinyahuarco smelter. For three decades in the previous century that mine had belonged to Mr. Mariano Plana. He sold it to the British miner William Myers, who exploited it for another fifteen years. Upon Myers' death, Cerro de Pasco bought half of the property from his heirs, who sold the other half to Mr. Eulogio Fernandini, who at that time needed feed for the furnaces of his smelter in Huaraucaca.

Cerro began transporting burning coal from Quishuarcancha, but this transfer was too expensive and inefficient, so the company decided to build a 17-kilometre railway branch line that began to operate between the coal mine and the smelter in 1913. As is commonplace, with that ease of transportation around the mine, a town with both basic and specialised services was created, such as the hospital, necessary due to the always latent risk of accidents or fires in the coal mines. In addition, a coeducational school was created at the request of the English engineer and superintendent, Mr. Murdock, and a branch of the La Mercantil Commisary was installed. All of this contributed to the intensive growth of the mine's production. For example, between 1901 and 1912 the production of Quishuarcancha ranged from 3,500 to 7,000 tonnes per year, but in 1913 it rose to 38,138 tons and, by 1915, it already exceeded 61,000. All that coal was destined for consumption by the Smelter, which, by that time, was already operating at an optimum level.

Meteoric growth

In 1908, six years after the start of operations, the company was one of the largest employers in the entire country, with 590 men working on the railway,

1,600 workers at the smelter, approximately 1,000 more extracting ore in the mineshafts and 1,500 working in the coal mines. But the staff would increase markedly in 1913 and in the following years, when the mining works began in Morococha. Two years earlier, the first three Norberg compressors had been installed and, in 1915, after operations began, the Natividad winch was installed. But one of the most notable contributions of this decade came when the Cerro de Pasco Mining Corporation put the La Oroya Hydroelectric Plant into operation in 1914. By then the company had fostered a great commercial and urban stimulus with the construction of the railroad and with La Mercantil Commisary, also promoting the appearance of small businesses in the cities adjacent to its mining units. However, with the distribution of electrical energy for all the operations of the U.S. company, the city of Cerro de Pasco had lighting and its inhabitants definitively entered another stage of modernity, enjoying the benefits of electrical power. Shortly before the advent of the 1920s, most of the underground excavation and drilling work in the company's mines was carried out using compressed air sourced from compressors powered by the La Oroya hydroelectric plant. The same air was used to ventilate the galleries where people worked, which over the years became more extensive, so much so that it was impossible to carry the mineral by hand. The beasts of burden were replaced by electrical vehicles to travel and move the mineral through that network of galleries and ramps to the surface.

The constant and growing momentum in the work of the smelter—from the processing of its own ore from Cerro de Pasco and Morococha as well as stockpiling from other private mines—made the mining production of the Cerro grow dramatically during the first three decades of the century XX. This is reported in a table from the Statistical Abstract of Peru:

RIGHT—
The train could transport 3,000 tonnes of concentrate per day to La Oroya and required 420 employees for its proper operation.

Year	Silver (Kg)	Copper (Tonnes)
1903	170,804	9,497
1904	145,166	9,504
1905	191,476	12,213
1906	230,294	13,474
1907	206,586	20,482
1908	198,888	19,854
1909	206,656	20,068
1910	252,565	27,374
1911	289,383	27,375
1912	324,352	26,969
1913	299,132	27,776
1914	286,600	27,090
1915	294,445	34,727

Source: Statistical Abstract of Peru

It is in this context, in view of the promising future that loomed ahead, that the company decided to merge on October 27, 1915 under the name of Cerro de Pasco Copper Corporation, absorbing Mining and the Railway Co, which were immediately liquidated. But behind that growth there was also a significant effort on the part of investors. By 1916 the company had already allocated more than 30 million dollars from that time to its operations on Peruvian soil, and its properties had exceeded the jurisdiction of Pasco, extending towards the neighboring Junín, which heralded an imminent mining corridor towards the coast.



In 2016, the railway unit had been strengthened with twelve locomotives for the route between La Oroya and Cerro de Pasco, 267 freight cars of various sizes, seven passenger cars and four luggage holds. This capacity allowed it to transport 3,000 tonnes a day and, for the system to work like clockwork, it required 420 employees. In 1921, the Copper corporation even built an additional 18-kilometre branch between Cut Off and Morococha, at kilometre 206 of the main road, an area near Pachachaca. The idea was to reduce the cost of transporting the ore between that mine and the La Oroya smelter. The pieces were fully positioned on the game board.



With the acquisition of Casapalca, the extension of the mining corridor of the central highlands was completed.

The addition of Casapalca

As we saw before, the First World War initially generated some confusion among buyers in the United States, but the market was quickly reactivated by the demand for mineral and Cerro de Pasco experienced some glory years. Although the price of copper fell dramatically again once the conflict ended, another fact favoured the company in a significant way. In order to lower costs and processes, the United States Government prohibited importing copper concentrates with low metal content, thus making the Peru-based U.S. company the only one capable of producing copper bars with high grades.

The Copper corporation was brimming with vitality and ready to take an important next step. One just had to wait for the right moment. Then a new drop in the price of copper and the death a few years before of the engineer John Howard Johnston, the head of mining for the Backus & Johnston company, encouraged the U.S. company to negotiate the acquisition of Casapalca. Backus & Johnston had been, since the establishment of the U.S. syndicate, the only company with mining interests in Peru that seemed capable of competing with it in the central highlands.

Minera Casapalca had been established in 1889, located in the same department of Lima, in the Huarochiri mountain range and at 4,200 metres above sea level. Like many other mining companies in the area, it had been dedicated since its foundation to the exploration and exploitation of copper, zinc, silver and lead and, at the insistence of engineer Johnston, over time they had set up a chemical laboratory and a concentrator plant in that area. Before the arrival of Cerro, this company held the prestige of being the most modern in the country. However, the slump in the price of copper at the end of the first decade of the new century hit it as much as the absence of engineer Johnston, who had left for Europe attracted by its glamour and



THE MINING CORRIDOR

The railway between Callao and Cerro de Pasco determined the development of the U.S. company.



RIGHT—

It would take little time for the Peruvian workers to begin to specialise. This was especially applicable for those working at the smelter and on the railroad.

the excitement of auto racing. What's more, he was a collector of racing cars that he himself competed in the first world car races. The engineer had established his residence on the Côte d'Azur, and went on to build and patent new designs of carburetors for racing cars and, of course, he attracted attention in European society, always at the wheel of his favourite powerful Mercedes Benz cars.

On learning that Casapalca's low prices and mismanagement had put the company on the brink of bankruptcy, Johnston decided to return in 1909 and take the helm of the company as president. For the next four years he lived between the mines and the smelter, achieving a rebirth for the company by investing his own equity and loans from different banks. By virtue of this financing, it was able to install more modern equipment in the metal smelter, including a special line for copper, and to acquire dozens more mines. Thanks to his dedication and strategic planning, the company managed to position itself once again among the top mining companies in the country but, when he was in Lima, about to accompany his Peruvian son Antenor Johnston Torres to continue his studies in Europe, death came to him on May 8, 1913. Six years later, when Minera Casapalca sat down to negotiate with Copper, it was clear that it aimed only to sell at the best possible price. With this purchase, Cerro de Pasco Copper Corporation would establish itself as being by far as the largest mining company on Peruvian soil and in South America.

The new worker

Although the gringos brought knowledge, the latest technology and a comprehensive model of mining development, one of the problems they had not anticipated was the possible shortage of labour. As economic historian Heraclio Bonilla points out in "El Minero de los Andes", the main difficulty



of the company was that there was no working class in Peru and that in the mountains, especially in the communities, small-scale agriculture was deeply rooted as were ancestral customs such as communal work, and breaking the chain of mutual aid also implied self-harm and social rejection. In some way, the Andean communities had been unscathed by the slavery model of the coastal haciendas, which first capitalised on the strength of the blacks and then on the industriousness of the Asians. Thus, the Andean people preferred to work for the mine only when their lands were lying fallow in order to obtain additional income, but without ensuring their permanence. Also, at the beginning of the century, their difficulties in adapting culturally to the rigours of schedules and the practices of industrial work became evident.

As we saw earlier, initially the company replicated the national miners' policy of "enganche", based on wage advances to force workers to stay longer at their jobs, but this practice was rejected as inefficient. Then it decided to stimulate the offer by raising wages and established salary scales according to the skills and capacities of each applicant. It should be noted that then, the



**THE NEED TO HIRE FOREIGN EMPLOYEES
WAS DECREASING AND A GENERATION
OF NATIONAL MINERS WITH WORLD CLASS
STANDARDS AND LEVELS OF EFFICIENCY
WAS FORMED.**

**1,000 MEN ARE NEEDED FOR
THE CERRO DE PASCO COPPER CORPORATION
MOROCOCHA SECTOR**

Free hospital care, room, electricity and firewood.
Commissary at low prices.

DAILY WAGES

MINE		SURFACE		
	S/.	S/.	S/.	S/.
Foreman	7.80 to	18.25	Foreman	7.15 to 9.10
Woodworker	7.15		Carpenter 1 st class	8.15
Assistant Woodworker	5.40		Carpenter 2 nd class	6.50
Handyman	7.15		Painter 1 st class	7.55
Asst. Handyman	5.40		Painter 2 nd class	6.50
Machinist	6.30		Mason 1 st class	7.55
Carpenters	6.50		Asst. carpenter, painter, mason	5.05
Assistant Carpenter	5.40			
Mason	6.50			
Asst. Mason	5.40		Shovellers	4.20

Obtaining the highest salary depends on the skills of the workman, with the possibility of attaining foreman position. Free one-way ticket.

Flyer that circulated to attract workers, in which wages were differentiated according to the skills of the interested parties. (Source: "El Minero de los Andes" by Heraclio Bonilla)

educational level of the inhabitants of the central highlands was one of the highest in the Andean region. The leaflet that they distributed throughout the region requesting labor to begin work in Morococha is quite revealing.

On analysing this information, it should be emphasised that for farmers, the tasks within a technologically advanced company could be totally incomprehensible. Aware of these limitations, what the company offered in particular was a salary according to the worker's abilities, the opportunity to enter the company as assistants of some trade –even without having previous experience– and the possibility of promotion all the way to the position of foreman, a ladder up which the remuneration became much more attractive.

The reference to the “free one-way ticket” was one more incentive to persuade interested parties to make a quick decision and also for the employee to remain working there, becoming more technically adroit and progressing with the company, contrary to the custom of the farmers, who were hired only during the break in agricultural activities.

Somehow the proposal paid off. Before the arrival of the 1920s, rural labour was hired freely and under the same conditions as any national or foreign worker, even if they had been hired in Lima. To this extent, the need to hire employees of other nationalities gradually diminished and, instead, a generation of national miners with world-class standards, levels of efficiency and performance was formed, for which they received timely payments, accumulated experience and over time, added skills. Less than twenty years after the start of activities, the company already had around a thousand workers in Cerro de Pasco alone and only thirty-five were foreigners According to Marcial Helguero Paz Soldan himself in 1917: “The progress made by the Indian has been astounding. He has been totally swept away by modern life. They are highly skilled workers who astonish because of the speed with which they assimilate all kinds of knowledge... The characteristic ease of their race to learn everything has made them, in a short time, indispensable men for tasks that are not possible to perform by a European or someone from the United States due to the scarcity of numbers and the rigours of freezing and harsh temperatures. While formerly they fled at the passage of the trains, today they are expert machinists, intelligent mechanics, skilled smelters and carpenters. They handle all the instruments of the mining industry with the same precision as a foreigner”, he enthusiastically summarised in his report with enthusiasm.

The truth is that a decade after work began in the iron foundry section of the Tinyahuarco Smelter, all the workers were already Peruvian and were



LEFT—
Cerro was a benchmark
for national miners, who
updated their techniques
and processes following
the guidelines of the
corporation.

earning a salary that perhaps they had never dreamed of. The unfortunate thing was that, in the words of Helguero Paz Soldán himself, “they lack the thrifty spirit. All the money they earn is spent immediately and almost always on alcoholic beverages, without worrying about the well-being of their family”.

By then, the Cerro de Pasco Copper Corporation had become a benchmark for how to do mining in a comprehensive manner, especially for Peruvian professionals in the mining, geological and metallurgical areas, since, for their daily work, the company brought to Peru the best professionals from the different corners of the world and implemented a technical and scientific method of working with first-rate international standards. In short, the U.S. company established a rigorous and comprehensive method to explore, extract, concentrate and melt the ore, guidelines that became the standard for Peruvian miners’ practice. This was so much so that for decades, the general consensus of Peruvian professionals linked to mining activity can be summed up in a single sentence: “La Cerro was a real school”. *

Timeline

1907/
1921

1907

[August]

The company buys Hacienda La Esperanza in Cerro de Pasco, owned by the Briton George Steel.

[September]

Construction of the Cerro de Pasco Rumiallana Drainage Tunnel is completed.

1914

[March 7]

The company's first power plant in La Oroya begins to produce energy.

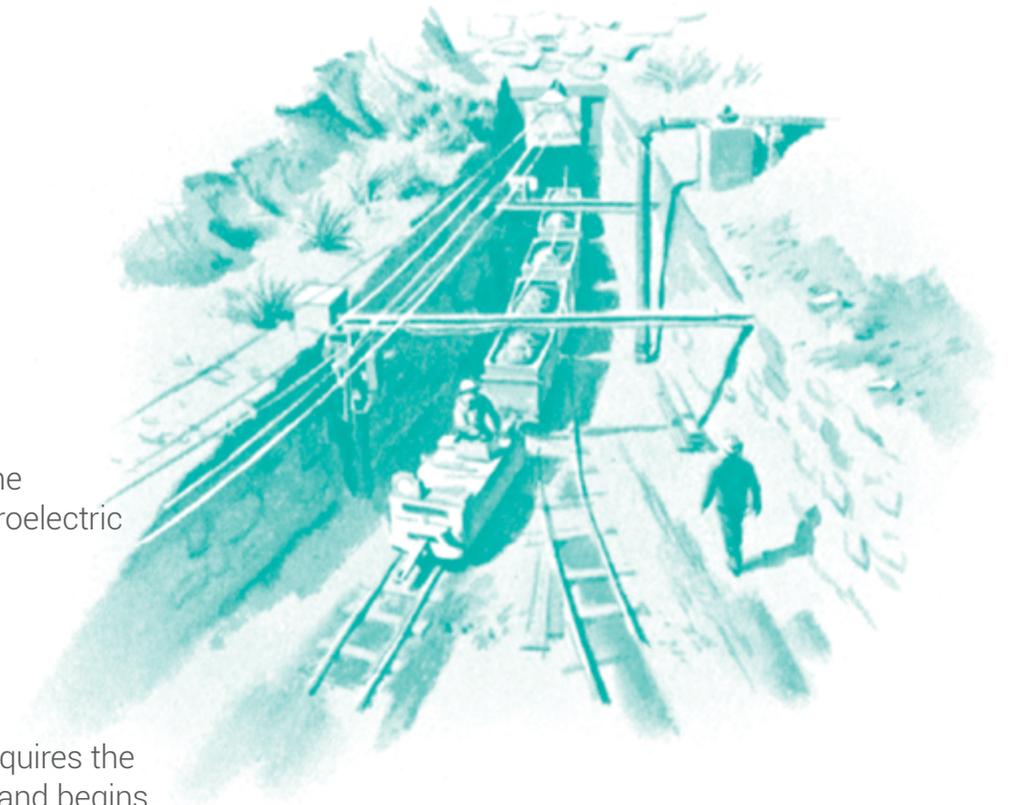
1917

[December 2]

Inauguration of the Pachachaca Hydroelectric Plant.

1918

The company acquires the Casapalca mine and begins operating the company's first concentrator plant at that mine.



1911

Inauguration of the first three Norberg compressors in Morococha. In 1913 the mining works would begin.

1915

[October 27]

Cerro de Pasco Copper Corporation is created with the merger of Cerro de Pasco Mining Co., Cerro de Pasco Railway Co. and Morococha Mining Co.

1920

The Morococha concentrator plant begins operations.

1921

[February 21] The Chulec General Hospital is inaugurated, becoming the main medical centre of the company and headquarters of the Medical Division of the Corporation.

[April 25]

The Geology Department is created in La Oroya.



In the smelter, the ore was treated and refined to avoid price penalties.
Research became the source of sophisticated and varied methods.
Year 1927.



F · O · U · R

LA OROYA



THE KEY TO THE BUSINESS



Since inception, the metallurgical complex became the heart of the company and a research centre with inexhaustible resources to treat a very rich ore with an unusually complex composition.



La Oroya had always been a crossroads, a fork at the entrance to the central highlands, a midway stop on the routes to Huancayo, to the south, Cerro de Pasco, to the north, and the jungle to the east. That is why the original settlers of that area, close to 3,745 metres above sea level, were just a few small farmers growing tubers or grains and some transient miners who were located on the left bank of the river. The place got its name from a peculiar means of air transport that allowed them to cross over the riverbed to the right bank. These bridges were made of four ropes with the thickness of an apple, using cowhide and secured with transverse ropes. Two thin ropes, one on each side and almost a metre above the bridge, served as a parapet to pull the vehicle. The thick ropes were tied at each edge around logs driven into the surface or very well embedded rocks. As one advanced to the other side of the bridge, a protuberance formed, forcing the last section to be traversed with a slight angle upwards. The exit and entrance were covered with a carpet of tree branches, straw, and fibrous agave roots.

But everything began to change when the railway employees began to settle in. From that moment onwards, the train station would transform



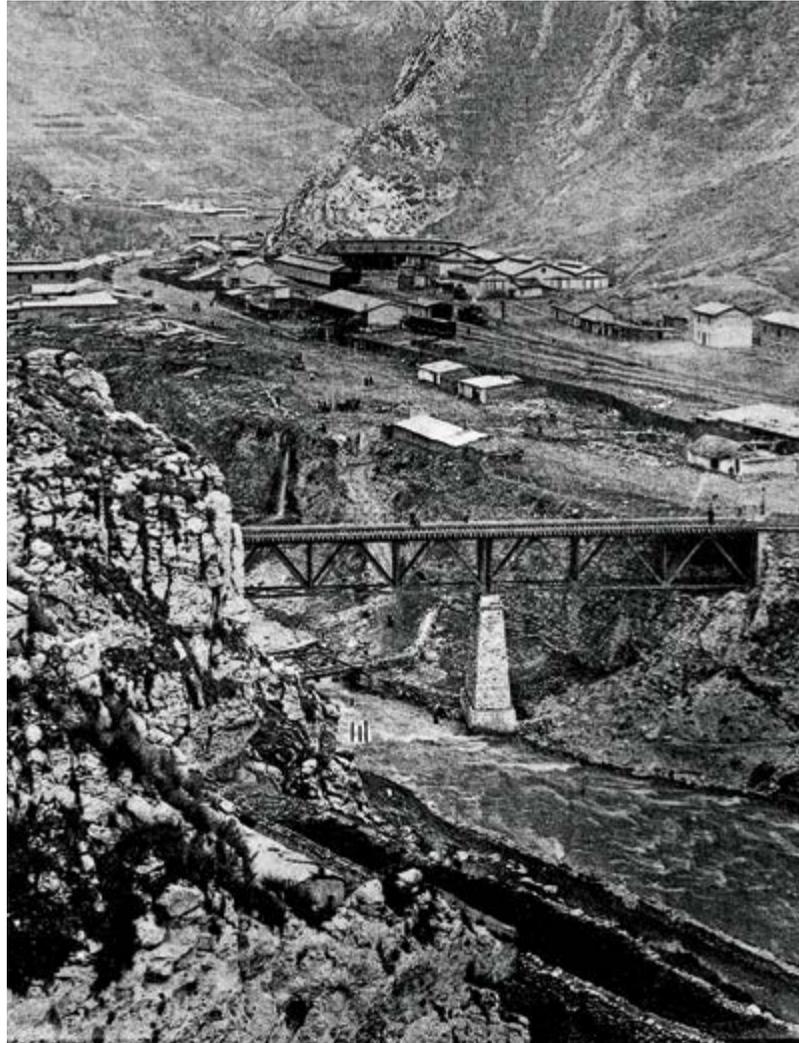
The corporation located the ideal site for the refinery in Huaymanta. It was a bend in the ravine on the edge of the Mantaro River.

this strategic crossing into a potential commercial and industrial hub. At the beginning of the century, Cerro had bought its first properties in the area to develop the railway project to its mining centre, these being lands that adjoined the Huaymanta estate, owned by the Santa Maria family, and the properties of the La Oroya Mercantile Company, which since the previous century had been postponing their projects to build commercial commissaries, hotels, warehouses and deposits. All these lands were later acquired by the corporation, around 1912.

The construction of La Oroya smelter began only in 1917 on a pronounced bend in the Mantaro river ravine that had been part of the Huaymanta estate. Three reasons justified this new investment: the fact that the company's mining production had multiplied with the acquisition of new properties, the nearby operation of the aforementioned railway, and the cost overruns involved in sending the mineral from Morococha to Pasco –to the Tinyahuarco smelter– and, back, once refined, to the port of Callao. Thus, after five years, on November 23, 1923, the new smelter produced its first blister copper bar.

Since it was created and almost through the end of the 20th century, this Metallurgical Complex was one of the most important in the world. Initially, its main purpose was the smelting and refining of copper to add a greater commercial value to its products. The concentrates originated from the company's mines and were acquired from other individuals. Once refined, these metals were destined for the markets that the company had already secured, mainly in the United States and Europe.

In a short time, La Oroya went from being that bump in the road barely populated by railway workers to a town of more than 25,000 inhabitants, whose heads of families were vying for a job in that metallurgical complex, remarkable for its size and being the first of its kind in Latin America. The impact of its



creation and influence was such that, in 1925, La Oroya became the capital of Yauli province.

