File Name: 1214.pdf **UNESCO Region:** LATIN AMERICA AND THE CARIBBEAN

SITE NAME: **Sewell Mining Town**

DATE OF INSCRIPTION: 16 July 2006

STATE PARTY: CHILE

CRITERIA: C (ii)

DECISION OF THE WORLD HERITAGE COMMITTEE:
Excerpt from the Decisions of the 30th Session of the World Heritage Committee

Criterion (ii): Sewell town in its hostile environment is an outstanding example of the global phenomena of company towns, established in remote parts of the world through a fusion of local labour with resources from already industrialised nations, to mine and process high value copper. The town contributed to the global spread of large-scale mining technology.

BRIEF DESCRIPTIONS

Situated 85 km south of the capital, Santiago in an environment marked by extreme climate more than 2,000 m up the Andes, Sewell Mining Town was built by the Braden Copper company in the early 20th century to house workers at what was the world's largest underground copper mine, El Teniente. It is an outstanding example of the company towns that were born in many remote parts of the world from the fusion of local labour and resources from an industrialized nation, to mine and process high-value natural resources. At its peak Sewell numbered 15,000 inhabitants, but was largely abandoned in the 1970s. The town was built on a terrain too steep for wheeled vehicles around a large central staircase rising from the railway station. Along its route formal squares of irregular shape with ornamental trees and plants constituted the main public spaces or squares of the town. Off the central staircase, paths ran along the contours leading to smaller squares and secondary staircases linking the town's different levels. The buildings lining the streets are timber, often painted in vivid green, yellow, red and blue. Designed in the U.S.A., most of them were built on a 19th century American model, but the design of the Industrial School (1936), for example, is of modernist inspiration. Sewell is the only mountain industrial mining settlement of considerable size of the 20th century to have been built for year-round use.

Située à 85 km au sud de la capitale, Santiago, dans un environnement marqué par un climat extrême à plus de 2 000 m d'altitude dans les Andes, la ville minière de Sewell a été construite par la société Bradden Copper au début du XXe siècle pour héberger les mineurs travaillant dans ce qui était la plus grande mine souterraine de cuivre du monde, El Teniente. C'est un exemple exceptionnel de ces villes qui ont été « implantées » dans de nombreuses parties reculées du monde pour exploiter une mine et transformer des ressources naturelles de grande valeur, en utilisant à la fois une main d'œuvre locale et les moyens financiers et techniques d'un pays industrialisé. A son apogée, Sewell a compté jusqu'à 15 000 habitants mais elle a été largement abandonnée dans les années 1970. Installée sur un terrain trop abrupt pour les véhicules à roues, la ville a été construite autour d'un grand escalier central partant de la gare. Le long de la pente, des places de forme irrégulière, embellies par des arbres et des plantes, constituaient les principaux espaces publics de la ville. Partant de l'escalier central, des allées couraient le long du relief vers ces places et des escaliers secondaires reliant les différents niveaux de la ville. Les immeubles construits le long des rues sont en bois, souvent peints dans des tons vifs de vert, jaune, rouge et bleu. Conçus aux Etats-Unis, la plupart d'entre eux ont été construits sur un modèle américain du XIXe siècle, mais le plan de l'Ecole industrielle (1936), par exemple, est d'inspiration moderniste. Sewell est la seule installation minière industrielle de montagne de taille importante du XXe siècle à avoir été construite pour une utilisation permanente.

1.b State, Province or Region: Chile - Libertador Bernardo O'Higgins - Cachapoal

1.d Exact location: S 34 05 04 W 70 22 58

Sewell

Nomination of the Sewell Mining Town for its Inscription on the World Heritage List of the Unesco















Sewell

Nomination of the Sewell Mining Town for its Inscription on the World Heritage List of the Unesco

GOBIERNO DE CHILE
MINISTRY OF EDUCATION
NATIONAL MONUMENTS COUNCIL

CODELCO

NOMINATION OF THE SEWELL MINING TOWN FOR ITS INSCRIPTION ON THE WORLD HERITAGE LIST OF THE UNESCO

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December 2004

ODE TO COPPER

By Pablo Neruda (Nobel Prize Winner)

Copper there
sleeping.
.....
near
us
the mine:
the mine is only man,
it does not come out
of the ground
the mineral
springs
from human breasts,
there
the dead forest,
the arteries
of the stopped volcano,
are touched,

the vein
is discovered,
is drilled
and dynamite blows up,
the rock crumbles,
it purifies:
copper is being born.
Before, nobody
Would known
the difference
from the mother lode.
Now,
It is man,
Part of man,
A heavy petal
of his glory.
Now,
It is no longer green,
But red,
It has become blood,
Hard blood
In a cruel heart.

.....

Neruda, Pablo: Elemental Odes. Sudamericana Publications, Buenos Aires, 2003. 256 pp.
(The Elemental Odes were written between 1952 and 1954).

SUMMARY

Chapter 1

Identification of the Property

Children at central staircase.

Tourists visiting Sewell.

Students at central staircase.


Central staircase.

1. IDENTIFICATION OF THE PROPERTY

1.a. Country
Chile

1.b. State, Province or Region
The Sixth Region of "Libertador Bernardo O'Higgins" in the Province of Cachapoal, Municipality of Machalí.

1.c. Name of Property
Sewell Mining Town

1.d. Exact location on map and indication of geographic coordinates
The Sewell Mining Town is located on the slopes of the Cerro Negro Hill, high up in the Andes Mountains overlooking the confluence of the Rivers Coya and El Teniente, at a height of between 2,250 and 2,500 meters above sea level; 60 kilometers to the east of Rancagua[1] (capital city of the Sixth Region) which, in turn, is located 85 kilometers to the south of Santiago (the capital city of Chile).

1.d.I. Geographic Coordinates
According to the 1924 International Reference Ellipsoid, the property is situated at latitude 34° 05' South by longitude 70° 15' West.

1.d.II. UTM Coordinates (Universal Transverse Mercator Projection)
Parallel North is at 6.228.000 and Meridian East is at 372.600, South American provisional Datum for 1956.

1 The distance in a straight line from Rancagua to Sewell is 36 kilometers, although the real distance given is that taken along a winding road.

1.e. Maps and drawings showing boundary of area proposed for inscription and of buffer zone
See Maps or Drawings of South America, Chile, 6th Region and area nominated where the boundaries of the property object of this nomination and its corresponding buffer zone are shown.

For greater accuracy, we have provided hereafter the UTM Coordinates of the vertices of the polygons corresponding to the area nominated as well as the buffer zone:


Sewell 1962.

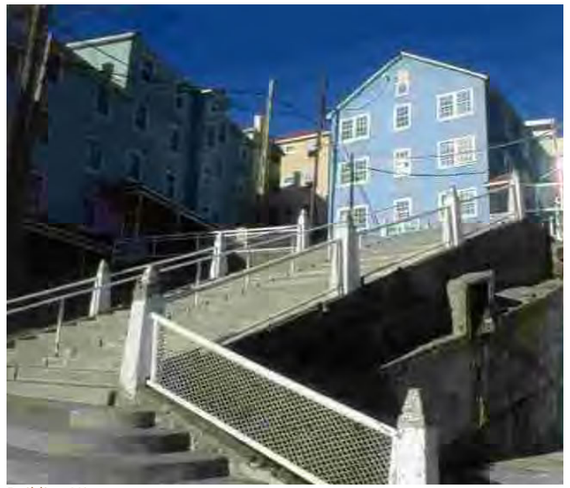
NOMINATION AREA UTM Coordinates (Datum 56) of the boundary polygon vertices		
Vertices	E	N
1	372.616	6.227.770
2	372.610	6.227.855
3	372.575	6.227.860
4	372.530	6.227.854
5	372.504	6.227.980
6	372.452	6.227.972
7	372.450	6.228.000
8	372.472	6.228.026
9	372.390	6.228.114
10	372.416	6.228.127
11	372.488	6.228.048
12	372.554	6.228.066
13	372.646	6.228.128
14	372.671	6.228.100
15	372.646	6.228.073
16	372.686	6.228.023
17	372.718	6.228.012
18	372.730	6.228.034
19	372.780	6.228.010
20	372.782	6.228.058
21	372.844	6.228.062
22	372.840	6.228.150
23	372.895	6.228.194
24	373.044	6.228.220
25	373.062	6.228.210
26	373.053	6.228.168
27	373.200	6.228.130
28	373.120	6.228.038
29	373.036	6.228.055
30	373.008	6.227.840
31	372.833	6.227.820

The boundaries of the property's buffer zone at its lowest altitude are at the confluence of the Rivers Coya and Teniente, so it is in the beds of these rivers, which run along the bottom of the slopes of the Cerro Negro Hill, from where the Sewell Mining Town rises up. At its highest altitude, the boundary crosses the Penstock water installations, a marker that historically was the mining town's highest point. The straight lines that join both rivers over the hill in the area of the highest altitude of the buffer zone intersect at an altitude of 2,366.

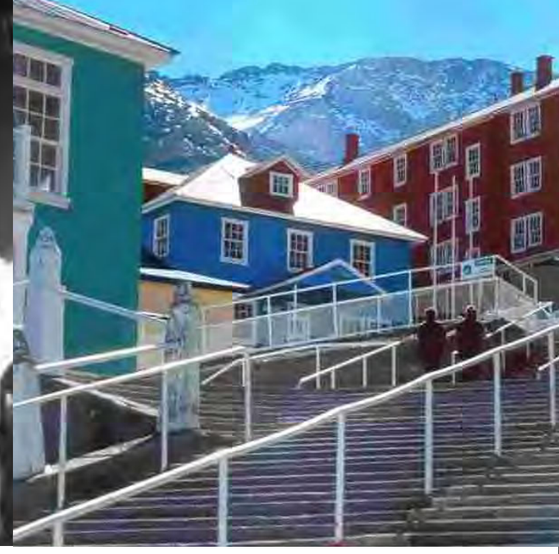
BUFFER ZONE UTM Coordinates (Datum 56) of the boundary polygon vertices		
32	372.210	6.227.685
33	372.900	6.227.470
34	372.220	6.227.240
35	372.262	6.227.825

1.f. Area of property proposed for inscription and proposed buffer zone

The site nominated for inscription on the World Heritage List covers 17,2 hectares and the buffer zone covers 33 hectares. Therefore the Total Surface of the area nominated plus buffer zone covers 50,2 hectares.



Building Nº 107.



Chapter 2

Justification for Inscription

Punta de Rieles.

Central Staircase.

Children at Industrial School, decade 1950.

Punta de Rieles.

2. JUSTIFICATION FOR INSCRIPTION

2.a. Statement of Significance

2.a.I. Mining and Industrial Significance

The Sewell Mining Town, an urban, mining and industrial settlement associated with the mining and processing of copper from the El Teniente Mine, is the first of its type in Chile, and so it would be fair to call it the Birthplace of the Copper Manufacturing Industry in our country; one which still is the world's number one producer of copper and which represents 40% of our country's economy.

The modern and industrial property is the result of the labors and the tenacity of businessmen and workers mining the enormous reserves that lie beneath us, under extremely difficult conditions and with limited material and human means at their disposal. A huge challenge in a singular environment and a development associated with a universal and historic context belonging to the 20th century which gave life to a heritage of profound significance.

In the beginning, at the dawn of the 20th century and up to the period of its heyday in the nineteen sixties, the property was the result of modern economic development when globalization and the consolidation of transcontinental exchanges on a large scale accounted for considerable investments of capital by the most industrialized nations in far flung lands. Motivated by a rise in demand for raw materials by the large powers, less developed countries were the scene of capital investments of unparalleled magnitude. But to this context was linked the individual, and the works themselves were undertaken by visionary pioneers.

The property developed and reached its final size during the period when it belonged to foreign capital. If other cases of mining of this type had their ups and downs, in the case of El Teniente, prosperity was sustained, reserves are enormous and during the second half of the 20th century, the whole of the industry was nationalized, the reasons for which were both political as well as social and economic, something common among many dependent economies in the world at that time.

Capital and technology brought in by the more industrialized nations to countries exporters of raw materials, using local labor, transform these properties into scenes of intense cross-cultural exchanges that are applied both to the actual productive and technological sphere, the mining and processing systems, labor relations as well as cultural - in the widest sense of the word - such as ways of life, coexistence and sociability, language, mentality and artistic expression.

Rancagua-Sewell Railway.

It is within this cultural exchange that copper was able to be mined on a large scale from an enormous mine set in the midst the Andes at an altitude of over 2,000 meters, far from any populated centers and an urban and industrial settlement built, ensconced in an environment whose climate and topography are, to say the least, extreme. Not only by importing cutting edge technology but also man's ingenuity to overcome the technical limitations on the basis of trial and error made such an endeavor possible and which gave rise to learning and experience that was then replicated and applied in other latitudes.

The fact is that we are in the presence of a huge mine that happens to be very old. El Teniente is the largest underground mine in the world. The Sewell Mining Town once was home to 15,000 persons (in 1965) over a built-up surface area of more than 246,207 square meters on land covering a total of 28 hectares. The property object of this nomination, which is the central nucleus of this Town, currently has a total built-up surface area of 80,490 square meters covering land totaling 18 hectares.

2.a.II. Urban and Architectonic Significance

So far as we know, the Sewell Mining Town is the only permanent mountain industrial-cum-urban settlement of this size and modern; i.e. with a 20th century seal.

The property materializes the challenge of living high up in a mountain range since it is a settlement located at an altitude of 2,200 meters above sea level, clinging to a steep mountain slope, devoid of vegetation, amidst a very harsh climate with strong winds and intense snowfalls in Winter and with a high degree of isolation compared to other urban centers.

Its singularity stems not only from the environment surrounding it and its urban characteristics, the way it was built and the landscape around it, but also because of its uniqueness conjoined with the particularity of no real possibilities of it being repeated elsewhere, ever. In fact, nowadays, such a model of settlement as Sewell is no longer used. Current trends and modern-day communications have led to the development of another type of mining town which is only inhabited by the worker alone, without his family and without any of the facilities and services of a city. The present system is more of a basic camp, inhabited by workers during the working week, interrupted by short period of rest in a city that is more or less close to it.

The urban image of Sewell as a mining settlement clinging to the slopes of the Negro Hill high up in the Andes, was determined by geographic conditions and by the needs of functionality. Both gave rise to this "City of Steps", an untypical model whose layout and organization does not take into account any pre-established geometric principles, but responds entirely to the environment, to the imperatives of the terrain, the effects of the climate and the operative needs for industrial mining and processing.

As a matter of fact, here the buildings are conditioned entirely by the topography of the terrain, and they were erected following the contours at each level. The whole was built around the large central Staircase which is its main public space. Its layout was the result of taking advantage of a place that, hitherto, had been occupied by a lift. From this central axis, paths spread out over the hillside leading to small squares, smaller paths and secondary staircases where only pedestrians can go.

The Sewell Mining Town does not have anything resembling a traditional grid; it is, in fact, a highly complex settlement in the sense that it houses residential buildings of different types next door to properties devoted to many varied kinds of services: a hospital, social club, primary school and an Industrial School, a theater, bowling alley, a Church and a cafeteria. This is in addition to the properties that served as offices and those for processing the mineral extracted from the mine particularly all of those connected with the Concentrator, as well as the circular tanks, the storerooms and workshops, the electricity substations and the Sewell Shaft.

Not only is Sewell's location notably fitting and which differentiates but at the same time combines residential, social and productive activities, but the Town also blends into the background and is at one with nature in the way it was built. On the other hand, Sewell is marked by its uniqueness and a standardization which are apparent in its urban layout cut-through by staircases; the materials used in its timber constructions and steel plates and in the standardized design of its houses. The balance between the different buildings does not leave any room for unnecessary solemnities nor poorer or marginal quarters and it conserves the human scale of the parts and the whole.

The structural and construction systems were all successfully applied and were highly creative solutions that lasted over time with surprising resistance and economy as well as with a varying degree of prefabrication. The type of construction used in Sewell has given rise to buildings that will soon be one hundred years old in spite of the rigors of the climate and the lack of maintenance that they underwent during the nineteen seventies and eighties. Their resistance to the two traditional brunts of Chilean architecture: earthquakes and fires, is remarkable.

The lead material in Sewell is timber, and almost half of all of the buildings are made from this material (37,808 square meters) and which applies to the large majority of the buildings that were used as either homes or services. This timber was first of all brought from the United States, after which the Braden Copper Company acquired forest land in the south of Chile so as to be self-sufficient. We have here 1 to 5 storied buildings that were built using the frame platform system.

This model of construction was decided on by the company back at its headquarters in the United States. Here, and because of the environment in which the buildings were erected, certain variations had to be introduced such as the use of braces to reinforce rigidity and concrete flooring that acted as acoustic insulation, slowing down any fires spreading. This solution was the best that could be found.

Morgan Square, 2004.

North American children.

Different types of architecture appear which, in the case of the residential ones, are designed according to the hierarchy of their occupants within the corporate structure. There is also room for styles that belonged to the trends in fashion at the time all over the industrialized world; some are reminiscent of the modernist style, such as the Industrial School, built in 1936. But this relative diversity is found within a homogeneousness that was dictated by functionality, efficiency and standardized designs provided by the owner company. The singularity that provided the morphology is reinforced by the use of color that heightens its attractiveness and enables them to stand out.

These works of architecture are of a very high quality, thus materializing their financial value, the qualities of their construction, their great functionality and efficiency, the nobility of the timbers used and the high technology employed. This set of qualities ennobles the architecture and explains why, otherwise, a much higher investment would have been needed.

Executives' children.

2.a.III. Immaterial or Intangible Significance

From 1905 and up to the nineteen seventies, the Sewell Mining Town was the scene of a phenomenon where a great many factors were in play : the large size of its population, families and not only single men, foreign capital, mostly American technicians and executives, living side by side with a large body of Chilean workers, relatively isolated from any urban center, ensconced in a harsh environment, confronting a complex productive process such as the large mining industry.

So it was a that the Sewell Mining Town is representative of a phenomenon that is unique to less developed countries that traditionally based their economies on the export of raw materials and primary products. Foreign investment and what this meant : hard work, a dialogue between two very different cultures, the complexity alone of labor relations, the need to converse and coexist, the economic ups and downs and the political scene in all its domestic and international dimensions, discipline, paternalism and work ethics are all elements common to different cases and far-reaching in recent universal history.

In this industrial town, which is an alternative to a historic city but which achieved great functional complexity, capital, homes, productive facilities, services and a large population were concentrated in a very small space that featured a high degree of diversity and harmony. The orders of the day in Sewell amounted to discipline, planning and organization; all with a view to attaining productive efficiency.

Sewell is not based on a utopia or an ideal urban settlement, but a mentality that influences its organization that stems from these utopias and ideal urban spaces as well as the religion and the way of life living of the businessman of the time. Above all, the aim was to produce copper in the quickest and best way possible and the settlement had to function with productivity uppermost in mind. To the design, planning and regulations applied by the company, which combined the visions of the planners back in the United States with those of the bosses in charge of the mining, were added the imperatives of both the physical as well as the social environment. The trade unions were also important agents in the development of the town, uttering workers' demands as regards things that went beyond what was strictly concerned with labor matters.

Just like in any town of this type, the inhabitant is also the worker. In Sewell, also, work cohabited with living because the Town also contained facilities for processing the ore that was mined. Of course, living in the Town, as well as working in the company, was tied to a series of strict rules and a system of rewards and penalties was established. These rules and regulations referred not only to work but also to the people's daily lives. A work ethic was sought that went beyond what was purely work and production : habits were confined to within guidelines and private lives were intruded upon. Sewell was "dry" which meant no alcohol was permitted, couples were not allowed to cohabit and formal marriages were required.

Part of this imperative concerning production refers to the common good in an attempt to build up a consciousness that high production levels also require equally high standards of living. That essential notion that inspired the relations between the mining bosses and the workers gets more complex, and this was noticeable in William Braden himself; the pioneer of this big company. He was a product of his age and his work was based on paternalism; a mentality that inspired the whole of the organization of this productive conglomerate.

Side by side with this is the notion of belonging that explains the nostalgia felt by all old-Sewellians for that way of life. In fact, in Sewell, phenomena that are normal in any modern town such as social disagreement, marginality and extreme individualism were not possible here. Living in Sewell meant belonging in heart and soul to one organization, interacting and forming a part of the community. This was a community that shared its daily existence and found its cohesion reinforced as a result of the labor conflicts and also the tragedies that took the lives of so many of its workers.

By 1916 and 1918, there were already some labor disturbances and strikes by the workers in the workshops and the foundries belonging to the company in Rancagua. These were as a result of demands for higher salaries, contracts, working hours and the prices of the company's products in its store, safety and hygiene in the workplace and the treatment they received from their bosses. The first big strike, with the participation of the miners and which ended violently and of an unheard of magnitude, occurred in 1919. By then, the workers had already organized themselves into mutual safety societies and, later, unions that combined forces during the strike of 1919.

The harsh environment, cultural factors and the incipient development of safety in the workplace which never really gelled until mid way through the 20th century, determined an animosity that for a long time left its imprint on the people living and working there. First of all came the avalanches and landslides that affected both the first settlements installed at the entrance to the El Teniente Mine as well as the Town of Sewell itself and the different industrial facilities. There was the case of the gangs who, whilst going to the aid of their comrades, also died in the attempt. In 1911, the new railway took the lives of 11 passengers when it fell through a poorly built bridge over which it was traveling at the time. Industrial accidents were frequent and it took decades for a culture of safety to become deep-seated. That would occur only after the Town was hit by something unimaginable hitherto : the so-called "Smoke Tragedy" of 1945 that took the lives of 355 miners.

Wedding at central staircase.

Up to the nineteen seventies, the company was American and its capital and management were foreign. Irrespective of the fact that the amount of Americans and foreigners was out of all proportion with the total number of workers, their mentalities were very different and opposed to each other. To this was added the fact that, particularly during the first stage of the El Teniente mine, the workers did not come from the mining north or other cosmopolitan or preeminently industrial towns; in fact, they came in their majority from the countryside which in Chile at that time, was very isolated from mainstream material progress, technological advances and new ideas pervading the rest of the world.