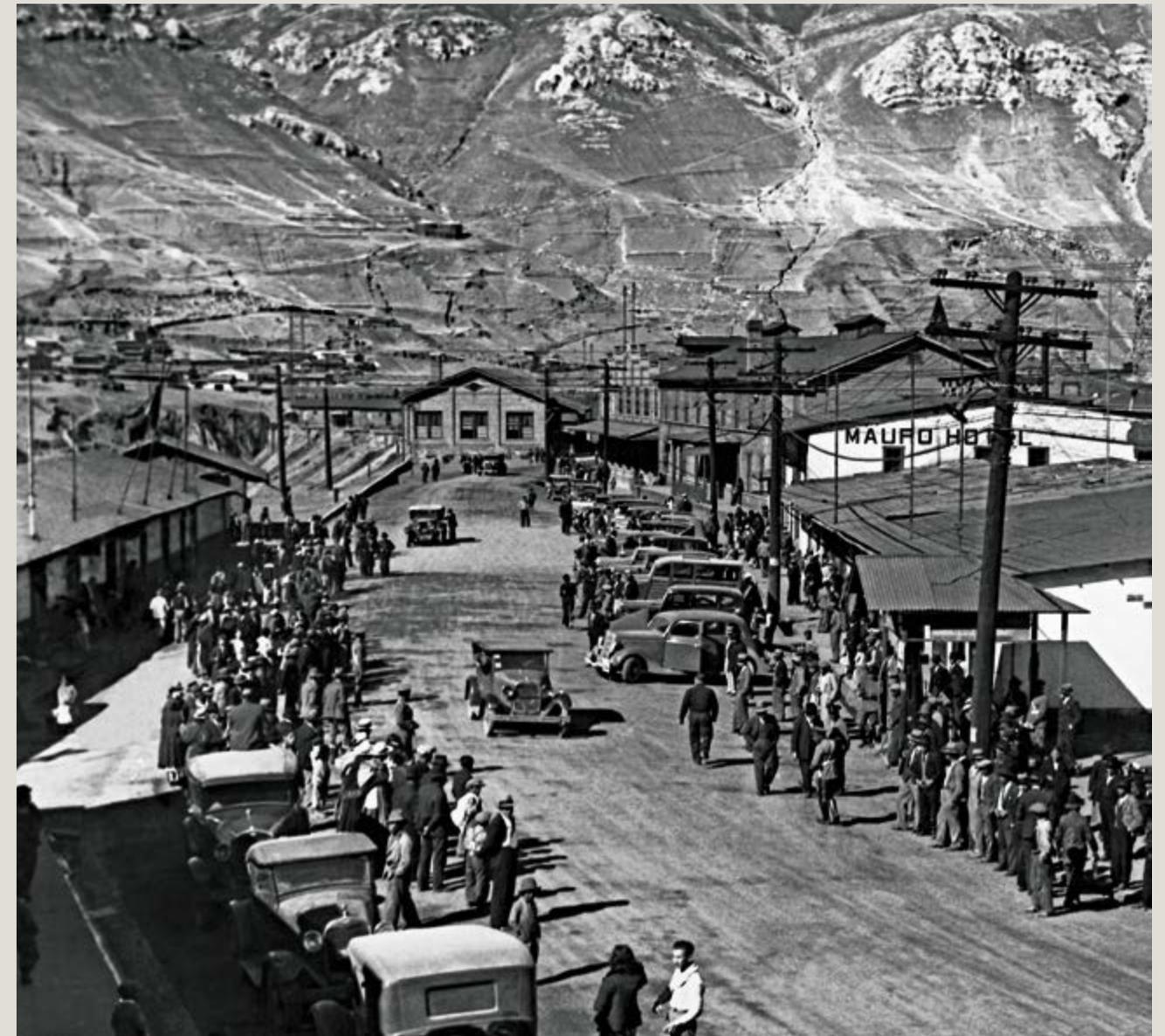
A model refinery

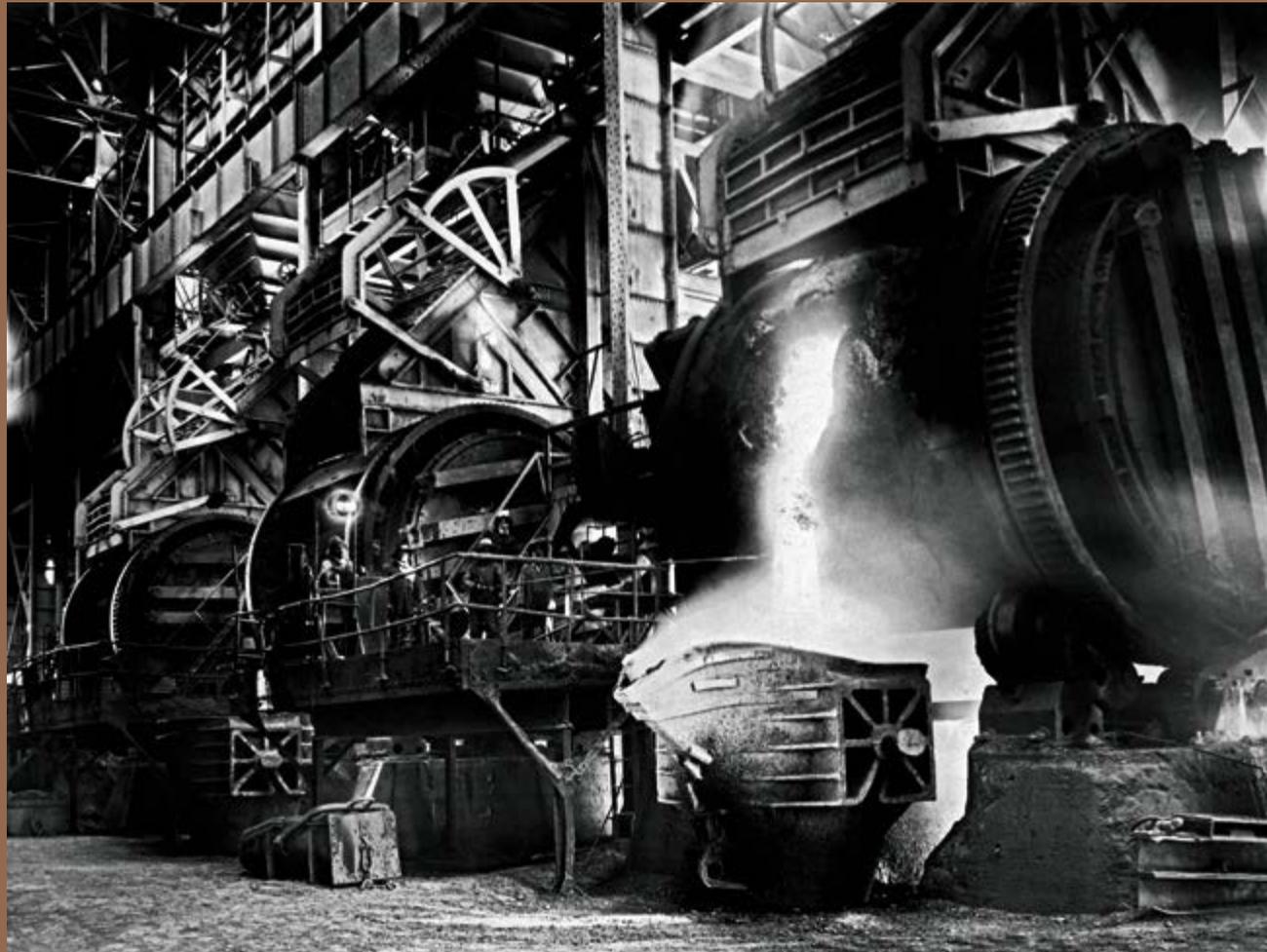
The plant circuit was quite efficient, according to a public document by Osinergmin. It was capable of smelting and refining copper in excess of 98,5% purity from the moment it initiated operations. In fact, one of the standards that the refinery maintained during Copper's administration was the high purity of its different products, which was also due to the raw material that came from the rich polymetallic deposits of the central highlands. The mineral circuit in the foundry began with the Preparation Plant. There the concentrates, fluxes and recirculating material were mixed, which through a roasting process, removed

LEFT—
The smelter was built in three years and quickly replaced Tinyahuarco.

RIGHT—
The railroad was the fastest and safest way to and from Lima and Callao.

DOWN—
What was an empty field was quickly populated by people looking for work.





UP—
The 24-hour-a-day production, in volumes never before known nationally, improved the quality of the exported mineral and produced exceptionally high yields.

RIGHT—
The complex required more and more skilled workers to ensure efficiency and avoid foreseeable accidents.



traces of arsenic, antimony and lead from the mixture. From this process, a calcine was selected that was transferred to the reverberation furnaces of the smelter, where the burners separated the metal sulphides from the slag. Due to the high temperatures, a thick and orange liquid was produced that was transported in giant cups loaded by mechanical cranes to the Pierce Smith conversion reactors, in which iron and sulphur traces were removed with a blowing technique and the use of fluxes. In this way, blister copper of 98.5% purity was obtained. At the same time, the slag was subjected to pressurised water to bleed it, granulate it and transport it to a waste deposit specifically designed for this purpose in Huanchan.

The mining corridor of the central highlands continued to surprise by the polymetallic quality of its mines. For this reason, the La Oroya staff proposed adding a parallel lead circuit in 1928. The agglomerate of the mineral was melted in sleeve furnaces using coke and an addition of scrap iron to avoid the formation of magnetite and thus prevent the remains of silver and lead from being lost along with the slag. Next, the reduced lead was immediately introduced into pots where it was foamed and, once the adequate texture was reached, it was loaded into a reverberation furnace where the copper matte, the speiss—a mixture of copper, arsenic and antimony—was separated as well as the lead bullion. The latter was returned to the receiving pots to mix with clean construction lead, remove excess copper and send it to the moulding areas, which, after being subjected to temperatures between 350 and 380 C. degrees, produced lead anodes on two horizontal turntables.

For the refining of the product, the bullion lead anodes were subjected to a modified Betts-type electrolytic refining process. Impurities such as insoluble antimony, bismuth and silver formed a layer of mud that adhered to the corroded anode and was then washed by immersion. In this way, even the electrolyte was recovered and the sludge could be dislodged with



THE DESIRE TO OPTIMISE PROCESSES AND IMPROVE PRODUCTS LED THE COMPANY TO CREATE, IN 1927, THE DEPARTMENT OF METALLURGICAL RESEARCH.

pressurised water. After a deposition period, the cathodes were moved to the washing cells and melted at up to 450 degrees in one of three 160 tonne capacity pots for the refining process. By vigorous stirring with sodium hydroxide, the product foamed and the remnants of arsenic, antimony and tin were removed. Finally, the refined lead was molded into 45 kilogram bars for its subsequent sale.

Despite the early success of the refinery and the international recognition it gained for the high quality of its products, the processes and methods used in the smelter were always under constant evaluation. The desire to optimise its processes and products, and the previously mentioned very high grade polymetallic quality of the mineral from the central highlands, as could be found in few places in the world, led the company to establish, in 1927, the Metallurgical Research Department of La Oroya, using the top protocols, equipment, and technology as well as the best qualified personnel.

This brand new department was started under the direction of T.E. Harper Jr., under the supervision of R. Spilsbury, and developed innovative ideas regarding mineral treatment and metallurgical processes until the abrupt nationalisation of the company in the early 1970s. One of the first projects of this research centre was the experimental production of refined bismuth and the lead-bismuth alloy and others with low melting points. These investigations were of tremendous importance because later on, the company itself considered that these alloys became a relevant differential factor in the market to overcome the global financial crisis of the following decade.

Another of the most notable contributions to this research department in those early days was the Spectrography Laboratory, installed in 1940, which added modern scientific instruments for mineral analysis work. Using this equipment, these lab professionals, could very accurately identify the composition of a sample from the absorption and reflection of light beams



The Cerro de Pasco Stone House was replaced by the company's imposing administrative building in La Oroya.

on its surface. The spectrum analysis of each sample produced graphs that generated valuable information for decision-making with regard to the relevance of the mining activity being undertaken and the best metallurgical treatment applicable for each concentrate.

Outside the smelter, it was difficult to differentiate the city from the company itself, as they were totally integrated, to the extent that Copper's administrative headquarters were in fact a kind of town centre. Even the railway affected the traffic of some outlying streets through which the men in helmets and overalls passed, and who could be seen quickening their pace at the sound of the whistle that marked the change of shift. What's more, the La Oroya whistle ended up substituting the Church's bell tower as a way to tell time for the community.

Over time, the La Oroya Metallurgical Complex continued to establish itself as the most important in South America and one of the most admired on the rest of the planet. Professionals from different corners of the world specialising in different fields such as engineering, geology, metallurgy, and laboratory research, among others, applied for positions to seek professional development in this promising project, which shone like a bright island among the imposing mountains of the gateway to The Andes.

The impact of electrical power

The fundamental basis for an industry of this size will always be the availability of power, whose generation varies historically in terms of technical alternatives as well as geographical customs and realities. Although the first hydroelectric power station had been built in 1880 in Northumberland, Great Britain, these energy sources would become popular in the early 20th century around the world due to the increase in the demand for power. For example, as early as

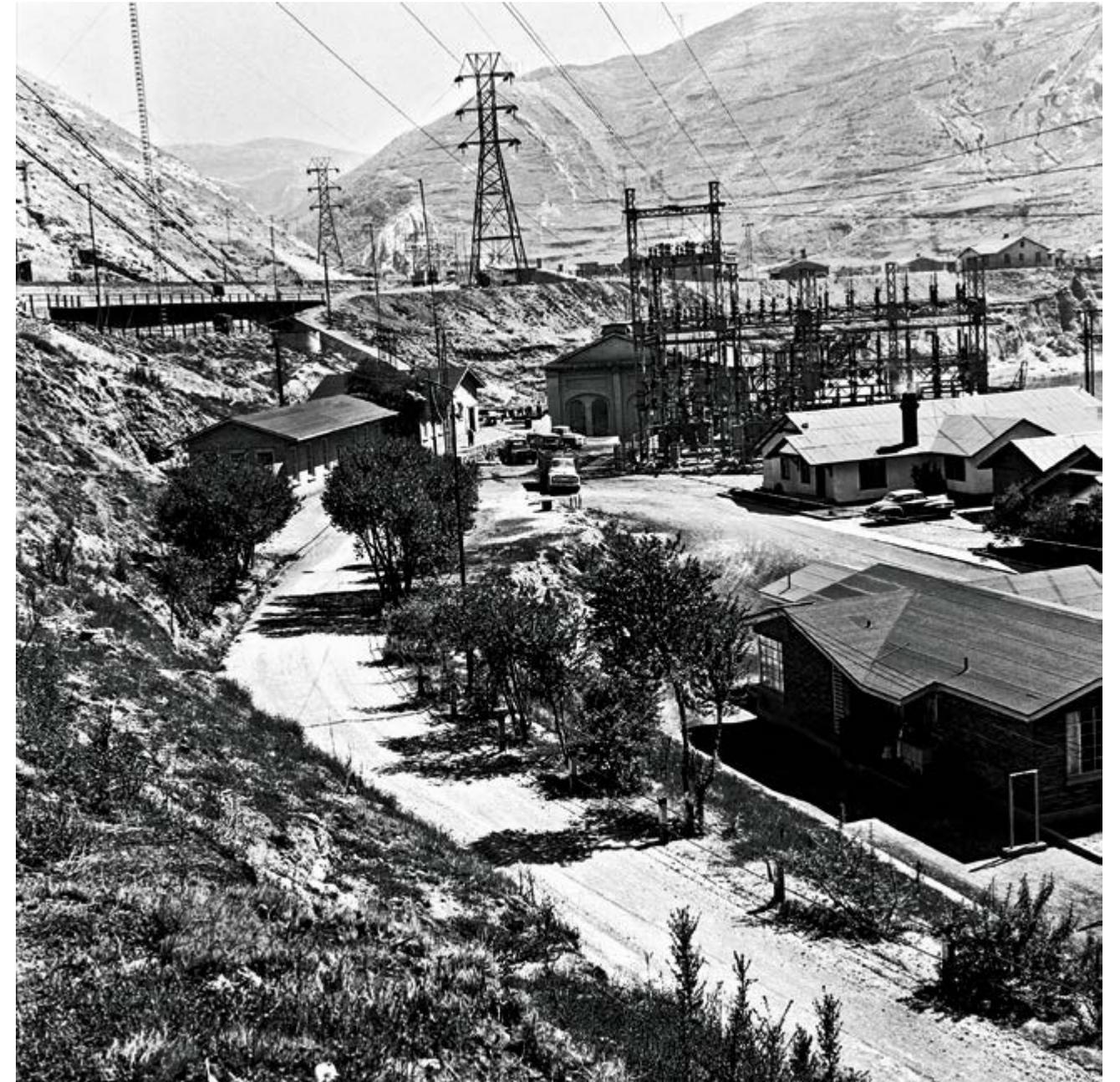
RIGHT—
The substitution of coal
by electricity, and the
distribution networks for the
development of operations,
enhanced the workings of
production.

1920, hydroelectric plants were generating a good part of the total electricity production in countries such as the United States or Canada.

Hydraulic energy takes advantage of the high-speed fall of water from a height sufficient to rotate turbines. This rotary movement is finally transformed into electrical energy by means of generators. After the water is used for that purpose it is allowed to run its course down the river. The installation of turbines and equipment, as well as the construction of large dams and diversion channels requires a large investment; Perhaps this is why in Peru there had never been seen an engineering work like that of the La Oroya Station and, even less, an electrical transmission system that extended to a large part of the central highlands.

Studies to replace coal as the main source of energy had begun as soon as the U.S. company arrived in Peru. As it was a country without industries, even in large cities there was an absence of electricity—with the exception of Lima or Arequipa—and the State had made no effort to seek other more durable and, in the long run, cheaper alternative sources of energy. The San Francisco Call newspaper, in its edition of June 14, 1908, had already published, under the title of “Los Andes, a great store of energy”, an article in which it underscored the great potential that the generation of hydroelectric energy had in our country and on the entire west coast of the Andean region. But our political authorities had left the development of the power generation industry to the needs and intentions of private companies.

According to a document issued by engineer A.L. Wilcox and Mr. Pyster, both responsible for the work by Cerro, the La Oroya electricity generation system included three 3,750 kva generators, powered by water wheels on the Yauli River, which finds its source in Mount Meiggs, one of the headwaters of the Amazon River. The course of the river was diverted in Chaplanca, where the ravine narrowed. The dam was arch-type, made of concrete, and





AS IT WAS A COUNTRY WITHOUT INDUSTRIES, THE STATE HAD MADE NO EFFORT TO SEEK OTHER MORE DURABLE AND CHEAPER SOURCES OF ENERGY. THAT IS WHY CERRO BUILT ITS FIRST HYDROELECTRIC PLANT IN LA OROYA IN 1914.

22 metres high. From there the waters were conveyed through a channel for sixteen kilometres. That channel had four tunnels, an inverted syphon, six “U” tubes, and more than a kilometre of timbered walls. Almost eight kilometres of that same channel were concrete and solidly lined with masonry.

This diversion was complemented by a water supply ditch at the height of Saco Quebrado and a small intake reservoir at the end of the road, with enough water to keep the turbines running until the steam reserve facility for the smelter could be reactivated in the event of a contingency. From there the water fell directly to the machine room through a 1,400 metre long pipe that varied between 42 and 62 inches in width, built with riveted steel plates and ending with six branches that led to the pistons. The machine room measured 14 by 36 metres and its north end was built with galvanized iron, with the idea of projecting an expansion of the unit. It was equipped with two sets of generators driven by water wheels, three sets of three transformers each, and an oil pressure system to lubricate all the equipment. In addition, a crane with a 25-tonne load capacity ran the length of the building. Even under the main floor a room had been built to allow easier access to machinery in case it needed repair, as well as to disconnect circuit breakers and power and current transformers. That is to say, they anticipated the resolution of any future problems right from the design stage.

Despite all these estimations, Cerro saw the need to regulate the upstream flow of water to the generation plant further. That is why it built the Pomacocha reservoir and a dam at the drainage of the Huascacocha lakes. These water reserves would later serve for the construction of the Pachachaca Hydroelectric Plant, originally conceived as an auxiliary plant. That is why of the four generators originally imported for the La Oroya hydroelectric plant, one was destined for the Pachachaca. Due to its design, equipment and infrastructure, it was considered from its inauguration on December 2, 1917, as a twin of the



Electric power improved the quality of life in the cities and towns located within the mining corridor of the central highlands.

first, since both were conceived and built by the same firm. As historian Neydo Hidalgo explains, this hydroelectric plant would be expanded and upgraded almost a decade later, in 1927, connecting it to three new generators to reach a power output of 15,000 kilowatt-amperes in its machine room.

Power was transmitted to the smelter by two three-phase circuits, as well as to the substations established in the different units of the company such as Morococha, Cerro de Pasco, Goyllarisquizga and even from 1914 to the Tinyahuarco smelter before it was replaced by La Oroya. Up to Cerro de Pasco the transmission line extended for a length of 140 kilometres, but the entire system extended for 200 kilometres. The extension of the line was a huge effort, especially at some points where there was no cart or railway access. However, persistence bore fruit for Cerro and also had a positive effect on the life of the population because, since 1914, the hydroelectric plant provided power to a large part of the towns in the central highlands.

In his report, A.L. Wilcox noted that “the labourers who were employed in the construction work were almost all inhabitants of the neighbourhood and its surroundings. The company ... has taught many Peruvians to become mechanics, so almost the only foreigners who worked on this work were the foremen and the electricians (...) The plans, drawings and construction of the machinery were the work of Messrs. F.G. Baum & Co. from San Francisco”.

It should also be noted that a year before the commissioning of La Oroya Power Plant, Casapalca had inaugurated a smaller power plant taking advantage of the waters of the Rímac river and the Yauliluco stream in the Lima mountains, which it called Bellavista. This energy was destined for the concentrator plant built on the same property, and in addition it fed the other mining units of the company distributed throughout the province of Huarochiri. Once Copper acquired this company in 1919, it added this hydroelectric plant to its interconnected system.



THE HOSPITAL BECAME A PROFESSIONAL TRAINING CENTRE FOR NURSES AND STUDENTS AND A PROMOTER OF HEALTH EDUCATION IN THE CENTRAL REGION.

A cutting-edge hospital

Before the metallurgical complex began operations, the company built the Chulec Hospital to ensure adequate medical assistance for the employees of the Cerro de Pasco corporation. Since its inauguration on February 21, 1921, it established itself as the main medical centre, but two hospitals that functioned as satellites were also maintained, that of Puquiococha in Morococha and La Esperanza in Cerro de Pasco. Chulec, in addition, was the place where the company had located the main camp of La Oroya, where the top management of the company as well as the highest-ranking professionals resided and lived as well, in a residential complex with houses that were identical to a mining camp in Montana.

Beyond providing medical assistance and the management of medical emergencies for the company's employees and workers, in a short time the Chulec Hospital became a professional training centre for nurses and medical students from different parts of the country and in an entity that promoted health education in the region, playing a leading role in the dissemination of knowledge on respiratory diseases (such as tuberculosis) and sexually transmitted diseases.

A central figure in the history of this hospital was general surgeon Harold Crane, a graduate of the University of Michigan in the United States. Upon his arrival at the La Esperanza Hospital, Crane was greatly impressed by the future of the city of Cerro de Pasco, which he considered hostile not only because of the weather, but also because of the daily violence and the high levels of alcoholism and prostitution among the poorer sectors of the population. According to the surgeon's own statements, the most seriously ill patients originated equally from mining accidents as they did from bars.

Crane remained as chief of the company's medical services for thirty years, until his retirement in 1950. During his long service, the surgeon promoted the constant modernisation of the Chulec hospital and made it a space for many innovations in therapy and surgery. He also established a very close relationship with Peruvian doctors and scientists from Europe and North America who visited the hospital and took advantage of the magnificent research facilities it offered.

He himself became one of the most recognised authorities in the field of high altitude medicine, as he was the discoverer of a novel form of soroche (altitude sickness), which would later be known as altitude pulmonary edema. In 1927, he wrote an article in which he pointed out that some patients combined common symptoms of soroche with coughing, spitting up blood, and congestion in the lungs. He also observed how quickly these people recovered once they descended to sea level.

Shortly after its inauguration, the Chulec Hospital became a benchmark for national medicine, in which the best national and foreign professionals were hired, becoming the most important and advanced medical centre in Peru. Funding for these modern hospitals by Copper allowed doctors access to hundreds of patients, sophisticated equipment and, importantly, electricity in regions that would otherwise have offered extremely difficult conditions for emergency care, laboratory analysis, surgical operations and, as mentioned earlier, for scientific research.

The environmental paradox

The period of settlement of La Oroya coincided with the so-called Eleven-year Period, the second accession to the presidency of Mr. Augusto B. Leguía. Although he won the election in 1919 over the "Civiliستا" candidate, Antero

The Chulec Hospital operating room, equipped with the latest technology and with a cleanliness and order typical of the company's philosophy. Year 1927.





WITH LEGUIA IN POWER, THE POSITION OF THE ENCLAVES IN OUR TERRITORY WAS CONSOLIDATED, BUT THIS WAS NOT ENOUGH TO AVOID THE CONFLICT THAT AFFECTED COMPANIES IN THAT DECADE.

Aspillaga, the annulment by the Supreme Court of a large percentage of his votes generated the fear that Congress would not acknowledge the results. For this reason, on July 4, he organised a coup d'état with the support of the gendarmerie and dissolved the hostile Congress. By means of a plebiscite, he convoked a National Assembly whose main task would be to draft a Constitution to replace the one of 1860. He succeeded in that purpose and, although progressive measures were included in the new charter of rights of 1920, in practice his government was a dictatorship under the slogan of 'New Fatherland', as the printing presses of the most important newspapers were interfered with, undermining freedom of expression, and he deported opposition leaders, including José Pardo, a former president who had succeeded him in his first term and the most influential figure of the defeated "Civiliستا" Party. Similarly, he sent other representatives of the so-called "aristocratic republic" into exile, such as the brothers Jorge and Manuel Prado Ugarteche, as well as the students Jose Carlos Mariategui and Víctor Raul Haya de la Torre, who years later would be the respective founders of the Socialist and Aprista parties, who sought to give representation to the working classes.

Since he was Minister of Finance under president Candamo and Prime Minister during the government of president Pardo y Barreda himself, Leguía had shown himself as an enthusiastic promoter of foreign investment, especially that of the United States, which is why the relationship of the corporation with the government itself as an enthusiastic promoter of foreign investment, especially that of the United States. This is a reason why the relationship of the corporation with the government during that entire decade of the 1920s was pretty smooth. Those long eleven years of government, empowered by the youth and a large sector of the middle class, proclaimed him as the great moderniser of that country that, neither in Lima nor in its large cities, had fulfilled the desire to become a twentieth century metropolis. During this

period, with loans from foreign banks, he financed a lot of public works, such as roads, squares, large avenues, culverts, important irrigation works, the maritime terminal, the Palace of Justice, and the Government Palace, which had suffered a fire. He also created the Central Reserve Bank, the Mortgage Bank, the Agricultural Credit Bank –all state-owned– and the Civil Guard Academy, the Aviation School, and the National Women's School, among others. At the time of his overthrow, the growing participation of the state as the engine of development had increased the national debt by nine times.

However, in mining and oil, Leguía's presence in power allowed the consolidation of the position of the enclaves in our territory, especially those of the International Petroleum Company, in Piura, and the Cerro de Pasco Copper Corporation. However, this was not enough to stop the conflicts that these companies began to experience during that decade. In the case of Copper, until 1923 the Tinchahuarco Smelter had been located in a very remote highland plain which was practically uninhabited. On the other hand, La Oroya –although initially uninhabited– was still the gateway to the mountains and the central jungle. It served as a settlement for a few but was also a mandatory stop for many, being only 170 kilometres from the capital. That is, everything was visible in the gorge.

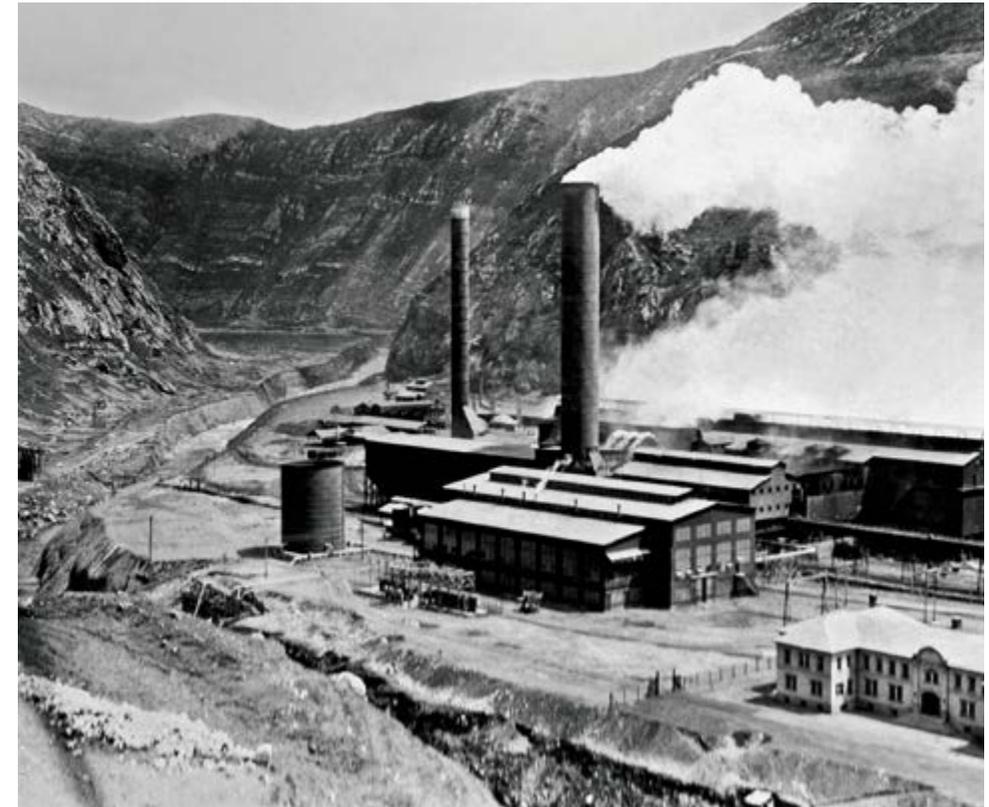
The intense work of the smelter and the refinery, powered by electricity in three daily shifts, made the fumes from the smokestacks noticeable, as well as the damage that they began to cause, including the disappearance of the adjoining pastures, diseases among the livestock and the degradation of the air and water bodies. From the perspective of the national authorities, in Peru we had a wide and diverse territory at our disposal, and those that were occupied by the extractive industries represented only a small fraction of the same. However, the surrounding communities did feel affected on a daily basis and their grievances were reflected in the form of social conflicts, often fuelled

RIGHT—
Since it was impossible to solve the smokestack contamination any time soon, Copper decided to purchase the affected fields.

by the nascent communist cells infiltrated among the scattered farmers and workers. The first request to control emissions was issued by the government in 1924 and required the construction of anti-pollution chimneys to absorb the sulphurous acid that accompanied the constant smoke.

In the analysis of how to address these grievances, and knowing that it would be difficult to find a speedy solution to the problem due to the geography of that ravine, Copper decided to make a land purchase offer to the affected farming communities. Faced with the dilemma, practically everyone agreed and the company ended up acquiring 320,000 hectares of those damaged pastures. In fact, 27 farms had been affected by the contamination but, since the investment for the Cottrell system chimneys—the most recommended among the anti-pollution agents—could not immediately be added to those that had been built for the metallurgical complex, the company decided to acquire a greater extension as a safety and precautionary measure. At that time, by law, the large landowners had the right to sell their properties, but the small landholders had no choice but to abandon them and seek employment in the same smelter or to withdraw to more distant and elevated areas. These lands were added to those that the company already had in its Livestock Division in Cerro de Pasco which, fundamentally, due to the principle of autonomy, it used to provide meat, shelter and basic foodstuffs for management, employees and workers.

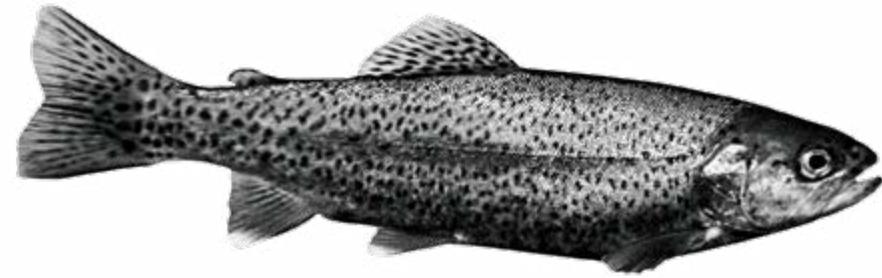
As a result of this transaction, which could be categorised as the first environmental compensation agreement in Peru, Copper eventually became the largest landowner in the central region. It should also be emphasised that, in those years, there was no deep-rooted environmental awareness in the world like the one that, happily, we are building today in favour of the planet. These green concepts only appeared after the Earth Summit organised in Brazil in 1992, almost seventy years after these events.



The feisty trout

In the early twenties, many of Copper's professionals and technical personnel were still foreigners and many were from the inland areas of Montana or California, where one of their favorite pastimes was fishing. Perhaps, based on suggestions of those who yearned for it, between the years 1925 and 1927, Mr. B.T. Colley and Dr. J.F. Mitchell thought that the clear and cold waters of the old streams near the Cerro de Pasco properties could be ideal for the breeding and raising of some perky, challenging and difficult to hook fish. At that time there were no trout of any species in Peru.

Through efforts by Copper before the U.S. Embassy in Peru and the State Department in Washington, it was possible to get the North American Fisheries Bureau to send 200,000 rainbow trout fertile eggs. Despite the fact that the eggs of this species were delicate and subject to spoilage, they had to be brought by ship and in inadequate refrigeration equipment, since there were no portable freezers at that time. This caused many of those eggs to hatch during the trip and most of those future hatchlings were lost. However, upon arrival of this special cargo to La Oroya, 420 newly hatched trout and 620 unhatched eggs were found. Of all that batch, only 700 trout were left



LEFT—
Rainbow trout were brought to the Andes to encourage sport fishing and ended up becoming a popular source of food and income.

alive. The hatchlings that managed to be saved were fed finely ground liver to strengthen them. Months later, a second batch of 200,000 eggs was received which, based on earlier experience, was transported in optimal conditions. These trout were concentrated in a hatchery on the banks of the Tishgo River and from there, after quarantine, gaining their strength and security measures in their adaptation process, they were distributed through the rivers and lakes of Junín and Pasco. By 1930, 50 large trout were transported to El Ingenio Fish Hatchery. Eleven years after El Ingenio, 25,000 eggs were transferred to the Chucuito Station in Puno, thus beginning the trout population in the entire Lake Titicaca watershed. Subsequently, 2,000 juveniles were released in Lake Languilayo in Cusco and, from there, naturally or artificially, the watersheds of the entire national highlands were populated with this species that serves as food and economic sustenance for thousands of Peruvian families who are dedicated to trout farming, an activity that up to this day generates many jobs, both direct and indirect.

Nonetheless, the intention of introducing trout in the mountains was not primarily as a food source. Rather, as we noted, it was brought in for sporting purposes. In El Serrano of March 1950 it is stipulated in a principled way: “The fish must be given an opportunity to fight for its life”. It happens that in different localities trout were being captured from rivers and streams, pouring poison in some sections or “fishing” them with dynamite or medium-sized nets, thus initiating a dangerous path towards the predation of the resource. This was a very painful fact considering the feat it had meant to distribute them across the country. The recommendation was to fish it with a rod and hook. Therefore, the protest of the publication was vigorous, with the intention of creating awareness that the very existence of the species was being put at risk. “Those are criminal forms”, highlighted El Serrano. “A more efficient way is to catch it is with bait like a worm or a piece of meat”.

At that time it was considered that the true sportsman, the trout fisherman, should do it with artificial bait, in such a way that this lure aroused the curiosity and pugnacity of the animal due to its colour and movement, not simply because of hunger. In addition, the rod should not be so strong as to allow the fisherman to catch the trout in a single movement, but rather that the operation required a struggle, a kind of delicate and compulsory choreography threatened at every moment by the untimely breaking of the line. The thing was to do it with the lightest possible fishing tackle, the one demanding most skill and resulting in a more interesting pastime. The same applied to the lures, hooks, flies and butterflies. In its most sophisticated version, the greatest skill was attributed to the use of the fly. That should be the goal of every trout fisherman, even more so if he learned to prepare them himself. That was considered the pinnacle of development in sport fishing. *

Timeline

1922/ 1930



1922

The La Oroya smelter enters production and the closure of the Smelter and Casapalca smelters begins.

[November 23]

The La Oroya smelter produces its first blister copper bar.

The blister copper is shipped to Cataret, NJ, until the La Oroya refinery can treat all production.

1928

[September]

The central shaft of the Morococha mine is inaugurated.

1929

The experimental production of refined bismuth and also of the lead-bismuth alloy begins in La Oroya.

1926

[April 13]

The Amistad concentrator plant is inaugurated in Morococha.

The lead recovered from Casapalca minerals is treated by several companies, including ASARCO.

1927

The Metallurgical Research Department is created in La Oroya.

1928-29

Silver is recovered from valuable impurities in US-refined blister copper, lead, and lead-bismuth alloy.

1928-30

Gold is produced from blister copper and refined lead in the US. Additional gold ounces come from the lead-bismuth alloy.

SAN CRISTOBAL
1928



Three decades after the arrival of the company to the country, Peruvian workers were earning positions of greater responsibility.



F · I · V · E

THE GREAT DEPRESSION



AN IMPORTED CRISIS



With the dramatic fall of its main market due to the Crash of 29, the corporation reduced its production and laid off two-thirds of its workers. However, more opportunities were later created for them and the Peruvian professionals.



The recovery from the ashes of the Old Continent after the First World War and the expansionist urge of U.S. industry caused the United States and Europe to become entangled in an arduous competition for supremacy in global development. For this reason, around 1925 a crisis of overproduction broke out that unleashed, in practice, a cycle of stock market speculation. A few years later, this race for control of world geopolitics produced one of the greatest shocks suffered during the process of consolidation of capitalism. On the famous “Black Thursday” of October 24, 1929, the collapse of prices on the New York Stock Exchange began, which led to a serious banking crisis in the United States and caused an unprecedented financial panic among investors. The growing rumours that the New York stock market was overvalued and that it was prey to speculation generated a massive sell-off of shares that, even though offered at a third of their value, found no buyers. The stock market crash bottomed out only in January and, in that period, it affected the economies of the entire world, giving rise to the crisis known as the “Crash of 29” or “The Great Depression”. At that time, there were already close links between the markets of different continents and the economic



The crisis fuelled a series of social protests in the region and increasingly assertive actions on the part of the workforce.

decline in the industrialised nations was uncontrollable; so much so that, in just three days, 100,000 U.S. employees lost their jobs.

The consequent default on private loans and the subsequent protectionist measures in the United States affected the economic and financial relationship of the new power with the rest of the world and caused the crisis to extend to countries around the world, especially to nations whose economies were dependent on the U.S. market. This was the case in Peru, a country that exported raw materials and lived at the expense of importing finished products. The prices of cotton, sugar, oil, and metals –the main sources of income for the national economy– were heavily hit, which affected the income of Peruvian families dedicated to these sectors. To illustrate the impact of this crisis on the national economy, it is worth mentioning some figures collected by Heraclio Bonilla in “El minero de los Andes”: only in the Cerro de Pasco Copper Corporation, between 1929 and 1932, the workforce was reduced by 12,858 to 4,244 workers. It was not, then, only an economic crisis, but, as a result of the Crash of 29, there was also a political and social rift in Peru.

Due to reductions in the purchase of raw materials and the suspension of loans by the great ally of the North, the inflow of dollars to our economy was momentarily interrupted, causing a sudden stoppage of public works and the gradual reduction of commercial and industrial activities. The economic repercussions, which were certainly serious, created the best scenario to mount a new coup d'état. Then, the dictatorship of Mr. Augusto B. Leguía had already been in power for eleven years, his government had been subjected to natural attrition and, when the crisis worsened, his rivals reasoned that this was the right opportunity to oust him. The social upheaval could hardly be controlled with the return to power of the military dictatorships of Colonel Luis Sánchez Cerro and, after his assassination, of General Oscar R. Benavides. In both cases, the measures to try to impose some order in the country were very harsh and repressive.



THE SOCIALIST AND APRISTA LEADERS WERE UNABLE TO INTEGRATE THE PEASANTS INTO THEIR UNION MOVEMENT, SO THEY FOCUSED ON GAINING MORE INFLUENCE ON THE COMPANY'S PERMANENT STAFF.

In the following years there would be a series of conflicts that would lay the foundations for the construction of a trade union movement but, especially, a group considered anarchist by the elites of the army and Peruvian society: the Alianza Popular Revolucionaria Americana (Alianza Popular Revolucionaria Americana) APRA, would come to the fore with Víctor Raúl Haya de la Torre at the helm. That's how Peru advanced after Leguía.

The union struggle

Before the end of the Oncenio (eleven-year rule), some attempts had already been made to organise popular movements. One of the most notorious occurred after the Morococha tragedy. According to the account of the Amauta magazine, then directed by José Carlos Mariátegui, the commission appointed by the government came to the conclusion that the collapse of the “lake of colours” was due to a natural event. However, according to the magazine, the mining company was operating in two overlapping galleries below the bottom of the lake and when a chimney was opened between them, a design error was produced, followed by heavy precipitation. This resulted in a virtual torrent of mud and stones sucked up like a funnel through the two galleries, abruptly burying the workers.

The following month, on January 15, “Labour” magazine published an article on working conditions in the mines, in which it underlined “if mining workers were able to use their right to associate and organise, they would have already found a way to channel their grievances and the corresponding legislation would already be in place”. In October of the following year, at the Matamula park in Lima, the Sociedad Pro Cultura Popular was founded, which undertook a series of actions that would lay the foundations of a labour movement in the country. After several disagreements between the mining



With the life of the city integrated into the activities of the company, each crisis was charged with a lot of emotion.

company and the group of workers that were beginning to organise under the guidance of representatives of the Socialist Party, the great strike of 1929 took place in Morococha, which is considered a milestone in the history of the trade union movement in Peru.

As a result of the strike, on January 11, 1930, the Morococha Mines Committee was formed and on August 28 the La Oroya Smelter Employees' and Workers' Union was formed. The creation of this union was not a coincidence. Since it began to operate with the demand for greater technological knowledge, the company needed to ensure the permanence of its best trained workers in the smelter. This presence led to the emergence of the first organisations defending workers' rights in the central region in Cerro. And those same bases convened the First Regional Congress of Mining and Metallurgical Workers of the Centre, from which they would constitute the first Federation of Mining Workers, with the idea of bringing together similar organisations in the rest of the country.

The first demands of this Federation were related to wages and working conditions, but also the reinstatement of dismissed workers, the abolition of the service contract system, the right to compensation in the event of dismissal or accidents, the regulation of work shifts, the payment of overtime and improvements in the camps, among others. Inflamed by the political turmoil, the workers began to present other nationalist demands and the tension continued to grow.

At the other extreme was the company, burdened by the crisis in the U.S. economy, its main market, and forced to adopt austerity measures. And, as if that were not enough, the government's blow was also felt, as the latter knew nothing better than to apply brute force to try to safeguard internal order, enforce the law and protect the private investment that the country itself had welcomed. In other words, the snapshot from more than eighty years ago is almost a copy of what continues to happen today in Peru.



AT THE END OF THE WHOLE PROCESS, WHAT THE UNIONS HAD NOT ACHIEVED IN THE TEXTILE INDUSTRY OR ON THE COASTAL ESTATES, BEGAN TO BE ADOPTED WITHIN THE MINING COMPANY.

After the Mining Congress, fifty union leaders were sent to prison in Lima. The workers' response was no less violent, they took as hostages the Superintendent of the Research Department, Mr. Fowler, and the chief of operations of the complex, despite the fact that the negotiations seemed aimed at finding a way to find a solution. The workers were released on November 12, boarded a train back to La Oroya, and 800 of their fellow employees decided to go on foot to welcome them. According to different versions, an Army detachment guarding a bridge, located over the Mantaro River in the Malpaso area, fired at the crowd without explanation. The balance was fourteen workers gunned down and, in retaliation, three U.S. company staff murdered, one of them beheaded. Under these circumstances, a sector of the government held the company responsible for the consequences of the conflict and accused it of having caused the decision to shoot. Copper reacted by announcing its withdrawal from the country. Finally, the highest levels of the government backed down and, four weeks later, the company made public its wish to remain operating in Peru.

In retrospect, what had not been achieved in terms of labor rights in other sectors such as textiles or agri-business began to be applied within this mining company. It is true that this was not due to the will of the company management, but of its workers. Despite this, the subsequent repression of the trade union movement in the country, carried out by the governments of Sánchez Cerro and Benavides, would delay the consolidation of the General Confederation of Peruvian Workers until the middle of the following decade. However, it is evident that after the Malpaso bridge incident, the foundations of the first conquests for the rights of the workers were laid.

It was precisely the following Peruvian Constitution, the one of 1933, that focused on innovations in labour standards, as it was the first to highlight that the State would legislate the collective labour contracts and would also prohibit

the restriction of the civil, political and social rights of workers. Spurred by this new constitutional charter, in 1934 the obligation to pay overtime would be legally established, then the severance pay, which could not be seized or encumbered, and the National Social Security Fund or the Employees' Social Security would also be created. But the decisive factor was that, in 1936, the Civil Code included a definition of what constitutes an employment contract, recognising from then onwards the oversight of the State in labour relations. In accordance with all these provisions, Cerro de Pasco was the company that introduced the concept of Industrial Relations in Peru, an office designed to propose improvements in working conditions and to function as a permanent channel of communications and negotiation between the administration of the company and the workers or their unions, under the principle that the labour force is the main capital of any undertaking.

The demand for power

Despite the tensions, the company continued to promote its growth and modernisation projects. Diversification in La Oroya and the volume of production in the mining units demanded more power, so in 1932 the Upamayo dam project was started, being located on Lake Junín or Chinchaycocha, at the height of the mouth that is the source of the Mantaro river. Construction was begun in 1929 and almost 27,000 hectares of natural pastures located on the shore of the lake were flooded to dam the waters. This damming would be vital to enable the future construction of three major hydroelectric plants, such as Malpaso, Mantaro and Restitucion. The first of them was completely built by Copper and, together with those of La Oroya and Pachachaca, would henceforth make up the Department of Electricity and Telecommunications of the company.

RIGHT—
Copper's enclave model
started to show signs of
burnout when the population
of La Oroya began to
overflow.

The one in Malpaso is still in operation under the administration of Statkraft and its original design placed it in what is now the Paccha district, at 3,780 metres above sea level. Five years after the construction of the dam was completed, in 1937, the Malpaso hydroelectric plant began operations. Due to its strategic location downstream on the Mantaro River and its proximity to the dam, the machine house had, from the beginning, the possibility to rapidly increase or reduce power generation as demand fluctuated.

The company city

Ten years after the metallurgical complex was installed, La Oroya was already showing noticeable changes in its make-up. The company itself, in order to encourage the stability and permanence of its labour force, had installed unaccustomed services in the vicinity, which served both its employees and its workers and their families. The Chulec Hospital continued to acquire equipment, upgrading its services and hiring the best professionals in the country and, as was natural for these crossroads, its location consolidated it as a strategic junction for different transport companies. This sector was revived with the construction of the Central Highway in the mid-1930s, which increased passenger traffic and gave a significant boost to commercial activities in the city.

However, life in old La Oroya continued to be linked mainly to the activities of the metallurgical complex. As this expanded, with more sections to increase its production levels or treat new products, the demand for labour was greater and the city expanded. On one side were the company's facilities, across the bridge over the Mantaro River and, on the other, the city organised and urbanised according to the relationships between the company and the local citizens. On the one hand, the houses of the management and engineers, the most qualified personnel and, on the other, the workers who, as employees





THE WORKERS AND CITIZENS OF LA OROYA ESTABLISHED AN INTENSE RELATIONSHIP WITH THE CORPORATION, TO WHICH THEY WERE GRATEFUL FOR THE EMPLOYMENT, BUT ALSO DEMANDED CONDITIONS THAT WERE SOLELY THE RESPONSIBILITY OF THE STATE.

and citizens, established an intense and passionate relationship with the corporation, to which they were grateful for the possibility of employment and their own livelihoods, but which also demanded conditions that, under any other circumstances, would have been the responsibility of the State. It is in this context that the frictions began, together with the questioning of the concept of the autonomy of Copper, since it was sustained as an enclave economy, jointly administering the productive livelihood of the city, call it the electricity service and transport, or because it was able to determine the conditions of the local market and to mediate in the relations of the daily life of the population in matters such as security, education, health, urban upkeep, etc.

The proximity of the city to the smelter, located beside the gorge along the course of the river, led to a technical report being entrusted to the Peruvian Mining Engineers' Corps in 1924, the same one that was delivered two years later. It was signed by engineer José Julian Bravo and titled "Report on the fumes of La Oroya". Other serious studies related to the pollution problem in the area would only be published at the end of 1998, when environmental concerns became more evident around the planet and fifteen years after the U.S. conglomerate was nationalised. Since then, the scientific evidence concerning the problem is irrefutable.

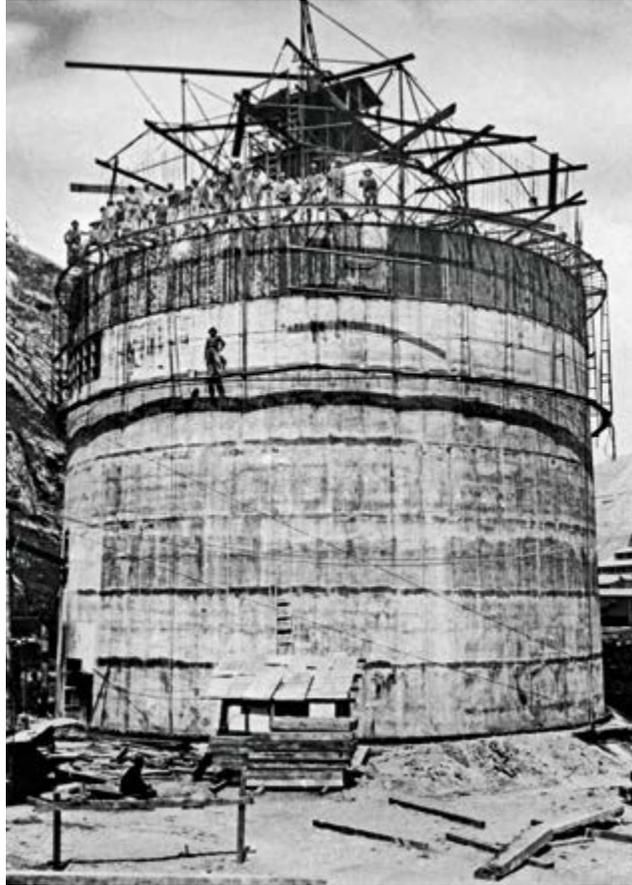
Among the conclusions of the report by engineer Bravo, the presence of lead and arsenic in significant amounts in pastures and soils was identified, which caused illnesses among the cattle. On the other hand, it pointed out that the company did not have any on-site technology to mitigate the pollution generated by these emissions. To that extent, the Bravo report recommended implementing a state-of-the-art solution that would not only allow the company to filter harmful particles from its smoke emissions but, with the recovered ore dust, the company could generate some profits, which also made the installation of the Cottrell system a lucrative investment.

As Fernando Bravo Alarcon noted in the examination of the historical context in his book "The Faustian Bargain of La Oroya", which focusses on the environmental problem that Doe Run Peru, the last owner of the smelter, was carrying in the second decade of the twenties: "The CPC took note of the report's conclusions, and politicians were complementing it with laws to compensate damages or purchase land, which culminated in a few years in the formation of a complex that was not only metallurgical, but also agricultural and devoted to cattle raising, where experimental and genetic work was carried out for the improvement of livestock and dairy products".