The relationship between the US company and Chilean workers was rich and very complex where there is no room for generalizations or simplifications. The same can be said for the relationship between the company and the Chilean State. In a first stage, this relationship was marked by the State heavily in favor of this foreign investment which was huge. The State of Chile was not absent though. Law enforcement was present in the guise of a Police Station, a Court and a Civil Registration Office and the teaching staff was also provided by the State using state-ordered curricula. So, it couldn't be said that "there was a State within another State".

Dialogue, understanding and the conflicts that broke out are an aspect of great interest in the site's history. With the passing of time, the country's political development and that of the world, as well as ideologies, a feeling of dependence and the way in which this was understood and interpreted, led to a swing which, after a long process, ended in the company being nationalized and owned by the State.

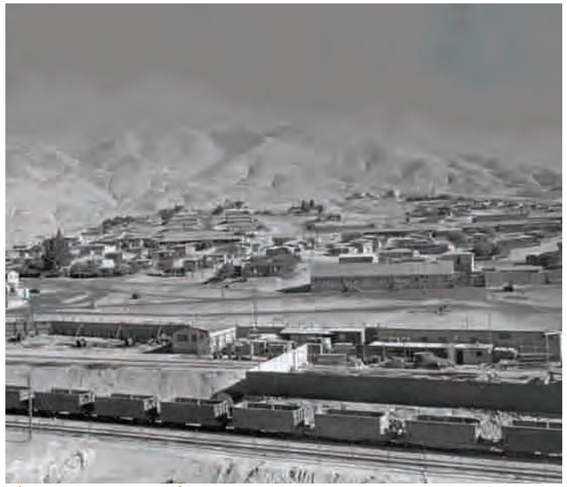
All of these factors give the property an emblematic character when the values materialize that are acknowledged as their own by the whole of the community which see their history reflected in this property. Chile, because of its history and intrinsic characteristics, finds its identity as a country in its industrial heritage which remains as outstanding witnesses of this identity as a country and this is what makes mining settlements such as Sewell so symbolic. Having said that though, this national emblematic character has a universal correlation, because the site is representative not only of us as a country but of the universal development in a recent past.

2.b. Possible comparative analisis

In the Spanish language, Sewell is often called a "Camp" which is confusing because this term involves the notion of transience. The most exact term for defining this property is that of "settlement"; in this case a mining-industrial one. Now, because of its complexity and permanence over time, it is now considered and thus called a "Town"[1].

1 Regarding Chilean copper mining towns and in relation to some general concepts, this comparative analysis is based on an article by Garcés, Eugenio: "Copper cities. From mountain camp to mining hotels as variations of a company town", in: Magazine Eure, Vol. XXIX, N° 88, Santiago, Chile, December 2003. pp. 131-148. This author is an eminent specialist on industrial cities in Chile in general.

Circus band, decade 1920.


Chuquicamata Settlement.

The property is found within a series of urban centers that are established and which develop around a particular productive process and whose origins and aims are determined by corporate dictates. It is therefore one of those genre of urban settlements called "industrial cities", "workers' villages" or "company towns".

This means a type of urban complex that belongs entirely to a productive enterprise. Its active population is employed by it and it goes about the company's business or any occupation stemming there from. Residence in it, therefore, is not a question of choice but as a result of a contract between the company and, generally speaking, the worker wishing to work in it. Although all social coexistence, and urban in particular, is subject to rules of conduct, in this case, such rules are more in number, more systematic and strict which is due to the imperatives of both production as well as the company's position as the owner and employer. Physically and socially, there is a tendency toward standardization and regularity on the basis of law and order.

These settlements have a very variable but always limited functional complexity. They are planned and developed subordinate to one essential objective which is to produce with maximum efficiency. They were never intended to be collective works of art ensconced within a historic record such as urban centers in general and, often, they are the work of one individual in particular in his search for a utopia, an urban program or both at the same time.

Sewell's case fits these characteristics, although it does have some important peculiarities that should be borne in mind[2]. It is very complex due to the variety of its facilities for services and recreation. It had public services which were controlled by the State and not the company : a Police Station, a branch of the State Savings Bank, Magistrates Court, etc., as well as some other private institutions such as a bank. There were also some commercial establishments that were handed over by the company to private concessionaires.

The birth and development of Sewell were not designed by a philanthropist or by an utopist such as is the case with many industrial cities. Neither is it the work of an individual architect or urbanist or a team of professionals in those areas who consciously design an ideal town for production and welfare. Sewell did not rise out of a layout and design prepared beforehand; they both materialized as a result of the demands made by its environment. That said, the plans and drawings for its buildings were prepared by the company and owner in the United States, which clearly issued general guidelines for the Town such as how it was to be built. The workers, on the other hand, played an active role in developing it and it was through the efforts of their trades unions that many of the facilities materialized, such as the gymnasium.

2 Eugenio de Solminihac, deeply analyzes these topics in "Sewell as a Human Settlement", paper for the Industrial Heritage Seminar, organized by School of Architects and University of Santiago, Faculty of Architecture, Santiago, Chile, July 8th, 2004.

When comparing Sewell with similar properties, we must try and synthesize their essential features. We are dealing with an industrial town dedicated to a mining activity - in this case copper - that was erected by a US company that combined capital, technology and management that was identifiably American with a majority of workers who were mostly Chilean. It is a high altitude - 2,200 meters above sea level - settlement, enshrined within topography, climate and atmospheric conditions typical of the Andes in general at that latitude and altitude.

The property is the fruit of pragmatic concepts and not utopic ideas or an individual urban proposal. It will soon be 100 years old, its development took some sixty years of the 20th century to complete and it reached its peak and maximum population in the nineteen sixties. During the following decade and as a result of a decision taken by the company and owner, based on an analysis of maintenance costs, it was completely depopulated and a good part of its facilities were demolished, albeit not its nucleus, which was essential to the whole. After that, it only housed single workers, contractors, without their families. From the end of the nineteen nineties this use also came to an end and the Town entered a new totally different phase marked by the decision to restore a piece of heritage that was representative of the era of the Copper Mining Industry in Chile. Nowadays, it only lends itself as a support for production combined with tourism and educational pursuits. The operations of the Sewell Concentrator have continued uninterrupted, grinding and milling the ore that is mined, but these functions will also cease at the end of 2005, when it will be transformed into a site museum.

So, Sewell can be compared, first of all, with other settlements associated with copper production that were established during the 20th century with Chilean capital[3]. Examples of these are Chuquicamata and Potrerillos, both located in the Desert of Atacama in the far north of Chile. Their creation was associated with the ore mined in Chuquicamata and Mina Vieja that date back to 1915 and 1927 respectively. Their complexity and area are comparable and they are even bigger than those of Sewell; Chuquicamata housed 24,000 persons in 1960 and extended over some 75 hectares. Both are located at an altitude above that of Sewell (2,870 and 2,400 meters above sea level, respectively); like Sewell they used the railway as an essential means of transport that connected them to the nearest cities, Antofagasta (230 kilometers from Chuquicamata) and Copiapó (190 kilometers from Potrerillos), which belong today to the state-owned company Codelco-Chile.

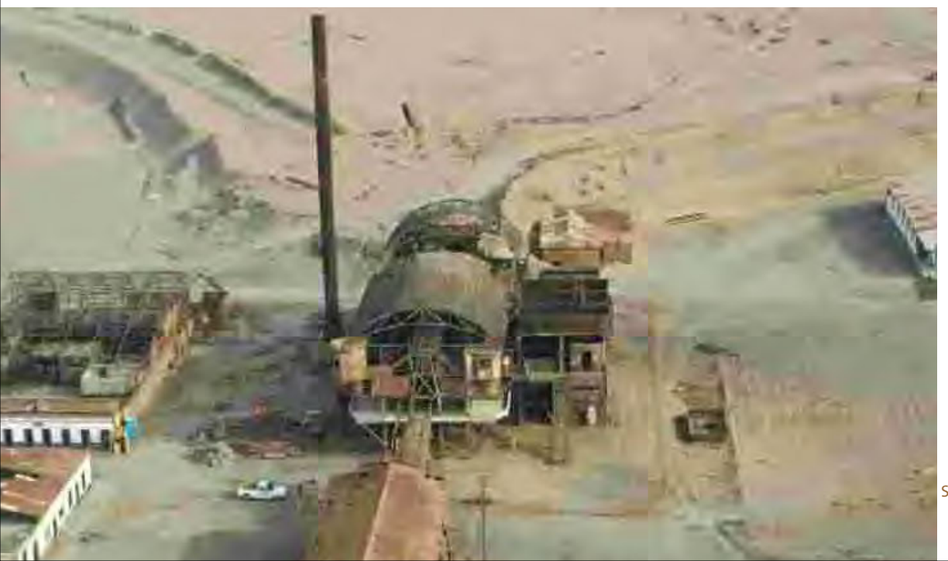
The differences, in the first place, refer to the environment : neither Potrerillos nor Chuquicamata are built amidst the Andes in a topographically extreme terrain. Their design, totally preconceived and laid out beforehand is, unlike Sewell, totally, using the grid system with diagonals in the case of Potrerillos. In both cases, a public space as a center was envisaged; i.e. a main square. In Sewell, on the other hand, the Central Staircase was not conceived beforehand but laid out over an old lift belonging to the mill after the latter had been removed.

3 Ditto.

In Chuquicamata and Potrerillos there is a marked difference between industrial equipment and the workers' quarters which in Sewell is not so apparent. As a matter of fact, many residential buildings for workers were erected in the vicinity of the Concentrator on the south slope of Negro Hill. The topography meant that there was a far higher density of population in Sewell than in the settlements in the far north. All three, however, were established for the worker and his family and they are segregated and structured in accordance with the hierarchies that are typical of such settlements. This is particularly noticeable in Sewell with its so-called "American Sector" for US employees on the northern, sunnier slope of the hill.

Chuquicamata and Potrerillos were also depopulated and the area where they were established was declared a zone saturated in contamination in the nineteen nineties. In the case of Potrerillos, many of its buildings have been dismantled and the town is in a poor state of conservation. Its inhabitants were transferred to the neighboring towns of Diego de Almagro and El Salvador. The last named township is developing like any conventional town but it also grew from 1959 onward like a company town with a modern urban design based on theories put forward and associated with the New Deal style of welfare prepared by a US architect. He also gave the town a geometric layout but sought to avoid monotony with different resources.

Just like Sewell, an evaluation of maintenance costs was what determined the transfer of Chuquicamata's inhabitants to the neighboring town of Calama which occurred very recently and its residential area is now becoming buried beneath the gravel dug out of the mine. This contrasts remarkably with the excellent state of conservation of Sewell, a unique mining and industrial mountain settlement, located amidst the Andes under entirely different environmental conditions, associated with the El Teniente Mine, the birthplace of the mining industry in our country.



Santa Laura Saltpeter works, 2004.

The concept of a "copper city" has lost a lot of its shine. The state-owned company decided to transfer its workers to conventional cities. Some private companies implemented an alternative idea: a mining village or a mining hotel, conceived for the miners themselves, without their families, working in shifts and accommodated in buildings arranged in a regular grid system (San Lorenzo belonging to Escondida Mining was established in 1995 or the compact and complete unit -Inca Pavilion- belonging to Collahuasi Mining built in 1999), both of which have their own services and recreation facilities as well as common areas.

The copper era in Chile was preceded by the saltpeter industry which consisted of nitrate mined in the far north of the country and then exported and used as a fertilizer and in the manufacture of explosives. Saltpeter was very important for the agricultural expansion of more industrialized nations and its boom period took place during the final decades of the 19th century and the first of the 20th century, but it went into crisis during the second decade of this last century, finally collapsing totally at the same time as the Great Depression. After enjoying an overwhelming place within the Chilean economy, it declined at the same rate as copper was rising in importance. Saltpeter also gave rise to a large amount of settlements of the company town type, of which the Humberstone and Santa Laura Saltpeter works stand out as example of exceptional value as a heritage as a result of which they have also been nomination for inscription as a World Heritage Site[4]. So, they could be compared to Sewell.

Like Sewell, Humberstone and Santa Laura were owned by foreign capital, they are settlements that combine housing with services, common spaces and industrial infrastructure for processing nitrate ore. Both works make up one whole site: although Humberstone has conserved its urban sector better, Santa Laura has maintained its industrial facilities. These works also underwent a long period of development, beginning in the eighteen seventies until they finally closed down altogether half way through the 20th century. Although many of their buildings are of eighteenth century style, they generally are imprinted with a 20th century seal, thus becoming - like Sewell - a modern heritage. Sewell and the saltpeter works also have in common a high proportion of timber in their buildings.

That said, Humberstone and Santa Laura are found in a totally different environment to Sewell, in the midst of the Desert of Atacama, near the coast at the same latitude as Iquique (parallel 20 S). The town's design was marked by regularity and the grid system. The environment enabled, in this case, a low density devoid of any high rises. Neither of these Towns is producing and nitrate production in Chile is limited, at present, to only one company called María Elena. In the case of Sewell, on the other hand, although there is no population, the mine is still in full production.

Humberstone Saltpeter works.

4 Chilean Government, Ministry of Education, National Monuments Council: Nomination of the Humberstone and Santa Laura Saltpeter Works for inclusion on the World Heritage List. December 2003.

There is a difference from the point of view of size: although Sewell did at one time act as home to 15,000 inhabitants, there were only a maximum of 5,700 in the case of Humberstone and 900 in Santa Laura. But it should also be pointed out that there was a significant difference their settings: in the dryness of the saltpeter Pampa a noticeable phenomenon took place, which was the large scale conquest of this enormous hostile open space. Some 120 works were functioning simultaneously and a far-flung railway network was established. The people living on the Pampa in these settlements maintained connections with their peers in other works and there was also a certain amount of mobility as regards labor; it was not unheard of for some workers to be employed in several works at different times of their lives, with relations working in several others. To a large degree, they were not as isolated as the people living in Sewell.

The saltpeter works, like Sewell, were partially dismantled. But, access to Sewell was always far more restricted and it has always been under the administration of the same company and owner. That meant that it never suffered from the total abandonment that affected the saltpeter works for decades and which left them exposed to indiscriminate pillaging, a situation that only very recently has been reversed. So it was that Sewell appears in optimum condition which is in stark contrast to the situation of the saltpeter works.

Despite the differences in context, form, urban structure and type of mining, we cannot continue without mentioning the case of the coal mining area in the Gulf of Arauco, located in the south of Chile (parallel 37 S); a first class industrial heritage in our country[5]. Coal mining began here half way through the 19th century and only came to an end in the nineteen nineties. The capital employed was totally private and Chilean, although this industry was also nationalized well into the 20th century.

Coal here underwent a phenomenon that was similar to saltpeter: the area saw its geography changed, with ports, roads, railways, bridges, the first hydroelectric scheme in South America - the Chivilingo Plant built in 1897 - as well as the mine shafts and the settlements with their buildings for the workers, employees and owners as well as whatever equipment and services were necessary. The development of the coal zone, with inter-dependent centers in between, did occupy an area that enabled the textile industry to expand (Tomé).

Lota is a town in this same area that could be compared to Sewell. It was a key town from a point of view of the expansion of the mining industry and communications, the introduction of new technologies, the use of new sources of energy and the development of union movements. It acquired its style as a company town because it was also a settlement ensconced within an industrial complex owned by private persons. In this case, we are dealing with underground seams of coal and, unlike El Teniente where mining takes advantage of the forces of gravity, in Lota the mines are under the seabed and so the process is inverted.

Hydroeletric Chivilingo Plant, Lota.

5 Muñoz, María Dolores: City and Memory. Industrial heritage in Lota, Coronel, Tomé and Lebu. Concepción, 2000. It is part of a Final Report of the FONDART N° 07990 Project financed by the Ministry of Education of the 8th Region of the "Bío Bío".

Along a narrow coastal strip, "Lower Lota" was mined facing the hills of "Upper Lota". Lower Lota has a typical grid system with a main square whilst its Upper counterpart is linear or laid out lengthwise with Carlos Cousiño street acting as its central axis. Unlike Sewell, the town of Upper Lota was planned beforehand, using foreign parameters, especially English ones, which at the time prepared the guidelines for industrial cities. It was designed without taking into account its special reality but it adapted, specially blending into the relief and the landscape.

Upper Lota features a series of collective houses for workers that are largely the same, but interrupted by service buildings set between them -the church, the theater, the school and by small squares and viewpoints-. The residential buildings, called "pavilions" are to a large degree, made of timber, such as those in Sewell, and they consist of long buildings set alongside the axis (Carlos Cousiño Street). In Upper Lota, there is more space available than in Sewell and this is what determines less density, less building heights - generally two-stories - and wide streets. Moreover, behind the buildings there are large yards that contain equipment used by all of the houses, particularly the oven and the laundry. At one time there were also common bathrooms but at a later date, each apartment had their own. The open corridors on the ground floor act as intermediate spaces and there are also open spaces between the buildings themselves.

Other essential features found in the city of Lota are the Park, created by the Cousiño family, the owner of this industrial complex, which acted as a framework for the family mansion, since demolished. But above all, the mine shafts, dug out of the ground and which, then, gain access to the undersea galleries. They stand out in the landscape because of their metal towers that hold up the lifts used to transport both the miners as well as the coal. The Alberto Shaft, for example, that is open to the public nowadays, descends 504 meters and then horizontally another 900 meters under the sea as far as the narrow mine galleries. If the lives and work of the miners was hard in general, those that had to be faced by coal miners was particularly so, and any efforts made to restore the Lota heritage, in a search at the same time for this city's welfare now that the mines have closed, are a result of an acknowledgement of that fact.

Let us now widen our comparisons outside Chile as regards the World Heritage List, specifically in our hemisphere. The industrial heritage of Latin America is not very well represented on this list, which is especially true if we understand the concept of industrial heritage within the strictures defined by the Moscow Charter[6], which places the Industrial Revolution as the starting point.

6 The Moscow Charter for Industrial Heritage. The International Committee for the Conservation of Industrial Heritage (TICCIH). July, 2003. En: www.mnactec.com/TICCIH .

The World Heritage List, so far as our region is concerned, contains properties that could be considered as industrial heritage associated with the preparation and manufacture of agricultural products, a field in which Cuba (coffee, sugar, and tobacco) excels. But the field in which this comparison fits well is mining. In that field then, the List contains cities whose origins and development were due to activities of this sort, such as Potosí in Bolivia, Ouro Preto and Diamantina in Brazil or Guanajuato and Zacatecas in Mexico, whose boom was obviously in colonial times. But, they are not company towns and they do not correspond to modern industrial heritage like Sewell.

In Alaska, USA, there is the Wrangell - Saint Ellias National Park, inscribed on the World Heritage List under the criteria of natural universal value because of the glaciers it contains. Within this natural area, here happens to be a cultural property that is very similar to Sewell. It is the Town of Kennecott[7], which is considered to be the best standing example of a copper mining settlement from the beginning of the 20th century in the USA[8]. The deposit, with fabulous grades, was discovered in 1900. The company created to mine it, which included Guggenheim, was transformed in 1915 into the Kennecott Copper Corporation[9], which, as a matter of fact, was also the owner of the El Teniente Mine, and therefore Sewell, when the Braden Copper Company became a subsidiary of it at about the same time.

The Kennecott complex had a railway line that was 196 miles long as well as infrastructure for mining and processing copper and a settlement for the workers in mountainous terrain under extreme climatic conditions. The buildings were adapted to the rigors of the climate and timber was predominantly used and they are, in a certain way, very similar to the buildings in Sewell. Just like in Sewell, in the town there is a mill for processing the ore, with several different levels on a slope. Mining began there in 1911 and ended in 1938, when the richer ore was depleted, so it was up and running for a total of 27 years after which Kennecott became a ghost town.

Sewell, however, was born in 1905 and it remained inhabited for the next sixty years. After the inhabitant were transferred, it did not entirely become a ghost town as such because, besides lodging contractors' workers up to the end of the 20th century, there is the fundamental fact that the El Teniente Mine continued to be worked thereafter and up to this day. Even during the period of the demolitions, Sewell continued under the administration of the one company and owner, and it was never abandoned as such. That is the reason why Sewell is in a very good state of conservation today. On the other hand in Kennecott, not only the mine but also a lot of the buildings are at risk of collapsing, visits there are conducted with great precaution, and entry into the buildings themselves is restricted.

There is also a difference in size between Sewell and Kennecott. In its period of maximum splendor, Kennecott employed 600 workers. If we multiply that factor by 5 -size of a standard family-, we then find that the total is far less than the 15,000 inhabitants which Sewell housed at its peak. This difference in size must be related to the existence of a city in the neighborhood, McCarthy, which offered a whole range of services. On the other hand, Kennecott was not the scene of such an interaction on a large scale between two cultures so different from each other as in the case of El Teniente.

As is natural, beyond the differences that exist between the two Towns as regards form, structure and size, Sewell has many elements in common with other US company towns as regards the preconceived model based on the mentality and cultural patterns of the entrepreneurs of that nationality; a model that relates both to spatial relations and to the architecture as well as to the way of life, labor relations and organization in general.[10]

The same occurs in the town of Pullman, a manufacturer of rolling stock where alcohol was also forbidden but with a double standard because the bosses were exempt from this prohibition. Private lives were supposed to be faultless, but it failed inasmuch as social and labor harmony was concerned, which probably had a lot to do with the fact that it was close to the city of Chicago, which prevented it from finding sufficient isolation that company towns often seek in order to handle conflicts better. The Ford Motor Company maintained its famous "Sociological Department", similar to Braden's Welfare Department, but apparently more inquisitive as regards private lives were concerned, which resembles the night watchmen in Sewell The Potlatch Lumber Company which dealt in timber put, among other features similar to Sewell, an emphasis on sports and recreation.[11]

In Sewell, great influence was also wielded by that mentality that combines paternalism, capitalism and Protestantism; which blends different convictions, traditions and ways of being into one doctrine that associates faith in progress and in the company, always hand in hand with a Christian doctrine. That combines private earnings with common welfare as well as a commitment with equal opportunities on the basis both of intellectual and productive capacities as well as moral qualities and which understands progress and welfare as an economic driving force on a par with a moral and spiritual one. That mentality is tangible in company towns in the United States as well as in Sewell also, albeit not so explicitly and systematically developed by a theoretic mind.

September 18th celebration, decade 1920.

7 Called Kennecott Mine Town Site by the National Parks Service of the United States. See www.nps.gov/wrst/kennecott.htm.

8 Ditto.

9 This company took its name from the Kennicott Glacier, but by mistake it replaced the "i" with an "e", and so it remained thereafter.

10 This theory as developed by Lepe Inostroza, Pablo Ignacio in: The 'company town' as a way of life. The case of Sewell. Research Seminar. University of Chile, Faculty of Architecture and Urban Development, School of Architecture, Department of Sciences of Construction. Lead Professor: Luis Gómez Lerou architect. Undated.

11 Ditto. pp. 35 and onwards.

Sewell's band.

Wedding celebration at La Junta, decade 1950.

The list of World Heritage Sites in Europe offers a vast number of mining settlements and industrial cities, or even company towns that were the birthplace of the current of thought to which we refer. In the United Kingdom, there are exceptional ones that are associated with the rise of the Industrial Revolution. In spite of belonging to the field of the textile industries, the industrial cities of New Lanark and Saltaire are worth mentioning as they represent both the formulation as well as the proper application of philanthropic and utopic ideals fully rationalized by the end of the 18th and throughout the 19th centuries.

The Sewell Mining Town, which was born at the onset of the 20th century, does not bear an individual philanthropic seal and responds more to pragmatism although it is inserted within that current of thought that fed the idealism of Owen and other thinkers of his kind who greatly influenced the whole of the development of company towns.

In Germany, there are the mines of Rammelsberg, associated with the historic city of Goslar, which were being mined since times prior to the Christian era and which bear witness to their development since at least the 10th up to and including the 20th century. Beyond the medieval seal that Goslar has, and which cannot rightly be called a company town because it is found in entirely different circumstances as well as the multiple differences that we could explain as regards what is formal and material, another element should be made highlighted that differentiates Sewell from this and other properties mentioned.

Rammelsberg and Goslar, given their location and associating with the Hanseatic League, developed within a context that interacted very heavily with their surroundings. Sewell, meanwhile, in spite of the railway and its nearness to large cities, in spite of responding to a production that was destined for a global market, is an enclave with a relatively high degree of isolation.

We have used the word "enclave", but let us just look closer at this notion. One of the general acceptances of this term refers to it as an implant of a portion of territory in a foreign nation, separate from the social and economic structures of a country on which it depends for exporting its few natural resources.[12]

The Braden Copper Company did have relations with its surroundings; a good part its machinery was imported from overseas but it is a fact that it obtained its food and provisions from other regions in the country; -for example, the timber from forests in the south of Chile-, and it gave them dynamism. As a matter of fact, the company exercised an ownership over its properties and it regulated the lives of the people living in them but, as we have said earlier, the State of Chile was also present in them with such institutions as the police, courts and education. So, Sewell has all of the characteristics of an enclave inasmuch as its isolation. The company controlled, for example, what personnel could go down to Rancagua.

12 Lepe Inostroza, Pablo Ignacio: op. cit. p.18. The author bases his work on an analysis by O'Brien, Juan: Undoing a Myth: Chile's debt to copper and mining. International Council on Metals and the Environment, Ottawa, Canada, 1994.

Many industrial mining heritage properties in Europe, although they continued working until well into the 20th century, bear a seal of the 18th or 19th century. Sewell features singularities related to its adscription to the 20th century: its location, its size and its permanence as well as its condition as the scene of an exchange between two cultures: the North American and the Chilean.

A degree of similarity can be seen between the situation of certain industrial cities that admitted immigrants coming from far away latitudes and very diverse cultures. This is the case of some company towns in the United States where workers recently arrived from overseas were tried to be "Americanized". But that situation is very different: it is the recent arrival who has inserted himself in another environment and he does so in his condition as a worker.

In Sewell, there is an American minority that, from an executive point of view, has to get along with and organize a system that includes a vast majority of Chilean workers; there is no process of assimilation and neither was one ever sought. The company, for example, offered English classes but very few workers took up the offer, although at a level of bosses and secretaries, English was the language in use[13]. The church built in the Town was of the religious denomination of the vast majority of the workers, even though the foreign bosses were predominantly Protestant. People were encouraged to go bowling, a sport that was practically unknown in Chile, but there was also a pitch-an-toss court - typically Chilean - and a soccer pitch; a game more popular in this country.

The same goes even for that great monument to copper mining which is Falun in Sweden. Fully representative of universal development throughout the centuries of this industry, Sewell is very representative of a transfer, on a large scale, of capital and technology, of work done by Chileans and foreigners, of a later process of nationalization and the development of mining that has continued up to today with maximum efficiency and vast projections which powerfully contributes, today like yesterday, toward Chile standing out as the leading copper producer in the world.

12 Lepe Inostroza, Pablo Ignacio: op. cit. pp. 113 and onwards.

2. c. Authenticity / Integrity

The Sewell Mining Town reached its full splendor in the nineteen sixties when it covered an extension of approximately 28 hectares, housing a population of some 15,000 persons. At that time it reached its zenith. During that decade and the following one, the Town was depopulated, and its inhabitants transferred to the city of Rancagua or to Santiago. During the nineteen seventies and eighties, a good part of the Town was demolished.

Fortunately, the nucleus of the Town remained. The most important buildings were conserved and examples of all of the different types of the collective residential buildings that Sewell had. It is of course unfortunate that the so-called American Sector was completely destroyed and which contained two storied single family homes that were assigned preferentially to North Americans, some of which were 400 square meters big. None were preserved and only their foundations are visible today on the north slope of the Town.

Buildings of all of the other types of residential buildings are well conserved: the buildings with a side corridor (N° 37, for example), the compact buildings whose common passageways are actually staircases (N°s 42 and N° 152), those that have a central passageway (N° 108, to name just one) and those that have a skylight (N° 125). Although, generally speaking, the buildings run parallel to the levels of altitude, there are some that are perpendicular to them such as N° 118 or N° 152. The latter named building stands out because of its nine floors that seem to climb back up the steep slope. These residential buildings, in general, used their ground floors as shops and stores of some kind.

Public buildings for recreation, social occasions, sports, religion, education and health have been preserved. The Central Staircase, for example, remains intact as well as the network structured around it consisting of pathways, small squares and minor staircases for urban circulation.

The plant concentrator is also there and which is a processing complex (grinder and miller) that takes advantage of gravity in its multiple units that descend the slope. The conservation of the Concentrator is particularly important because it is a living witness to Sewell's origins which, prior to becoming an urban settlement, was the site of a mill and El Teniente's first foundry. Here are all of the facilities with their grinders and mills for different stages of triturating, as well as the services proper of production and the provision of energy and traction: workshops and foundries, pump rooms, the electricity substation, the tower of the conveyer belt as well as the circular tanks for recovering the water used in grinding.

So it is that this property conserves its integrity and, despite all of the demolitions, what it does conserve is its essence as a Mining Town; faithful to the reality of both its origins as well as when it was booming and thereafter. Regarding this, it is worth pointing out that it conserves the reinforced concrete building, of rationalist style, eight stories high and called N° 501 that was built in 1958. In spite of the fact that it does not fit in with the rest of the buildings, this building is significant; not only as a testimony to an era of the history of architecture but also because of its historic importance for the Town: it was the last building to be erected prior to taking the decision to transfer its population to the valley below and so it is the newest building standing inside the property.

After transferring the population, the Town was used only for lodging workers belonging to contractors. This stage of the property is witnessed by a couple of buildings that were used as dormitories for this purpose. They have been encroached upon in part and internally, relating to how the space inside was distributed aimed at forming more apartments (Building N° 35, for example).

During the nineteen eighties, small support facilities were erected in Sewell, such as changing rooms for workers that are found inside the buffer zone. Inside the property nominated, however, no further building was undertaken.

It was at the end of the nineteen eighties that the demolition work finally came to a halt. In the nineteen nineties, the company owner, Codelco-Chile, began a sustained effort to conserve, maintain and promote the Town, backed up by its declaration as a National Monument in 1998.

The facilities of the Sewell Mining Town continued to render some utility even after the population had been transferred down into the valley: first of all and as mentioned previously, as temporary housing for some workers belonging to contractors in support of some production functions. By the end of the nineteen nineties, accommodation as such in the Town was ruled out altogether and the health authorities declared the area saturated with contamination as a result of the nearby Caletones Foundry. At present, however, the successful Decontamination Plan is moving forward in the area and the lifting of that declaration is in sight.

The Sewell Concentrator continues to operate to this day and it processes 25% of El Teniente's ore. This complex, which has been functioning for over ninety years, will soon cease to operate but it will be conserved and restored for posterity.

The Town is now a tourist attraction, emphasizing its role in the education of heritage for Chilean children and youngsters with certain uses at times by El Teniente's mining logistics, apart from the operation of the Concentrator. The former inhabitants of Sewell and their descendents still cling to the past and the property and it is here that they congregate for recreation and leisure pursuits as well as to commemorate certain events, which helps keep that Sewellian attitude alive which is an indelible seal left by them and the stories of the lives.

Rebolledo bridge and building N° 152.


Building N° 129, current Mining Cooper Indrustry Museum.

The Town unashamedly exhibits all its values: urban, architectonic, constructive and historic. The company owner has devoted a large amount of resources to its conservation and maintenance which is periodic and sustained, keeping to the best parameters of authenticity and under the supervision of the National Monuments Council. The Town remains, thus, faithful to itself.

2.d. Criteria under which inscription is proposed

The Sewell Mining Town complies with the criteria for inclusion on the World Heritage List of cultural properties; at least those found in letters ii, iii and v of paragraph 24 of the Operative Guide for Implementing the World Heritage Convention. In the terms of the World Heritage Convention, it is a group of buildings, one unit.

Criterion ii : The property exhibits an important exchange of human values during a period of time or within a cultural area of the world applied to architecture, technology, monumental works, urban planning or landscape design.

Sewell's development responded to the challenge of establishing an urban settlement in a place with extremely difficult topography and in isolation. It features a trial and error scheme that reflects man's skills to adapt to the conditions of a hostile environment which cost numerous human lives in numerous tragedies.

Construction of the first houses, between 1904 and 1911, especially in Pueblo Hundido, was not very successful because they were to be located on steep slopes which exposed them to the danger of landslides and avalanches which, in fact, did occur on several occasions. On the other hand, it became clear that the excessive fragmentation of the community made social relations more difficult in such a lonely place and so, from the end of the second decade of the last century, facilities were concentrated as much as possible together on the slopes of the Negro Hill.

Sewell developed as a town with the conceived notion of togetherness on the basis of the theory that internal traffic would only be pedestrian. After realizing that the sunny side of the Negro Hill was the most apt for human habitation, and the south slope was the most practical one for industrial processes, the facilities were distributed accordingly. The town is laid out around the large avenue-staircase, which begins to rise at the Railway Station and then climbs back up the steep slope. From this spinal column, numerous passages run off to the different buildings that, generally speaking, follow the same contours of the terrain. They are all interconnected so as to form an intricate network, leaving space enough for small recreational squares, children's playgrounds, etc., thus offering several ways in which to reach the same place.

All of the capital used in this enterprise was American and cutting edge technology was imported for mining the copper. Technological progress was applied on a large scale which, at that time, was still in an experimental stage. Such is the case of the flotation system with new substances that was introduced in 1912 and which then expanded over the next few years.

Architectonic designs and the general urban concept were imported but they were applied in the measure that they fitted in with the local environment and variants were introduced to the constructive system in order to better respond to their imperatives. Concepts were also applied to the property that belonged to the corporate mentality of the time and trends that were developing in the industrial world regarding different labor aspects, including safety. The need for efficiency and productivity was embedded in a town with a standard of living that was far higher than the average and of most worker towns and cities in the country, creating a happy balance between corporate welfare and that of its workers.

The truest witnesses to the quality of urban life in Sewell are its former inhabitants who conserve fond memories of the stimulating way of life they led in the Town despite environmental restraints. In fact, the Town was home, not only to a vital production but also to an intense social round of events and an enriching cultural exchange between Chileans and Americans, which did a lot to converting it into a community with a great consciousness of itself.

Criterion iii: It is a unique, or at least exceptional, testimony of a cultural tradition or of a civilization.

The property is found within a series of industrial settlements or company towns; it is representative of them but at the same time it is of great singularity and originality as a result of factors that are environmental as well as historic and social.

It is also an exceptional testimony of a global phenomenon that was economically, socially and politically far-reaching in the history of the 19th and 20th centuries. We are dealing with the export of capital on a grand scale from the large powers to far away territories where raw material industries are erected to meet the demand from the more active markets overseas. These industries used local labor under the management of foreign technicians which gave rise to interaction at a local level which finds its counterpart in the interaction between the respective political systems and foreign companies and governments. It is also an example of the nationalization of such companies which took place within political and labor contexts that were normal at that time in countries with dependent economies.

Criterion v : It is an exceptional example of a traditional settlement representative of a culture, especially when it has become vulnerable.

Sewell is the only mountain town that has been occupied permanently in Chile. The location of the Town on the land is exceptional due to the steep slopes of the Andes in this area. Sewell practically lies astride the mountain chain, marking its slopes with those elements that will lead to it being called "the city of steps". In this sense then, not only is Sewell notably well located, with its separation between residential, social and productive activities, but also the way it was built interacts perfectly with nature.

There is a kind of standardization and even certain uniformity, given the design of its buildings that only introduced limited formal variants. But the location of its buildings on a steep slope, their colors, the variety of perspectives of its urban design with its staircases and pathways with a magnificent landscape as a backdrop, avoid all routine. The balance between the buildings does not leave any room for unnecessary solemnities, neither for marginal or poorer quarters, but always keeping to the human scale of the parts and the whole.

The constructive system, applied and improved upon on site, was a tremendous success, perfectly confronting the assaults on it by nature: the winds, earthquakes and also fires. The older buildings of timber and also the facilities of the Concentrator will soon be one hundred years old, in spite of the environmental rigors and the lack of maintenance that affected them during considerable periods of time.

As we have tried to explain, these urban complexes of a magnitude and complexity have been substituted in the copper mining industry by another type of accommodation infrastructure for workers: residential villages in conventional towns and cities or by complexes of the hotel type able to accommodate the employee alone, without his family, using the shift system, interspaced with days of rest in a nearby city or town. Sewell is a singular and exceptional example, hardly repeatable, of those properties that recent research has called "copper cities".

Sewell Concentrator and converyer belt, 2004.

Chapter 3

Description

Sewell Concentrator.

Sewell, 2000.

Tourists at Sewell.


Sewell at night, 1962.

DESCRIPTION

3.a. Description of Property

The Sewell Mining Town has received a lot of names throughout its history which will serve our purpose of introducing a general description of it. First of all, we speak of "Sewell, a mining city in the heart of the Andes", referring to the essential condition of its location. In relation to its layout, Sewell is, moreover, "a city scattered all over a hill". Lastly, its former inhabitants call it "the city of steps", because those who, by way of presentation, declared themselves as "born and bred in Sewell" had often to climb up and go down when walking about a Town that was unable to admit vehicular traffic within.

3.a.I. The natural surroundings

Sewell owes its origins to the first mill and foundry established in the El Teniente Mine. Its growth as firstly a camp then a town is due to the fact that the first and basic settlements of the El Teniente Mine, located near its entrance, were specially vulnerable to the threats posed by the surrounding environment, particularly landslides and avalanches. Where Sewell stands today was the best position it could find albeit it still did not get rid of the threat that residing in such an abrupt topography and climate posed.

The Sewell Mining Town is found in the Upper Andes on a hill called Negro (Black) on a peak that stands over the confluence of the Rivers Coya and Teniente. The altitude here is upward of 2,200 meters above sea level, practically above the tree line. Snowfalls in Winter, between May and October, leave drifts averaging approximately 2 meters in depth, although depths have been recorded of up to 13 meters (in 1926). As regards rainfall, the yearly average is 460 millimeters, with a maximum recorded of 2,230 millimeters in 1991. Extreme temperatures according to the latest records were minus 7.5° Celsius in July 2002 and 26.6° Celsius in January 2001.[1]

3.a.II. Town layout

When one approaches the Town, its first quality appears, into view comes a picture of Sewell which is seen as a whole. This is so because it appears to be clinging to the side of a very steep hill with the summit on top of it and buildings scattered all over it as a result of the abrupt topography which is in stark contrast to normally horizontally located settlements on plains. So this explains why, in the case of Sewell, the whole of the town can be observed from a distance.

A perception of the Town and how it is laid out has been often captured by visitors including artists, photographers, story tellers and poets as well as the inhabitants of Sewell themselves. The image of the Town from the Copado Hill facing it across the valley or from the access road remained permanently imprinted on the collected memory of the former townsfolk. So it is that the best known images of Sewell are those that show the Town as a whole, particularly in a photo taken in 1962 of the site when it was flourishing as well as the one taken at nighttime with the whole Town illuminated and snowbound, taken during the same period.

1 See Annex 3.a. for further information on the climate.

The landmarks that, from a visual point of view, mark the Town in the collective memory are : Punta de Rieles at Sewell's highest point -which is the point of departure of the Teniente 5 railway line- and the facilities for the Sewell Concentrator where the first stage of the mineral is dealt with.

To the north lies the Rebolledo Bridge, 30 meters high and spanning a gorge 102 meters across which was built in 1942 over the River Coya, originally built to transport tailings (leftover material from mining), but which today transports copper pulp, (a thick liquid that results from grinding) from the Sewell Concentrator to the Colón Concentrator, where the flotation process is done.

To the south of the Town stand five circular tanks, held up by on struts under which the road passes. On this same slope, higher up, can be seen the overhanging covering of the Concentrator. To the west, meanwhile, below the confluence of the Rivers Coya and Teniente, is the sector called "La Junta", flatter and immensely reminiscent for having contained in the past such important facilities in the life of Sewell as the soccer pitch.

The layout of the Town itself, generally speaking, follows the principle of having its industrial facilities, meaning the Concentrator, on the shadier south slope. On the other hand, the North Slope, receiving more sunlight, was where the houses were built. Here was the American Sector with single family homes for higher ranking personnel, mostly North Americans. These houses were demolished and the only witness to them still standing are their foundations and the "Teniente Club" social center built for the recreation of the inhabitants of this sector.

3.a.II-1. Paths and public spaces

The Central Staircase is the spinal column that cuts up through the middle of the Town and which serves, at the same time, as a public space with small squares dotted here and there. Numerous secondary pedestrian pathways, generally horizontally laid out and thus fishbone style, lead off from this central staircase to the different types of buildings in the Town, including the industrial areas and facilities. This main axis, built over the route of an old lift, is like the trunk of a tree with branches leading off from it and it orders and ranks the use of the space and at the same time organizes the buildings layout usually following the contours of the hill, except in the case of buildings N°s 152 and 118, which are perpendicular to them.

So therefore, in Sewell, there is no such thing as rectangular sets of buildings or anything resembling the blocks found in traditional towns, which is something unusual. When ascending the Central Staircase the effect of the buildings set up is the fragmentation of the different building faces and the reinforcement of the inner nature of this main walkway. On the other hand, when descending, the view is widened with the buildings´ roofs as well as the paths running off from the central route and it is that view where the dialog between natural and the built-up landscape can be best appreciated[2]

2 Garcés, Eugenio : "Cities of copper. From mountain town to mining hotel as variations of a company town". In the magazine Eure, Vol. XXIX, N° 88, Santiago, Chile, December 2003. pp. 131-148.

This network of paths and steps was crucial to determine the residual spaces which became resting areas, viewpoints and small recreational squares. It also gave way to small spaces used for children's playgrounds and grown-ups' meeting places, taking advantage of the gaps between the staircases and the nearby buildings. A good example of this is the pitch-and-toss court[3], still in existence today between the Central Staircase and Building N° 37.

The Central Staircase has a standard width between Morgan Square and Building N° 105. From there upwards, it narrows and becomes more winding and by the time the Concentrator building is reached, it juts off in a northerly direction and a little further on it fades away until Building N° 413 is reached in the Patio de Romanas (weighting fields). Along the whole of its route, in the reduced free spaces that became available, formal squares of irregular shape were established, some of which remain to this day. The company, with a certain amount of effort, planted and kept ornamental trees and plants, but they are no longer.

If we now go from the lower part of the Town toward the top, the first of these squares is called Morgan, located close to the railway station. It is a triangular space and along its longest side there is a containment wall that separates it from the railway tracks and over whose layout the present road was built. On the south side of the square is the present Copper Mining Museum, formerly the Industrial School. On the east side is Building N° 125 which has a passageway along its side. The square acted as the school yard and a meeting point for whoever was going to pick up family and friends arriving by train. Today it acts as the entrance to the Museum and an area for cultural events.

Further up, and always next to the Central Staircase in front of Building N° 103, is the O'Higgins Square, named in honor of the Founding Father of Chile and where a bust of this illustrious patrician was placed. This is the civic center of the Town and where all official acts such as the Independence of Chile (September 18) and that of the United States (July 4) were commemorated. It now seems strange that in such reduced spaces solemn and mass public manifestations could be held, although it must be taken into account that a large part of the population took part in them from the neighboring building windows and staircases.

Further up is Miners Square, which is a viewpoint and a resting place whilst ascending toward the facilities of the Concentrator. Here coincided staircases coming from the American Sector (north) with those coming up from the south and west where the workers and employees lived. This fact and its proximity to Building N° 100, meant that this area was plastered with hoardings and safety notices.

3 Pitch-and-toss is a traditional Chilean game of skill and precision. Circular flat pieces - called tiles - are thrown as far as one central horizontal line marked with string and dug out of the damp earth in the shape of a sunken box.

Bridge over River Coya, built in 1942.

Building N° 41.

3.a.II - 2. Non-industrial buildings

Although the Sewell Mining Town is predominantly an industrial heritage, in order to facilitate a description and analysis of its state of conservation, we must distinguish between industrial and non-industrial buildings. Industrial buildings are understood as those devoted to processing mineral, particularly those that form a part of the Sewell Concentrator and support facilities for production such as the foundries, storerooms and outhouses.

Non-industrial buildings are houses, equipment and/or services, including institutional ones (police, courts, civil register, post office, etc.), shops, education, health, recreation, etc. as well as the company's administrative offices.

In this section, some general characterizations are made regarding the buildings because it is in Annex 3.a. where the technical records of each one of them are consigned, including the general drawings.