The Cottrell chimney

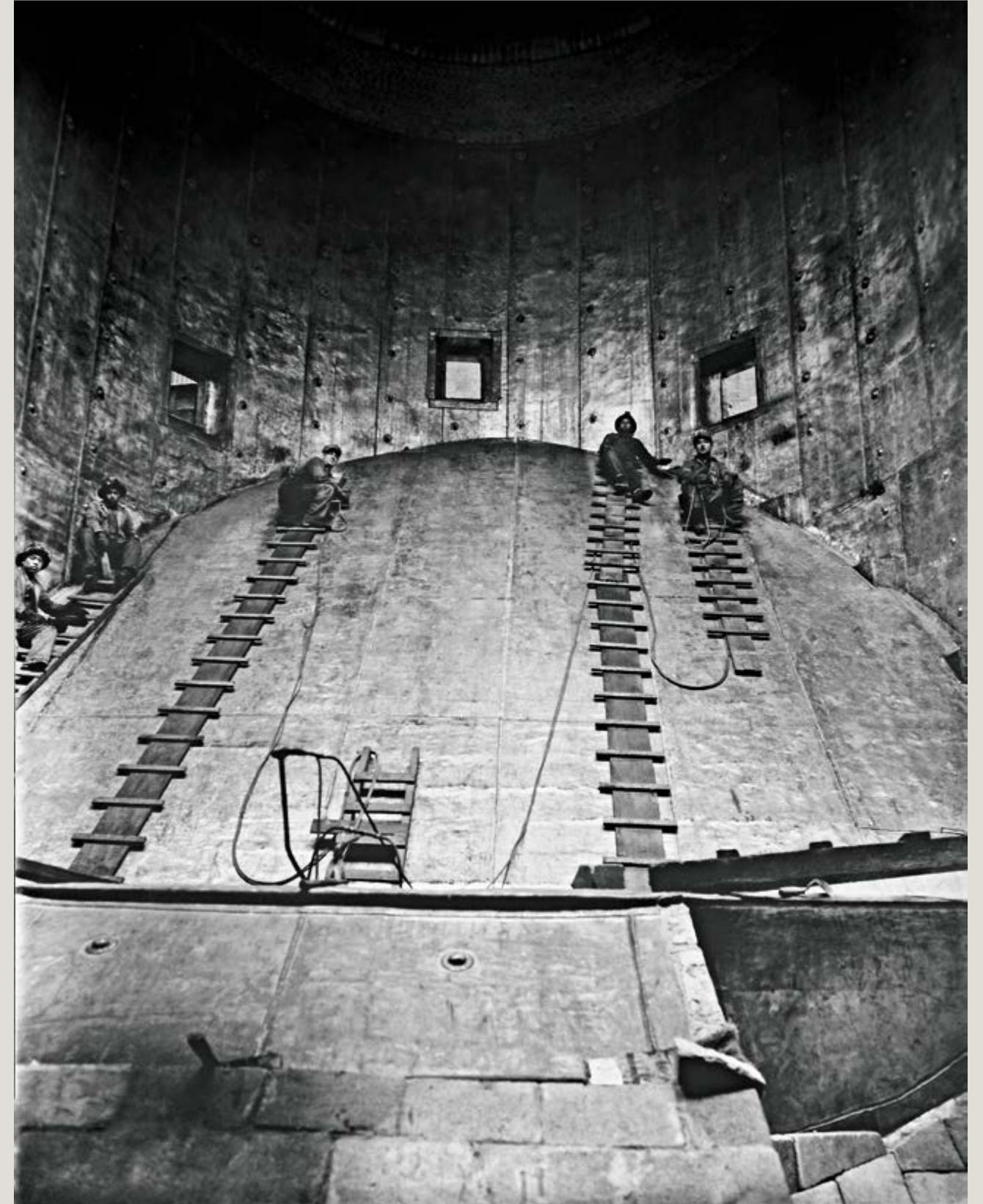
After the report of engineer Jose Julian Bravo, issued in 1926, the company prepared to comply with his recommendations and sought to adapt to them. However, the recent investment in the construction, implementation and start-up of the large metallurgical complex had left the company in a vulnerable financial situation, which is why it had to postpone that million-dollar bet. The situation was aggravated by the global crisis of the following years, which would not be overcome until 1934. Thus, it was not until 1937 that Copper began the construction of the Central Cottrell System for the treatment of the smelter's fumes. The Custodis Construction Co. was responsible for this project, whose purpose was to scrub the air of the harmful effects of fumes and to recover the valuable metal dust that escaped through the old chimneys. The new tower was completed in 1941 and reached 167 metres in height, making it the second tallest in the world, surpassed only by that of the American Smelting & Refining Co. - ASARCO, at Selby, California, which stretched just fifteen metres more.

The construction of this innovative industrial decontamination system involved an investment of close to US\$ 4 million at that time, and thanks to



LEFT—
Start of construction of the Cottrell chimney. Upon completion of the work, it would become the second highest in the world.

RIGHT—
Inside the chimney. It was a complex system for the recovery of lead, arsenic and sulphides that led to the release of clean vapors. Year 1939.



the implementation of this new technological process, the company managed to collect 95% of the dust produced by the furnace gases before they left the plant and discharged the remaining purified gases to an ideal height so that they would quickly disperse in the atmosphere.

Following the same guidelines of environmental adaptation, the company had installed a small sulphuric acid plant in 1939, which also made it possible to make the mineral treatment process cleaner and produce this chemical to meet the needs of the company itself. Subsequently, the plant's capacity was increased to 14,500 tonnes of acid per year, which allowed it to also meet the needs of the entire national market linked to metallurgical processes and the production of fertilizers.

The installation of the Cottrell System would bring even better news to the La Oroya Valley. While the still productive annexed lands had been

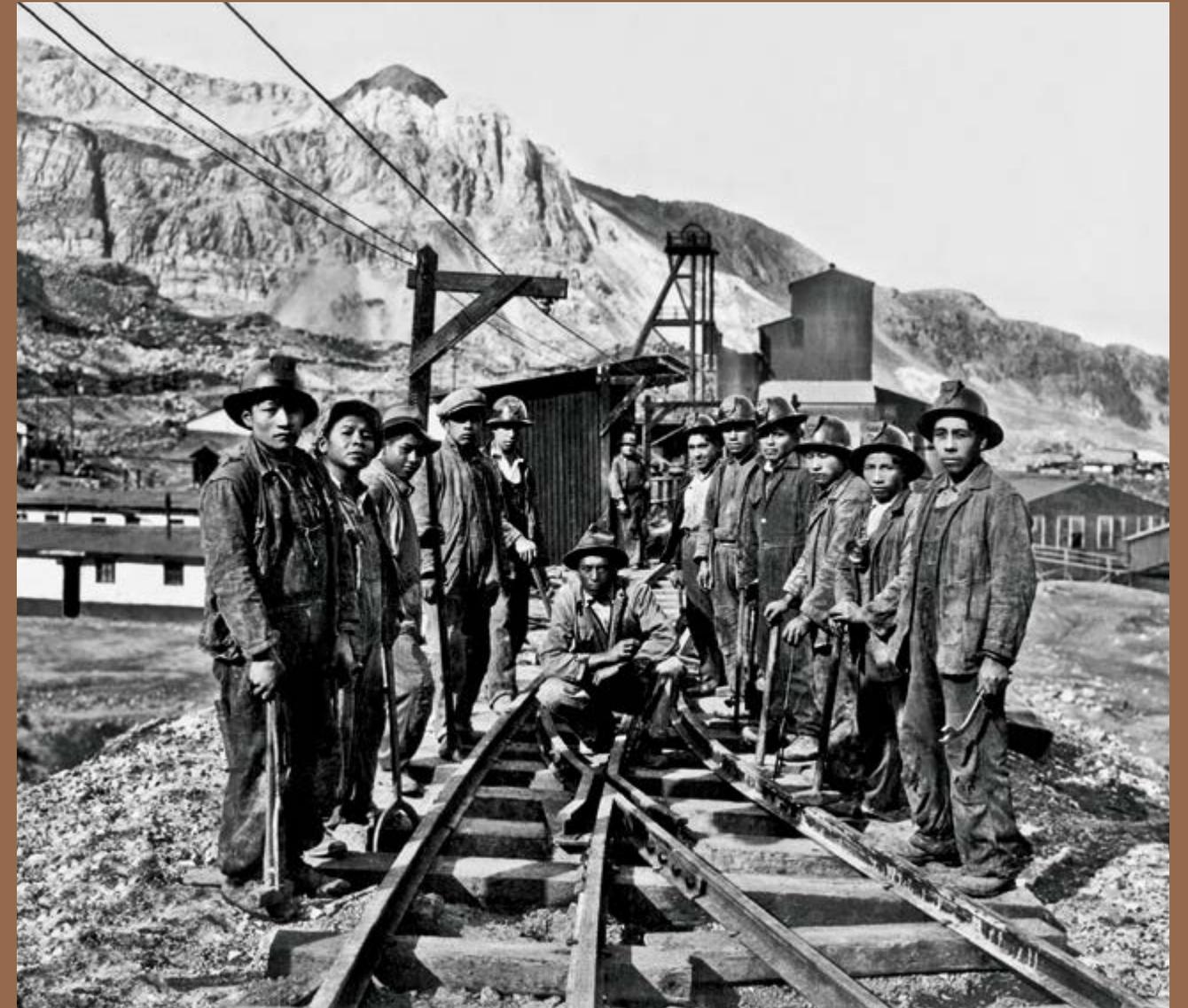
RIGHT—
Only as of 1945, in the government of Bustamante and Rivero, did the labour laws enacted begin to be implemented in Peru.

added to meet the demand for meat, butter, cheeses and other dairy products from the company's workers, the vast acres that had been devoid of pasture in recent years were once again green and heralding the future birth of a different activity for Copper.

The Cerro de Pasco Livestock Division was born in the first decade of 1900 with the acquisition of the San Juan de Paria estate or simply known as Paria, in Pasco. Others were added to it, such as Pachayacu, Cochabamba, Piñascochas, Cónsac, Jatunhuasi, Atocsaico, Puñabamba, Casaracra and Quilla, among others. With the greening of the pastures in the vicinity of La Oroya, the foundations of a probable future business were laid and, during World War II, when it was almost impossible to import meat from abroad, the importance of this division became relevant, since, appealing to a programmed meat rationing, the corporation was able to supply all the workers in its various units with the company's own production during the time that the war lasted.

More skilled labour

Although the crisis of 29 had forced the postponement of any investment plan or expansion of the company, as of 1937 the global mining sector began to show new signs of vitality. Thus, once the construction of the Cottrell System in La Oroya began, a series of projects and innovations were dusted off, allowing the refinery to take even greater advantage of the complexity of the ore that was extracted from the depths of that mining corridor. In the same way, the concentrators of some mining units were expanded, hydroelectric plants were built or expanded, and certain sections of the railway were reinforced. All the coming tasks demanded skilled workers and, as at the beginning of the century, it was not that abundant in the area.





THERE WAS A LINK IN THE PRODUCTION CHAIN THAT WAS NOT WORKING, AND THAT WAS THE LINK OF THE QUALIFIED TECHNICIANS TO ACT AS GO-BETWEENS THE ENGINEERS AND THE WORKERS INSIDE THE MINE.

Aware of this need and opportunity, the National Government issued a decree creating the Practical School of Mining, which would be located in Cerro de Pasco, and the Practical School of Metallurgy based in La Oroya, both with their respective budgets. This initiative was the brain-child of engineer Luis Pflucker and managed by the provincial congressman, (and also engineer) Manuel Belisario Llosa. It addressed not only a need of the mining corridor but also at a national level. At that time, there were not enough professionals in the sector but, crucially, there was a link in the production chain that was not working and that was the use of trained technicians, the nexus between the engineers and the workers inside the mine.

The El Minero newspaper, in its edition of September 17, 1941, stated in one of its commentaries: “The Practical School of Mining, as well as that of Metallurgy in La Oroya, and others that will be gradually implemented, have as their main purpose to provide training in the previously mentioned activities, that is, experts, technicians, or, in a word, efficient professionals who due to their preparation and capacity, are useful and perform better in the work they do, thus earning better salaries. It is time to banish the self-taught approach and routine that stand in the way of progress in our country”.

Teachers from the School of Engineers were hired for the theoretical instruction, who used the classrooms of the schools in each area, and the practices were developed in those same sites or in the corresponding departments of the mining companies that were legally required to participate in the training of students and workers, providing them the best facilities for their improved training.

Although this was not a school that would benefit only the Corporation but all mining companies that required it nationwide, its location in Cerro de Pasco and La Oroya, the two bastions of the company, accounted for the significant demand that there was at that time for technically skilled human

resources to drive the new technological and innovative leap that was about to take place, both in mining and in metallurgical refining.

During the first 27 years, until 1929, the La Oroya complex produced only metallic copper containing some gold and silver but, since then, the refinery was expanded and transformed into a plant with sophisticated metallurgical operations, achieving the highest production of lead in South America and of bismuth in the world. The complexity in the geological nature of this volcanic area of the central highlands and, therefore, of the minerals that were exploited, forced the change of the smelting furnaces to those of reverberating processes for a better decantation of the final product. Lead smelting was later introduced, followed in 1934 by electrolytic refinement of lead, using the modified Betts process patented by E. Harper and G. Reinberg. A branch of this lead refinery was developing a process to treat the slime in order to recover residual bismuth, gold, silver, and antimony.

In 1940, for example, the first electrolytic zinc was produced, and waste product coke ovens came into operation in 1944, while a calcium arsenate-based insecticide was launched on the market in late 1947. One of the great additions to the La Oroya plant would be the new copper refinery that began work in 1948. By then, the project was planning to move the lead refinery to a larger location in the new copper refinery building and a much larger plant for the production of refined zinc.

Promoting the national market

At the end of the 1940s, a local market had also been established based on the sale of lead, copper, silver, zinc and some derivatives produced in La Oroya, such as sulphuric acid, calcium arsenate, copper sulphate and zinc sulphate. All these inputs were used in the production of copper wire, utensils, coins, lead

RIGHT—
The diversification of La Oroya's products and by-products were destined for national clients at prices below the international rates.

pipes, car batteries, galvanized steel pipes, etc. National companies and clients, most of which were established in Lima, were still small compared to those of other modern countries, but their contribution to the national economy was beginning to develop and showed promise. Among all of them, the Peruvian silver industry stood out, famous in the world for its high quality, and whose main input was refined in its entirety by the corporation, which also guaranteed the minimum grade: 0.925. That silver was sold in its entirety to the Industrial Bank, which then distributed it to the manufacturers.

Although the sale of any product was made in tonnes, the company had third parties who could schedule smaller deliveries, even in kilos. Furthermore, Copper demonstrated great versatility in meeting special orders, as well as delivering metals with unconventional shapes and sizes such as elongated copper cathodes so that they could enter the customer's furnaces; or special copper bars for the casting of wires; or lead and antimony alloys according to the specifications of the interested party. Another service they provided to the incipient local industry was technical assistance, sending their engineers to allow them to apply their experience in solving problems that might arise in their factories and facilities.

All these sales in Peru were made by deducting export costs; In other words, the local businessman was sold the product placed in Callao, without considering export duties, freight, maritime insurance and import duties. In this way, the national industry received its raw material at a much lower price than the industrial client in the United States and, in addition, paid it at the exchange rate of the day in Peruvian currency.

A specific product for the Peruvian market was Puma brand calcium arsenate, used as an insecticide to combat pests in coastal cotton plantations, and which was distributed by firms specialised in agriculture. Puma itself was dusted from airplanes on crop fields. Sulphuric acid, for example, was required



almost entirely by the International Petroleum Company, and was transported by the Central Railway in special tanks and shipped from Callao to Talara in cylinders provided by the client. Additionally, copper and zinc sulphates, by-products of electrolytic copper and from the zinc refinery, were widely used as reagents by mining companies in their concentrators. Both products were also useful as fungicides in agriculture and were sold by third parties not related to the company in paper bags of 45 and 90 kg formats.

In El Serrano magazine of October 1955, the corporation's monthly publication, the editors emphasise that these sales were often made on 30



**ALL SALES TO NATIONAL COMPANIES
WERE MADE BY DEDUCTING EXPORT
COSTS, FREIGHT, MARINE INSURANCE AND
OTHER DUTIES. THEY WERE ALSO PAID IN
PERUVIAN CURRENCY.**

or 60-day credits, considering that some small or medium-sized companies with large purchases would have difficulties to pay for immediately, and concludes: “We sincerely believe that our corporation does its part in the development of the local industry, providing raw materials such as metals and chemical products and, in the agricultural field, with insecticides and fungicides of recognised value”. It is for this and other reasons that, when someone expresses himself grandiosely arguing about the non-existence of added value in mining, he is either saying a great lie or unfortunately, is the subject of profound ignorance.

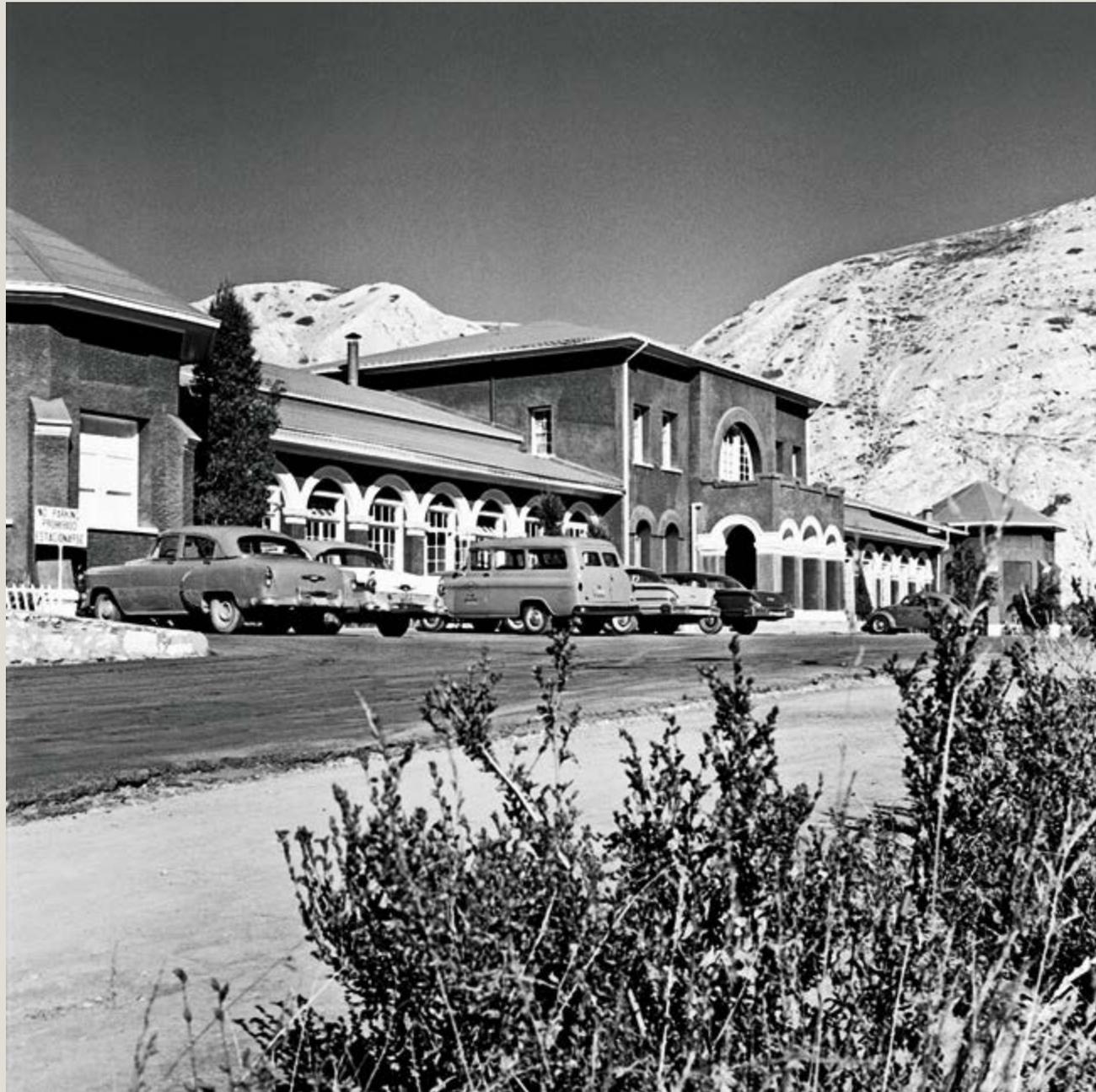
At the forefront of medicine

The corporation adopted the “Plan for Three Hospital Attention Centres”, approved by the government, which included the hospitals of Chulec in La Oroya, Esperanza in Cerro de Pasco and the hospital in Morococha. The plan involved increasing staff, improving quality, and providing medical attention not only to workers due to accidents or illnesses, but also their families. This was especially important to Chulec Hospital’s chief physician, who transformed the pediatric section from a five-bed environment to a three-room division with 35 beds and three Armstrong incubators. Before, mothers were only treated when in critical condition, but information campaigns facilitated treatments that reduced the rates of anemia, tuberculosis, and cancer. For its part, the La Esperanza hospital reached a capacity of 50 beds in 1950, in addition to having an X-ray room, laboratory, pharmacy, modern kitchen and dining room, while in the Morococha Hospital, X-ray equipment and a laboratory were installed. As part of the plan, the new Goyllarisquizga hospital with 18 beds, medical ward, dental clinic, isolation ward for infectious diseases, laboratory, pharmacy, offices and complete services was inaugurated.

The Chulec Hospital, in La Oroya, functioned as the headquarters for the administration of the Medical Department, which brought together more personnel: 22 doctors, 22 auxiliary nurses, 13 laboratory technicians, pharmacy, X-rays and around 150 assistants, who were in charge of staffing the operations centre with the largest number of company workers. The directors of the medical centres worked continuously to turn the hospitals into modern care installations, with equipment and laboratories that allowed them to provide fast and accurate diagnoses, as well as successful treatments and operations. The development of the Chulec Hospital was such that it came to be considered the best institution in the country for internships, receiving the best students from the San Fernando Faculty of Medicine at the University of San Marcos. During their year of internment, the students participated in three shifts of four months each: one for major surgery, another for pediatrics, obstetrics and gynaecology, and another for internal medicine, eyes, ear, nose and throat and industrial hygiene and laboratory services.

Expression of national talent

In 1942, Mr. Alberto Benavides de la Quintana had already graduated as a mining engineer and obtained one of the two scholarships offered by Cerro de Pasco for young Peruvians to study in the United States. He was admitted to study geology at Harvard and so impressed his professor, the famous geologist Louis C. Gratton, that he managed to extend his studies for another year at the university’s expense. Graduating with a Master’s degree in geology in 1944, don Alberto stopped by the Cerro de Pasco offices in New York to thank them for the experience and, to his surprise, he was offered a job at their Peruvian branch. That same year he joined as an assistant geologist, married Miss Elsa Ganoza and both went to live in Cerro de Pasco. “I was very excited ... The work



IZQUIERDA—
Chulec Hospital had the best medical
facilities in the country.

RIGHT—
Frequent analysis was part of the risk
prevention philosophy of the company.



involved applying everything I had learned to Peru, so I accepted immediately”,
he wrote in his memoir.

At first, don Alberto supervised the extraction of copper, then they added the supervision of the lead and zinc veins and, through a series of changes in positions and promotions, very quickly became Chief Geologist of the main mine, where he would have some U.S. assistants. Shortly after, he added Goyllarisquiza, which was experiencing a drop in production, to his responsibilities, and discovered that topographic plans had not been made of the coal mine. So he picked up that information and submitted a report to the managers of the company in New York that left a superb impression. Based on it, new reserves were found. Such was the impression he caused, that president of the corporation, Robert P. Koenig, asked him to organise the Exploration Department of the Lima-based company. From that office, Mr. Alberto was able to travel throughout Peru and recommended that purchase options be acquired for Antamina, Las Bambas and Tintaya, which the company did, although without sharing his same enthusiasm.

In May 1951, Mr. Ricardo Alvarez Calderon Pro sought him out, in representation of the company that owned Julcani in Huncavelica, a mine which Cerro was leasing. He arrived asking him to intercede with the corporation because the rumour was spreading that it was no longer interested in operating Julcani, but only in buying its concentrates to refine them in La Oroya. A year later he made a second visit to Huancavelica and was surprised by the investment in the concentrator and the hydroelectric plant, in contrast to the mule-drawn cars of the mines. In submitting his report, Chairman Koenig told him that senior management remained disenchanted with the mine as it was too small and distant. Thus, in February 1952 don Alberto dared to take the leap, leaving the company and leasing Julcani with a purchase option. When the one-year rental contract expired, he raised enough money among family

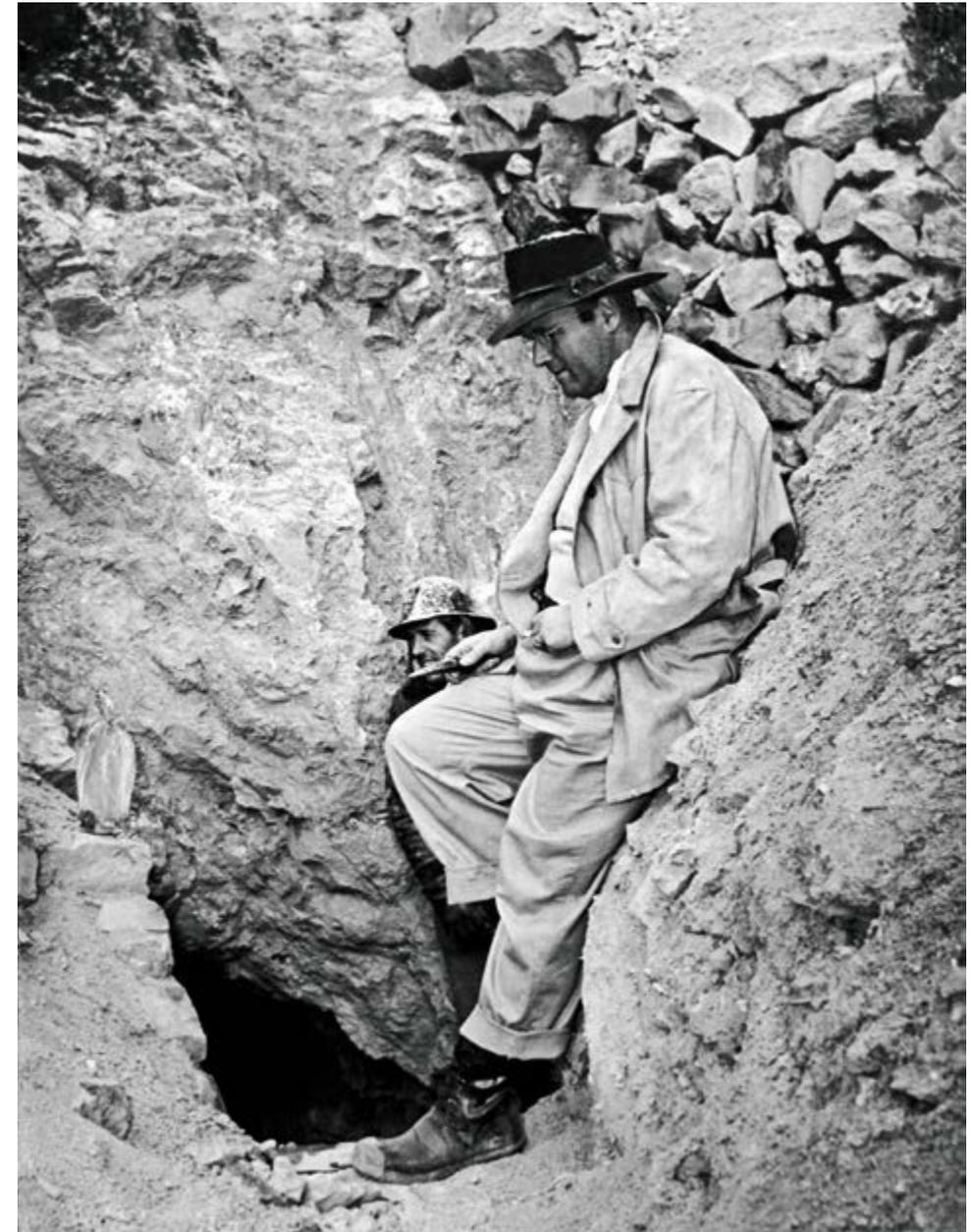
RIGHT—
Mr. Alberto Benavides in the field. As a mining engineer and geologist, he had a comprehensive understanding of mining.

and friends and bought Julcani to start another amazing adventure with the Buenaventura Mining Company.