Of the 24 non-industrial buildings in the while of the Site, we shall begin analyzing those devoted to homes whose ground floors, in some cases, were devoted to services and/or equipment.

Sewell was, above all, a company town, meaning a tightly structured settlement, so this meant that the buildings were designed and built according to the status of the persons who were going to occupy them[4]. Company workers were traditionally split up into three different classes. Class A referred to the executive and top level, jobs which were done mainly by the North American personnel and some Europeans, and certainly some Chileans among them. Only A-class employees were thus assigned single family houses which were built in the so-called "American Sector" located on the North Slope, the slope overlooking the River Coya, which is the sunniest side of Town. Today, no example remains of these types of houses, although their foundations still exist. They were one or two storied buildings with a surface area that varied between 110 and 190 square meters.

Employees in class B occupied apartment buildings. The majority of the buildings used as homes and which are still standing today in Sewell are in this category. This is because they were located mostly in the center of the Town, close to the Central Staircase which is the area that remains today.

4 Gómez, Luis: Types of Residential, Service and Mixed Buildings (non-industrial buildings) built of timber. Unpublished Document.

The most representative buildings in class B (which are standing today) are N°s 118, 125, 106 152, 41 and 42. Generally speaking, they are double-faced, meaning that they have a central corridor and the living quarters are facing out on each side and they are three, four and five storied buildings. Each family was housed in apartments of between 60 and 82 square meters.

Class C houses were for the laborers and they and their families lived in collective buildings located preferentially on the outskirts of the Town on the south slope close to the Concentrator and the so-called Diablo (devil's) Gorge; this was the area called Sorensen or the four bunks. Examples of these types of buildings are N°s 35 and 37, of 4 and 5 stories each. Each family was provided with between 25 and 45 square meters.

Although the company preferred to hire laborers, employees and professionals who were married together with their respective families, there were also unmarried employees and they were lodged in special buildings or boarding houses which had individual or shared dormitories depending on what class they belonged to.

Examples of this type of building are N° 103, the "Staff House", a boarding house for class A employees which had individual dormitories with private bathrooms, and N° 108, which had dormitories for 2 to 3 persons for class B personnel (in this case teachers, nurses and secretaries).

In the case of class C, an example of this type of building (used by single persons) is N° 150, whose dormitories housed 6 persons at a time in bunks. The bachelor worker's only pick space was his bunk and a locker.

Building N° 106.

We shall now analyze how the interior distribution in two examples of class B buildings, (N° 41 N° 152) and one building in class C (N° 35). Annex 3.a. contains records of all of the residential buildings, including floor plans.

Building N° 41 was devoted to employees with families; It had an open corridor on its ground floor that acted as an in-between space. It had four stories, each of them with four apartments. It had two indoor staircases for going up and down, each one of which led to two apartments per floor. Facing the staircases are the vertical shafts that ventilated the kitchens. Each apartment consisted of two bedrooms, one bathroom, a big kitchen of the same size as the bedrooms and a living room, slightly larger.

Building N° 152 stands out, both because it is the only one that is clearly built onto a steep slope in contradiction to the contours as well as because of its interior distribution. Built in 1945, it had four vertical bodies erected at different levels, each one four or five stories high and in total the building had nine floors. Its north face had emergency outside staircases made of iron. Just like Building N° 41, this one did not have any corridors either and everybody in the building had to go up and down three staircases which, on each floor, led to three apartments. Now, two of these three staircases were unusual inasmuch that their landings were built in between each corresponding floor and so to enter the apartments one had to go up or down half a floor. Like Building N° 41, the kitchen ventilation shafts are facing the staircases. Each one of the 25 apartments had a living room, kitchen, a bathroom, and two bedrooms and each family was provided with an average of 65 square meters.

On the other hand, Building N° 35 has three stories plus an attic with a staircase and corridors leading off to each side. It was built in 1934 to house a maximum of 42 laborers' families with one, two or three children. This building was refurbished to house only laborers at a time when Sewell was used for lodging contractors' workers. The whole of the structure of the building is made of timber but along its central axis there are concrete shafts that ventilated the kitchens of the all of the apartments.

The original drawings reveal that the ground floor had two areas for shops and one common area for the residents (laundry) as well as common bathrooms for men and others for women and special areas for the bathtubs and showers as well as for the toilets located at each end of the building. On the ground floor there is also an area for the boiler and a hot water tank capable of containing 250 gallons of water. At one time, there used to be a system that blew hot air from the boiler-room to the bathrooms. On the next two floors up there were bathrooms with toilets for men and for women, each located at either end of the building.

The basic unit of this building is one room measuring 3.81 x 3.54 meters, which adds up to 13.48 square meters. It is 2.44 meters high. These rooms are all of the same size which, rather than for functional purposes, this was the way in which to logically build them based on the lengths of the pieces of timbers used.

Building N° 35, including its attic, contains 105 rooms. Floors 1 to 3 are split up into two rows, whilst the attic has only one row of rooms. Each family was assigned apartments consisting of two or three of these rooms which meant they had 26.96 and 40.44 square meters respectively.

Modifications made in the eighties for lodging contractors' workers (men only), consisted of creating dormitories, grouping six of them together, one of which served as a bathroom.

Another way in which to classify the buildings in Sewell is according to their corridor or passageway systems[5]. In Sewell, the following different types exist according to this criterion:

- External corridor system (single-faced) which are the apartment buildings. The site of the staircase as well as where the common service rooms are located introduced small variances that enriched this model of building. Examples of this type are Buildings N° 35 and 37.

- Central corridor system (double-faced), where the corridor is an articulator and lineal which does not go as far as establishing apartments, like in the above case. Buildings N°s 103, 150, 106 and 108 are of this type and they are for single employees (class B).

- Central corridor system with offshoots that refer to buildings originally built for services, more complex and larger. An interesting example is the old hospital (Building N° 157) which maintains its original design.

There are also other buildings whose systems use only indoor staircases (N°s 42 and N° 152) and one example, N° 125, which has a skylight.

As mentioned previously, although in general the buildings are built parallel to the level they are on the ground, there are some which are perpendicular to it, with stairs. Such is the case of N° 118 or, especially N° 152. This latter example is very prominent with its nine floors that seem to be climbing back up the hill.

Building N° 152.

5 Such a system was used in the study by Garcés, Eugenio, et. al.: Cooperation agreement : proposal for a study of the conservation, renewal and recycling of the Town and buildings containing homes and services in Sewell (El Teniente Division - Codelco). Catholic University of Chile, Faculty of Architecture and Beaux Arts, Projects and Research Board. 1991.

Let us know take a walk around the Town in order to visit the service buildings or those for public use and not homes. To the west of the Town, Building N° 117, the Station and Warehouse belonging to the old railway stands out. It is a building that is close to the Central Staircase and which was very important for the collective lives of the Town. Next to the station are building N° 118, Morgan Square and the Industrial School (N° 129), a well-known landmark in the Town because of its very modernist style. Built in 1936, with timber, it has three stories plus a basement and its façade is of a very characteristic curved and stepped style. Originally devoted to the industrial-technical school, today it houses the Copper Mining Museum.

Continuing up the Central Staircase, we reach Building N° 106 whose basement houses the Bowling Alley and which is still used now and again by old-Sewellians for recreation and social events. The upper floors of this building were residential at one time and behind it (the south side), is found the Church (Building N° 231) erected in 1927 for the Catholics who made up the majority of the Chilean workers.

Still following the Central Staircase, a little higher than Building N° 106 is Building N° 105, "Welfare" which was very prominent in its day because it housed the Social Club (and whose entrance led directly off the Central Staircase). On the eastern side were the institutional offices (Civil Regulation, Courts and Police). Nowadays, this building has a cafeteria and bathrooms for visitors and an upper floor has a conference room with a capacity for 200 persons.

Higher up, still climbing the Central Staircase, is Building N° 165, the former Theater and Cinema of Sewell, whose stalls and stage were all demolished. The building still conserves its entrance hall and box office as well as the basement which functioned as Sewell's library.

At the same level of Building N° 105, but to the north of the Central Staircase are Buildings N°s 101 and 102, devoted to offices, beyond which rises the old Hospital (N° 157) which is a large building built in 1915 containing 3,475 square meters of construction distributed among its four stories and an attic. This is the largest of all non-industrial buildings in Sewell and it remains to the forefront of and very much in the memory of old-Sewellians.

To the north of the former Hospital is Building N° 20 the "Teniente Club", a social center for the bosses and top directors of the company. This building had a heated swimming pool (in the basement), large rooms, a games room and bar; it is the only building that remains standing in the so-called American Sector of the Town.

Returning now to the Central Staircase and going in a southerly direction, we come up against Building N° 501, eight stories high built of reinforced concrete. It was originally used as a housing facility and it contained four apartments per floor which were all occupied by class A employees.

Building N° 129.

3.a.II- 3. The platform frame system

From a construction point of view, the vast majority of the non-industrial buildings in Sewell, actually 22 out of the 24 that make up the total are made from timber and were built using the platform frame system[6]. This construction system was born in Canada and in the United States half way through the 19th century. An essential characteristic of the platform frame system is that its timber frames have vertical diaphragms or frames whose height is that of one story. They stand upon a level sole piece that supports the beam system between floors and which form the horizontal framework of the system. These horizontal frames, together with the elements that make them rigid and the floor boarding, act as the platform on which the next floor up will be built, and so on.
In Sewell, five is the maximum number of stories that were built with this system. The one and two storied buildings that existed in the beginning were not conserved and because of the increasing demand for greater density, they were replaced by higher ones.

This solution enabled the buildings to withstand increases in weight as a result of fixed and mobile loads that affected the lower vertical diaphragms, which was resolved by increasing the widths of the stanchions, the lower sole pieces, the upper sole pieces, over soles and the basal soles that were placed over the foundations. For better transmission of vertical stress, the stanchions were made to coincide on the same level and/or axis as the beam structures. The separation between stanchions fluctuates between 40 and 60 centimeters. The stanchions of the vertical beam systems are 2 x 6 inches thick on the lower floors and 2 x 4 inches thick on upper floors.

Rigidity of the vertical elements, when subjected to horizontal thrust is obtained by means of diagonals of the same width as those used for the stanchions. Then, at a later stage of technology, plywood plates or similar materials were also used.

Up to the forties, the construction drawings for Sewell were prepared in the United States. One in the Town itself, only two variants were introduced into the projects brought from the USA. On the one hand and because of the climate, tie beams were introduced. Their aim was to make the building more rigid lengthwise and transversal against dynamic stress as a result of strong winds. On the other hand, concrete to a height of 75 mm was emptied directly over the timber frame of the floors. In some case, instead of the timber frame there was a beam structure of sheets of galvanized and corrugated iron, over which was placed the concrete flooring. The concrete floor acted as better acoustic insulation and at the same time slowed down the spreading of any fires that might break out.

6 See a proper description and recommendations for conservation prepared by Gómez, Luis; Leser, Heinz and Salomone, Vanesa: Description of the Platform Frame Construction System. Department of Construction Sciences, Faculty of Architecture and Urban Development of the University of Chile. 2003. (Unpublished Document).

Summing up, as the horizontal structures were independent from the vertical ones, with the platform frame system, high buildings could be erected varying the width of the stanchions depending on the structural stress at each level -which were thicker on lower floors and thinner on the upper ones-. Furthermore, the vertical structures could be prefabricated.

In Sewell, of course, no timber was available, only stone which was used in masonry, containment walls and foundations together with lime mortar and fine sand and, later on, cement and sand. In the early days, all of the timber was shipped in from the United States. It was mainly Douglas Fir and it was cut up in the first facilities of the Braden Copper Company located in the valley, in places such as Graneros and La Compañía. From the twenties onward, domestic timber was brought in, using such wood as the "araucaria" (or South American Pine), oak and "coigüe" (a South American softwood) that the company purchased from anybody willing to sell or from the land the company had purchased for that purpose in the south of Chile.

The buildings in Sewell are right-angled and predominantly sealed; i.e. they are devoid of terraces or outdoor corridors. In some buildings, where outdoor passageways or corridors were used, on their corresponding facades, the platform frame system was combined with that of pillars and beams.

The large majority of the non-industrial buildings have roofs made of corrugated galvanized iron, the outside walls - to a large extent - are coated with stucco and the doors and windows were standardized and made from timber.

The buildings in Sewell were painted in different colors, generally primary reds, greens, sky blue and yellow which stood out in marked contrast with the snowy and rocky background of the high Andes, giving the Town an attractive visual touch. It is worth mentioning that when restoring the buildings, the original colors have been used.

Building Nº 105.

3.a.II- 4. Industrial buildings

Like the forces of gravity that are used in mining, the minerals processed in the Sewell Concentrator used those same forces in the different phases of the process (primary and secondary grinding and, formerly, concentration), descending and taking advantage of the natural slopes of the Negro Hill where the different buildings were located which make up the Concentrate Plant. It is this function that gave rise to the Sewell Mining Town and where the first mill belonging to the El Teniente was established in 1905.

The property object of this nomination contains 63 industrial buildings, which were all devoted to some stage or other of the industrial process. They covered, in total, a surface area of 43,357 built-up square meters. Of them all, only five of them are located in the former Rancagua - Sewell railway station, and they are devoted to storerooms, boiler shop, foundry, among others. The remainder of the buildings belong to the Sewell Concentrator.[7]

In simple terms, a Concentrator is a production complex for processing ore or minerals extracted from a mine where they are ground (by means of dry triturating), milled (a damp process) and then concentrated (a process which separates the copper as such from the rest of the ore, using chemical reagents where, in flotation cells, the particles of copper adhere to bubbles of air, thus generating the so-called "concentrate", a product that contains 35% copper.

Up to 1970, the Sewell Concentrator processed all of the ore taken out of the El Teniente Mine and this process involved all phases (grinding, milling and flotation). That year, construction of the Colón concentrator was completed which gradually took over the flotation job that Sewell was undertaking. Nowadays, the Sewell Concentrator only Grinds and Mills, generating a product called pulp (a thick liquid) which is then piped to the Colón Concentrator where the flotation process ends, giving, as a result, the "concentrate" which is later smelted and refined in the Caletones Foundry that was inaugurated in 1922.

Sewell was born in 1905 under the name of "The Establishment " (the place where mineral was processed), as a result of the installation of the "Mill". During the decades that followed, these facilities were replaced by other more modern ones that gave rise eventually to the present Concentrator where machinery installed in 1915 is still operating.

It is worth mentioning that in 1912, William Braden began to apply the experimental model of flotation on a large scale using oil and which replaced the one that traditionally used water, to which we shall come back again in section 3.b.

Punta de Rieles, decade 1960.

7 Its history and the background information used in its description are found in a document belonging to the El Teniente Division of Codelco-Chile called History of the Sewell Concentrator, an unpublished work without any reference to who edited it or when.


Thickening tank.

The Concentrator evolved gradually, expanding and incorporating new technology so the complex includes buildings that were erected up the eighties and machinery that is as much as 80 years old. The Concentrator remained operative even after Sewell was evacuated and it currently processes 25% of all of the ore mined in El Teniente, meaning some 20,000 to 25,000 tons of mineral a day.

In 2005, the Sewell Concentrator will close down because the levels of ore in the mine that supply it have become much depleted. On the other hand, the Colón Concentrator has enlarged its productive capacity and so it will now process all of the mineral coming from the mine. The Sewell Concentrator will then become a large museum site, conserving all of its buildings as well as its machinery, a tally of which is found in Annex 3.a.[8]

If before we made a tour of the non-industrial buildings ascending the slope, a description of the Concentrator can only be made going down.

The Concentrator process begins at the highest point of Sewell called the Punta de Rieles, which is where the train arrives from inside the El Teniente Mine[9] (El Teniente Railway 5), loaded with ore which is emptied and stockpiled in the "Coarse Matter Stockpile " (Building N° 389), from where it is sent on to Building N° 390 for primary, secondary and tertiary Grinding which gradually reduce the sizes of the mineral until it is only 3/4 of an inch in diameter. This mineral is then sent along conveyer belts to the inside of Building N° 399, as far as the "Fine Matter Stockpile" located in building N° 360, from where it goes to Building N° 354 for the "Primary Milling" stage in bar mills (that use water in the triturating process), and from there it continues to Building N° 355 for the "Secondary Milling" phase using ball mills.

The matter coming out of the secondary milling is the fairly dough-like liquid pulp which is classified in the so-called "Cyclones", which separate the coarse particles from the fine mineral in the pulp. The fine matter is then taken along gutters or pipes as far as the Colón Concentrator (a distance of 9 Km approximately) where flotation and concentration take place. On the other hand, the coarse matter (which has not been sufficiently milled) is returned to the ball mills to be rehashed until it is fine enough for flotation.

8 Left off this list is some very old machinery that is currently idle in the Concentrator and which will be listed and recorded within the framework of the restoration program of the Concentrator as a Site Museum.

9 The El Teniente mine is a gigantic underground deposit mined by drilling out huge blocks of ore. For that there are different levels of production, similar to the different floors of an immense building. These floors are separated from each other by 15 to 30 meters of rock and they each have a special function, such as: drilling, transfer and transport and they are all numbered, from Teniente 8 (the lowest level) to Teniente 3 (the highest). Teniente 5 is found at the same level as the Punta Rieles (the highest part of Sewell) and among its other functions, it is responsible for transporting ore by Teniente 5 Railway as far as the Sewell Concentrator.

This complex naturally contains a series of buildings with uses related to the operations. Next to the grinding plant there are a series of large circular tanks where, at one time, the pulp was thickened. Nowadays they recover the water used during milling to be reused in the same process. The electricity needed for the Concentrator is supplied from several electrical substations (Buildings N°s 658 and 394). There are also several storerooms and winching rooms[10] (N°s 685, 386, 369, 506 and 655).

The Concentrator was built mainly using materials such as steel frames and reinforced concrete, basically for the foundations and the ore stockpiles. A large part of the steel girders are joined together using rivets.

Lastly, worthy of mention is the Sewell Shaft which dates back to 1970. It is a very large lift that communicates Sewell with the inside of the Mine as far down as its lowest level, Teniente 8. Building N° 674 is its upper station or room, whilst N° 655 is its winching room. The Sewell Shaft enables personnel and components to be transported between Colón and Sewell internally and vertically with the object of saving time and making communications possible between Colón and Sewell when snowfalls cut off the roads.

3.a.II- 5 Buffer Zone

This is a perimeter area encompassing the Area Nominated. Its borders are : to the north the bed of the River Coya, to the south the River Teniente; to the west the confluence of both rivers and to the east the border is defined by two imaginary straight lines that begin in the bed of each river and intersect above at the Penstock facilities, the old stockpile and water distribution place which, historically, is the highest point of the Sewell Mining Town.

This area, since Sewell began to be built, has always acted as a kind of buffer against the elements, mainly snowfalls (landslides and avalanches) in the sectors where the river banks are and which have needed the construction and maintenance of protection works. The largest one is the containment wall on the North Slope.

This area has also witnessed the changes and transformations that Sewell has undergone, because it is here that the foundations and the remains of walls are found of the facilities that were demolished in the nineteen seventies and eighties. So it is that in the north sector, the foundations of the houses belonging to the American Sector are still visible. Also, this is the strip that was used by the railway line which has since been converted into a road for motorized vehicles. On the north slope of Negro Hill paths have been created that enable vehicles to reach an altitude of 2,130 meters where the Teniente Club and Building 501 of apartments are found as well as altitude 2,250 where the mine storeroom is located just below Punta de Rieles.

10 The Chilean-Spanish translation is "huinche" which derives from its English counterpart..

3.b. History and Development

3.b.I. El Teniente

Any history of the Sewell Mining Town is intimately related to the El Teniente Mine, without which it would never have existed nor would there ever have been such a strong association of the phenomena of permanence and change that one and the other have experienced.[11]

Although the mining industry in this area in particular has not been systematically investigated from an archeological point of view, there does exist documentary evidence that the existence of the El Teniente deposits were known in pre-Hispanic times and that they were mined. Likewise, on the basis of finds made in the central zone of Chile, it has been deduced that the indigenous peoples must have used copper, not for domestic utensils, but as jewels and pieces of far-reaching significance, because they have been discovered in funerary and burial places.

In the 15th, 16th and 17th centuries, the Spaniards mined native copper which they exported as a raw material, fundamentally for manufacturing weapons. The 18th century only records some very minor and sporadic mining activities due to the harsh winters. By 1760, the deposit was known by the name of "Fortuna", but gradually, its present name of "El Teniente" became more popular for reasons that are the stuff of legend and myth, because its origins have never been discovered with any certainty. It is believed that a certain lieutenant (teniente) deserted from the Army (for political reasons or debts), crossing the Andes into Argentina and on the way discovering the mineral and taking samples of it with him at the beginning of the 19th century. Another story has it that the name refers to one of the owners of the Hacienda in which the deposits were discovered who happened to be a lieutenant in the Chilean Army of Liberation.

In 1897, the owners of the mining claims corresponding to El Teniente, Enrique Concha y Toro and Carlos Irarr·zaval, ordered a survey of them. When finding that mining them would involve the investment of huge capitals, they appealed to the know-how and experience of the Italian engineer, Marco Chiapponi, who had a long track record in Chile, to look for foreign investors capable of acquiring the deposit and investing in it.

Chiapponi had met the North American mining engineer, William Braden at an International Exhibition of Machinery in Santiago in 1894 and he remembered him when he began to undertake this task. In 1903, he wrote to him of the results of his investigations with his opinion on the deposit, its wealth and riches just below the surface and how he thought that such a business could materialize[12]. Braden, an enthusiast, adventurer and visionary, came to Chile at the beginning of 1904 to begin the construction of a large company at a time when most foreign capital was being invested in the saltpeter mines of the north; at that time in full swing.
Braden visited the area, explored the deposit and its surroundings, picked up samples and ordered that they be analyzed and he began the process of acquiring the property; all in a very short space of time. He asked his partner, Chiapponi, to build a road for wagons from the village of Graneros (located next to the railway line near the city of Rancagua) to the mine, whilst he would be organizing the future mining company in New York. Braden joined forces with E. W. Nash, president of the American Smelting and Refining Company and with Barton Sewell, the founder of that company and its vice-president at the same time and, on October 8 1904, they created the "Braden Copper Company".