The first years it took him a lot of effort to sustain his company, but by seeking out and discovering small veins, he managed to stabilize it within a decade. It is under these circumstances that, in May 1964, his old friend and former boss, Robert Koenig, offered him the presidency of the Cerro de Pasco Corporation in Peru. Mr. Alberto was initially very surprised, but saw it as an honour, accepted and became the first Peruvian president of the largest company established in the country. They were years of meteoric growth but also of great social tensions. However, he managed to complete the Yauricocha facilities, start up Cobriza and identify projects from the Explorations Department that are a living part of the national mining history.

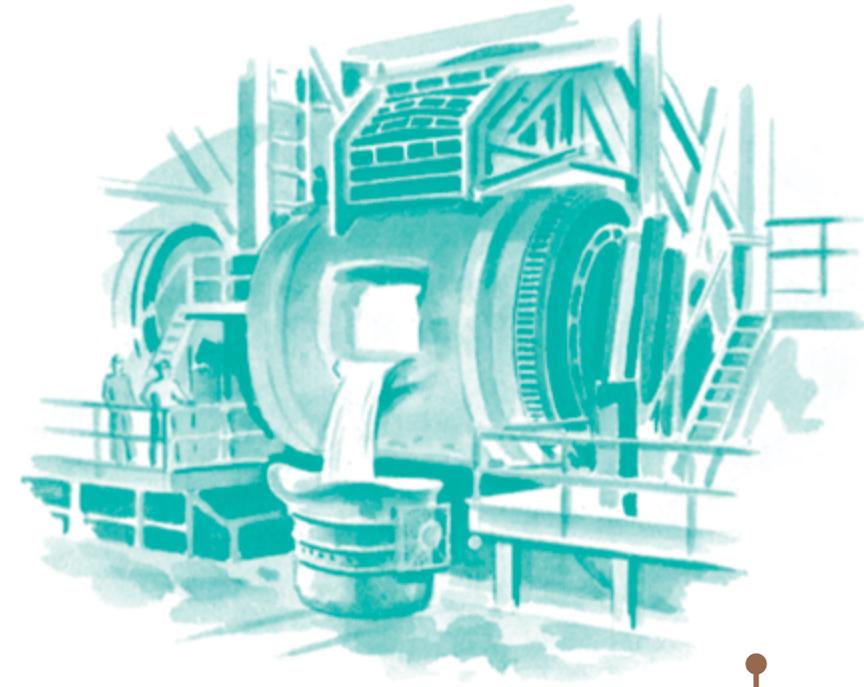
Five years after taking office, when General Velasco staged the coup d'état and expropriated the International Petroleum Company, he tried to seize the initiative from the government and proposed in New York to start the exploitation of Antamina, which demanded an initial investment of

US\$ 800 million. But Koenig was gone. He had been replaced by J. Furnace, a finance expert who spoke no Spanish and who had never set foot in South America. He found no common ground with C. Gordon Murphy. He had serious discussions about how to face the threat of the Peruvian government and ended up resigning with that bittersweet flavour that successes obtained leave behind, but also with the certainty that he could always do more. *



Timeline

1930/ 1949



1933

[July]

The controversial Kingsmill tunnel, used to drain the Morococha mine, is completed.

1934

Lead from the La Oroya pilot refinery is treated in the United States.

1937

[June 10]

The installation of the Mahr Tunnel concentrator is completed to process the mineral from San Cristobal and Morococha.

1939

A small plant produces sulphuric acid to meet the needs of the company and, later, the entire national market.

1941-53

Raw antimony is recovered from Cottrell and smelter fumes.

1943

[September 23]

The company's largest concentrator plant, located in Cerro de Pasco, in the Paragsha area, begins operations.

1946

The Supervised Schools of the Company are organised in La Oroya, entrusted with the Supervision of Education, dependent on Industrial Relations.

1935

Lead-bismuth alloys are produced for use in low-melting temperature alloys.

1936

The Custodis Construction Co. begins construction of the Cottrell Central Chimney to treat smelter fumes.

[October 6]

The Malpaso hydroelectric plant begins operations.

1940

The zinc electrolytic pilot plant produces its first zinc ingot.

1942

The pilot copper refinery begins operations in La Oroya.

1944

The Yauricocha mine becomes part of the Department of Mines.

1949

The production of copper sulphate begins to remove impurities from the electrolytes of the copper refinery.



S · I · X

THE EXPLOSION



Professional team of the company.
The second standing is don Alberto Benavides and, among those kneeling, the first is Bill Lacy and, next to him, the Mexican Alberto Terrones.

CRISIS AND HEYDAY



The fifties were the most important decade in the development of the corporation but, despite continuous growth, the sixties would be plagued with problems in the political and social context that produced much instability in the country.



The most explosive part in the life of the corporation materialised in the second half of the 20th century. Its growth and diversification were exponential but, against the current of this institutional success, the outlook for its situation became increasingly sombre. A growing transformative trend generated a series of changes that even included the name of the company. At that time, the company continued to work with copper, but this had diminished in the mines, which, in its stead, still had a high concentration of lead and zinc. In addition, La Oroya then produced about twenty different products, something that was not reflected in the name they had used since October 1915. For this reason, the company decided to change its business name to Cerro de Pasco Corporation and as a result, it became known as 'La Cerro'.

Five decades after it was founded, the company had three well differentiated divisions. In New York, the business strategy was developed and the major business and development decisions were made. The corporate elite worked there with connections in the world's major markets. After New York, La Oroya was the most important office in the corporation, even more than Lima. The Operations Management and all the metallurgical facilities

were located there. That was the heart of the company. The Operations Manager of the Highland Division was the highest ranking executive in the country and, for workers in any unit, arriving in La Oroya was considered a promotion. The Lima office was located in a magnificent building on the corner of Carabaya St. and Avenida La Colmena, in the middle of Plaza San Martín, and in practice constituted a third tier within the organisation. There the National Marketing Department, the local Purchasing office and the very new Exploration Division were concentrated, with the latter already with eyes across the country. The large warehouse in the port of Callao was also managed from this building. Another of the main functions of the Lima office was to establish and maintain relationships with the government, the embassies, the ministries, and civil society.

The Geology Department

One of the geological characteristics of Cerro de Pasco was its complexity. You could find an incredible variety of rocks like limestone, intrusive rocks, sedimentary rocks, volcanic lava, and metamorphic rocks. Practically the entire textbook on rocks was represented here and, each one, with specific features that led to the formation of various minerals. In addition, there was a variety of deposits such as copper in veins, disseminated copper, lead and zinc in mineralised bodies or limestone replacement. These comprised a geology that was often the subject of academic dissertations. This area was studied extensively by authorities who were amazed by its complexity and, over time, the mine became a world model. Cerro de Pasco was studied in the universities of Australia, Europe and the United States because it contained five or six large mineralised deposits, one on top of the other, formed over millions of years.

DERECHA—
The company's geologists carry
out their activities in the vicinity of
the Morococha mine.

The Geology Department of Cerro had always been in charge of world-renowned professionals such as Donald McLaughlin, a Californian geologist and engineer. His grandfather had also been a miner who settled in California, making a fortune after the gold rush of the mid-19th century. In addition to being an excellent professional, McLaughlin was a corporate officer and manager, as well as a prominent university professor. The early death of his father shocked a friend of his mother, none other than Phoebe Hearst, who paid for his education in Mining Engineering at the University of Berkeley and, later, having stood out among his peers, Geology at Harvard. The peculiarities of copper in mines in Alaska and Arizona had already caught his attention, and that led him to join Cerro de Pasco in 1919. When he encountered the central highlands, he described the Peruvian Andes as “a paradise for geologists and mountaineers”. His reports and a treatise on the geomorphology of the Altiplano gave him international fame from very early on, for which he was incorporated into Harvard as a full-time professor in 1925. The methods that he had put into practice at Cerro were taken to his classrooms, especially the record of observations in the mine and another for the evaluation of structural problems that became the standard among the students of that academic institution. In 1941 he was hired by his other alma mater, Berkeley, as dean of the School of Mines to turn it into the School of Engineering. During that transit, he briefly returned to Peru to become general manager and Vice President of the Cerro de Pasco Corporation. Upon his return to Berkeley, he was appointed to the position of President and CEO of the famous Homestake Mine, but never set aside what became his true passion: teaching.

Among McLaughlin's main assistants in Peru there was a young man named Hugh Exton McKinstry, who later became one of the main geology experts in the world with the publication of his book “Geology of Mines”. In it he delved in the greatest detail into a series of research techniques and



exploration systems in the search for minerals. This was a comprehensive treatise on the profession, covering all topics that might be of interest to geologists and mining engineers, from field observations to laboratory studies. For decades this extensive textbook was considered the bible of geology at Harvard, the university that published it.

“McKinstry was a geologist for Casapalca. This was the same position that I had some years later. He walked through the same places, used my same office, and sat at my same desk. Of course, there was no point of comparison between us”, smiles Mr. Alberto Manrique. This position allowed the Peruvian to have access to the company's files, many of them signed by these two masters of the profession. “I remember some letters in which McLaughlin, as Chief Geologist, told McKinstry, Division Geologist at Casapalca, that his accounts were no good, that he had to add the expenses of the last trips. And I was surprised to see the manuscript letters of these two authorities discussing such mundane things”. In those files you could also find handwritten traces of maps and the drafts of the documents that, at that time, were already circulating as a method in the classrooms of the best universities. If there is something that mining professionals in Peru acknowledge, it is that Cerro was a great school for them. And, truth be told, not only was it here, but its methods and philosophy were embraced by professionals from different corners of the world.

Among the Peruvian geologists, in addition to Mr. Alberto Benavides de la Quintana, there are former directors of that department such as Jaime Fernandez Concha and Ulrich Petersen, who had replaced Hans Hosberg in that position when in 1967 he succeeded H. Willis Higgs in the management of the Sierra Division in Peru.

Aerial view of the McCune Pit in the late 1950s, when the company switched from underground to open pit mining at Cerro de Pasco.



The open pit option

Another of the great geologists that the company produced was Willard “Bill” Lacy, a character who had been born by chance in China when his missionary parents were doing social work in that country. After studying at DePauw and Illinois universities, he had to interrupt a PHD at Harvard for World War II, when he enlisted in his country’s navy. At the end of the war he obtained a position at Cerro de Pasco and made a career in the Department of Geology, which he came to head as of 1953. Three years later he would become principal professor and Head of the Departments of Geology and Mining Engineering in the University of Arizona. Already a celebrity, he was frequently hired as a consultant by the corporation. On one such occasion it was to develop metallurgical tests for the future McCune Pit. His task was to carry out a

geological study to extract samples and, based on them, make decisions about the subsequent treatment of the mineral.

The change in the mining system became a necessity. For hundreds of years the exploitation of this great deposit had generated a labyrinth of tunnels and galleries below the seat of the city. More than fifty years later, the veins were practically in the process of running out, but the inner workings of that area still had, to a great extent, abundant disseminated mineral. All that time, the population of Cerro de Pasco had been occupying the land above that network of tunnels for their homes; so much so that, if a cross section of the mountain had been made, the resulting image would have looked a lot like Gruyere cheese. Two things were certain: the city’s foundations had become unstable and the ore could only be recovered by mining it as an open pit. The McCune Pit would be the first open pit mining development in South



THE PARENTS MET WITH THE TEACHERS EVERY SIX MONTHS AND, IF THE STUDENT WAS BEHIND IN A CLASS, THEY RECEIVED THE HOMEWORK AND ASSUMED RESPONSIBILITY FOR THEIR CHILD'S RECOVERY.

America. This implied replacing underground mining with the excavation and removal of large volumes of earth from the open pit. With the launch of this pit, Peruvian mining would enter a new era.

One of Lacy's colleagues during this metallurgical sampling process was the national geologist Alberto Manrique, who had joined the company that same year. "We made two tunnels with the sole purpose of taking samples of between 50 and 100 kilos. These made it possible to make a sweeping calculation of the reserves. Both tunnels were between two hundred and three hundred metres long and crossed from north to south and east to west. These large samples would go to the plant to see how the mineral reacted, calculate the flow and know how to treat it when operations started", he said. Everything was planned to the smallest detail. Thus it was discovered that, between one vein and another, there was disseminated mineral and that based on the preliminary calculations, the operation would pay handsomely.

The metallurgical sampling was carried out during the first semester of 1956 and on November 26 of that same year the first blast was detonated that started the operations, following intense and strained negotiations with the representatives of the population. The start of these operations would not only mark a milestone in Peruvian mining development, but would also have an impact on the development of the city and on the mood of the population, who would eventually be forced to move their homes to a new area, in the face of the imminent expansion of the pit. Despite being an eminently mining community, this move was felt from then onwards as a painful thorn in the side and became, from that time, the motive behind a series of demands by the population.

The initial proposal of the specialists was to move the city to Villa de Pasco, twenty kilometres from the original location. But almost fifty years ago that distance to the workplace was inconceivable for community representatives, and the company also considered it very expensive to set up new services at

The corporation organised the State Schools of the Company under the direction of the Department of Industrial Relations.



such a distance. Finally, the new town was established a kilometre and a half away in the San Juan Pampa area, taking advantage of the opportunity to provide it with an orderly, modern layout. However, that decision was not the most successful because, with the passage of time, the growing pit would again reach its boundaries and would end up going beyond them.

The binational school

Another of the company's concerns focussed on the education of its children and employees. In each camp there was at least one school and the flagship school, as might be expected, was the one located in La Oroya. The main school was located in Mayupampa, on the opposite bank of the Mantaro in relation to the metallurgical complex and it was a building of modern architecture, with a gabled roof, solidly built with sober elegance. Although they shared the same space, the school had, one next to the other, two sections differentiated by the language in which the classes were taught. In the early years of the sixties, Mr. Silva was the Director of Schools of the corporation and he was very concerned that the "Peruvian side" had very good teachers. The same effort put in that the furniture and the learning materials were suited to the needs of the students and guaranteed to be very high quality. The books were also very up-to-date and belonged to the school; they were not kept by the student, rather they were passed on to another child the following year. At first, the library had only books in English, but later, in view of the need, it was expanded to include an important group of good books in Spanish.

In the English section, students could study only up to the eighth grade. From the beginning, in the organisation of this part of the school, there was a lot of participation from the Embassy of the United States and, later, from the Roosevelt school, which permanently evaluated the teachers who worked



THE COMPANY PLANNED TO TRANSPORT AND USE OIL VERY CHEAPLY IN THE LA OROYA METALLURGICAL COMPLEX, WHICH ALREADY CONSUMED AROUND 550,000 BARRELS PER YEAR.

in La Oroya. Compared to the section in Spanish, where there were more hours of Peruvian history and religion, the difference lay in a broader emphasis on universal history. Although these differences existed, it was the worker's personal decision to send his son to either of the two sections that, in reality, functioned as a single school, since they shared the same site, the playground at the same time, the same services and the same transport buses with boys who lived in the same town and who inevitably met in and out of school for study and fun, for baseball and football.

In the case of the Spanish-speaking school section, training there was only up to the fifth grade, but it had a particular feature. The Spanish section used as an example the educational reform of the United States, which implemented the policy of meeting with both parents every semester. That is, they questioned each of the teachers in detail about the performance and behaviour of their children and, if the student was behind in any course, the work and plans for catching up were sent to the parents so that they could make themselves responsible for them. Additionally, there was a very close link between the school and the Chulec Hospital, since vaccination campaigns and periodic medical check-ups were constantly carried out to provide for the good health of the students.

Once the cycle of their children in the La Oroya school was completed, some parents sent their children to continue their secondary studies in Huancayo and others in Lima. "I was in the Peruvian school until fourth grade and my father put me in the North American in fifth grade. Then he sent me to Lima to continue high school at the Roosevelt School. And the thing is that most of the boys who lived in La Oroya were fluent in English; otherwise, when you played Cowboys and Indians, they captured or killed you immediately", remembers Carlos Arana, an environmental biologist who works in the mining sector and is the son of one of the Peruvian high-ranking staff members in the company during his school years.



For several years the oil unit explored in the east but was unsuccessful in its concessions.

In search of black gold

In the eastern region of Peru, east of the Andes mountain range, the company established in 1955 a subsidiary under the name of Cerro de Pasco Petroleum Corporation, with the purpose of carrying out geological and geophysical works in search of gas reserves and oil in an area of more than 900,000 hectares. The concession was guaranteed by the government itself, but it had many problems for access, since the lands were located twelve kilometres from the town of Iscozacín, in the middle of the Pasco jungle. La Cerro had already taken an interest in oil by acquiring interests in North American companies in the states of Illinois, Texas and Louisiana. However, the five concessions it had in Peru were, until then, its biggest bet in the sector. If enough reserves were found, the company planned to transport and use the product very economically in the metallurgical complex that consumed around 550,000 barrels annually.

There was much expectation about the company's foray into this activity, since within a year of starting the work it had mapped a series of apparently promising geological structures, carrying out seismic studies and aeromagnetic surveys in most of the concessions. Later, part of the required equipment was airlifted to the area and some other machinery transported by land from Lima to Pucallpa and then by barge to the concession. Although a drilling plan had been programmed since the first year, it was postponed until January 28, 1961,

RIGHT—
The highest-ranking
company officials and other
members of the staff resided
in Chulec. Each house was
for a family.

when the machines penetrated an unexplored basin. However, they were out of luck. The first two 4,200 and 1,604 metre deep wells were dry. This caused the company to postpone planning the explorations. Rather, it partnered with Mobile Oil to explore two other wells and in one of them they found a wet gas field, whose reserves were estimated at two trillion cubic metres, just 25 miles northwest of its concessions.

However, luck was not with them in their concession area. In 1965 they had drilled two more wells, which were also dry and the meager results caused their concession area to be reduced to 47% of the original. Nonetheless, they were not discouraged, and with their partner Mobile Oil as operator, they contributed US\$ 2.5 million to continue with the exploration of the gas field in Aguaytía. At that time, the feasibility of building a 563-kilometre Trans-Andean pipeline that would pass through La Oroya and reach the coast was even discussed, so that the complex would benefit not only from its 23% stake in the gas and oil consortium, but with cheaper fuel for the plant. The curious thing is that after this reference, no additional information appears in the company's reports until 1974 about the development of this project, which suggests that the political and social upheaval in which the company was involved in its last years in Peru, made it shy away from this and other investments.

Life at the camp

Just as the exploitation methods were standardised in all the units of the company, the organisation and the rules of camp life were exactly the same. Somehow that discipline was reflected in the daily life of the community. So much so that the character of the Superintendent gave the dynamics and style to each camp. He was the lord and master. "I once had a very lazy superintendent, who did not like going to the mine, but was very well informed about everything



that was happening. Even gossip. Despite this, he was an essentially good man. He used to intervene positively in family life and reprimanded those workers who began to misbehave", Mr. Alberto Manrique recalls of his life as Head of Geology at Casapalca.

The coexistence was normally calm and harmonious, it even provided very emotional daily images, such as when the U.S. daughter of the assistant manager dressed up in local clothes, carrying her younger brother like a 'wawa' (baby) on her back, very naturally and willingly. It was very nice to see her with those clothes in the middle of the mountain landscape, with her light-coloured



WITH TOQUEPALA, CUAJONE AND QUELLAVECO VERY CLOSE TO EACH OTHER, THE SOUTHERN PERU COPPER CORPORATION OPENED A NEW MINING DEVELOPMENT HUB IN THE SOUTH OF THE COUNTRY, BETWEEN MOQUEGUA AND TACNA.

hair and eyes and rosy cheeks. Among the boys this capacity for integration and adaptation to the environment and the community was more noticeable. Daily life at the camp meant that, in the end, everyone became one big family. The ladies frequented each other, met at the club, organised various activities; the men drank their drinks, played billiards, played sports, or amused themselves with the other activities offered by the camp.

A tacit rule was that “the first lady”, the superintendent’s wife, would make sure that the community and families were well taken care of. There was no ‘job description’ for that task but they always fulfilled the same function. Even dancing with them at parties was an honour. And they liked to dance with Peruvians because their husbands were very stuffy. All of this strengthened the fellowship between the families. One of the most remembered U.S. citizens to date is H. Willis Higgs, who would become Operations Manager for the Highland Division, that is, the highest-ranking official in Peru. His daughter Valerie lived in La Oroya for seventeen years and, in 2000, she published a review about the work her mother did: “Since we arrived in La Oroya, my mother, Leah Baxter, committed herself to a series of causes. She immediately started a kindergarten, gave bridge lessons to anyone who wanted to learn the game, taught dozens and dozens of teens to dance, and introduced horse riding to the community. She was also very attached to the boys in the camp, whom she used to take on outings through the adjoining fields, on excursions to Goyllarisquizga or even to some parts of the central jungle. As the wife of the Operations Manager, she was also in charge of organising receptions in her own home, sometimes for 150 people, attended by ambassadors, generals or bishops, as well as other authorities who came to visit the complex. She even managed to look after the workers’ representatives when strikes raged”. In other words, without holding any position, she was truly committed to the fortunes of the company and the well-being of the community.

The creation of Southern

After intense negotiations in 1955, the four founding partners signed the definitive contract for the formation of the Southern Peru Copper Corporation company. The American Smelting and Refining Company - ASARCO had a 57.75% stake, Phelps Dodge Corporation came in with 16%, as did the Cerro de Pasco Corporation, with the remaining 10.25% paid in by Newmont Mining Corporation. ASARCO became the principal partner thanks to its contribution of the Toquepala and Quellaveco deposits, while La Cerro included its Cuacone concession in the partnership, in which Newmont also held an interest. These three properties, very close to each other, opened a new mining development hub in the south of the country, between Moquegua and Tacna. The three properties were transferred to Southern Peru, which, had estimated aggregate mineral reserves in excess of one billion tonnes with an average 1% copper content.

The operation was designed to work primarily in Toquepala with an open pit, extracting 30,000 tons per day during the first stage. This mineral was transferred to a nearby concentrator plant with the capacity to send 1,300 tonnes of concentrates per day to the new refinery, which was built on the coast in the bay of Ilo. Both the concentrator and the refinery were located at a safe and easily accessible distance from the three deposits, as the initial projection was that the same infrastructure would be used to treat the minerals extracted from the three mines. Five months ahead of the scheduled time, on January 1, 1960, the refinery started blister copper production at a rate of 145,000 tons per year. An auspicious beginning that foreshadowed the possibility of early repayment of the debt contracted with the Import-Export Bank in Washington D.C., the financial institution that had made possible bankrolling this work, the most important in mining in Peru after the arrival of Cerro.



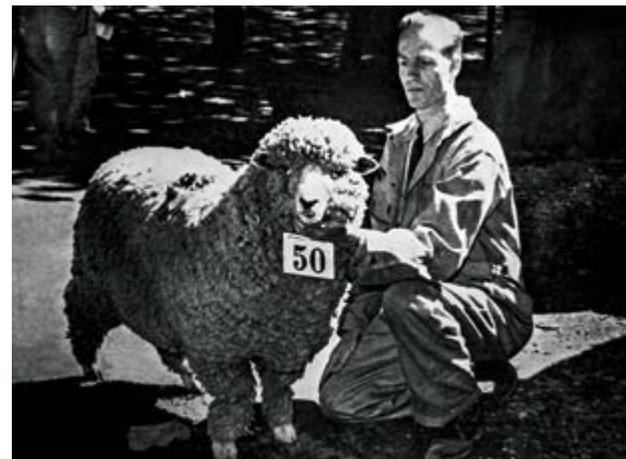
The quest to improve the quality of sheep and pastures would intensify in the years after the greening of the pastures.

The entire circuit had been completed with the construction of its own port in the bay of Ilo, as was logical, with a power generation plant, communication routes around the different units, a 177-kilometre railway line for the transport of mineral between the mine, the refinery and the port and suitable infrastructure for two camps, the first for the Toquepala miners and the other for the refinery complex. A few years after the start of its operations, the company built other types of facilities for workers, employees and their families, which at that stage would congregate in an approximate number of 15,000 inhabitants; hence the need for a school, a hospital, road connections, supply stores and other services that facilitated the living and development of the community.

In March 1960, after a legal dispute, ASARCO transferred 20,375 shares to Cerro de Pasco Corporation, as it was forced to return part of the capital stock of Southern that had been held in trust by the former. By virtue of that ruling, Cerro added an additional 6.25% of the total shares of the company, so from that moment on it would be the owner of 22.25% of shares in the business.

The Livestock Division

With the fields surrounding La Oroya greening again after the installation of the Cottrell System in 1941, the company, beyond providing food for its employees, gave those lands a more productive function. The specialisation in the raising of the cattle was one of its main aims. It should have come as no surprise, since in the mid-1950s, the corporation had 149,000 sheep, 13,000 cattle and 500 pigs grazing on its farms, along with another 50,000 owned by tenant farmers. Keeping all the livestock under control required rigorous logistical work divided into two sections: the northern part of the Livestock Division had five main estates, while the southern part was in charge of six.



The Junín breed was the pride of the Livestock Division of the corporation. It took years to create this breed that brought Peru many awards.

Each section was under the command of a general administrator, who coordinated directly with the superintendent to carry out the general work plan. Each administrator was in charge of the stewards who supervised the fulfillment of obligations; the border horsemen who prevented the grazing of neighbouring livestock within their boundaries; the foremen, who counted the flock several times a week and supervised the shepherds; and, finally, to the shepherds, who looked after the health of the livestock and were accountable for losses or theft due to their carelessness. Each one had clearly specified duties. The staff varied according to the season but, on average, 680 workers and 49 employees were needed to efficiently maintain the organisation.

According to the company magazine, *El Serrano*, in August 1955 Cerro sent the Superintendent of Livestock, Mr. W.K. Snyder to the western United States to purchase breeding rams to improve husbandry. They themselves established the three conditions that these specimens should meet, in order of preference: firstly, be of registered Corriedale breed, of Corriedale descent or be of a moderately woolly breed. Secondly, to have grade 54 wool, preferably. Thirdly, to be as large as possible. Additionally, it had to be livestock accustomed to grazing in highlands to avoid problems of adaptation to the geography and mountain climate.

The search extended to the best farms in the United States, agricultural schools, fairs, exhibitions, and even youth clubs in the North American West. The selection trip took more than two months. Upon arrival in Peru, Mr. Snyder commented: "It has really been a difficult journey, mainly due to the fact that there are very few sheep that meet our requirements. 3,857 rams were examined, of which we only bought 260, which represents less than 7% of the total. The selected one-year-old rams averaged 82 kilograms and the six-month-olds 52". The new Cerro Rams were the largest ever seen in South America and would contribute to increasing wool and meat production in

RIGHT—
President Fernando
Belaunde is greeted in
Cobriza by Eng. Alberto
Benavides, president of
the company in Peru in
the sixties.

the following years. In addition to raising sheep, the Livestock Division ran the livestock disease research laboratory and had a veterinary hospital for small farm animals, which served neighbouring breeders and accommodated future professionals from the Universidad Mayor de San Marcos and the Agraria of La Molina.

This Division standardised its processes and maintained a production in line with sustainable development, despite the fact that at that time this concept did not yet exist. La Cerro sowed in different seasons of the year, in such a way that when the pastures in one area were finished, it moved the sheep to a new plot and sowed in the previous one. This allowed it to supply the different units in a uniform way and to export part of the surplus meat, leather and wool to the United States, albeit in small proportions. Food orders were made by phone from the house itself and the livestock division took care of delivering the entire order to the worker's door at a low price. Then it was deducted from payroll. They could stock up on different products such as mutton, beef and pork, eggs and sausages. At one point fish farms added giant trout to the supply.

The quality of the livestock was such that the company fostered improvement by organising competitions among its farms in different categories. The competition allowed many advances in the display and quality of the cattle, increasing the prestige of the Junín breed, created thanks to the biological experimentation of the Livestock Division. These contests became the event prior to the Lima Livestock Exhibition, a great fair for livestock, agricultural machinery and techniques, in which the Junín breed used to win distinctions in the Grand Champion, First Prize and Reserved Grand Champion categories, the most important. This breed was characterized by abundant wool, fine fleece, broad chest, high lift, and prominent muscles. It was a beautiful animal, capable of competing in international competitions,



as equals, with the best specimens from Ireland, the United States and New Zealand. A breed that gave and continues to give great pride to Peruvian livestock.

The Cobriza mine

Studies carried out by Antonio Raimondi had already revealed the existence of this deposit on the eastern margin of the mountain range, in the district of San Pedro de Coris, in the province of Churcampa in Huancavelica. The site was on the left bank of the Mantaro River, at an altitude of between 2,100 and 2,700 metres above sea level. As a quechua area of the mountain range, it had a rainy climate between October and April and was dry the rest of the year. It was accessed from Huancayo, on a trip that took fifteen hours when exploration work was revitalised in the 1950s.

Once the construction of the first facilities for this mine began, the norm was that each of the Mine Foremen of Cerro de Pasco supervised the work carried out in the tunnels for three months. In the first excavations it was common to find many tarantulas the size of a hand and very poisonous snakes the length of a foot of red, black and yellow colours. There was no antidote for their bite, so it had to be brought from an institute that specialised in snakes in Brazil. Engineer Guido del Castillo was one of the Mine Foremen who arrived in Cobriza. "What we did was bring pigs and



THE GROWTH OF THE COMPANY IN THE 1950s ALLOWED INCREASING THE CAPACITY OF THE CONCENTRATOR PLANTS AND RENEWING THE RAILWAY INFRASTRUCTURE.

we let them roam around the camp. They found and ate the snakes”. It was with the pigs that they implemented an effective biological control system to eradicate the snakes.

In those three months there were no weekends or breaks, as they were away from everything and there was practically nothing to do. They even got used to the tarantulas. They were impressive but also quite slow. Del Castillo himself remembers it with a smile: “You only had to be careful that they did not raise their front legs, because that gesture preceded an attack leap that could exceed a metre in distance. Bob Dixon, whom I replaced in supervision, caught one, dissected it in a threatening position, and hung it on one of the office walls. Since then, every time a new official arrived, he was brought in and when he placed him next to the wall, everyone shouted ‘Look out, tarantula!’ and ended up laughing at the leap of the newcomer in the Cobriza style”.

Although the company had been targeting the deposit since the 1920s, the distance between its location and the mining corridor ended up delaying its impending exploitation. The silver and copper deposits were extremely attractive, however the difficulties of access in an area of deep valleys made it economically untenable. Nonetheless, patience paid off, conditions changed by the mid-1960s and, precisely, in 1966, the corporation began construction of the metallurgical facilities and necessary services, such as a new camp and a 64 kilometre road. In December 1967 the mine entered production at an average rate of 1,000 metric tonnes per day and was officially inaugurated on July 14, 1968. The result was a copper concentrate with some silver and bismuth, which allowed the annual copper production of Cerro-Peru to increase by more than 9 thousand tonnes. Beyond the high-grade reserves, the deposit contained an even greater amount of low-grade copper mineralisation, prompting early expansion of the project from the outset.

A few years later, the Cobriza production was the company’s main source of copper and represented the most modern model of production in an underground mine. Its concentrator plant began treating 1,350 tonnes per day, but managed to produce 660,000 tonnes per year. At that time, the Cerro de Pasco mine had higher production, but mainly of lead, zinc and silver, of which 55% was from the McCune Pit. Yauricocha, San Cristobal and Casapalca continued to produce copper in smaller quantities and, always, accompanied by lead, silver and zinc.

The new wagers

As well as the extensions and improvements of the facilities, two new projects were also started at this time. In Cerro de Pasco, a precipitation plant was put into operation to recover copper from mine wastewater and from leaks near waste and slag deposits. By then, unorthodox systems and temporary installations were used to recover the residual copper that escaped with the water. According to the same engineer Guido del Castillo, the acidic water from the Excelsior mine was led through a channel to which, at one end, old cans of condensed milk were deposited to attract the copper residues. These remains stuck to the surface of the cans that were later transported as copper scrap to La Oroya for metallurgical recovery. Only by this method it was said then, that the value of recovered copper reached one million dollars a month. With the implementation of this plant, the recovery rates from that source doubled.

On the other hand, in La Oroya two plants were built in the name of Compañía Industrial del Centro S.A. o CICSA, a subsidiary company of the corporation, which was established taking advantage of the legislation that encouraged investment in high-altitude territories. One was of sulphuric acid, capable of producing 200 tonnes per day, whose final product would be used by

the company itself in its processes and the remainder sold to third parties linked to the industrial sector in Lima and Callao. The second was a copper wire rod and hot-rolled rod plant, which included a rolling mill with a production capacity of 50,000 tonnes per year. Until then, CICSA only managed a copper smelting furnace and a small wire rod plant within the La Oroya complex. The new plant would expand the range of value-added products within the company's catalogue and its main client would be INDECO, another company built with capital from the Lima-based corporation.

The constant growth since the 1950 Mining Code was enacted allowed not only to increase the capacity of the concentrator plants or to invest in industrial plants in La Oroya, but also brought with it the opportunity to renew the railroad infrastructure. In 1966 alone, the company acquired four diesel locomotives for the refinery route to the Cerro de Pasco mines and also 50 freight wagons of 55 tonnes capacity each, destined to transport ore and concentrates between its units and to the port of Callao.

A direct link to the union

Another of the issues that Cerro faced in the fifties was that of Industrial Relations. It was a department whose purpose was to establish a permanent channel of dialogue with its workers and to explore and propose improvements in working conditions. Mr. Carlos Aranda Saldarriaga was one of the leaders of this office in the mid-sixties. Before that, he had led the group that created the wire rod plant and, later, was superintendent of zinc and lead at the La Oroya refinery.

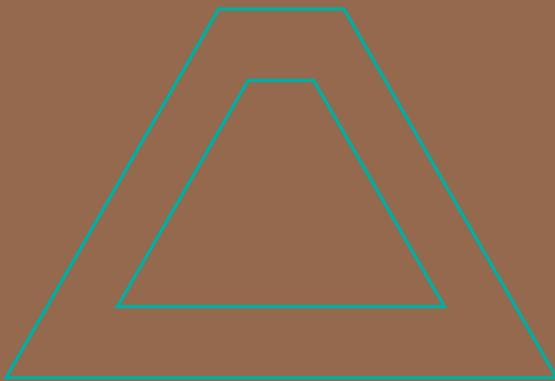
One of the most difficult tasks in this department was the negotiation of the claims and grievances. His son, who bears the same name, lived in La Oroya and clearly remembers some events. "The Cerro strikes were very forceful, so much so that death threats were made and the strikers might even throw sticks

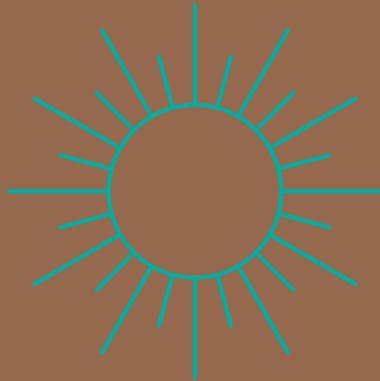
of dynamite. The company used to ask the government for support, and it sent military forces from Huancayo. They came marching from Tarma with their rifles, backpacks and wrapped in a red and white blanket for the cold. They installed themselves on the upper slopes of the hills to wrest the initiative from the strikers and prevent them from throwing stones. At that time the strikers began to send the wives in the front row, carrying their children in front or on the back and, to paralyse the flow of the mineral, they stood on the railway track, challenging the locomotive.

There were many tense situations. The main complaints related to increased wages, improved working conditions, enhancement of safety measures and equipment, comprehensive medical examinations and the enactment of work shifts and hours. Strikes could last between a week and up to three or four months. For this reason, the company proposed many activities with the participation of the unions. Coordination meetings were normally held at the Peruvian Club and the negotiations were highly detailed, but, when agreements were reached, the tradition of easing tensions through a football match followed by a celebration was established.

That office was the one that faced the problems, but don Carlos also proposed ingenious preventive measures. For example, for security reasons he invented the square screw. This was an anti-trophy that was "won" by the area that obtained the worst results of the month and had the obligation to display it visibly in their offices. Obviously no one coveted that trophy. On another occasion, to gain the attention of the workers in the talks, he gathered them together and put folders on the seats in the first three rows. Everyone sat down behind the fourth row. When the room had filled, he had the folders collected and showed them what they had missed. Each folder had fifty soles inside. From there everyone sat in front to see if they won something with another of his stunts.

LA
OROYA
SCIENCE AND
INNOVATION





There was no place in the world with a concentration of metals as diverse as Cerro de Pasco. For this reason, the La Oroya Metallurgical Complex was essentially a technological research and production centre. In its impressive laboratories, the knowledge about these polymetallic ores was increased. Based on this, high-tech equipment was developed and unique processes were created to produce the highest grade of metals in the world.

But another thing that caused a huge impression among specialists, when they became acquainted with La Oroya, was that these refined metals began their recovery process from just three production lines: those of lead, copper and zinc concentrates. Once a valuable metal was recovered, the remaining concentrate would start another process to recover a second one, and then the remaining mass was added to another method until all its value had been recovered.

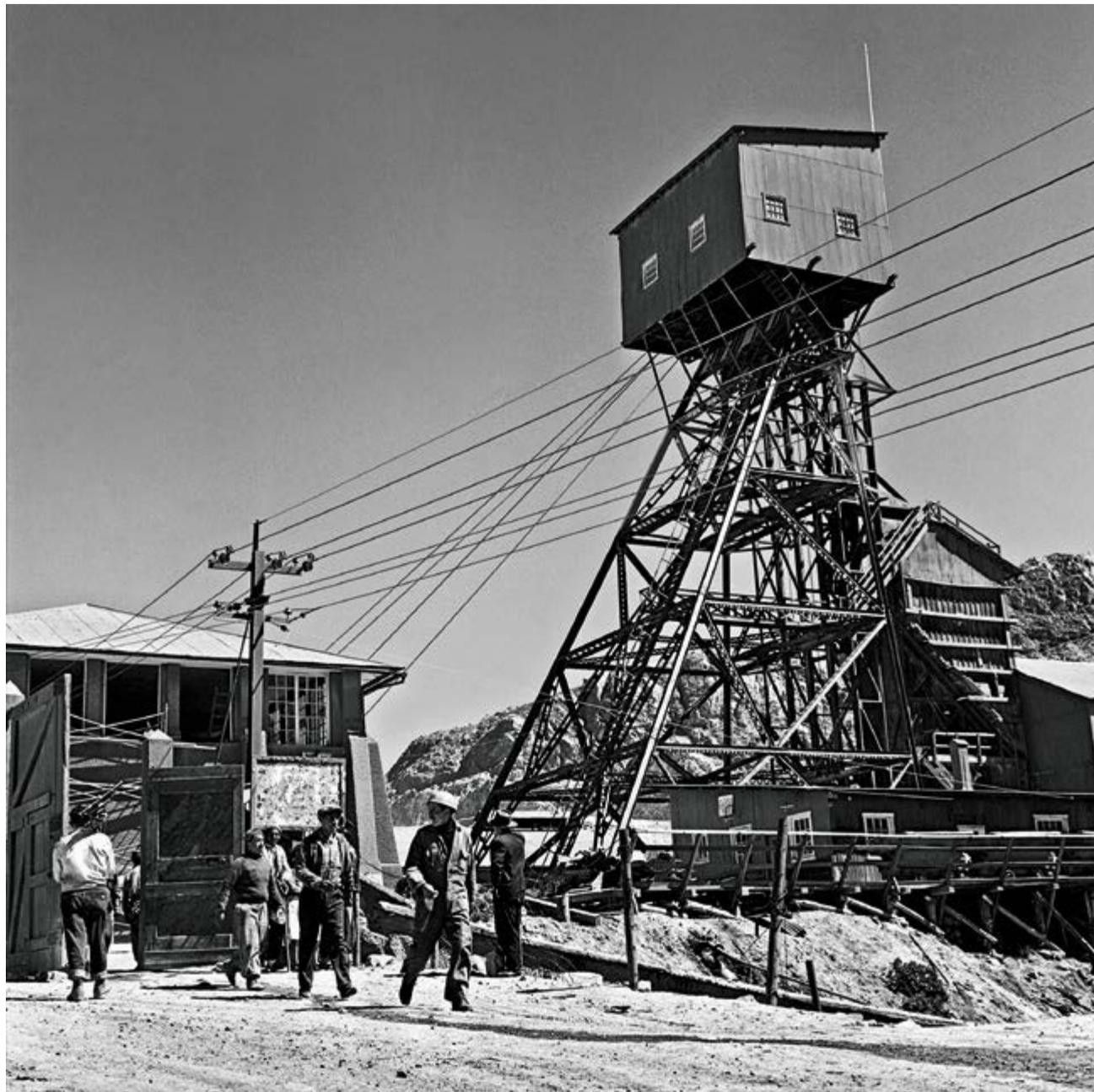
For Leonard Harris, an Australian metallurgist linked for decades to national mining, “La Oroya should never have been separated from the Cerro mines, because it was a refinery made specifically for the mineral that was produced there”. The complexity of these operations is reflected in the outline of the processes that we describe in detail on the following pages.





The Department of Industrial Relations wanted to establish that, for the company, its workers were its greatest resource.

THE NEW MODEL OF THE COMPANY'S RELATIONSHIP WITH ITS UNIONS OFFERED HORIZONTAL AND PERMANENT COMMUNICATIONS, AS WELL AS THE QUEST FOR CONTINUAL IMPROVEMENTS IN WORKING CONDITIONS.



Beyond these anecdotes, this new model of relationship between companies and their workers through an office that provided them with horizontal and permanent communications and that offered substantive changes to improve working conditions, was given by Cerro de Pasco and, since then, adopted and implemented by a large part of the Peruvian industrial sector.

The Graton Tunnel

Casapalca was a surprising mine as it had a long and thin vein, compact at the top and opening like a long downward arrow. It had been exploited since the previous century and the mountain peak had so many cracks on its surface that, for years, rainwater had accumulated inside it. At the height of level 27 (2,700 m from the summit downwards) a three kilometre main tunnel had been drilled, which allowed working in galleries above and below. As of level 31, some leaks were already percolating through, but that did not prevent the mining activities. The water was pumped up and operations continued. However, the lower it went, the hotter the surroundings got and the more energy you needed to pump the water.

On April 19, 1948, at level 37, a great fire broke out in which several workers perished and with them the superintendent of Casapalca. The bodies were recovered but the fire became uncontrollable, so the company decided to flood the galleries and for years the lower levels were under water. Mr. Alberto Manrique was Head of Geologists at Casapalca almost ten years after the incident. While he was there, the company decided to investigate the feasibility of resuming work at the lower levels. "Bill Lacy was hired again to calculate reserves and see if dewatering the mine was justified. The logical thing was that the water would drain by gravity and expose the mineral, because pumping from there upwards was very expensive and it was felt that the vein

was extending downward”, he recalls. As it was difficult to enter, the design for the calculation was drawn practically blind, with maps from the surface.

The final project contemplated building, at level 52, two parallel tunnels of eleven kilometres in length that would connect each section. One for the water to flow into the Rímac River and the other for the transport of the company’s vehicles. In its time it was considered one of the most complex engineering jobs developed. Another Peruvian who worked in Casapalca at that time was engineer Guido del Castillo: “An unexpected thing was that 500 metres after the work began, the mineral water that supplied the town of San Mateo, dried up. That caused a series of problems for the company. But even more curious was that after five kilometres very hot water was found. The temperature rose so high that it was impossible to continue with the work. The miners climbed into the cars with cold water to pass these areas and continue drilling on the other side. In the end everything was stopped for a year and a special air conditioning system was built to continue the work”.

While the company’s geologists were looking for another source of groundwater for San Mateo, it was possible to control the temperature in that sector, which they began to call Aguascalientes, and the work continued. In the end, when the water began to drain, the discovery was huge. The vein was more than five kilometres deep with copper and silver contents, which increased the life of the mine by twenty years and, as if that were not enough, other small, unsuspected veins were found.

Beyond the monumental scale of the work, the Graton Tunnel was found to have a series of additional benefits. For example, that five metres per second of clean water came out of the intake in the western part, produced by the rain of the eastern mountain range. This current is added to the flow of the Rímac river with an additional 25% volume of water. In this sense, the national scientist, Modesto Montoya, has referred several times to the Graton Tunnel

as an example of what can be done to alleviate the water risk of Lima and has added the potential that this flow encourages the construction of small hydroelectric plants in different sections, downstream of the Rímac River, on its way to the sea.

A boost to the industry

Starting in the 1950s, the company designed a corporate policy for product diversification and expansion of the geographic scope of its mines and interests. The idea was for the corporation to start looking for projects to operate where business opportunities appeared, without the geographic restrictions that it had adhered to during its first fifty years. It is in this context that Cerro extended the exploration map beyond the central highlands, promoted and invested in industries based near Lima, and analysed the feasibility of operating a copper mine in Chile, among others.

True to its philosophy of being more and more efficient and exploring the possibility of lowering costs, the company observed that the importation of some inputs made it less competitive. Thus, it promoted a series of industrial initiatives in the country and invested the seed capital so that these enterprises, subsidiaries of Cerro-Peru, could provide it with some of those intensively used inputs for its different activities. These companies settled in the perimeter of Lima because, in addition to allowing the company to be less dependent on imports, pursuant to their original design, they had to be self-sufficient and autonomous. The only way to achieve this objective was for them to attract other related companies in the national and international market as clients. For this purpose, they manufactured the inputs of excellent quality and safety requirements that mining and metallurgical tasks demanded, as well as other industrial sectors. That was its main letter of introduction.



THE COMPANY PROMOTED A SERIES OF INDUSTRIAL INITIATIVES AND INVESTED SEED CAPITAL TO CREATE COMPANIES THAT WOULD PROVIDE IT WITH QUALITY INPUTS AT A BETTER PRICE THAN IMPORTED ONES.

In October 1955 the corporation acquired 30% of Empresa de Explosivos S.A. (EXSA), a manufacturer of industrial explosives. By then, the decision had already been made to develop the Cerro de Pasco open pit mines, which would make Cerro one of its main shareholders and, at the same time, a client. A seat on the board of directors guaranteed the quality of the required product, as well as the safety norms and efficient administrative management of the company, whose new plant was built in Lurin.

That same year, 42% of Refractorios Peruanos S.A. was acquired. (REPSA), whose refractory brick plant would allow the transfer from La Oroya to the capital of the manufacture of those inputs that the company used in the reverberatory furnaces of the smelter. The U.S. corporation Harbison - Walker Refractories Co., from Pittsburgh, invited by Cerro, owned the majority of the shares of the new company and would be responsible for its administration and technical direction. Operations began in April 1957 and the first year they produced 1,800,000 bricks, a figure that would double the following year with the fitting out of two additional kilns. Almost all of its production was destined for the corporation.

But in its search for more profitability, the company also explored options to bring greater added value to its products catalogue. At first, much of its production was ordered to be refined by ASARCO in the United States and, later, La Oroya began to develop more complex operations to produce in Peru more than twenty products from three base minerals: copper, lead and zinc. The next step was to drive the development of a plant for the manufacture of an extensive range of cables and cabling systems. Thus, in 1954 the corporation invested in INDECO S.A. acquiring 45% of the shares to give a decisive boost to its operations which, until that date, operated with an efficient rolling mill as well as a small mill. In a short time, the company would be able to satisfy more than half of the wire demand in the domestic market.

Similarly, it designed the Reactivos Nacionales S.A. project, or RENASA, a chemical industry that had the purpose of meeting the demands of the metallurgical part of the La Oroya complex. Different circumstances prevented the dream of the company to materialise then, but on the basis of these plans the new company was created in the mid-1970s, when Cerro had already withdrawn from the country.

All these specialised companies managed to successfully insert themselves into different national and international markets, especially in the region, where they have remained in operation to this day, employing many workers and professionals; for decades they have contributed tax revenues used for the development of the country and have made it possible to strengthen the foundations of the Peruvian industrial base from its inception. *

Timeline

1950/ 1967

1950

[December 20]
The Lima-based Exploration Division was created under the Geology Department.

1953

All zinc production is already of high purity: 99.99%.

1952

[September]
The zinc pilot plant ceases to operate and the Electrolytic Zinc Plant, with 35 tonnes per day capacity, produces its first ingots.

Silver production is obtained from its refining processes in La Oroya, in addition to that contained in the doré metal that the American Metal Co. refines.

1954

[January]
The Electrothermal Zinc Plant goes into operation.

[September 16]
The Union of Mining and Metallurgical Workers of the Cerro de Pasco Division is founded.

1955

[January 15]
The first Social Services Centre is inaugurated in La Oroya, under the supervision of Industrial Relations.

1956

[November 26]
Work begins for the development of the open-pit mine known as the McCune Pit.

1957

[March 17]
Electric power begins to be generated at the Yaupi Power Plant.

[July 26]
The Safety Division becomes a Department, reporting directly to the Operations Management.

The first blast is detonated to start work on the McCune Pit.