Between 1904 and 1905, with a speed and efficiency unheard of hitherto in the central zone of Chile, accustomed as the local people were to the calm of a rural and agriculture setting, the infrastructure necessary for opening up the mine was established. Meanwhile, the road that led from Graneros to the deposit was built with an operations center in the village of La Compañía, close by Graneros, where all of the components, machinery and materials were stockpiled prior to being sent up into the Andes.

Negotiations were held with the State of Chile aimed at obtaining customs exemptions for the enormous amount of machinery that was being imported and also water rights were obtained which would be essential when the time came to begin production. In the Andes, the mine was equipped, the first mill and concentrator were erected (1906) - considered to be the largest and best of its kind in the world - and the lift was put into position that would be necessary for transporting the ore, as well as the first electricity generation plant. In 1907, next to the mill, the first foundry was installed. By 1909, it was discovered that the electricity generating capacity in Sewell was insufficient, so the Coya Hydroelectric Scheme was begun and which began to transmit in 1911. In 1919 a new electricity generating plant would be inaugurated in Pangal.

All of these works involved the introduction of cutting edge technology and, altogether, they made up a huge productive conglomerate, albeit not without first of all having to overcome numerous obstacles: an initial ignorance of the environment, financial difficulties, specific conflicts with workers, an ignorance of the language, an adverse climate, landslides and avalanches and sundry accidents, etc.

Sewell, decade 1960.

11 More recent and complete historic research on El Teniente is by Baros Mansilla, María Celia: El Teniente. Men and the Mineral. Volume I appeared in 1995 and covered the period between 1905 and 1945. Volume II, meanwhile, appeared in 2000 and covers the period between 1945 and 1995. Both publications were edited by Codelco - Chile, El Teniente Division and the Institute of Mining Engineers of Chile, O'Higgins Nucleus.

12 One of these messages is in a document of enormous value when it comes to understanding the mentality and character of these pioneers and the way in which they settled such big business at that time. Celia Baros reproduces this fully in her aforementioned work, volume I, pp. 53-58.


Funicular. Worker travelling in lift bucket.

1905 was both the year when mining as such began at El Teniente by the Braden Copper Company as well as the year in which the Government of Chile officially authorized the company to operate. It is, therefore, the founding year of the Copper Mining Industry in Chile; i.e. the year in which high grade copper began to be industrialized on a large scale. The efforts put in during these first few years aimed at mining this Andean mineral, exporting huge works in isolation from civilization, tackling simultaneously a large amount of tasks with such speed, was a feat of epic proportions.

By the end of the decade, the Braden Copper Company was facing financial difficulties related to the recession of 1907 in the United States. This led, in 1909, to its acquisition by one the companies belonging to the Guggenheim brothers who injected a large amount of fresh funds into the business. The Guggenheim, it should be known, were also making large investments at the time in the saltpeter industry in the north. Our pioneer, William Braden, was now no longer a partner of the company that still bore his name; however, he did remain on the board of the company until 1915, the year in which the Braden Copper Company became a subsidiary of the Kennecott Copper Corporation.

Already by 1906, a railway line began to be built that would communicate the mine with the city of Rancagua, where connections could be made with the country's central railway line. It was a precarious job tackled at intervals and it was marked by a terrible accident that occurred in 1911. One of the timber bridges built along its stretch, the Sauzal Bridge, was unable to withstand the weight of a convoy, four of whose wagons fell with it. The accident left 11 fatalities and had widespread public reverberations because an investigation into the accident ordered by the Government determined that it was due to construction faults.

Closely linked to the construction of the railway was the sudden emergence of the city of Rancagua as the operations base in the valley of the Braden Copper Company. It was called the "Rancagua Yard"; a name that refers to its origins. In fact, after establishing the infrastructure for the railway (machine room, storeroom, railway station), the company began to set up the area for transferring loads (copper, machinery and components) from or to the port. Then, properties were equipped for use as offices, homes and services as well as the workshops for maintaining the railway and an industrial area with a sawmill, carpentry shop, a blacksmith and foundries. The Yard became the city's industrial center and eventually the institutional headquarters of the company.

In 1917, it was decided to replace the old foundry with a new and more modern one that was set up in Caletones, where fire-refined copper (in ingots) began to be produced. It became operational in 1922, giving birth to a new town around it that would eventually become second in size after Sewell.

Toward 1945, a prosperous company had been consolidated, a pioneer in many ways in the country and in Latin America which, proud of its achievements, exhibited a way of working and a lifestyle worthy of being copied with its plants and its towns. Although there was some concern regarding industrial safety, photos from the period hitherto and, above all, at the very beginning, showed that conditions were frankly bad in this field: inadequate clothing, workers traveling up and down in the lift buckets and the fairly common practice of amputating a finger in order to earn a benefit that the company gave as a result of any loss of limb. But, on June 19 1945, there occurred a drama of vast proportions: a fire broke out at one of the entrances to the mine that caused an enormous amount of smoke which rapidly spread to the galleries below, setting off a national and worldwide catastrophe when it was discovered later that 355 workers had choked to death.

The impact caused by the so-called "Smoke Tragedy" had enormous repercussions in different fields. Apart from the tremendous shock it must have been for the El Teniente community, the tragedy placed the Braden in the eye of the hurricane of accusations and criticisms and paved the way for an investigation conducted by the Government, the Judiciary and Legislature, besides the Police, of course. It generated a wide public debate on different issues: the inadequacy of Chilean legislation regarding industrial accidents, the scanty control exercised by Chile over its activities and operations and the great power wielded by foreign companies, etc. On the other hand, it sensitized public opinion regarding the conditions under which miners were working and it led to reforms in labor legislation and matters concerning industrial accidents. Lastly, it gave birth to a tradition that has been respected to this day: the solemn pilgrimage to the Rancagua Cemetery on each anniversary of the tragedy that is organized by the Sewell and Mina Industrial Union.

It took the company several years during the nineteen forties and throughout the fifties to overcome this drama and it acted as a driving force for company management to improve matters. For starters, it had to tackle an assistance program of vast complexity and long lasting, with its conflicts and costs. But above all, the company began a big program of reforms and innovations on matters concerning safety which included changing the mentality and the habits of its workers as well as those of the residents of Sewell.

With this in mind, it organized a large Department of Industrial Safety and Hygiene that would make El Teniente a leader and a model on the matter throughout the continent. In charge of this department was the expert, Stanley Jarret, who introduced technology and planning and educated the workers and their families with the slogan "safety First". Taking advantage of the novelties of the time, Jarret motivated, persuaded and generated habits and conduct which today still mark those who lived at one or other stage of their careers in Sewell, becoming a part of the "Teniente Culture". This culture's most outstanding material testimony is the modern and well equipped building that was erected in a prominent place in Sewell devoted to the Safety Department (Building N° 100).

The Braden Copper Company was producing 118,500 metric tons of copper at the beginning of the nineteen fifties which meant revenue for the country of some 83.3 million US dollars of that time. Chile was now the second largest producer of copper in the world after the USA, providing 489,085 short tons (13% of world production), of which El Teniente provided 179,914 short tons, equal to 37% of the country's total production and 4.8% of world production of this metal that was considered strategic as a result of its applications in industries such as construction, transport, electrical and armaments.

After negotiations between the Government of Chile and the Kennecott, a mixed ownership company was formed in 1967 and this company was now the owner of the deposit and its facilities. This was called Sociedad Minera El Teniente S.A., 51% of whose shares belonged to the State of Chile. This was the result of the so-called "Chilenization". Besides this, the "280 Expansion Plan" was approved, aimed at producing 280,000 tons of copper a year. This plan meant reducing costs which was decisive when it came to consider relocating the workers and their families in Rancagua.

In 1971, the ownership of the whole of the company passed into the hands of the Chilean State when The National Congress approved the Popular Union Government's initiative of nationalizing all large copper companies. After the Copper Mining Industry was totally nationalized, El Teniente became one more Division of the newly created Copper Corporation of Chile (Codelco-Chile), formed in 1976 during the Military Government.

Codelco-Chile consists of five Divisions in total; they are: Chuquicamata, El Salvador and Radomiro Tomic, (forming Codelco North which is located in the 2nd Region of Chile) and the Andina and El Teniente Divisions which are located in the 5th and 6th Regions, respectively.

World Copper Mining Production (i.e. excluding what is produced after processing copper scrap) stands at 14,500,000 tons. Of that world production, Chile produces 37.42%; equal to 5,446,000 tons which makes it the number one producer in the world (including what is produced by Codelco-Chile and private mining companies). On the other hand, Codelco-Chile's total production amounted (in 2004) to 1,700,000 tons which represents 11.70% of world production. Of this last figure, the El Teniente Division produces 434,000 tons, equal to 3.00% of world production. Finally, it is worth mentioning that a total of 4,890 persons belonging to Codelco-Chile work in the El Teniente Division plus 10,000 contractors.

3.b.II. The Sewell Mining Town[13]

3.b.II-1. The first settlements

The Sewell Mining Town had its origins in a decision taken by William Braden to locate the mill there in 1905 which, at the same time, was because the topographic conditions enabled him to take advantage of the forces of gravity needed during production, its proximity to the mine and the possibility of harnessing nearby water that was required for production. The mineral ore arrived at the mill by means of lifts that took it from where it was mined. A little later on, in 1907, the first foundry was installed next to the mill.

As a matter of fact, during the early stages, Sewell was not inhabited at all, although it did have precarious houses as well as board and lodging facilities. The fact is that in the beginning, the settlements for workers were located in the close vicinity of the entrance to the mine and, so, in this regard, we should just stop a moment to explain something: the whole of the area of the deposits as such receive the name of "El Teniente"; however, at first, both the so-called "Fortuna" mine as well as the "Teniente" mine were being worked and each had its own settlements for its workers.

"Fortuna" and "Teniente" were located to the south-east and the north-east, respectively, of the Sewell Mining Town. Mining in "Fortuna" was very intense in the beginning; several levels were dug out and for this reason, the workers lived as close as possible to the entrances to their respective workplaces. So, there were such mining camps as Fortuna 3, 4, 5, among others, as well as the so-called "Pueblo Hundido" (Sunk Town) which, of all of them, was the one that grew to be the largest and most complex. These camps suffered tremendously as a result of avalanches and landslides which took many lives with them during these first few miserable years and this was perhaps what determined the company to move their inhabitants to new settlements that were springing up, such as Sewell and the so-called "Teniente C" which eventually housed all of the residents when the Fortuna Mine became depleted and closed down for ever in 1922.

First settlements, founding phase.

13 This section is based on three sources which are found as an annex or as a complementary element; here we shall only provide a brief summary. They are: Garcés, Eugenio, et. al.: Cooperation Agreement: proposal for a study of conservation, renovation and recycling of the Town and homes and service buildings in Sewell (El Teniente Division-Codelco). Catholic University of Chile, Faculty of Architecture and Beaux Arts, Projects and Research Board, 1991. Baros, Celia: El Teniente, Men and Mineral. 1905 - 1945. Volume I. Codelco - Chile, El Teniente Division; Institute of Mining Engineers of Chile, O'Higgins Nucleus. 1995. Solminihac Iturria, Eugenio: Sewell and its intangible heritage, an unpublished document dated October 2002.


Canteen, Pueblo Hundido.

In fact, whilst the "Fortuna" mine was being worked, the first surveys of the El Teniente new deposits were being conducted and which received the same name. Different levels of the mine were gradually opened and which were identified with numbers and letters and which also housed their corresponding settlements. Already before "Pueblo Hundido" and "Fortuna" had been abandoned, the "Teniente C" camp began to be built. Conceived and planned in New York, it was the largest and most important camp of all in this area and it was built on a steep slope upon which the buildings hung in stepwise fashion, connected to each other by roofed-over corridors.

In the case of the Teniente C camp, fire was the catastrophe that affected it most seriously. In 1920 it sustained a terrible fire that took many human lives. At that moment, the camp had a population of close on 1,500 persons, a number which by far exceeded its planned capacity. The camp was to remain in existence until 1950 when it reached its highest functional complexity and housing mostly single workers. Its end is related both to the mine's levels being depleted as well as Sewell's development and better conditions, although a certain amount of public and state pressure could have been brought to bear related to the poor conditions it offered for its inhabitants (overpopulation, deterioration, problems of hygiene). Dismantling it was, in any event, a corporate decision.

Going back now to the first few years, it could be said in summary that the first settlements in El Teniente were predominantly scattered around the entrance to the mine although, from the early days, Sewell - where the Mill and the first Foundry stood - also had its inhabitants.


Pueblo Hundido settlement, Fortuna mine.

These camps were, generally speaking, very basic and precarious and most of the time they lacked any planning in their development. The buildings were of a crude simplicity; the workers lived no better than in holes dug into the side of the hill, whose slope acted as the interior wall, and the rest of any walls were made of stone and covered with branches or metal sheets for roofs. There were also those who lived inside the mines, in "rooms" built of timber in cabin style, which never failed to astound visitors. Likewise, on the inside of the mine, services were prepared such as canteens for feeding the workers. Tragedies came in the shape of avalanches and landslides. The mine's arsenal also exploded once, taking several lives with it in 1912. Although both Pueblo Hundido as well as Teniente C did represent a leap in quality compared to the other settlements, they did not offer the conditions and neither did they have the aptitudes that made Sewell Braden's main "town".

3.b.II- 2. Origins and initial development

First of all, the property's origins should be explained. In 1906, the area was known as "The Establishment", because it was here that the first mill was erected, where the mineral arrived in lifts from the "Fortuna" and "Teniente" mines. Later, the Establishment became known simply as "The Mill" until in 1915 when it finally received its definitive name of "Sewell", in honor of Barton Sewell, the former President and founding partner of the Braden Copper Company, who had just died in New York.

The Town evolved, applying the lessons learnt in the first settlements. As a matter of fact, its growth was limited by the surrounding topography, particularly the valleys of the Rivers Coya and El Teniente. But Sewell did offer the possibility of grouping together some of the works together with the population and some services, thus overcoming their widespread dispersion that was the case hitherto. There was also more space for locating buildings away from the danger of avalanches. Secondly, there were factors to be borne in mind regarding its orientation, sunshine and the winds. Also, as we saw in the previous section, improvements were introduced into the constructive model aimed at reducing its vulnerability in the event of a fire.

Anyway, it was during the decade after 1910, and particularly so during its second half, that Sewell finally became the main campsite for all time and when it received its definitive name. This was related to an increase in the demand for copper as a result of World War One and it ran parallel to the change in ownership of the company when it became a subsidiary or an associate company of the recently created Kennecott Copper Corporation.

In 1911, the railway terminal was built in Sewell and which connected the Town with the city of Rancagua, transporting freight and passengers to all parts of the Braden complex. That same year, the construction of the first single type-A family homes began destined for the American bosses; it was the start of the American Sector. For the workers, collective homes were erected which, in the early days, only consisted of one story. From 1920 onward, collective high rises were built.

The old hospital was also built in 1912 and then the definitive and present one in 1915 as well as the old theater in 1916. The first Social Center was erected in 1914 and the first Company of Firemen for formed in 1916. The Nº 1 Scout Brigade of Sewell was formed which was officially recognized in 1915[14]. From 1909 onward, the new Sewell Concentrator began to be established to the east of its former counterpart aimed at leaving the sunniest area free for homes. In 1914, the plant that produced sulfuric acid required for the concentration of copper was built and in 1915 also a new foundry which, later on, would cease operating when the Caletones Foundry, in 1922, became operational.

Let us stop for one moment in the Sewell Concentrator which saw the light of day in 1905. During the following decade, the original mill was replaced by a more modern one. The one extant today is the third version that began to be built in 1909, with the works being completed in 1912, the year in which pioneering implements were installed in it for concentrating copper using the oil flotation system which rapidly replaced the one using water.

In fact, William Braden was already aware that in Europe new technology was being developed, so he traveled to London to get to know it and he imported one prototype that could handle 400 tons of copper a day from the English firm of the Mineral Separation Company as an experiment. The system consisted of mixing the mineral in conical boxes - using blade or paddle agitators - with sulfuric acid and mineral oils. This agitation put the copper particles in suspension which then floated to the surface, thus obtaining concentration. The excellent results led to its permanent installation which continued to grow constantly. The following year, another four units were installed -for 600 tons each - then another two in 1914 and this process continued with each expansion of the Concentrator. In those years, a sulfuric acid plant was also installed in Sewell as this element was essential for the process. The cells purchased from the Mineral Separation would only be replaced by Fagergreen cells in 1956.

>From an urban point of view, where in the beginning there was only one lift, the Central Staircase was now built over it and which would henceforth act as the spinal column of the Town's future development which, at that time, was still scattered and home to 4,000 inhabitants in 1911. But it was from this moment onward that it was decided that although the railway would reach the heart of it, the Town would only be used by pedestrians, and vehicular traffic would only be able to get as far as its perimeter.

During this initial period of its development, Sewell was consolidating itself as a mining-residential complex amidst the formidable terrain of the Andes, isolated from Chilean society and only connected to the city of Rancagua by one railway line that was built by the company during the second decade of the 20th century. It was a time when innumerable difficulties were overcome and great achievements made which led to the Town being able to become populated on a large scale as well as the installation of a big scale and complex mining company and which applied technology; all of which took place in the giddy heights of the Andean mountains.

14 Our appreciation goes to Osvaldo Soto for his testimonies.

3.b.II -3. Consolidation and prosperity

Sewell began to develop as a city and reached its maturity between 1916 and 1966. The Company provided everything necessary to make it the main housing settlement of the whole of its industrial complex, clearly in the search for as much self-sufficiency as possible. Although practically all of the functions and uses imaginable (theater, hospital, school, shops, etc.) were well established in the Town, they became more numerous and larger: if by 1914 there was one school, 3 were already functioning in 1918 and there were dozens of associations and centers for social events, sports and recreation. Added to these were the State institutions: Bank, Civil Register Office, Court, etc.

Sewell was also a relevant administrative center within the company's structure. It was home to the more important executives directly involved in operations, even after the Top Management was transferred to Coya and later to a Rancagua.

Sewell is found amidst a geography that was changed by the insertion of productive installations, connected to other camps and towns such as Colón (where the new Concentrator would be erected in 1970), Caletones (Foundry), Barahona (Tailings), Maitenes (Entrance), Coya and Pangal (electricity generation), Colihues (Tailings) and Rancagua (administrative headquarters, foundries and workshops as well as the train station). Sewell and other towns scattered over a large territory in the foothills and the Upper Andes to the east of the city of Rancagua, were connected by railway which, until almost 1968, was the only means of transport.

Within this prosperity time, the nineteen forties stood out as a period of new tragedies. In 1944, another landslide seriously affected the north-eastern part of the Town, with a toll of one hundred deaths. The recently built (in 1942) Rebolledo Bridge, using steel, was also seriously damaged. This was the line that took the tailings away from the Sewell Concentrator and the bridge itself was a replacement for the previous ones built of timber and which had faced natural brunts and had to be rebuilt.

The 1944 avalanche was known as "the white death", to differentiate it from the catastrophe the following year called "the black death" which sent not only Sewell, but all of the Company and the country into mourning. An unforgivable negligence in a forge at the entrance to the mine caused a huge fire to break out as well as an enormous cloud of carbon monoxide that spread very quickly through the galleries. Tardy reaction regarding an ignorance of the magnitude of the problem and consequently slow evacuation led to the death of 355 miners. This tragedy had enormous social and political consequences and it is still imprinted on the collective memory of old-Sewellians. Henceforth, El Teniente changed for ever within the framework of a powerful and all-encompassing safety culture that is witnessed materially and emblematically in Building N°100, erected in 1947 to house the offices of the Safety Department.

Old timber bridge over Coya river.


Miners children at school.

Sewell was the center of multiple support services for production, as well as for the welfare of the needs of such a numerous population that exceeded 15,000 persons at its peak. It was also a center that took care of persons coming from other towns and camps, such as the case of whoever needed the services of a modern hospital. It also had an economic influence on the region as a center for the consumption of goods and services, because of the salaries it paid as well as the taxes collected there. It attracted a lot of people from the central zone of the country as well as from more distant areas.

Although it is true that any mining town acts as one whilst temporary mining still remains its raison d'etre, its duration remains tied to corporate decisions; the works were of such a quality that it became a highly considered Town with average standards that were far higher than in any other urban centers in the country.

Although Sewell is very much a mining town, it must not be forgotten that it did reach a high degree of functional plurality, bearing in mind the large amount and variety of its facilities and services that it eventually housed, many of which were conceived and put into practice by the company itself. However, there were also others of a public and private nature and even those that were independently organized by the workers. It had its own theater, 7 social clubs, a gym with heated pools, a soccer pitch, bowling alley and a pitch-and-toss court. It was also an important educational center with six primary schools, evening classes, an American school, a private school and an Industrial School.

Its hospital was considered to be among the best in the country; it had a Catholic parish and Protestant churches. Prominent among its public services were : the Police Station, a Lower Magistrates Court, Post and Telegraph Offices, Civil Register, agencies of the State Bank of Chile and a series of local shops that were handed over to private persons to run as concessions. Among its complete network of services were its drainage and drinking water network and, from the nineteen fifties onward, it had a waste disposal system that was unique in Chile at that time.

Also, such functional complexity should be compared to what existed in other towns in the country of similar size, and Sewell, without a shadow of doubt, stood out, not only because it had so many different services for its inhabitants, but also because of the quality of those services.

This mining center's role in the region where it lay is also worth analyzing; emerging in importance, as it did, as a permanent center of attraction for people which remained so even after it had been evacuated. At a time when there was a scarcity of housing in Rancagua, it withstood people returning to occupy its good quality houses and apartments, in spite of its distant location.

3.b.II- 4. "Operation Valley" depopulation and depletion (1966-1980)

Well into the second half of the nineteen fifties, the company had already begun to study the possibility of transferring the population down into the valley. Kennecott commissioned a preliminary project from the Kaiser Engineers International for enlarging El Teniente's production. The study was submitted in 1957 and it was known as the "Codegua Plan" because, basically, it involved installing new facilities required, proposing that they be set up in the valley below and in the town of the same name, closing down all operations in Sewell and in Caletones, in view of what it cost to maintain them. The construction of homes was envisaged in cooperation with the Housing Corporation, a body belonging to the State of Chile. The plan was enthusiastically promoted by Kennecott and President Alessandri's Government (1958-1964), given the advantages that such investments would mean for the country. However, the nation's Congress did not approve it and so it never materialized.