1958

The Electrothermal Zinc Plant is closed down.

1962

The electrolytic refinery increases its capacity to 150 tonnes per day in November.

1963

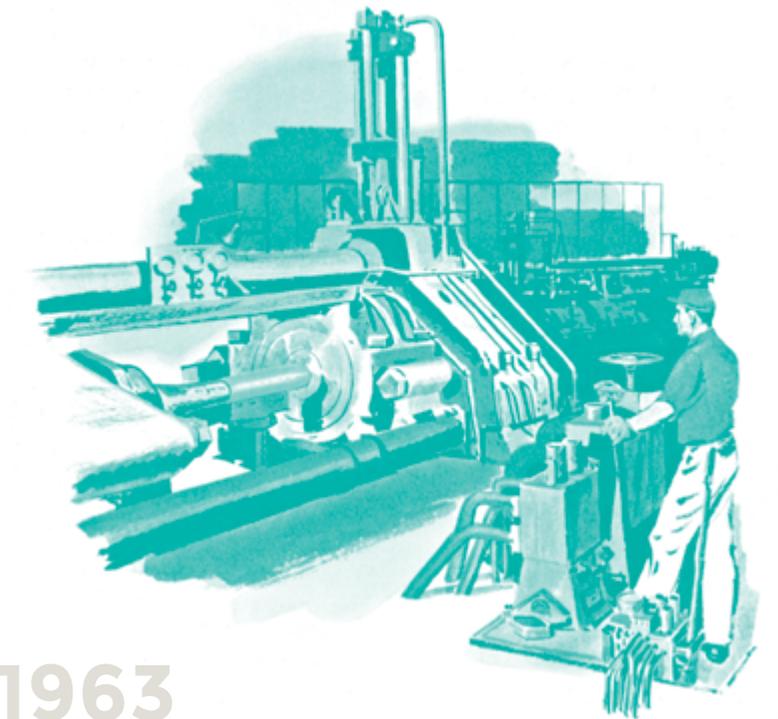
The copper circuit of the Paragsha concentrator is prepared to treat lead and zinc ores.

1965

[July 5]
The first 50 houses are completed in the new city of Cerro de Pasco, neighbourhood of San Juan Pampa.

1967

[September]
The Cobriza concentrator is installed and, a year later, the mine begins operations.





S · E · V · E · N

POPULIST AVALANCHE



The population of La Oroya celebrates the takeover of the Cerro by the Velasco government. Six months later they would come out again to protest against the government.

PRESSURES AND ITS RESPONSE



Radical economic reforms—and the voracity of the State in its intention to become the engine of development—led to the nationalisation and dismemberment of what had been the most successful company in Peru.



The political situation throughout Latin America and in the country was very tense since the Cuban Revolution of 1959. Before the first government of the architect Fernando Belaunde, peasants and unions who had been rallied were already putting pressure on the political authorities to bring about the Agrarian Reform that had been announced for decades. Since the 1920s, Cerro de Pasco had formed the largest agricultural estate in the central highlands and for its adversaries it was the greatest representative of ‘Yankee imperialism’, as the leftist parties liked to point out. Despite the highly charged climate, the protests and strikes, the company had managed to maintain the rhythm of production under the Mining Code of 1950, and recorded its best historical performance through 1967.

However, the outlook would change radically as of October 3, 1968. This was not due to internal factors or motives attributable to the company, but because of the radical reforms that were beginning to be experienced in the country in political and economic terms. Unfortunately, coups d’état had been constant since our independence, but General Juan Velasco Alvarado’s takeover to oust President-elect Fernando Belaunde from the Palace had a

different nuance. Shortly before the leader of the Accion Popular party ended his mandate, Peru had all the conditions to continue growing structurally: there was even an increase in exports driven by the fishing and mining sectors from 540 to 800 million dollars. However, what grew in greater proportions was social spending unsupported by fiscal revenues. This disrespect for the basic principles of responsible economic management caused inflation to run wild in mid-1967 and, as a consequence, the dollar became more expensive, the external debt reached its highest peak in decades and devaluation of the national currency increased by 40%. The situation was critical and public discontent was increasing. For this reason, a good part of the population welcomed the radical rhetoric with high hopes.

The Velasco coup was triggered by the theft or loss of the famous page 11 of the contract between the State and the International Petroleum Company, in which it was claimed that future prices for the sale of crude oil to Peru were established. Once power was usurped, that faction of the Army expropriated the oil company, a U.S. subsidiary of Standard Oil of New Jersey that, since 1914, operated as an enclave in the oil fields of the north coast. In this way, the dictator officially established the “revolutionary government of the Armed Forces”, taking possession of the Talara refinery less than a week after occupying the presidential seat. Thus, the government said, it ensured that the transnational corporation would honour a tax debt that, in its opinion, had grown exponentially since oil exploitation began in the second decade of the 20th century.

With this act—a vindication for some, a demonisation for others—a policy of economic transformation was promoted in which, practically, all the means of production were passed from the private sector to the State, with the conviction that the latter would become the engine of the country’s development and the national economy. At that time, in addition to the existence in a sector of

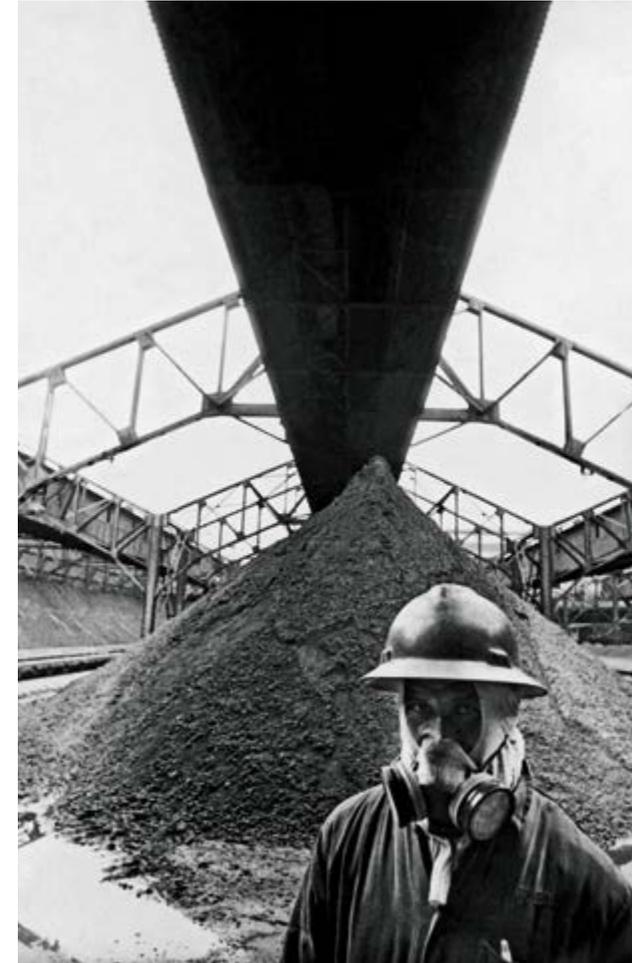


MANY UNDERSTOOD THAT THE IDEAS OF CEPAL (ECLAC) COULD BE EXTENDED TO THE PARTICIPATION OF THE STATE IN STRATEGIC ECONOMIC ACTIVITIES, NATIONALISING THE EXPLOITATION OF NATURAL RESOURCES.

Latin America of a sort of revolutionary ideal –since Castro took power in Cuba by force of arms– the Economic Commission for Latin America and the Caribbean - CEPAL had stimulated a policy of Industrialisation by import substitution in the region. Basically, it invited countries to satisfy the consumer demands of their population by manufacturing or producing in the country itself, the greatest number of articles or products. The aim was to reduce commercial dependence on foreign powers, protecting national production and intervening in the market. In practice, many understood that this new policy could be extended to state participation in strategic economic activities, such as the exploitation of natural resources.

Thus the government was participating more and more in the economy. The Agrarian Reform broke an economic model whose origin dated back to colonial times and which, certainly, in several aspects was out of date and in others was obsolete, but it was replaced by a worse one that ended up destroying national agriculture. The large landholdings were replaced by Agricultural Cooperatives of Production and Agrarian Associations of Social Interest, in which state officials, “representatives of the peasants”, took over control of arable land. Five decades later, it is evident that the ignorance of these officials in agrarian issues and modern methods, lack of knowledge about business administration, absence of investment in the replacement of equipment and technology, as well as the subsequent subdivision and atomisation of the properties by the peasants themselves, led to the national agricultural sector regressing more than thirty years. The so-called reform or the destruction of the previous system accomplished nothing. Moreover, in light of the facts, we fared much worse.

The Velasco Agrarian Reform had begun in 1969, but the first expropriation of land that shook Cerro de Pasco had occurred in 1963, when the State allocated the estates of Pachacayo and Cónsac to the indigenous community of Canchayllo, in Jauja. But the greatest threat materialised in



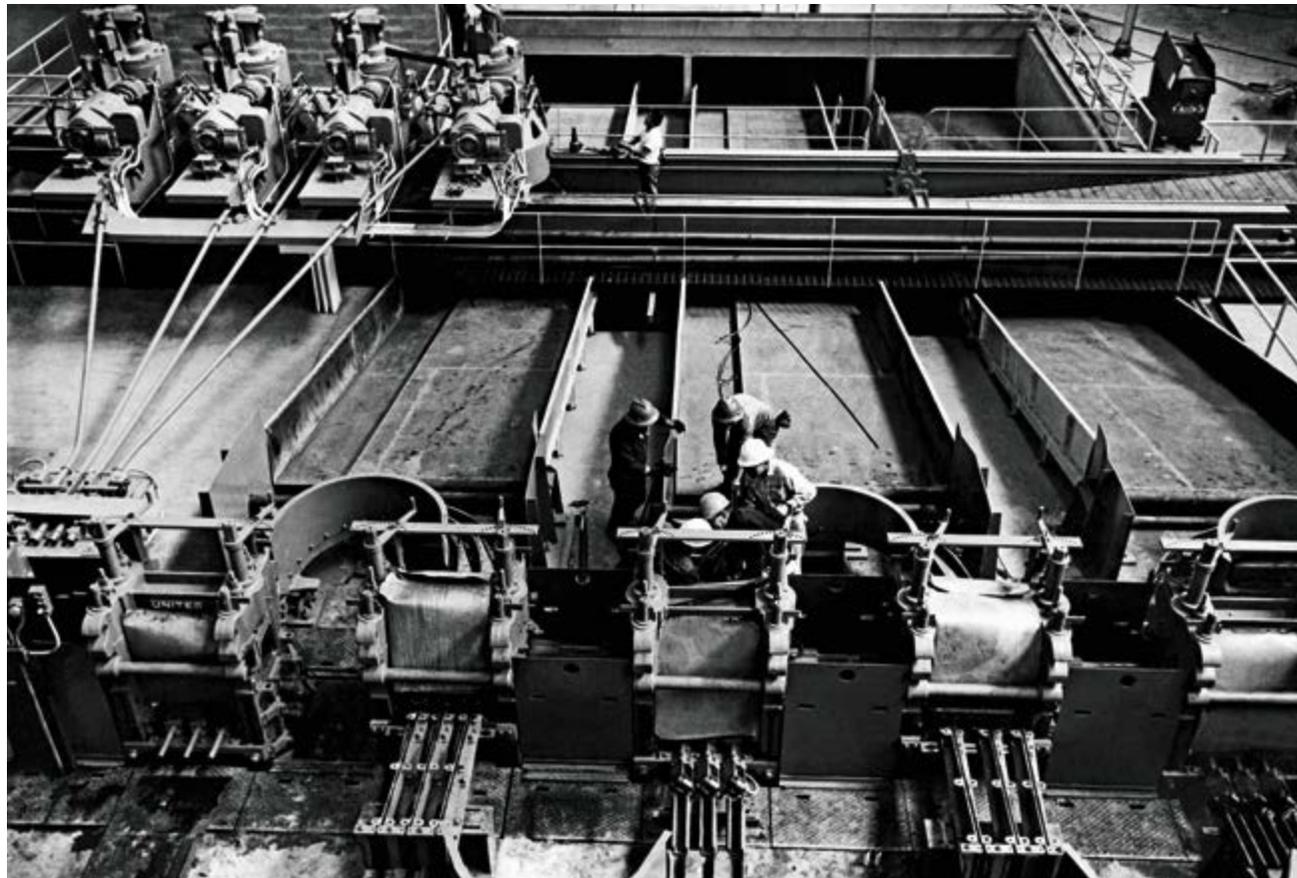
The drastic reforms were based on the benefit they would bring to the worker, but that only happened on paper.

1967. The Office of Agrarian Reform and Colonisation –installed four years earlier during the previous Military Government Junta– had initiated another expropriation process involving its estates. Among other things, the office justified the process by the continuous strikes, the social conflicts in the surroundings of the company and by the environmental liabilities caused by the mines and its refinery, despite the fact that these lands were unrelated to mining or metallurgical operations.

Most of them, which were under the administration of the Livestock Division, had been acquired in the 1920s through an agreement with the La Oroya communities affected by the fumes from the smelter. A good part of these 232,000 hectares were used to sow grass for raising sheep. When the situation became irreversible, the government proposed to compensate the company with a twenty-year payment through Peruvian sovereign bonds, including interest. However, the amount was not defined. The promise was to also pay an amount in cash, agreed upon from the reports of three

DOWN—
Uncertainty affected
the efficient La Oroya
wire rod plant and also
reduced its output.

RIGHT—
The grievances about
environmental issues
continued to escalate
despite the installation
of a new Cottrell
system in 1971.



independent appraisers and pursuant to a local court establishing the final amount of compensation. After that payment, the property titles would be transferred to the Peruvian State. The only advance the company received was two million dollars, part in cash and another in bonds, for the pastures that would remain on the expropriated farms. They also allowed them to keep some sheep for eighteen months to maintain the meat supply in their various units. Unlike other expropriations on the north coast and in the highland towns, the company, which still owned mining and metallurgical properties, had some space for negotiation. However, as is public knowledge, those bonds were never paid and the government managed to obtain favourable rulings for the case.

The hoarding state

After the Agrarian Reform, the radical changes in the economy would continue, to the extent that the State expropriated the so-called strategic industries such as steel, industrial chemicals, public services, power generation and distribution, telephone services, and potable water. Little by little, they were adding the fishing companies, oil companies, shipping companies and even the media. Additionally, state companies were created that monopolised the import of inputs and the export of various products. For example, the National Supply Marketing Company (ENCI), created in 1971, controlled almost 40% of Peruvian imports.

As well as ENCI, other companies were created very quickly to monopolise the marketing of products in different sectors: *Petróleos del Perú* or *Petroperú* in 1969, the steel company *SIDERPERU* in the same year, the *Empresa Comercializadora de Harina y Aceite de Pescado* (EPCHAP) in 1970, the *Empresa Pública de Servicios Agropecuarios y*



VELASCO'S DRASTIC REFORMS CREATED A CLIMATE OF UNCERTAINTY IN THE BUSINESS COMMUNITY, THE PACE OF INVESTMENT SLOWED, AND BUSINESS ACTIVITIES IN THE COUNTRY DECLINED.

Pesqueros (EPSAP) in 1969 –which would be split into two in 1970: EPSA for the agricultural part and EPSEP for the fishing part– and others. Thus, by 1975, all these public companies controlled 50% of total Peruvian imports and 85% of total exports.

With the tremendous weight of state companies in the national economy, the government could not distract its appetite for also controlling the prices of staple foods such as rice, wheat, meat and dairy products, subsidising them and causing a host of populist distortions. In parallel, prohibitive and differentiated rules were created for foreign investment and new forms of ownership were enacted in industry and agriculture, based on the mistaken assumption that the participation of workers in the decisions and profits of the companies would end poverty. In reality, what they achieved was to lay the foundations for one of the most serious crises in our republican history, the most painful consequences of which would be unleashed only a decade later.

In the case of Cerro, in addition to the expropriation of the estates, the government continued with its process of nationalising assets. For example, it issued Legal Decree N°. 18880, which allowed the State to take a leading role in mining activity, opening a broad and unlimited framework for public intervention in the sector. Additionally, in September 1972 the Electricity Regulatory Law was enacted, which reserved for the State all business activities in the electricity sector that were of public benefit, such as the generation, transformation, transmission, distribution and sale of electricity. The real interest behind this was for the State to operate in the entire electricity business. The same decree created Electroperú as a decentralised public body that would exclusively conduct the activities of the State in the sector. In parallel, Law 19521 established that all those concession-holding companies that provided public electricity service, and that were in the power of foreign investors, be immediately acquired by the State.

Between a rock and a hard place

The scope and spillover of the economic restructuring that the government intended and the speed of its implementation contributed to a climate of uncertainty prevailing in the business environment, especially among large foreign investors and in the national business community. This lack of predictability slowed down the pace of investment and commercial activity in the country. Added to this confusion was the appearance in 1970 of a new legal framework for mining, which had a special impact on unexploited properties, including those that were under the Cerro de Pasco umbrella. This new regulation did not affect its six large operating mines, but did directly affect other projects that had awaited better conditions for their development, such as Antamina, Chalcobamba, Ferrobamba and Tintaya.

On September 2 of that same year, Legal Decree N°. 17792 was enacted, which required that all mining concessions not exploited at a minimum rate of one sixtieth of their mineral reserves per year revert to the State. However, the companies had the possibility of submitting, no later than the last day of the year, a schedule of operations for the exploitation of these concessions, on the condition that activities begin before April 1975. Among other requirements it was emphasised that if the company did not comply with presenting that schedule, or worked outside the proposed timetable, or if it did not reach the minimum production target each year, the concession would be definitively terminated. In order to protect its interests, the corporation presented to the government the schedules of its properties not yet exploited and looked for partners abroad to speed up investments in those projects, but knowing that time and the new regulations were totally against it.

In Antamina, 160 kilometres northwest of Cerro de Pasco, the first explorations had already been made for the exploitation of almost six million



OPERATIONS AND CONCESSIONS

Towards 1968, this is how the map of the mining–metallurgical interests of the Cerro de Pasco Corporation in the country looked.



Caption

Cerro de Pasco Corporation

- Operating properties
- Undeveloped properties

Southern Peru Copper Corp.

- ▲ Operating properties
- △ Undeveloped properties

VERY DEMANDING NEW REGULATIONS ON UNEXPLOITED MINING CONCESSIONS CAUSED CERRO PROJECTS, SUCH AS ANTAMINA, FERROBAMBA, CHALCOBAMBA AND TINTAYA, TO REVERT TO THE STATE.

tonnes of mineralised sulphides in deposits with a prevalence of copper (2.6%), zinc (1.3%) and 0.75 ounces of silver per tonne. Its potential was already a proven fact. In Chalcobamba, south of Cusco, 27 million tonnes of mineralised sulphides were recorded with an average of 2.1% copper. Although not enough studies had been done in Ferrobamba, the testing of old works and outcrops showed 1,750,000 tonnes of mineralisation with approximately 3.4% copper and 0.7 ounces of silver per tonne. In contrast, Tintaya was an oxide deposit estimated at 7 million tonnes with an average of 3% copper where the existence of copper sulphides had also been verified.

As was to be expected, the political conditions and the new mining regulations would not allow Cerro’s executives to raise the required partners or comply with the tight deadlines or demanding conditions, so these properties finally ended up reverting to the State. The government had obtained a victory, but a Pyrrhic one because, later on, it would not earn the confidence of investors either and they would lay hands on the fiscal chest to promote a single project, that of Tintaya. Subsequently, there would be no more significant investments in mining in the medium term. In reality, this apparent victory was a defeat for the sector and for the development of mining and the national economy.

A way forward for Cuajone

By 1969, the Toquepala mine had demonstrated the enormous copper potential of the southern Andes, and almost ten years after the start of operations, the Southern Peru Copper Corporation’s intention was to add the Cuajone deposit to its operations. In this way, it would protect itself from the new mining legislation on unexploited concessions, which was already being discussed at that time. Thus, Southern, in which Cerro still had a 22.25% stake, managed to establish an agreement with the government for the development of the

RIGHT—
Cuajone was part of Cerro's contribution to the creation of Southern Peru and, in this way, the company participated with just over 22% of the shares.

mine. Rushed by these regulations, the signing of the agreement took place on December 19 of that year, forcing the company to start the work for the exploitation of this mineral deposit whose reserves were estimated at 500,000 tonnes, with an average that exceeded the 1% copper. It was established that the works would be carried out via open pit.

According to the contract with the State, the profits produced by Cuajone would be taxed at a rate of 47% during the investment recovery period and, then, for six years, at one of 54.5%. Another clause specified that the company could only sell the production of that mine in the foreign market after having satisfied the needs of the domestic market. Future costs of the operation were estimated at US\$ 355 million, not including those of an electrolytic refinery with an initial capacity of 50,000 tonnes per year that, pursuant to the same agreement, the company was obliged to build. In addition, the company had to obtain full financing within six and a half years, for which it would have the institutional support of the government itself. However, before October 1971, it had to disburse US\$ 25 million, according to a schedule established in the same contract. In that schedule, minimum investments were also established for each year, and if at least 60% of the stipulated amount was not met, the contract would be rendered null and void.

The pressure was enormous. Under these conditions, the company searched for partners in Japan and Europe to develop the mine, but it would not be easy to find them. Meanwhile, progress was made with the construction of the road that would connect this mine with Toquepala; the engineering designs for the subsequent construction of the tunnels through which a railroad had to cross were completed, as well as the first works to prepare the pit. While they were looking for financing for Cuajone, Southern invested its own resources to keep the agreement in force, forcing it to suspend the delivery of dividends for the second half of 1972. Even part of Toquepala's profits had to



be reinvested to comply with the schedule. Until the expropriation of Cerro in 1974, this company had received no major profits from that operation. With several adjustments and the incorporation of the new refinery, the project budget for that same year, had reached US\$ 620 million.

There was also bad faith

The successive clashes of opinion between the Peruvian government and the Cerro de Pasco Corporation reached one of their most critical peaks between September and October 1973. La Cerro stated that it had voluntarily fostered a first approach to negotiate the sale of the company in 1971 and that the government immediately ordered a review of the company's accounting books. The study concluded months later with a seventeen-volume report. La Cerro interpreted this as an intentional delay but, shortly afterwards, the State launched a counteroffer that, in the opinion of the company, amounted to an expropriation: first, the government would take control of the company and all the assets and then it would unilaterally define the corresponding compensation. It was a formula similar to the one it tried with the expropriation of the Livestock Division.

During the next two years there were talks, with advances and setbacks in the negotiation. The corporate publication Peruvian Times, in its issue of September 28, 1973, announced that the company would put an end to the negotiations between both parties. The statement was obtained from a company source in New York who also accused the Peruvian government of double-dealing in its negotiations. The next day, the government would describe that statement as "provocative, subversive and unacceptable" and accused the company of wanting to harm the country by undermining the image and prestige that, it had with so much effort, achieved before international aid agencies.



LEFT—
The protests against the company spread to the company's headquarters in Plaza San Martín in Lima.

RIGHT—
C. Gordon Murphy, president of the corporation, announced the withdrawal of negotiations with the Peruvian government. The end was near.



After that media skirmish, the corporation hinted that it felt compelled to sell because, in its opinion, the government had already drawn up a plan so that the mining assets of transnational companies on Peruvian soil would pass to the State. Since Cerro was the one with the most assets, it was logical that the government had it as one of its objectives. By then, in addition to the IPC, fishing companies, electricity companies, industries, telephone and water services had already been nationalised, and it was foreseeable that this nationalising effort would extend to the mining sector. Moreover, the enactment of a series of decrees that affected the management of the company were evidence for Cerro of an intention to harass and dismember it.

President Velasco Alvarado himself affirmed that the State would take the company by force if the negotiations did not come to fruition but, later on, the government would argue that the president's statements had been misrepresented. In the owners' opinion it was "a clear effort to lower the price that Cerro should end up accepting for the company". In that sense, the then Minister of Foreign Affairs, General Miguel Angel de la Flor, disclosed to a Los Angeles newspaper that the government had no intention of paying more than 12 million dollars for the entire business, adding that the company was inciting a confrontation between Peru and Washington. According to Mario Samamé Boggio, in his book "Peruvian Mining", the acting Executive Director of the company, C. Gordon Murphy, suggested that they had "contacted the U.S. Secretary of the Treasury to invoke the 'González Amendment' and put pressure on the IADB so that it cut off the only line of credit that Peru had: 12'300,000 dollars". Of course, this excess was condemned by all of Peruvian society and cleverly exploited by the government in the media that were close to the so-called revolution.

Gordon Murphy declined to make any statements, but in the company's 1973 Annual Report he summarised the tenor of the negotiations: "During this

period we considered a wide spectrum of alternatives, including government participation in the business, which has been operating in Peru for 72 years. In the course of these discussions, we made two offers: the first, in December 1971, to sell the company in its entirety to the Peruvian government; and the second, in July 1972, to sell it fifty percent of the company's interests or whatever reasonable percentage they would like to buy. Associated with each offer was our proposal to secure financing to carry out further expansion of the mines and the Metallurgical Complex. During 1971 and 1972 the Peruvian government studied the proposal in exhaustive detail and notified us that they wished to acquire 100% of the Peruvian branch, a subsidiary of Cerro de Pasco. However, we could not reach an agreement on the price, which is why in September 1973, the negotiations broke down. Before and after these events, the government had publicly declared its intention to expropriate Cerro de Pasco".

Beyond the regulations that had affected part of its assets, the company listed several actions that it considered abusive and discriminatory. For example, unexpected changes in tax regulations; the blocking of the repatriation of funds to the United States of around US\$ 50 million; the systematic cancellation of specific rights, such as the purchase of minerals from third parties to supply the La Oroya refinery; the refusal to authorise export licenses for minerals that were already being loaded or even shipped, and the unjustified retention of shipping documents, among other unexpected measures. For its part, the government argued that all this noise responded to the corporation's desire to victimise itself "by a situation that it had created itself" and that it was not willing "under any circumstances to tolerate such behavior".

In the midst of this crossfire were the workers of the company, who no longer wondered if the expropriation was going to happen or not, but when it would take place. Richard Petersen, the Peruvian Chief Geologist, saw this clearly at the beginning of that decade. "I received the proposal from Vale



IN THE MIDST OF THIS CROSSFIRE WERE THE COMPANY'S WORKERS, WHO NO LONGER WONDERED IF THE EXPROPRIATION WAS GOING TO HAPPEN OR NOT, BUT WHEN IT WOULD TAKE PLACE.

do Rio Doce, a Brazilian company that wanted to start exploration work and open a Geology Department. I met with La Oroya Operations Manager, Harry Allen, and showed him the letter I had received. After a brief silence, pointing to his own chair, he said: 'We had planned that one day you would sit there, but the way things are going, I don't think Cerro will last long. I advise you to take that job'. And together with Juan Proaño and Alberto Rubio, who also worked at Cerro, we went to Brazil". In other words, given the imminence of the events, not even the company itself made any effort to retain its talents.

The mining engineer and promoter Augusto Bærtl Montori clearly remembers an episode in which the company that his family managed participated: "Milpo then exploited a series of concessions owned by the corporation and, as Cerro realised that the expropriation was coming, it decided to sell its assets. We took advantage of the fact that the company had started selling and we bought those concessions from them. For those which Milpo was already developing, we paid a million dollars, which in the 1970s was a lot of money. We recovered it in eight months. It was the royalties that we would have had to pay in the next eight months".

Given the imminent nationalisation of the national production sectors, the US government sent a special representative of President Richard Nixon, agent James R. Greene, to protect the interests of US companies with subsidiaries in Peru. Their mission was to jointly negotiate compensation for expropriations. In the case of Cerro de Pasco, the nationalisation included six mines, eight concentrator plants, the La Oroya Metallurgical Complex, the railway and the shares of its companies in the industrial sector. In practice, it was pretty much all that remained. The special envoy negotiated directly with the Peruvian government. Under these circumstances, the Greene-Mercado agreement was signed, in which the former Minister of Foreign Affairs and then Prime

Minister, Luis Edgardo Mercado Jarrin, participated on behalf of Peru. For this agreement, the company received on February 19, 1974, a cash down payment of US\$ 58 million and, a year later, US\$ 10 million more of the US\$ 76 million that Agent Greene was able to recover for all North American companies. A few months earlier, in its financial statements for 1973, the company had made an accounting valuation of its assets and concessions in the country that yielded an approximate sum of US\$ 175 million. In its analysis, the State discounted the underground reserves, considering them national property, and reduced the estimate to US\$ 85 million.

Centromín, a new era

After almost 72 years of uninterrupted activity of the Cerro de Pasco Corporation in Peru, on December 31, 1973 the government carried out the official expropriation of the company through Legal Decree 20492. But it was not any ordinary law. In its recitals, the State abounded in a series of justifications, making it seem like a sentence. For example, that the company had systematically failed to comply with its obligations to provide good hygiene, housing, and safety conditions for its workers, that it had never taken into account recommendations or implemented projects aimed at reversing the high levels of pollution in lakes and rivers, and that their willingness to exploit their properties, as well as to promote their exploration projects, had decreased markedly. The taking of possession of the different units was done simultaneously in Lima, Casapalca, Morococha, San Cristóbal, Yauricocha and Cobriza. The formal ceremony was held at the main office of the company in La Oroya, where the Minister of Energy and Mines, General Jorge Fernandez Maldonado, was present, while General Víctor Miro Quesada did the same at the Lima offices, on behalf of Centromín - Peru.

RIGHT—
General Fernandez
Maldonado, then Minister of
Energy and Mines, arrived
in La Oroya to take over the
company.

Despite the drastic changes in the environment, many of the corporation's professionals, officials and workers continued to work at Centromín and, with their effort and dedication, managed to sustain the previous pace. This was mainly because they defended the philosophy of efficiency and discipline in the company, which had been the backbone of their training. Even some North American executives, including the last CEO, Harry Allen, stayed with the state-owned company for a time. From their positions, they defended the production processes, they managed to continue obtaining results despite the strikes and they were able to face fluctuations in the foreign market because the corporation's trading company, Cerro Sales, was exclusively in charge of selling Centromin's minerals abroad. Fundamentally due to the performance of its human assets in an unstable environment, for the following five years the company continued to score surprisingly good results.

But as history knows, the populist illusion does not last forever. With the coming to power of the first Aprista government, the terrible hyperinflation that it caused, with the nightmare of terrorism and facing internal pressures arising from the flaws of the state-owned company—such as the excessive hiring of employees without the required technical background—Centromin entered the mid-eighties in a downward spiral and was unable to avoid collapse. The politicised environment, demagoguery and ignorance of the government in the management of public affairs crept into the company. This scenario, similar to that of other companies run by the State, ended up fading the revolutionary dream and turning everyday reality into a nightmare. Over time, Centromín-Peru would find itself unable to handle the continuous shutdowns, the distortions caused by political interference in the administration of the company and the irresponsible financial management. After Velasco, the first government of Alan García would end up enfolded in obscurity what had once been the most ambitious and glittering mining project in South America.



However, what also caused the gears of that clockwork mechanism, which had worked with mathematical precision for decades, to rust, was the complacency with the bonanza of the present. Little by little, Centromin-Peru's lack of interest in prioritising scientific research became more frequent, its refusals to satisfy the laboratory's requirements became more constant, the absurdity of dismantling the Explorations Department was undertaken, the number of teams trained in the best universities in the world and the philosophy of meritocracy, efficiency and constant technological renewal was relaxed until its disappearance. In short, it was sufficient for the State to extol in its discourse of revolutionary self-affirmation the symbolism of nationalisation and to ensure quick gains. But due to authoritarian myopia, it forgot the most important thing: to prepare and plan its own path into the future.

The investment climate

Over the last decade in Peru there has been a consensus among the different political forces on the importance of investments for the economic and social



LEFT—
Harry Allen, Cerro's last
Operations Manager in Peru,
hands over the complex's
facilities to Fernandez
Maldonado.

development of the country. Whether they are from the centre, left or right, populist, conservative or progressive, there is a consensus in their government plans on the importance of attracting investment. Therefore, with regard to the history of the Cerro de Pasco Corporation, the largest investment in Peru during the 20th century, there is room for reflection on the impact of the political and social climate of nations concerning investment, regardless of the national origin of the capital.

In 1955, La Cerro de Pasco Corporation was already a consolidated company with more than five decades operating in the country. It was the second largest employer after the State and the one that paid the best remunerations in Peru. At that time, its main assets were the five mines located in the central highlands corridor, its five concentrator plants, the La Oroya Metallurgical Complex, the Bellavista, Malpaso, Pachachaca, Paucartambo, La Oroya, Syria and Sunca power generation stations. There was also the Livestock Division present in several districts of the same corridor. Additionally, the Railway administered the La Oroya-Cerro de Pasco, Cerro de Pasco-Goyllarisquizga and Pachacayo-Chaucha lines. In order to continue providing momentum to mining and the national industry, in the previous two years it invested in the development of other mining projects, having a 20% stake in Compañía de Minas Buenaventura, 25% in Minas Venturosa and more than 22% in Southern Peru Copper Corporation.

In the same way, it had invested the seed capital and promoted the creation of new local industries that could provide it with quality inputs and at better costs than imported ones. There were 30% in Explosivos S.A. - EXSA, 40% in Refractarios Peruanos S.A - REPSA and 50% in the Compañía Peruana de Servicios Meteorológicos, which experimented with scientific methods to produce rains in times of drought. It also invested in manufacturers of



**SINCE THE CONFLICT WITH THE STATE
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ITS ASSETS AND THEREFORE, THAT OF ITS
SHAREHOLDERS.**

added-value products, such as cables of all kinds for the national and foreign industry, with a 45% stake in Industrias de Cobre S.A. - INDECO. All these companies were based in Peruvian territory. At that time, its only subsidiaries in other countries were the ownership of the Río Blanco copper mine, in Chile, and Circle Wire & Cable Corp., whose cable and wire plant was located in Maspeth, New York, and another for the rolling of copper and steel in Hicksville, in the same state. That is to say, at that time Peru was the centre of the company's operations and its most attractive target for investments.

Although in the sixties the corporation established a diversification policy without territorial limitations, as the pressure of the government and economic reforms began to take place in 1968, Cerro immediately shifted its attention to other parts of the world. For example, in the early 1970s, it began developing the Cerro Spar fluorine mine in Kentucky, United States, as well as some asbestos deposits near Kozani, in northern Greece. It also acquired a 24% stake in Northwest Iron Co., a joint venture that owned 50% of the Savage River mine in Tasmania, Australia. On U.S. soil, it invested in a small stake in Ranchers Exploration and Development Corporation, an exploration company with interests in New Mexico and Nevada. In addition, the company itself opened subsidiaries for the exploration of new deposits in Texas, Wyoming, Utah, Missouri, Tennessee and Arizona, as well as others in Canada such as Montreal, Toronto, Winnipeg and Vancouver.

Along the same lines, it reorganised the companies of its manufacturing group. In 1971 the Cerro & Cable Company (Cerrowire) –which, among others, destined its products to NASA's Apollo project and nuclear plants such as Peach Bottom in Pennsylvania– increased its revenues by 149% compared to the previous year. That encouraged them to invest in the operation of a new plant in Mystic, Connecticut, and in the construction of another one for the manufacture of cables in Freehold, New Jersey. For its part, the Copper & Brass

Company (Cerrobrass) also expanded the capacity of its plants in St. Louis and Cleveland to manufacture pipes for construction. The manufacturing of bronze and brass parts, bars, cables, aluminium and brass forgings, plus bismuth alloys for the construction and transportation industry were reinforced in Bellefonte, Pennsylvania and Newark, California, expanding their respective capabilities of production and product lines.

However, the corporation's boldest decision was to invest in companies totally removed from the mining and metallurgical sector. In 1970, Cerro de Pasco entered the real estate and construction sector through Leadership Housing Systems Inc., after the acquisition of a company specialised in the creation of residential neighbourhoods. In turn, Leadership had a business in advertising and sales, as well as another in financing, insurance and mortgages in states such as Florida, Texas, Hawaii and California. In this area, it also formed the Richmar Development Corporation, based in Stamford, Connecticut, specializing in the construction of shopping centres, industrial parks, and homes in New York, Connecticut, and Las Vegas. These acquisitions were consistent with Cerro's Atlantic Cement Company operation in partnership with the Newmont Mining Corporation. On the other hand, in 1972 it acquired the Illinois-California Express, a freight transport company that operated from Chicago to the western United States and which, according to the company's 1974 Annual Report, was "part of our program of diversification... which reduces the dependence of the company on the profits of its operations in Peru".

At the other extreme, for the first time and after nearly 70 years, the activities of the Cerro de Pasco national mining division did not yield profits. This was in part due to the cost overruns contemplated in the new regulations and the drop in the price of non-ferrous metals. Moreover, it was also because of the strikes. Only in 1971 thirty-five took place in its various units. That same

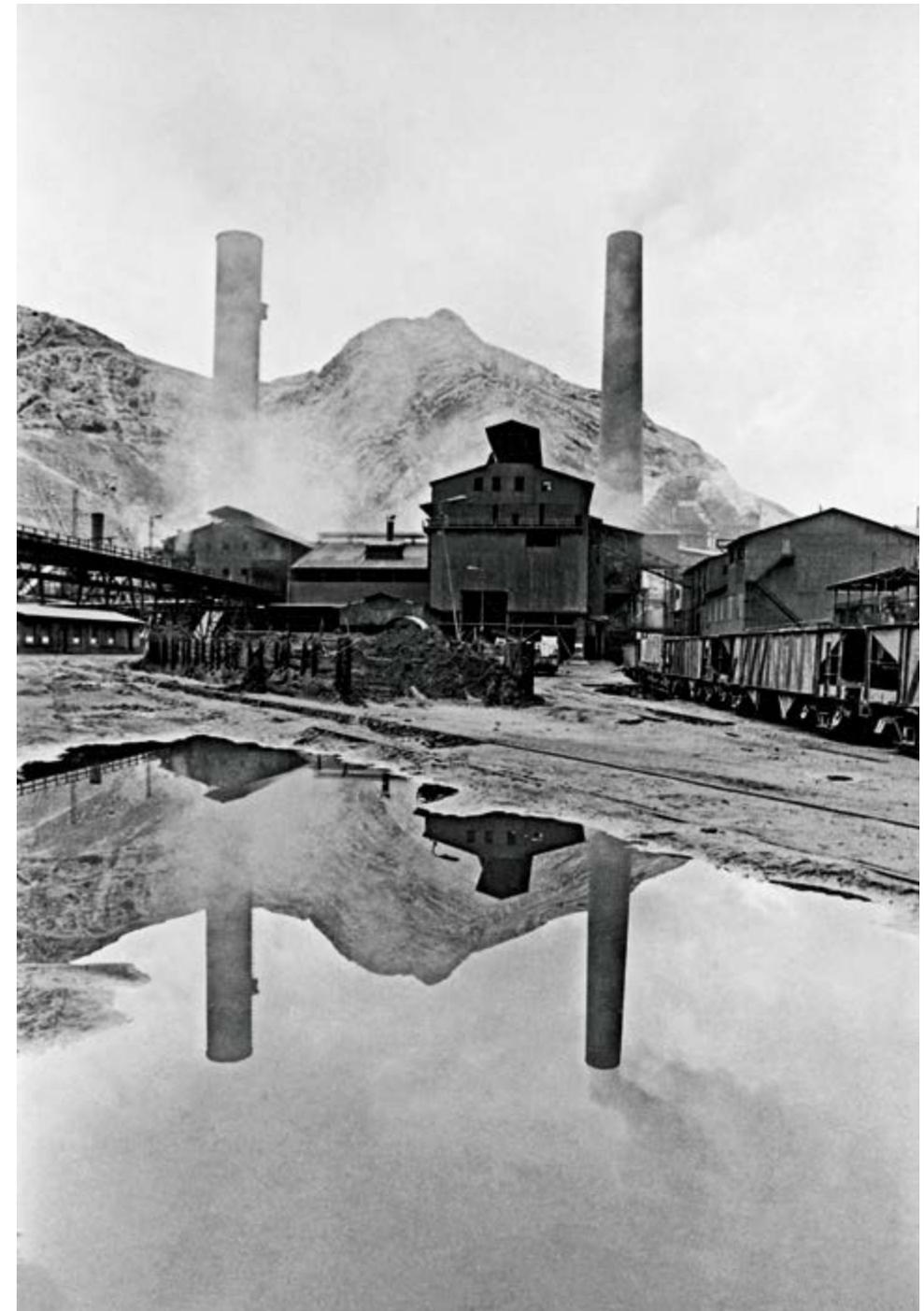
RIGHT—
The landscape of La Oroya at the end of the eighties turned gloomy. What had been one of the best smelters and refinery in the world fell into ruin.

year, the Goyllarisquizga reserves were depleted and work was suspended at the pilot zinc filtering plant and at the indium plant in La Oroya. Neither of them could operate profitably under those conditions.

The allegations of General Velasco's government had been true. Since 1969 the interest of the company to invest in Peru had declined, but not of its own accord, but because of the open confrontation of the government, legal harassment and the lack of stability that threatened to affect its assets and, therefore, the interests of its shareholders. That is why the company decided to withdraw the money from the country and seek investment opportunities elsewhere. The only important investment of Cerro in Peru during the Velasco government, in addition to Southern, was the construction of a new Cottrell system in La Oroya, with the purpose of controlling the levels of contamination that emanated from the metallurgical complex and that continued causing environmental protests. As was logical, since the time the "revolutionary government" assumed power in the country, the company began to prepare its exit. Despite having expropriated Cerro-Peru, a year later the corporation's sales grew 49% more than in the previous year, which increased its share value by 70%.

Lessons from Cerro

If we agree that investment is the fuel that drives the engines of development, the least we can do as a nation is to establish the best conditions for attracting capital to the country. This happened with the Cerro de Pasco Corporation, which remained for 72 years, developed mining, metallurgy, hydropower, livestock, rail transport, industrial supplies, scientific research, training of its human resources, etc., and bequeathed a model of work, based on discipline, research, meritocracy and efficiency.





HISTORICALLY, WHEN A LIBERAL ECONOMIC FRAMEWORK AND GOOD MINERAL PRICES COINCIDED IN PERU, A MORE EXTENDED BOOM, SUSTAINED GROWTH AND LONG PERIODS OF STABILITY WERE FOSTERED IN THE COUNTRY.

Another constant in relation to mining investment is that when a liberal economic framework and good metal prices coincided in Peru, a greater boom, sustained growth and long periods of stability were fostered in the country. Moreover, the incentive for the development of mining was the key tool to get us out of two of the deepest crises we have experienced in our republican history: the aftermath of the War with Chile and the deep wounds of hyperinflation and the terrorist violence at the end of the last century. In both cases, laws promoting the sector were enacted, and these ignited the engines of mining and the national economy. Another long period of growth under these conditions was after the enactment of the 1950 Mining Code, in which our GDP grew for almost twenty consecutive years, at an average rate of more than 5%, according to the BCR (Peruvian Central Reserve Bank).

But the consolidation of the mining sector is just the first stage in a desirable development process for Peru because, beyond energy, communications networks, transport, inputs, supplies, spare parts, services and others that the activity requires, the great challenge of this century is to take advantage of the momentum of mining to diversify our development and be less and less dependent on variables such as international prices over which we have no control. We already know the formula: research, planning, innovation and allocating part of the national income to the cause of development, stimulating sectors that give us competitive advantages in the world.

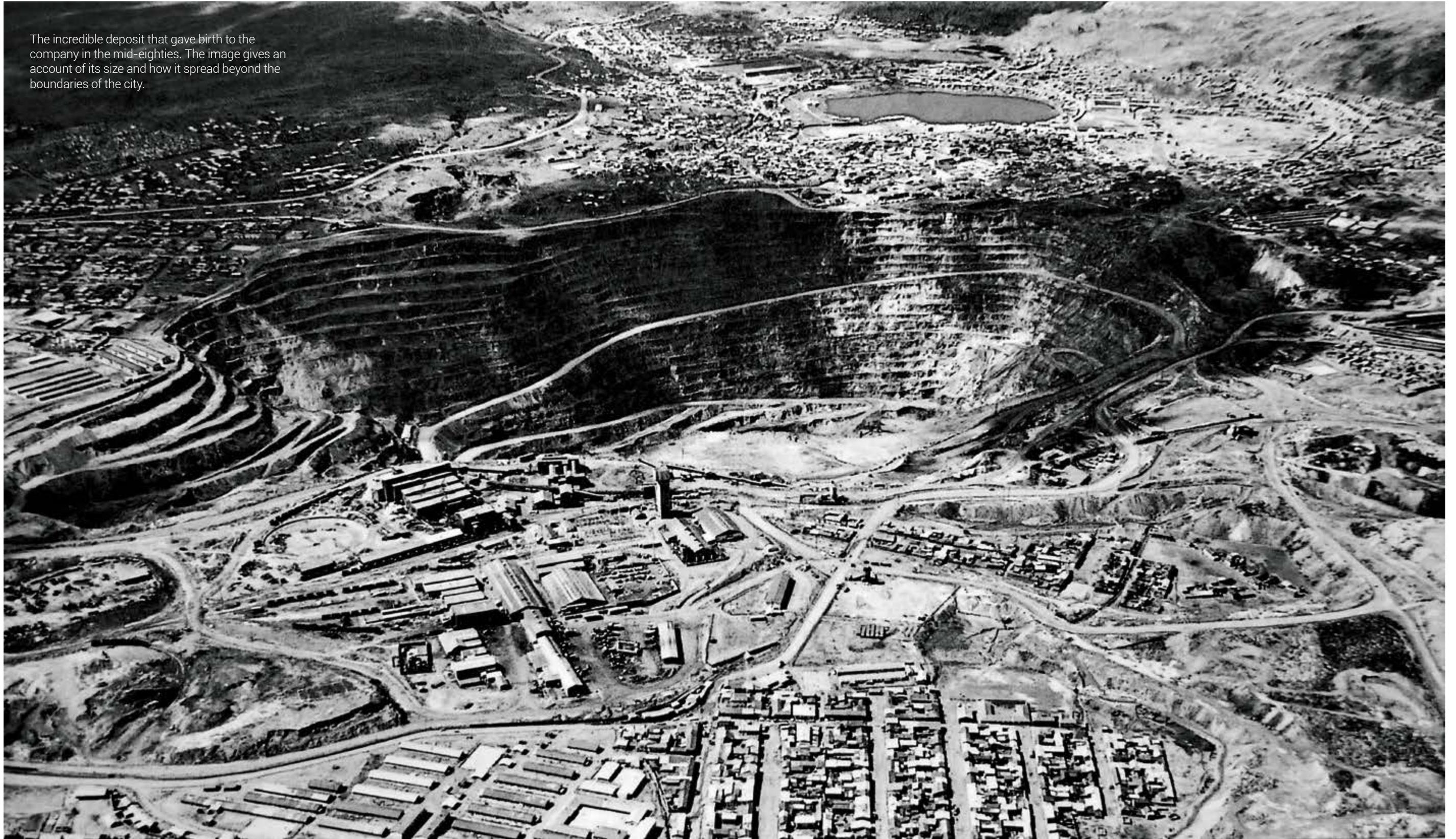
In this sense, civil society must be attentive not only to the actions of companies, but to that of their elected authorities who, many times, forget their commitment to development and give way to personal or populist appetites. For this reason, it is important to strengthen the country's institutions, for the State to provide us with the tools and offer the conditions to receive this investment, take advantage of it, and not only invest those resources while keeping the next generations in mind, but also by harshly punishing the

opportunists who mortgage our future by diverting those resources for their personal ends. Development is built step by step and costs a lot.

The good news is that China and the United States have announced investments in infrastructure and, with this, motivated greater demand and a rise in the international price of copper. Peru is currently the second most important producer in the world and has reserves to triple its production in the following decades. In addition, specialists point out that the demand for copper will continue to grow as it is the best energy transmission component for the production of electronic cars and for generators and devices that use renewable energy. A new and auspicious era opens for this mineral so closely linked to our land and to the history of Peru.

If we talk about promoting development and fighting poverty, mining opens up a new possibility for us. But we already have a history and lessons learned. We cannot squander another great opportunity. *

The incredible deposit that gave birth to the company in the mid-eighties. The image gives an account of its size and how it spread beyond the boundaries of the city.



Timeline

1968/ 1974

1968

[October 3]

General Juan Velasco Alvarado staged a coup and began the "revolutionary government of the Armed Forces".

[October 9]

The government orders the nationalisation and takeover of the facilities of the International Petroleum Company in Talara.

The Canadian firm Joy Manufacturing Company modernises the fume treatment units of the smelter, at a cost of 43 million soles.

1970

[3rd of June]

Seventeen estates of the company, with the exception of Paria, located in Cerro de Pasco, were transferred to the Agrarian Reform, through Public Deed and witnessed and recorded by the notary public Rolando Rojas of Tarma.

The government announces by decree the reasons behind expropriating unexploited mining concessions. Antamina, Chalcobamba, Ferrobamba and Tintaya, belonging to Cerro, are at risk.

1969

The year ends with only 3.9 accident frequency rates, the lowest figure recorded until then since 1929.

1971

[June 10]

The Industrial Relations Division in La Oroya is elevated to the category of Department.

The National Marketing Company for Inputs-ENCI is created, which monopolises the import and export of inputs and consumer products.

1972

[March 14]

The Goyllarisquizga camp of the coal mine bearing that name, is closed due to exhaustion of the seams.

1974

[January 1]

Nationalisation of the Cerro de Pasco Corporation by General Velasco's regime.



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Cerro de Pasco Resources Inc. - CDPR is a resource management company, founded in 2012 and publicly listed in Canada in 2018, with the purpose of treating and reprocessing all dumps, tailings, mining waste and material resources in the Cerro de Pasco Region in Peru.

The Company is the holder of the El Metalurgista Concession which is situated immediately adjacent to the Cerro de Pasco mining operation and extends across the Quiulacocha tailings and Excelsior waste deposits. These were excluded from the privatization process in 1999, when Volcan Compañía Minera SAA (Glencore Group) acquired the operation.

Remediation by reprocessing is both a critical necessity and an opportunity

CDPR was formed as an ESG-driven mining company at the forefront of remediation and reprocessing technologies. Our ambition is to restore long-term sustainability to the mining activity in the Cerro de Pasco Region, in harmony with a healthy and motivated local population. Our team brings first-hand experience and ideas based on innovative solutions and a holistic approach, aimed at creating numerous opportunities in a circular economy.





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