Notwithstanding an in-depth study of the alternatives to the Codegua Plan for Sewell during the 1957 to 1958 period, Engineering Study GER-374 was conducted which involved a radical transformation of Sewell's non-industrial facilities as a result of some principles consolidated during the International Modern Architecture Congress. Among such ideas was that of erecting reinforced concrete buildings to replace those made from timber; lay the town out in grid fashion instead of following the terrain's topography; substitute a compact organization with an open one, with greater separation between the buildings; improve the houses' standards and resolve pedestrian movement by means of 4 funiculars.

These ideas never prospered and, in the end, it was decided to transfer the inhabitants down into the valley, but Building Nfk 501, built in 1958 with reinforced concrete eight stories high still remains as a testimony to that program. The decision not to carry out such a far-sweeping and wholesome transformation of the Town bears witness faithfully to the efforts and perseverance that helped keep it together since the onset of the 20th century.

The so-called "Operation Valley"; i.e. the translocation of Sewell's inhabitants to Rancagua coincided with the Copper Industry's "Chilenization" and, as a result thereof, El Teniente in 1967 and subsequent nationalization in 1971.

The administration of the mixed company created within the framework of "Chilenization" had to convince its workers and their families, who by then numbered over 12,000 persons, of the advantages of moving to the city and becoming homeowners there. The administration examined the deep-seated reasons for resistance, coming to the conclusion that it was the workers' wives who were more willing to accept the change because they perceived that the city would provide them with greater opportunities for education and work for their children. The workers and union leaders negotiated with the company the best conditions possible and they agreed, not only on the company providing housing for them but also that it would invest in health, sports, recreation and other benefits similar to those they had enjoyed in Sewell.

In 1968, the Copper Highway was inaugurated to replace the railway. In 1972, Shaft C and Teniente Tunnel 8 came into service which were included in the Expansion Plan and which enabled personnel to be transferred along the underground railway inside the mine plus a lift that would take them as far as Sewell. This meant a big savings in transport time and it avoiding having to cross the whole of Sewell to get on the train. The improvements nevertheless took away human activity and life from the Town, already under its depopulation process. Among the most memorable images of these last few years in Sewell are the speeches that were made by the Cuban leader, Fidel Castro together with President Salvador Allende from the balcony of Building N° 105 during an official visit the former made to Chile in November 1971.

In 1979, the cashiers closed up shop in Sewell, bringing to an end one of the most characteristic routines that gathered together large groups of workers every so often. On March 15 1980, the last train journey was made covering the stretch from La Junta as far as the Yard in Rancagua.

After nationalization and, particularly, after the formation of El Teniente as one of Codelco-Chile's Divisions created in 1976, the reduction, demolition and assignment of materials from Sewell got fully under way, because it had been decided to close down the Town itself altogether based on considerations of an economic nature related to the high costs of maintaining it.

>From that moment onward, Sewell became a dormitory city for personnel belong to contractors, sometimes housing as much as 5,000 persons at a time; but this time it was workers by themselves and without their families.

In 1994, the Ministry Secretary of the Presidency declared an area of 120,000 hectares around the Foundry of Caletones a "Saturated Contamination Zone" which included the town of Sewell as well. In December 1998, the contractors' workers had also to be evacuated when the National Commission for the Environment established the Caletones Decontamination Plan.

3.b.II-5 . Protection and conservation

Faced with Sewell's imminent disappearance, voices clamored for what was deemed to be the loss of a piece of heritage of the first order in the country. Already between 1976 and 1978, the El Teniente Division had conducted Engineering Report IG-4836, which underpinned the dismantling process and proposed that Sewell be safeguarded. Simultaneously, the idea was publicly fostered that the Town be declared a National Monument, something which was, in fact, attempted during the nineteen eighties. The company's opposition and the existence of a military regime in power at the time which was hardly the best background for discussing the conservation of heritage, thwarted these attempts.

During the nineteen nineties, however, a series of events combined that changed the hitherto somber scene of Sewell's fate. The company's new administration understood the property's high value and enormous potential and it began to project new vocations and uses for it related to education and heritage tourism, basically. So it was that on August 27 1998, the Ministry of Education, with the aid of Codelco-Chile, declared the Sewell Mining Town a National Monument, thus protecting the site from any further encroachment. That led to the El Teniente Division establishing the "Strategic Action Plan for the Conservation of Sewell", within whose framework the site was able to be safeguarded and restored.

3.b.III. Life in Sewell[15]

Hereafter we shall tackle aspects of the life in the Town, in the search not only for providing the property with an essentially historic dimension but also attempting to reveal its significance from a cultural as well as a ritualistic point of view within the collective memory of those who lived in the Town and which, today, is an essential part of its value and projection as a heritage.

3.b.III-1. Organizational, social and hierarchical structure

Given the scarcity of land and the abruptness of the topography the company, seeking to take advantage of what space was available, developed Sewell in a concentrated and compact manner, within a process where economy and efficiency were the guiding principles. The industrial, residential and service facilities all shared the mountain for their common location.

From the very beginnings, the houses were different as regards surface areas, services and location within the Town and they depended very much on what level the workers enjoyed in the company hierarchy. So it was that this hierarchical structure remained for all time on the hill, with different locations and qualities of homes depending on the status that the occupant enjoyed within the company structure. The spatial distribution of the houses and their types according to this hierarchical criterion was also followed with all other facilities, such as the social clubs, schools and others that also followed a pattern of differentiation depending on the class to which the worker and his family belonged within the company.

American sector, decade 1930.

15 This part of section 3.b. refers to a summary of two valuable works by the sociologist, Eugenio de Solminihac Iturria: Sewell and its intangible heritage, an unpublished work from October 2002 and Sewell as a Human Organizational Settlement, a paper read during the Seminar on Industrial Heritage organized by the Association of Architects and the Faculty of Architecture of the University of Santiago, held in Santiago on July 8 2004. Both documents can be found in their entirety in the Annexes. Here, we have introduced small additions to its content as well as some contributions provided by other sources, particularly the work of Pablo Ignacio Lepe Inostroza, already mentioned. It is worth mentioning that both authors use in their works the research put in by Celia Baros; both her work already mentioned as well as oral testimonies gathered by her.


Future miners, formerly peasants.

The Town reproduced, therefore, the structure of Chilean society at different times, highly structured as regards hierarchy. Having said that though, in this case the highest level possible was that of American executive who, as time passed, blended in with and shared his space with Chilean executives and professionals who joined the company at the highest possible levels of the organization. Social differentiation stood out even more when the characteristic formalities of any organizational structure were added on the one hand and the scanty availability of physical space that existed with a high population density closely interacting in a town on a reduced scale on the other.

3.b.III-2. The environment, isolation and a tendency toward self-sufficiency

The Braden Copper Company was the first company of its kind that became established in the Chilean Andes, willing to face the unknown and without the proper elements to do so. Its first connection consisted of a wagon trail that was replaced by the railway from 1911 onward. In the beginning, it only went as far as La Junta; i.e. where the Rivers Teniente and Coya flowed into each other, but from the nineteen twenties and onward, it reached the center of Sewell.

To the risks that were normal in any mine, always high because we are dealing with underground works using explosives, in Sewell was added the ever-present threat of inclement weather, landslides of rock and mud and avalanches of snow that took many lives. The risks of fire were always a concern because a lot of the industrial facilities coexisted with houses built mostly with the use of timber.

The photo of Sewell snowbound and illuminated, taken from the hill in front, and which is fairly ubiquitous, was and continues to be an icon that vividly reminds us, not only of Sewell itself but also of El Teniente and it should be remembered that this company has bestowed upon us the most important of its many valuable endowments, at least the one that has had the greatest possibility of signifying what it has meant and continues to mean.

The staircase, as an urban characteristic that connects all of Sewell, marked the Town's way of life in many different ways. It was a meeting place, a recreation area and a promenade for recently married couples. The stretcher-bearers carrying the sick became skilled in climbing up and down it at great speeds whilst compensating for the gradients and the steps that acted as obstacles. Although Sewell's altitude rarely produced height-sickness, the steepness of the slopes made any attempt at climbing them a slow process, undertaken little by little, stopping every now and again to catch one's breath.

Isolation and Sewell's difficult access meant that work shifts were long and trips into the valley and the city were made only every 15 days or so. To obtain a "pass" for the railway was something highly valued by the workers and their families. This was one of the problems of living in such isolated circumstances and accounted for many personnel in the company, after a long stint and despite the incentives they received, deciding to leave its services.

This relative control over trips to Rancagua reinforced the isolation that already existed due to the geography of the surrounding terrain and resulted in a characteristic of settlements of this type arising that acted in favor of the inhabitants conforming to the same standards, as well as the company's paternalistic attitude aimed at meeting the workers' needs at the same time as it safeguarded the interests of production.

These factors, plus others of an economic and tax nature, began to form an orientation toward self-sufficiency and independence which was very successful in the long run. In Sewell, the most important components were manufactured or produced, not only such items as water, electricity and bricks, but also other goods and services of a different nature, such as medicines for its hospital, project engineering and even coffins. The company acquired its own farm near Coya where it bred livestock to supply the Town with milk and meat; the cattle was driven as far as Sewell, put into pens in the area near La Junta where it was slaughtered and cut up. Likewise, it also acquired several properties in the south of Chile so as to be self-sufficient in timber stocks.

This high degree of independence led to a company culture and the Town's inhabitants becoming self-assertive with a high degree of consciousness of living in a community capable of supplying all of its own needs, with clear differences and advantages of how they were doing things compared to the rest of Chilean society. This independence not only appeared as regards material goods where anything that could not be imported from the United States was produced or manufactured by the company; it also concerned human dimensions regarding the type of person that had to be trained to be able to work in the company. The Braden Copper Company invested large sums of money and effort in training and instructing its personnel, forming specialists who not only worked in its organization but who proudly bore the hallmark for ever after of being a "Braden Technician".

3.b.III-3. The origins of the workforce and cultural changes

The origins of El Teniente's workers and, for several generations, those of the inhabitants of Sewell, had their roots in rural areas, not only from what is now the 6th Region of "Libertador Bernardo O'Higgins", but also from a more widespread geographic area that extended from the Near North down to as far as Valdivia in the south. They were attracted to work there for several reasons: some came on their own initiative in search of work, others were attracted intentionally by the peculiar recruitment system, particularly the one called "enlistment" (which consisted of persuading the worker in his own environment to go and work in the mine) and, later on, persuaded by relatives who were already established there.

Early workers building railway.

The first ones to arrive were very poor who had to be looked after so that they could learn, step by step and with a large dose of patience, everything relating to their new job and way of life. To become a worker belonging to El Teniente and an inhabitant of Sewell profoundly changed their lives and their economic habits, transforming them into operators and possessors of technical qualifications to be able to perform in this new environment. Particularly during the first four decades, the deficient safety conditions, the workers' own lack of concern for and ignorance of mining matters as well as their lack of physical protection (the proper gear), left them very exposed in a naturally hostile environment, undertaking a very dangerous job.

For the company, having a stable workforce that would remain for long periods of time employed by it was always a challenge. Already in the very beginning, William Braden was faced with this problem, and having realized his workers' fondness for games of chance, he thought up a lottery with high prizes that were drawn on Independence Day, in which everybody who had worked throughout the Winter could take part. The flyer that announced this draw read "Fortune; Wealth; Come to El Teniente" and it showed the God of Fortune showering money from a horn of plenty.

This icon reflects the way in which the Americans introduced money as an efficient incentive when it came to hiring a workforce that would be constant and perform foreseeably. Those who were motivated in this way had hardly ever handled money at all in their lives and had no notion of saving even a fraction of what they earned, which was something characteristic of the rural world and the farm from whence they came. To the money incentive would be added a growing and complete range of benefits devoted to meeting the majority of the workers' needs.

The "enlistment" method (aimed at attracting operators) was exercised by "enlisters"; ingenious persons with an ability to convince, who would ride on horseback through the villages and fields and specially the bars where they gained the sympathy of their customers paying their bar bills. They spoke to them of El Teniente and described to them what labor conditions they might expect and, after convincing them, loaded them onto railway wagons headed for Rancagua, where they collected a commission for every person contracted in this way. This system was in operation from the nineteen twenties until the mid-nineteen forties when it lost a lot of its novelty and when another type of person was required in the works as well as the enactment of labor legislation in 1948.

Whilst the "enlistment" system functioned, it did resolve the mass recruitment that was required by the company, given the urgent need for labor and the extremely high rate of desertion by workers that existed. This meant for Braden more than a few conflicts with agricultural owners when the latter found themselves suddenly without labor as a result of a system that was spreading over more and more areas around Rancagua. The desertion of workers from Sewell heightened as a result of the lack of holidays prior to 1940 and it became particularly worse during the harvest season.

Around 1945, a more impersonal and modern method of recruitment began to be gradually introduced and which consisted in hiring whoever turned up on his own initiative at Braden's offices. At the same time, a "pass" system operated which enabled prospective workers to board the train, sponsored by a brother or a friend and which had to be authorized by a superintendent. Over time and as a result of an agreement by the administration, more and more conditions were added to contracts: firstly, those who had worked temporarily in the company were given priority and then, later, workers' sons.

It is worth mentioning that such a strategic system whereby an organization recruited new members evolved from mass and rather crude systems into others that envisaged some elements of impersonality and objectivity, without ever losing the features of a traditional culture in which as close relationship such as family or friendship were necessary to join. This is something that was even officially incorporated into the company's policies.

The consequences of all of this in a community living a mining town only reinforced the very primary and strong ties that existed between its members, all of which become confused among the roles of worker, inhabitant of Sewell, neighbor, family or friend. Among the dead after the Smoke Tragedy of 1945, there were 10 workers who had been born in the company's towns, which showed that the members of a new generations had already begun to replace their elders; a trend that would increase at a later stage.

Early workers.

Early machinery arriving to Sewell, decade 1906.

It was also as a result of the Smoke Tragedy and the expert, Stanley Jarret joining the company that a new way of understanding and practicing safety in operations, on the railway, in the towns and all over the company's premises began to take hold. The underlying culture from which this change sprang is hardly functional and little understood, but the change was the result of many well coordinated and executed actions which were not only to the benefit of the workers, but also to their wives and children. This was because, as they were also living in the Town, they were also exposed to risks in the close vicinity of the industrial facilities but, above all, because they were good at understanding, transmitting and reinforcing the notions of safety learnt from their parents.

Almost nothing is left of the rural then mining mentality of former times, an accomplice of his workmate and friend, who would go as far as cutting off parts of his fingers in order to collect an indemnity the company paid for body parts lost in an industrial accident. So little respect for one's own body and even one's own life as well as anybody else's, was a cultural feature that existed then. Sewell, a witness to the Smoke Tragedy, which watched 355 coffins descend its staircase to be taken to the train that would send them to rest in Cemetery Nfk 2 in Rancagua, became a sort of social melting pot in which an emblematic cultural change was already boiling. For the population of Sewell, for all time marked by this tragedy, safety became a social value and a cultural practice.

3.b.III-4. Values

Sewell and its so peculiar and special urban layout, offered a physical place where its own distinctive culture was nurtured. We understand culture as being a set of common values, knowledge and perceptions and basic theories shared by the members of a community of persons operating unconsciously who have enabled and continue to enable problems to be resolved and which are passed on to new members. Some of these elements of the Sewellian culture that came about in the course of the Town's history, are described hereafter.

Sewellian school girls perfectly uniformed.

Efficiency and success

Such values were present since the very moment in which William Braden decided to form the company and build what was necessary for producing copper in the mountains. He and his countrymen were the representatives of a historic moment for their country and the prototypes of the North American of that era.

Geopolitically, the United States had already occupied several small countries bordering on the Pacific and it had penetrated and economically expanded them with technology and resources together with people within a context of the rise of private enterprises. All of that coincided with a period of industrialization that was thirsting for copper during a pre-war stage of world affairs and, lastly, with persons anxious to play out the American dream of the winner who, rising up from nothing, arrives in a country where he earns a high salary, pays hardly any tax and able to become a millionaire if he decides so.

This ideal was very useful and efficient when it came to resolving the innumerable problems and challenges of a very complex enterprise. The North Americans began to create a school among their Chilean workers, motivating them to learn new trades, acquire know-how, rewarding them with material and immaterial incentives and creating a shared valuation of "doing things well" and moving forward, thanks to that.

This efficiency applied not only to production but also to living and it is clearly visible in the case of Sewell. Here is how an observer described the following way of life in the City of Steps:

"It is like living in the innards of a sleepless machine that is always reminding you that it is he who gives the orders here. And, just like machines, everything in Sewell is disciplined, rhythmic, even for the visitor: light, heat, mealtimes and bedtimes at the guests' staff, where it feels like you are doing military service again"[16].

One characteristic of this culture was that of being proud of having overcome difficult tasks, having the skills to face them and to feel that one was better off than those in other communities and organizations to do so. Among the manifestations of this basic belief lay also the convincement that Sewell, despite its limitations, was a model town, a place where one enjoyed living or looked forward to living.

16 Campo-Amor, Eduardo: Chile in Sight. 1951. Cited by Eugenio de Solminihac I. in "Sewell, organizational human settlement", a paper read during the Seminar on Industrial Heritage organized by the Association of Architects of the University of Santiago held in Santiago on July 8 2004.

Health care

Human life was always seriously at risk in Sewell as a result of different factors related to a physical environment full of dangers, a harsh climate, working in one of the riskiest jobs there is. To this was added the fact that such a numerous population, in the early stages at least, was a long way from any hospitals and seriously lacking in hygienic habits.

One's attention is drawn to the fact that in Sewell, with its significant population and numerous deaths, it did not have a cemetery for burying its own dead. There is a record that the company sent several pleas to the authorities urging them to build a cemetery in the Town, but nothing ever came of the idea. In Sewell, only the stillborn and very young babies were buried there.

Since the early days, significant steps were taken to care for the lives of its inhabitants. Preventive exams and wide medical cover for the workers and their families created a consciousness of caring and concern for health which were always high on the agenda when union demands were ever put forward. This matter was also of great significance when "Operation Valley" was conducted, inasmuch that one essential demand was that the company benefits they would have in Rancagua would be on a similar level as those they had enjoyed hitherto in Sewell. Health prevention and recovery became a very deep-seated social matter for Sewellians who enjoyed cover on a level with a highly developed social and economic society.

Morality

Observance of moral rules of coexistence, both public and private, was a problem for the Town's administration and an explicit objective of company policy. The right conditions had to be in place that would enable life in community to evolve where respect for others remained a number one priority and where any moral conduct that deviated from the norm did not put at risk the residential model that was proper for a densely populated mining town, home to persons of all different social and educational conditions.

The administration emphasized two aspects: marriage as the basis of family life and a prohibition on alcohol[17]. Those in charge of seeing to it that these two precepts were obeyed were the Watchmen, an internal control group who acted as the company's law enforcement agents (let us not forget that in Sewell there was also a Police Station manned by ordinary Chilean Policemen). The Watchmen, conferred with wide powers and, at times, overdoing their job, scrutinized people's lives to make sure that the company's rules were being obeyed. Very often accused of overstepping the mark into people's private lives, they were not very popular among Sewellians.

17 These aspects are tackled by Lepe Inostroza, Pablo Ignacio: op. cit. pp. 86 and onwards, from whose work we obtained some information on the matter.

Just like in another companies of this type, the Braden Copper Company preferred to hire married workers, because they were the ones who would work harder and be less conflictive. But it was also opposed to cohabitation among unmarried couples. In 1917, the Company required that married couples exhibit a Marriage Certificate as a condition for occupying a house in the Town. Years later, the Watchmen checked all corners and hiding places under stairs, for example, where couples would go for a certain amount of intimacy and if they were discovered time after time, they were told to get married. However, the bosses were not subject to any controls and several children were born of Chilean-North American extraction out of wedlock, for example.

There were no brothels, of course, in Sewell and the workers were only able to visit them when they went down to Rancagua.

The prohibition against introducing alcohol and drinking it was another order that the Watchmen had to see was complied with, given the stricture that the Town was subject to a Dry Law. With regard to this issue, it must first of all be pointed out that the prohibition on drinking covered a wide majority of workers and employees but freed the top bosses from this obligation. On the other hand, the Dry Law that was officially established in the areas of Sewell, Caletones, Barahona, Coya and Pangal, all of which were owned by the Braden Copper Company, was legally endorsed by the Republic of Chile (N° 2776 of August 5 1932). In other words, the State of Chile seconded and honored this company policy.

Lastly, a word must be slipped in here regarding the guachuchero, a person who illegally sold alcohol, especially spirits. They were persons from outside the organization of Sewell, but they earned great respect and even admiration among the population because they symbolized independence, daring, rebelliousness and resistance. The Dry Law in Sewell was as useless as wherever else it was established in the world and it was such that nowadays some old-Sewellians declare that they never drank as much as when they lived in Sewell, or that in Sewell people drank like nowhere else[18]. This, of course, is closely related to the type of resistance that arises out of prohibitions of this type.

Overall though, and as a reflection of a culture with such "moralistic" features, enforced and controlled by the administration, Sewell still maintained a numerous population, it recorded very low crime rates and its respect for children and youngsters was an outstanding characteristic of its form of coexistence.

Tolerance

If family's private lives were, at one time or another, restricted whilst living in Sewell, there was great tolerance for religions, ideologies and militant politics. The Braden Copper Company, from the very beginning, never interfered with these aspects of community life, accepting anybody willing to work, who fell in with its ideals and obeyed the company's rules. The same occurred in religious matters, such as the very revealing phrase that was used at that time: "there is no God here but copper".

18 Testimonies gathered by Celia Baros and cited in Lepe Inostroza, Pablo Ignacio: op. cit. p.94.

Medical exam, decade 1940.

Huachuchero (alcohol smuggler).

E.S. Sorensen National Scholl teachers.

There was a Catholic church in Sewell, another for Evangelical devotion and facilities for Masons. On May 14 1927, Andes Nº 20 Lodge was inaugurated with 43 founding members, the majority of whom were foreigners. They used the old gym for their ceremonies which was decorated with ritual symbols for this purpose.

Political parties, including the Socialists and Communists who were open critics and in opposition to the North American company, had their own centers in the Town which were provided for them by the company and where they established their headquarters. Periods when their activities were tightly restricted, if not openly repressed, were no different to what occurred in the rest of the country.

This spirit of open-mindedness and respect for different trends and thoughts was ingrained in the inhabitants of Sewell, who very profoundly practiced the values of tolerance which facilitated coexistence within a harmony of diversity inside their urban limits.

Quality of life and education

The inhabitants of Sewell enjoyed very high standards of living which had no equal anywhere else in the country. The company assumed, from the very early days, tasks that went beyond merely productive operations meeting, most widely and completely, the most diverse needs of its workers and their families. In this sense then the workers, and specially their wives, placed a lot of value on their children's education, and this is where they discovered how they could overcome the social conditions their parents suffered.

Workers clearing railway after avalanche.

Generally speaking, educational programs were those established by the State of Chile through the Minister responsible and teachers were public servants, although they did receive a subsidy from the company. In the very beginning, some assistant teachers were also hired. This did give rise to some conflicts between the State and the company, for example, due to the amount of the subsidies, or not granting houses for married teachers or the rejection of some appointments. For the children of the North American personnel, there was also a special school that functioned on lines like those in the USA and the children of Chilean bosses attended a private school.[19]

The school year was split up differently to the rest of the country because of the climatic conditions. Education was only primary and for secondary, the only options open were Rancagua or some other city in the country or the Industrial School in Sewell where the students were taught trades that could be applied in the company itself. A few Sewellians went on to secondary education outside the Town and, particularly, in the very prestigious School of Mining of Copiapó (located in the mining area of the Far North of Chile). In Sewell, education included also literacy programs for workers.[20]

So it was that the phenomenon of education arrived very early in the Town. In fact, it spread to other areas of the country later on within a process that would enable a numerous middle class to emerge. The idea of maintaining this access to education, let us not forget, was of key importance throughout the period of "Operation Valley".

The provision of social services such as education and also health was a part of the labor policies of the Braden Copper Company, immersed as it was in a profound paternalism and, among other reasons, because there did no exist any other alternative of receiving any social benefits. The State was not able to do so. This paternalism was accepted by the workers inasmuch that it enabled them to attain living standards that were far higher than the average across the country.

Solidarity

Miners have always been very mindful of their colleagues and families and in cases when catastrophes occurred, they joined forces to come to the aid of the needy, generously providing for those without, always proud of the sums they were capable of collecting as a community given their number and level of earnings.

Solidarity as a cultural value also took on a very peculiar institutional shape, not only through the union channels but also by means of another expedient not controlled by such associations. Such was the case of the historic "Mutual Societies"; groups of workers from the one same department in the beginning and which later accepted members from others on condition they paid their regulation fee. They had a fund that enabled loans to be made to their members and provide for them in the event of an accident, death or retirement from the company.

19 Ibid., pp. 77 and onwards
20 Ditto.

Rationality

The first inhabitants of Sewell, together with their country-style clothes, were the bearers of a series of beliefs and explanations of how the world functioned. One of these valuable cultural components was fatalism, a way of thinking that that consists of ascribing to fate any unknown forces that are incontrollable by human beings, the success or failure of a company and even as far as explaining a tragic death. Such trends of thought were accompanied by a series of superstitions that ascribed magical links to a concatenation of events which had no logical connection between them, generate omens and attribute facts to causes of a mythical nature. It was against this background that the supervisors had to gradually introduce a way of thinking that was based on specious reasoning when it came to interpreting the world and how it functioned.

This culture changed with the passing of time and a higher level of training and education was attained, incorporating elements of rationality more in line with the efficiency required by a complex and modern organization. An illustration of this process was the declaration by the worker who pointed out that: "nobody seeks an accident, bad luck does not exist, accidents are not caused by chance, but by recklessness". So, the bearers of this new mentality considered themselves as perpetrators and thus responsible for what happened to themselves in their lives and the makers of their own fate.

Traditionalism

Although it is true to say that in Sewell, lifestyles evolved appreciably, with very different cultural worlds that incorporated, due to functional needs, many elements of modernity, there were still others that remained just below the surface and which had a clear traditional stamp upon them.

Through the paternalistic relationship between the administration and its workers, the latter found an image that was recognizable and even familiar in the other that resembled to a certain degree what they had left behind them on the farm: the land-owner or boss. That image of the "father" became, within the Town's collective imagination, a figure who was even more accommodating and understanding, specially when they would become familiar with and identify the company as "Mother Braden" and, later, as "Mother Company". Neither labor conflicts nor long strung-out union grievances were able to change these deep-rooted representations that ascribed the company with the role of provider, a generous mother, whose resources would never fail them.

American bosses.

Another feature of traditionalism was the practice, already touched on, of preferentially recruiting from workers' family members. The close contact between the boss and the worker and their physical closeness in the Town, enabled the former to get to know the worker's family, his children, and this was something that led to prefer hiring members of workers' families and instill it as an institution. This was also true of rural areas, where all of the members of a community know each other that defined a series of very personal relations of a primary nature. When workers were replaced by their sons, the sons of Sewellians replaced former Sewellians in the Town, thus setting the scene for a culture that was transmitted not only by the company but also by the families, their neighbors, the unions and the whole of the community that had shared a very peculiar way of life and which they intended preserving.

3.b.III-5. Cultural exchanges

For the very beginnings, the Braden Copper Company, through its executives, was bent on causing cultural changes among its personnel who joined the company as one of its explicit corporate activities. This was no better illustrated than in the aims pursued by the "Welfare Department".

The instruments used for causing radical changes were many, but specially worthy of mention, due to its efficiency, were the financial incentives that rewarded the development of a conduct the work required; the system of industrial training for the new employee who was placed under a sort of "tutor" during the initial familiarization period of his employment and the issue of a series of rules for the workers and for the townsfolk as well: real local legislation. They ordered and governed life in community and penalized any straying with different degrees of severity; from making any transgression publicly known to the ending of the labor relationship and the ensuing dismissal of the transgressor from the Town.

The changes and adaptation experienced by the farm worker who had emigrated in search of better living conditions represented such a difference in their lifestyles that in the early days, failures were often discovered in the process. Proof of that are the very high rates of rotation of personnel in the company: as high as 75%.

During the first decade of its existence, there were 360 foreigners living in Sewell and working in the Braden Copper Company, which represented 2.6% of the total population. According to the census conducted in the Town in 1922 (December), of a total of 6,358 inhabitants, 270 were from the USA or from Europe which represented 4.2% of the population[21]

With the passing of the years, the Americans opted for incorporating Chileans into positions of responsibility, providing them with the ranks and their corresponding benefits and assigning them homes in the American Sector. So, obviously, the percentage of foreigners gradually declined and in the census of 1954, Sewell had 10,468 inhabitants, of which only 105 - 1% of the total - were foreigners. In the nineteen sixties, the number of foreigners in the company numbered only 80.

21 Ibid. p. 59.

Security awards.

July 4th celebration, U.S.A. Independence Day.

This substitution reveal the process whereby Chilean technicians and professionals were gradually incorporated into positions of high responsibility within the North American company, which meant assimilating its style of administration and also its daily living habits. In the social field, one of its most characteristic manifestations was golf in the Coya Country Club and the equivalent of a bowling alley for employees and workers.

It can be seen then that isolation, the mutual chief-and-subordinate predisposition and an exaggerated vocation for learning together with paternal attitudes, were powerful vehicles for forging intercultural relations and solid foundations for the paternalistic link that characterized this relationship for decades on end.

The Chilean worker respected his boss, because the latter's management style was hands-on, withstanding the rigors of the climate, the risks and emergencies alongside his operators as well as issuing instructions knowing what he was talking about concerning what action had to be taken. This respect and admiration gelled also with his concern for human needs and coexistence in the workplace which sprang forth when they shared a coffee or when they gave them as gifts old materials that had been replaced by new ones.

Having said that though, there were obviously glaring social differences, the different location within the labor hierarchy and conflicts on the job had an influence which were also due to a difference in nationality. It was thus that the workers would refer to their bosses as "gringos"; many of whom -particularly those married to Chileans - took part and got involved in the world of the Chileans. There were also those who were referred to as "gringo people" because they had a more fluid relationship with Chilean workers.[22]

There were, among the North Americas, those who used the term "native" when describing the Chileans derogatorily. A high North American boss would put the Chileans into two large groups, when speaking derogatively of them also; they were, according to him, "huasos" or "Indians"[23]. The huaso is a countryman or farmer in Chile. The concept as such as not at all pejorative and sometimes quite the contrary, but it always refers to someone who is rather rough, basic and lacking in education. The word "Indian", on the other hand, has been used fairly often in Chile in a derogatory manner and this is what the boss would clearly infer when using this term.

However, we cannot afford to simplify when it comes to summing up relations between the Chilean workers and their North American bosses. There were obviously tensions and they must have increased over time as a result of ideological and political factors. But there do exist a lot of witnesses to the fact that harmony, respect and even affection reigned most of the time.

The foreigner was schooled in valuing people's willingness to work and not take into consideration his educational background too much. He motivated performance with money, but he also rewarded those who excelled by means of a system of promotions based on each one's own merits, without favoritism or taking into account any other considerations of a personal nature.

Firemen squad.

22 Ibid. p. 65, taken from Celia Baros' interviews.

23 Ditto.

The financial incentives as a reward for work done and as an element belonging to a certain culture, can also be found in other dimensions of life in the Town, such as the fire brigade and child labor, both of which were influenced by the North American culture. In Chile, firefighters do not receive any remuneration for their work; they are all volunteers and do so willingly. In Sewell this was not the case, because the administration felt that although the people cooperated in this task freely, their cooperation should be remunerated financially and thus receive a special bonus. So, it was a fact that the fire brigade in Sewell was the only one in the country that was remunerated.

Following the patterns of the lifestyles of the North Americans, inclined to raise children to look after themselves from an early age, the company authorized and regulated child labor outside school hours, in jobs such as delivery boys, basket weavers or box office attendants in the theater.

Language, a core component of any culture, developed its own features in Sewell, denoting with terms and expressions, the particular living conditions that existed there. Besides the terms in English and their deformations, a large amount of expressions were coined that were taken from rural life and which were used when applying them to objects and situations in the mine or in the Town, such as the different types of minerals, the machinery, persons or objects that were used. The grinder was given the name of "chancho"; a type of mineral with red streaks in it was called a "rooster's eye". Electricity was called an "energized donkey" and condensed milk was called "tinned cow".[24]

The mix between the two cultures agglutinated over the years and, typical of such processes, it occurred gradually and it was hardly perceived by the persons involved. There were influences that flowed both ways inasmuch that the foreigner, by coexisting and dealing on a human level, acquired conducts and mentalities that were patently Chilean, whilst the workers, besides the cultural channels of learning, did so as a result of working for a company that was deliberately designed to inculcate habits, skills and values that fitted in with its production targets.

However, during the process there do appear discernible intentions that go beyond what was a purely instrumental teaching aimed at producing. Similar to what the engineer declared who investigated the "Smoke Tragedy" on behalf of the Government, when he came to evaluating everything that had been done by the company afterwards, he mentioned that "a humanitarian consciousness must be assumed that was far in advance of official measures, even exceeding basic prevention". This can also be applied to what occurred in the field of education and training and in many others dominated by the company's administration.

3.b.III-6. Physical spaces between what was private and what was public

The building of semi-detached housing for the workers, the establishment of regulations for their use and controls regarding compliance, made for a situation that was entirely different from that in other urban or rural contexts.

24 The question of language is dealt with in Fuenzalida Grandón, Alejandro: Work and Life in the "El Teniente" Mine. Barcelona Printers, Santiago, 1919.

The houses had been designed in the USA and the social and cultural realities of Chilean families were not always compatible with the assumptions with which such spatial conceptions had been designed. Soon, the presence of the extended family was felt, whereby relations lived in common areas, or some homes had domestic help, pets or they squeezed some sort of small business into one or other of their rooms. For this, the interior distribution had to be altered and the regulations forbade such acts, unless a special authorization had been obtained previously.

The Watchmen, in charge of making sure these rules were obeyed, practically converted private living spaces in homes into semi-public ones when they wielded the powers they had been given to inspect, and thus they destroyed the intimacy which a family in any other part of the country enjoyed.

The prolonged coexistence of a numerous group of families in one same house for years on end and the scarcity of space available, gave way to a situation in the Town in which each family nucleus lost its identity whilst becoming confused with a larger group of inhabitants in the same house and which very often led to there arising very peculiar primary ties of affections. Such a human situation of habitation led to women becoming the leaders of the floor, frequently resolving conjugal problems as well as those concerning daily coexistence and others of different natures, often acting as the go-between with the administration when they could no longer cope with the issue.

But apart from the close interaction that was felt in one same building and on each one of its floors, there did also exist a very close interaction within the Town as a whole. The narrowness of the pathways, the density of the buildings, the use of any residual spaces, the obligatory encounters whilst going up and down staircases, in shops, in the train, meant that the Town was very much a shared universe. One symbolic detail in this respect was the way in which clothes were hung out to dry, using lines and pulley systems strung between the buildings which were pulled to and fro as needed. This system provided an image of what Sewell was really like by showing that spatial overcrowding led to closer social ties and the need to share. This physical dimension of a shared universe went hand in hand with a more immaterial one, relating to everybody belonging, ultimately, to one same company, to a limited group of associations, with common services and, above all, common living quarters.

Contrary to what occurred in the population in the rest of the country, in Sewell men were far more numerous than women. The paucity of homes for families meant that many married men lived in the Town as bachelors. Records from 1969 show that of the 3,832 married men, only 1,496 workers lived with their families and this was something that caused them much concern for their wives, both among those who had left them down below in the valley as well as among those who lived so together with them in the Town.

The close interaction between the workers' children fostered the emergence of generations with a cosmovision deeply marked by Sewell and different from that of the outside world, specially at times when the mass media had not developed sufficiently or acquired the influence that it would a few decades later. Such relations led to marriages between these youngsters who established new families who inherited that same culture this urban context had helped them to meet each other.

3.b.III -7. Education, entertainment and sports

As we mentioned previously, Sewell was also to a large degree self-sufficient in providing education for the children of its residents. Already by 1919, there were state-sponsored schools plus those subsidized by the company; one of which had 100 students and another with 200. As there were also North American children, there was a school for 14 students who followed US programs and for the foreigners there was a library that received a large number of magazines and other publications in English.

With the growth of the population, schools expanded and a vocational school was opened which taught trades to workers' children who would eventually be recruited by the company; first of all as apprentices and then as company workers in another example of the Town's self-sufficiency.

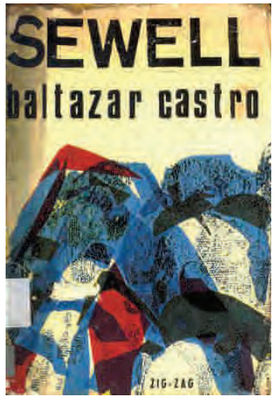
Entertainment played an important role in Sewell. The Sewellians themselves played leading roles in these activities and they were assisted by the company. This led to the staging of good films, musical shows, circuses and theater plays. It was not long either before Chile's Independence Day (September 18) was celebrated alongside that of the United States of America (July 4) and it was these activities that led to parades by the different groups and associations in Sewell in an atmosphere of respect for each other and social integration.

The Mining Town of Sewell had a first class sports infrastructure despite the lack of land available for practicing any. Sports were incorporated into the Town's culture and the public supported and enthusiastically took part in the different competitions. Leaders in this field were the Social and Sporting Clubs, structured according to occupational levels (employees and workers) and by specialties, such as miners, millers, etc. There were always a large number of social and recreational activities which played the fundamental role of providing recreation for the Town's inhabitants, especially as a way in which to express popular culture.

The Dry Law that was in force in Sewell made for special characteristics of its types of entertainment. The distance from any urban centers and cloistering had their correlation in this law, making it an island within the country, affecting its social life and its culture. This rule was often violated at all levels, even at the highest: the creators and custodians of it.

Spring celebration at central staircase.

Costume party.



Literature about Sewell.

The Dry Law led to a thirst to go down to Rancagua, the only place that connected them to the outside world, and its pleasures. In that city, they let loose their repressed desires that were financed by their hard-earned money from the mountains. Rancagua had one of the largest Red Light Districts in the country close to the railway station and there the miners enjoyed themselves in a sort of ritual that offset the difficult disciplines they were forced to follow in the workplace.

3.b.III-8. Artistic creation around Sewell

There have been several literary works that were inspired by lives rich in human and social trauma in the mines and especially concerning Sewell. The majority of them were tales written by Chilean authors. Among the best known are those by Oscar Castro (1910-1947) entitled "Among Mountains" and those found in his work "Footsteps in the Ground" (1940). Also, "Mr. Jara", a story found in the volume called "Copper" by Gonzalo Drago (1906-1994), published in 1941 which is a deep look into the harsh world of mining, man's struggle against the elements and social and labor injustice. Also "Stone and Snow", "A Man on the Road", "Légamo", the novel "Sewell" (based on the "smoke tragedy") and "My Dear Father" (translated into several languages) by Baltazar Castro (1919 - 1989); noteworthy in the field of chronicles and realistic tales. Worthy of mention also are "Times of Wagons in the El Teniente Mine" by René Leiva Berríos (Drago, 1988:214) and "Lunarasca" (1986) by Walter Pineda.

In the field of graphic arts, the caricaturist called Lukas (his real name was Renzo Pecchenino) stands out. Eminent caricaturist and acute observer, he made a series of caricatures of the Town when it was booming and which are published in his work "Sewell by the hand of Lukas".[25]

3.b.III -9. The Town and social conflicts

Cooperation, understanding and general respect among a heterogeneous group from a point of view of nationality, education, socio-cultural level, hierarchical position and place of residence (which made differences even more visible) enabled ad hoc mechanisms to work that regulated and channeled the most disruptive effects of natural conflicts. What most of all influenced them was the fact that the company and isolation were the dominant factors in Sewell.

In Sewell, there was no such thing as a City Hall, such as would have been the case in other towns in the country. This situation was a reason for controversy and it was as a result of the fire in the mine in 1945, that a Specially Appointed Judge to look into the accident, recommended that parliament pronounce regarding a bill that was going through Congress that would give municipalities jurisdiction over mining towns in particular, but this was something that never got off the ground.

Mutual Safety Society plaque.

25 Added as a complementary element to the nomination.

Municipal functions as such were exercised by the company through its Welfare Department which, in 1956 became known as the Department of Industrial Relations which, through its area of Community Services, was in charge of the task of keeping the Town functioning. It was within this organizational framework that all problems related to living, such as housing, its quality, basic services or any others were dealt with whist it was up to the administration of the company to provide them promptly and satisfactorily. A similar situation was generated in other dimensions of urban life such as recreation, education, etc. where the sole provider possible was the company.

This then meant that a potentially conflictive situation could suddenly break out in a system that operated with such a high structural superimposed level, where any opponents in a conflict that arose within a residential sphere became the same ones who faced each other in other areas such as education, work or health.

To resolve these demands and any possible conflictiveness, the company used two departments: Industrial Relations to administer the Town and Labor Relations created in 1968 to generate better relations between the workers and their bosses, providing timely and upfront solutions that would forestall conflicts.

Peace and quiet that generally reigned in the Town and the initiatives for cooperation that life in Sewell inspired revolved around other types of attitudes such as strained relations and hostility during periods when new contracts or collective labor agreements were being bargained.

The Union and its leaders were the principal focus of attention in the life of the Town. In Sewell powerful unions operated with a great capacity for negotiating living and working conditions. As a result of these demands, the construction of certain buildings in the Town was achieved, among which is the well equipped gym as well as some of the buildings that were devoted to union headquarters. These premises, together with the staircases and some squares, were where people met publicly. They were important places where the members could meet and pass their free time in them together with their colleagues, playing games and reading any newspapers placed their at their disposal or asking the person in charge or a union leader to make some requests to the company.

In the colloquial language of the Sewellians, a colleague was called a "paisa" or a "paisita" (civilian) or a "gancho" when referring to whoever they were particularly friendly with. When dealing with union matters, these words were replaced by "comrade".

The unions varied their strategy regarding who they should approach with their social demands. When faced with numerous failed attempts to obtain decisions and laws from the public authorities, their demands were increasingly made to the company itself. They learnt that the company would be more sympathetic and, given their increasing capacity for negotiation, they did actually achieve greater possibilities of satisfaction with their grievances. So it was that the unions gradually acquired greater influence and power in the company's affairs, obtaining better and better living and working conditions.

In the cloistered atmosphere in which the worker-inhabitants addressed their boss-mayor-legislator, without taking into consideration any other external agents, that system-territory defined a relationship that was devoid of any further connections to the outside world.

During collective bargaining, Sewell could not avoid disturbances, which were profusely reported by the unions (both verbally and in writing). The Town's usual normalcy changed radically when there was a strike and workers then abandoned their homes and marched on foot to Rancagua. Sewell, during such periods of unrest became a ghost town. The train, for production reasons, continued operating but it only took care of tasks that could not be put off.

The presence of the union headquarters in the center of Sewell, the active interaction that a residential-labor context such as that facilitated, the frequent and rapid access of any worker to his leaders, made it necessary for the latter to respond promptly and diligently to their requirements. This coziness also enabled the leaders to exercise a man-to-man control when support was needed with a certain demand or during a strike. That direct dealing based on personal relations and the tight control it led to, was a far-reaching agent of change in the functioning of the unions when the time came to put "Operation Valley" into practice, because the members were left scattered around a city where any interaction suddenly became sporadic, impersonal and diluted.

3.b.III -10. Conclusions

With this data, we wish to nominate Sewell as a case of a human "organizational" settlement[26]. Its creator is not by any means unique, neither was he a genius or one pursuing social redemption (in the case of a utopic city), nor was the team of architects and urban developers that got together in laying out the Town of the future a machine for creating a perfect city, nor the result of a collective creation, something spontaneous and without following any greater common orientations except the minimum norms concerning urban development and construction, which is the case in the large majority of urban centers.

The creator of Sewell was a social system of the "organization" type, of which the company was a special type of it, of a nature that was different to the system of interaction which would have been the case with a professional group and different, also, to the society whose plural and spontaneous manifestation of living is found in a town that was never properly planned as such, which would usually be the case. The non-workers-inhabitants were either members of the workers' families or persons expressly authorized and entitled to enter and remain in the Town, always so long as they abided by the conditions and limitations laid down by the company.

Generating a normal life in Sewell was, in the majority of cases, achieved, reaching by far, the levels of satisfaction of the needs that could be observed around the country at the time. That was due to the fact that organizational problems could be very efficiently resolved, seeking thus to offset what was missing n this way of life and which was different to the typical town and thus make sure that the right human resources could be selected.

26 This theory as developed by de Solminihac, Eugenio at his preceding work.

The type of "organizational" social system acquires increasing importance in modern societies that are highly differentiated when this is precisely what they need to be able to function. The presence in Chile of a foreign organization at the onset of the 20th century and its permanence during a good part of it, provided a type of human settlement that was different and a novelty for us, thus contributing toward streamlining our economic, social and urban structures.

All of these features that we have briefly mentioned in this section explain the permanent attachment that old-Sewellians feel toward their Town. Their living space was adapted sentimentally because it meant integrating in the heart of a community, guaranteeing a high degree of consensus in how they lived. This, together with its insertion in the midst of such a harsh landscape, shaped the group. The space went beyond the individual, because he was the one who forged the collective links. Once these links were recognized, they led to the territory being identified with him and vice versa, acknowledging the fact that this led to the establishment of a feeling of community when someone belongs to a whole, meaning an "us".

This feeling of "us" has lasted over time in the community of the old-Sewellians and in some way it is being projected into the future based on the idea that Sewell will be maintained for all time and that with a succession of organizational targets, the human settlement that was, will continue to remain, but now as a cultural, tourist and educational attraction.

Central staircase, decade 1950.

Morgan Square.

Buildings Nº 107 and Nº 101.

3.c. Form and date of most recent records of property

Measures taken to officially and effectively protect the property being nominated as well as its buffer zone are based on records and inventory lists prepared by the El Teniente Division of Codelco-Chile and studies related to the property that the company commissioned directly or through contracts with third parties.

3.c.I. Records

Since its very beginnings, the company kept general drawings of all of its facilities and also a record of each one of its buildings. This record was updated when the General Engineering Department was created in 1956 and which keeps a list on which each building is numbered, with such accounts details as tax number, use, number of floors, structure, finishing, surface area and any references to plans of the property. This Building Register is periodically updated depending on what changes are made to the facilities.

Buildings Nº 150, Nº 37, Nº 42 and Nº 41.

3.c.II. Studies, research and publications:

The most significant studies are provided in Annex 3.c., but hereafter is a brief summary of their objectives and implications.

a) Engineering Report IG-4836

Developed between 1976 and 1978 by the General Engineering Department at the express behest of the General Management of the El Teniente Division. Its objectives were:

- To keep a complete record of all industrial, non-industrial and urban buildings and infrastructure extant, prior to the demolitions which preceded the Sewellians' transfer to Rancagua.

- To propose to defend the architectonic and constructive heritage and its preservation, at least in the heart of the Town; i.e. the Central Staircase and the buildings near to it plus any other buildings of interest.

- Make known this living symbol of industrial and mining heritage of unique characteristics in this country.

This study provides background information on how Sewell developed between 1913 and the nineteen seventies. It compiled different information giving a vision of the whole prior to it being dismantled. It took note of all of the property's variables, such as: their height, materiality, construction data and the entire infrastructure (drinking and industrial water networks, fire fighting water, drainage and the electricity network).

This study happened to be paradoxical: although the company had it made in order to demolish the Town in the best way possible, the work was of prime importance for conserving it, both because of the information it provided as well as the effect it had as regards reinforcing views in favor of preserving this property.

b) Study proposed for the conservation, renovation and recycling of the Sewell Mining Town, its houses and equipment

This research was undertaken in 1991 within the framework of the Cooperation Agreement between the El Teniente Division of Codelco-Chile and the Catholic University of Chile. This research had the following objectives:

- Identify Sewell's specific function at that point in time (1991).

- Establish potentials and restraints depending on the Company's requirements.

- Define the property's heritage value.

- Quantify and rate the installed capacities of existing buildings.

- Establish possible scenarios for action according to the different options available, depending on a diagnosis of strengths, weaknesses, restraints and opportunities.

The research concluded that Sewell is the only high altitude settlement in our country which developed an interesting relationship with the area where it is located and it possesses an important heritage value due to five axiological categories: Originality, Singularity, Representativeness, Materiality and Vitality.

c) The Strategic Action Plan for Conserving Sewell

Bearing in mind the declaration of the Sewell Mining Town as a National Monument (1998), in 1999 the El Teniente Division of Codelco - Chile outsourced to the Chile Foundation - MECSA the preparation of a study called "Strategic Action Plan for the Conservation of Sewell", whose objectives and implications were as follows:

"Conceptually prepare a complete, concrete and realistic proposal for the conservation of the Town's heritage with a view to achieving its development as a cultural and tourist destination associated to a regional system".
The study bore in mind the following activities:

- Analyze Sewell and its surroundings with a view to organizing future tours, bearing in mind public and private authorities' points of view.
- Diagnose the present situation of the site to establish conclusions regarding Sewell's potentials and limitations as well as the attractions in its vicinity.
- Study options: from the diagnosis, preliminary models were proposed for implementing heritage and financial management.
- Evaluate and recommend the option that would reap the most benefits and which would be the easiest to implement.
- Develop the option recommended, taking into consideration the detailed preparation of the Management Model (administration, financing and investment plan).
- Prepare the "Strategic Action Plan for the conservation and diffusion of the Sewell Mining Town" that proposed a complete model for conserving the site in sustainable terms.

d) **Sewell Mining Settlement (1904 up to today)**
This article by the Architects Eugenio Garcés, Carmen Rioseco and Jorge Guerra, of the faculty of Architecture and Beaux Arts of the Catholic University of Chile was published in December 1992 in the Review "Pan-American Architecture" N° 001, dedicated to cities in America.
This article highlights the absolutely unprecedented and original character of the Sewell Mining Town compared to other cities in the world as well as other company towns.
Originality is due, to a large degree, to the first attempts to found Sewell, which were made by men without any experience whatsoever of installing mining towns in remote places and less still at high altitudes on steep slopes. This inexperience made them work on the basis of trial and error which, evidently, resulted in a lot of disappointments, not devoid of human tragedies.

e) **Copper Mining Towns in Chile (1905-2000)**
The study was conducted by Fondecyt Research N° 1990485 and took place in 2000 under the aegis of the Catholic University of Santiago whose researcher was the Architect Eugenio Garcés.
The chapter in this document relating to Sewell deals with historic, territorial, urban aspects as well as with the types of buildings.
As regards the types of homes, it classifies them based on their horizontal circulations, thus: outside lateral passages, inside central passages and outside perimeter passages.

3.d. Present State of Conservation (as of September 2004)

3.d.I. Implications regarding the site itself

An analysis of the Present State of Conservation that we have prepared as follows refers only to the physical properties that are a part of the site nominated for inscription on the UNESCO World Heritage List. To make an analysis easier, in this section we shall distinguish between:

- Mining Industrial Heritage: machinery.
- Architectonic Heritage: that includes industrial buildings, non-industrial buildings and public spaces.
- Infrastructure Services: roads, water networks (drinking water, industrial water and firefighting water), drainage, electricity system and other civil works (Rebolledo Bridge, containment wall against avalanches and a pedestrian tunnel).

a) **Mining Industrial Heritage**
This is understood as mainly referring to productive machinery such as the Grinding and Milling Plants that are a part of the old Sewell Concentrator, which still processes approximately 25% of all ore extracted from the El Teniente Mine. It also includes such industrial facilities for production such as: the Teniente Mine outside railway network 5[27], the ore unloading platform (Punta de Rieles), tanks, electricity substations, cranes, funiculars for transporting loads, service tunnels and other productive support facilities.

b) **Architectonic Heritage, understood as:**

- Industrial buildings that house productive machinery and/or service equipment.
- Non-industrial buildings such as homes and service equipment.
- Outdoor public spaces for both types of buildings such as pedestrian pathways, staircases, small squares, viewpoints, etc.


Compressors, 1926.

27 As mentioned previously in the Description, the El Teniente mine is a gigantic underground deposit that is worked by gravity and by drilling out large blocks of ore. For this there are different levels, each with its own specific function, such as: drilling, transfer and transport. These levels are identified by means of numbers which go from Teniente 8 (the lowest level) up to Teniente 3 (the highest level). There are also intermediate levels; for example, the intermediate level between Teniente level 5 and Teniente level 6 is called Sub 6. At present, levels 8 and 3 are being worked. The levels above Teniente 3 have all been depleted.

Teniente Club building before and after restoring.

c) Service Infrastructure

This is understood as roads for vehicles, water systems (drinking, industrial and firefighting), drainage, electricity, and civil works such as: bridges, protection against avalanches, etc.

This infrastructure is in addition both to the mining industrial heritage as well as the architectonic heritage.

3.d.II. Factors and Conditions that influence conservation

The present state of conservation of Sewell's physical properties is the result of the factors that are mentioned hereafter:

- Environmental Factors

  These are related to Sewell's location high up in the Andes and the climate that affects it. Temperatures vary between minus 7.5° C. in winter and 26.6° C. in summer. Winds are of moderate speed (never more than 20 knots). Snowfalls range between an average of 1 up to 3 meters in depth which occasionally causes roofs to cave in. As regards rainfall, this averages an annual 460 millimeters. These factors: wind, snow and rain, linked to the materiality of the buildings, make it imperative to keep the buildings totally sealed.

  Another factor, although in frank decline, is the atmospheric sulfurous anhydride contamination stemming from the gases coming from the Caletones Foundry. In 1998, Codelco began a Decontamination Plan, investing US$ 270,000,000 in the process.

  This Plan envisaged the construction of two gas cleaning plants. The first (in 1998) enabled emissions of sulfurous anhydride to be reduced by 40% and the second, established in 2001, has enabled it to reduce its sulfur dioxide emissions by 85%, thus complying with environmental regulations regarding the quality of the air. Notwithstanding this compliance, it is in Codelco's plans to capture 95% of these emissions.

- Effects of the operation

  The principal agents caused by the operation (ore processing) which have an impact on conservation are dust in suspension, vibrations and some solid and liquid waste, all of which are kept under control.

  The old Sewell Concentrator (still in production) will close down at the end of 2005, and a Works Closure Plan is being studied, so that it can be undertaken in a controlled and programmed fashion aimed at avoiding any pressures due to growth and industrial development. It will practically eliminate the effects of the recently mentioned operation.

- Materiality of the Building Components

  This factor is directly related to the physical characteristics of the materials as regards their durability in the face of environmental agents, their degree of vulnerability as a result thereof and the intensity of use to which they are subject.

  Furthermore, the importance of the buildings' elements must be taken into account compared with the property's general preservation so, for example, a galvanized iron roof will last only so long when snowed upon time after time and on the other hand, its conservation shall take priority that will ensure the building's physical integrity in order to prevent humidity entering the inside of it and thus destroying its structure or some other components. This then assumes that certain weighting has to be done for the different building elements when it comes to evaluating their state of conservation.

- Age of the Properties

  The majority of the physical properties are over 70 years old. Special heed must be made of the Sewell Concentrator where some of the machinery has been operating since 1915. This is a situation that entails natural deterioration or wear and tear of the components associated with their useful life span.

- Maintenance Plans

  The existence within the El Teniente Division of Units in charge of undertaking Maintenance Plans is, doubtless, one of the factors that goes a long way to explaining the present state of conservation of the physical properties that are being nominated.

3.d.III. Analysis and Assessment of Present State of Conservation

In order to analyze and assess the present state of conservation of the physical properties already described, a detailed tally has been prepared of the Machinery, Industrial Buildings, Non-Industrial Buildings as well as Infrastructure and Services. Moreover, the charts were updated with the essential characteristics of the properties and their state of conservation, which were based on the General Register of Buildings belonging to the El Teniente Division for its different centers.

Annex 3d shows all of this data where one can get an idea in greater detail of the basic characteristics of the properties. Technical Records were prepared of all of the non-industrial buildings, as well as several industrial buildings. There also exists a list of the machinery in the Concentrator and the charts with the architectonic characteristics and components of the buildings as well as a very detailed evaluation of their state of conservation.

3.d.III-1. Industrial Mining Heritage, basically consists of:

- Unloading Area from Teniente 5 mine railway on Platform and Coarse Matter Stockpile at Punta de Rieles (the highest point in Sewell) where the ore is stockpiled.

- Primary and secondary Grinding Plant consisting of jaw grinders and conical grinders.

- Fine Matter Stockpile for the ground ore.

- Primary Milling Plant consisting of 22 Marcy Mills.
- Secondary Milling Plant consisting of 30 Marcy Mills.
- Area where pulp is classified and taken to the Colón Concentrator where it begins the flotation process.
- Sewell Shaft (for passengers and freight) connecting to Teniente level 8 of the mine.
- Thickening tanks (5). Presently used for recovering industrial water.
- Funiculars that go up and down the hill transporting material, capable of transporting between 15 and 45 tons, the first of which still functions.

The machinery described above dates in some cases as far back as 1915, and it happens to be the oldest in existence in the copper mining industry in Chile. At present, it remains operative - except in the case of the 45 ton funicular - and its state of conservation is optimal due to the rigorous standards of maintenance undertaken by Plant Management. Likewise, the industrial facilities of services for production are in perfect working condition.

3.d.III-2. Architectonic Heritage (residential and equipment)

Hereafter, the state of conservation of Sewell's architectonic heritage is examined. For that, the nomenclature mentioned has been used which establishes the following categories and definitions associated with them:

- B = Good: the property appears to be in a proper state of conservation as regards its structure, roof and exterior walls. There are, however, some cases with minor problems of maintenance of their exterior paintwork.
- R = Mediocre: the property appears to be in a proper state of conservation but it does show some slight external problems of maintenance as regards its roof and exterior walls, which can easily be repaired.
- M = Poor: the property appears to be in a proper state of conservation as regards its structure, but it does show some major deterioration on its roof and exterior walls which are fairly easy to repair. It is worth mentioning that in the Sewell Mining Town there are no structural problems or buildings that are at risk of collapsing.

An analysis and assessment of the Industrial Buildings and the Non-Industrial Buildings has taken into account the following variable which are shown in charts numbers 1 to 6 of Annex N° 3.d.

- Original and present use of buildings.
- Height of building (N° of stories)
- Year Built.
- Built-up surface area (m2)
- Materiality of Architectonic Components.

After analyzing these variables, the state of conservation of the architectonic components were rated, then weighted taking into account the influence each one has on the general state of the property on the basis of which the general results were obtained.

3.d.III- 2.1. Industrial Buildings (or those used for production)

From an analysis and assessment of the 63 Industrial Buildings whose total surface area covers 43,357 m², the following conclusions are drawn:

1° 60.3% of this type of buildings maintain their original use; 4.8% partially do so; 3.2% have changed and 31.7% remain unused.

2° The average height of the industrial buildings is 8 meters, despite the fact that the majority of them are only single-storied with industrial walkways.

3° The ages of the industrial buildings are broken down as follows:

- Buildings erected between 1915 and 1925: consist of 13 buildings that represent 20.6% of the total number with a surface area of 35,940 m² which is equal to 74.6% of the total number of m² built on.
- Buildings erected between 1926 and 1945: consist of 7 buildings that represent 11.1% of the total number with a surface area of 3,481 m² which is equal to 8.0 % of the total number of m² built on.
- Buildings erected between 1946 and 1965: consist of 28 buildings that represent 44.4% of the total number with a surface area of 4,818 m² which is equal to 11.1% of the total number of m² built on.
- Buildings erected from 1966 onwards: consist of 15 buildings that represent 23.8 % of the total number with a surface area of 2,718 m² which is equal to 6.2% of the total number of m² built on.

4° Regarding the materiality of the industrial buildings, it can be deduced that 62.0% of them were built with steel, 19.0% with timber, 6.3% with reinforced concrete and 8.0% using a mixed system (steel - timber - concrete).

Shaft Sewell.

On the other hand, 100% of the roofs are made from galvanized steel, the same material that is found in the exterior walls (90%). Doors and windows are mostly made from timber (62%).

5° An evaluation of the general State of Conservation of the Industrial Buildings was conducted in accordance with the factors that are shown hereafter and which were assigned the following weighted average : Structure = 35%; Roof = 25 %; Walls = 20%; Windows and Doors = 10%; Floors = 5 % and Staircases = 5%; TOTAL = 100%.
As a result of this evaluation, the following conclusions regarding general levels of the State of Conservation of the Industrial Buildings were reached:

- Buildings in Good State: are 44 buildings that represent 70 % of the total, with a surface area of 24,049 m² which is equal to 55.5 % of the total surface area built on.

- Buildings in Mediocre State: are 15 buildings that represent 25% of the total, with a surface area of 4,455 m² which is equal to 10.3% of the total surface area built on.

- Buildings in Poor State: are 4 buildings which represent only 5% of the total, with a surface area of 14,853 m² which is equal to 34.25% of the total surface area built on.

3.d.III-2.2. Non-Industrial Buildings (residential or facilities)

On the other hand, as a result of an analysis and assessment of the 24 Non-Industrial Buildings, whose surface areas in total cover 37,133 m², the following conclusions are reached:

1° 16.7% of this type of building maintain their original use; 4.1% partially do so, 25.0 % have changed and 54.2% remain unused.

2° The heights of these types of buildings are broken down as follows: 1 to 2 stories = 20.8%, 3 to 4 stories = 58.4% and 5 or more stories = 20.8%.

3° The age of Non-Industrial Buildings is broken down as follows:

- Buildings erected between 1915 and 1925: are 8 buildings which represent 33.3% with a surface area of 10,111 m² which is equal to 27.2 % of the total of all Non-Industrial Buildings.

- Buildings erected between 1926 and 1935: are 3 buildings which represent 12.5% with a surface area of 4,602 m² which is equal to 12.4 % of the total of Non-Industrial Buildings.

- Buildings erected between 1936 and 1945: are 10 buildings that represent 41.6% with a surface area of 18,708 m² which is equal to 50.4% of the total of all Non-Industrial Buildings.

- Buildings erected between 1946 and 1965: are 3 buildings that represent 12.5% with a surface area of 3,712 m² which is equal to 10.0% of the total of all Non-Industrial Buildings.

4° Regarding the materiality of the buildings, it can be concluded that 92.0% of them (22 buildings) are built of timber with walls covered with stucco and only 8.0% of them are structured using reinforced concrete (2 buildings). Besides, 96.0% of the buildings have doors and windows made of timber and this same material predominates on their floors (normally coigüe, lingue and araucaria [all of which are South American native woods]).

5° An evaluation of the general State of Conservation of Non-Industrial Buildings was undertaken in accordance with the factors that are mentioned hereafter, which were assigned the following weighted averages : Structure = 35%; Roof = 25%; Walls = 15%; Windows and Doors = 10%; Floors = 5%; Ceilings = 5% and Staircases = 5%; = Total 100%.
As a result of an evaluation, the following conclusion is reached regarding the following general State of Conservation of Non-Industrial Buildings:

- Buildings in Good State of Conservation: are 21 buildings that represent 88% of their total, with a surface area of 30,211 m² which is equal to 81.4% of the total surface area built of this type.

- Buildings in Mediocre State of Conservation, are 3 buildings that represent 12% of their total, with a surface area of 6,922 m² which is equal to 18.6 % of the total surface area built of this type.

- There do not exist any Non-Industrial Buildings that are in a poor state of conservation.

3.d.III-2.3. Outdoor public spaces

Public spaces cover an approximate surface area of 12,300 m² and consist of the following:

- Central Staircase, the main space used by the public that - from an urban development point of view - structures and lays out the Town, enabling access to be gained to its different sectors. It has a surface area of 1,400 m².

- Secondary pedestrian pathways leading off from the Central Staircase connecting and accessing the different buildings. They cover a surface area of 2,800 m².

- Pedestrian path along the south border (from the church as far as building N° 312) with a surface area of 950 m².

- Residual spaces between buildings with a surface area of 4,100 m².

- Morgan Square with a surface area of 1,000 m².

Visitors during restoring.

- O'Higgins Square with a surface of 700 m².
- Pitch-and-Toss court with a surface area of 250 m².
- Viewpoint from church - station with a surface area of 500 m².
- Square and Entrance to Theater with a surface area of 600 m².

These public spaces are built basically of concrete and their state of conservation can be rated as mediocre to good, despite the corrosion caused by the salt that has to be applied to the roads during the winter months in order to dissolve the snow and keep them open. Their containment walls, handrails, railings, urban pieces of furniture and signposts are in a good state of conservation.

The Architecture and Construction Unit of the El Teniente Division is responsible for restoring and maintaining these spaces and their equipment.

3.d.III-3. Service Infrastructure

An analysis and assessment of Infrastructure and Services was undertaken on the basis of the following considerations:

- Age of the Infrastructure.
- General State of Conservation.
- Body responsible for their Maintenance.

The following can be concluded regarding them:

3.d.III-3.1. Vehicular roads

By and large, the majority are no more than 30 years old because initially, only the railway was used. Nowadays, their state of conservation can be rated as good which is obvious given the fact that the El Teniente Division needs them kept in such a state because of its ongoing business there. It is a fact that these roads have to be in optimum codition throughout the whole of the year, irrespective of how much snow falls around Sewell in the winter.

These roads are asphalted and there are at least 7 meters wide including road barriers. El Teniente Division's Highway Maintenance Unit is responsible for maintaining them.

3.d.III-3.2. Water Networks

Consists of the systems and supplies that are mentioned hereafter and for which the water Resources Unit is responsible and which takes care of their operation and maintenance:

- Drinking water System

  This system begins at the Coya Upper Intake which, in steel D = 24" pipes brings natural or fresh water to the Drinking Water Treatment Plant where there is a 350,000 gallon tank located above Sewell. The water once treated is stored in this tank and then pumped along HDP (high density polyethylene) pipes of different diameters (4" to 8" steel and 200 mm. to 100 mm. HDP) to the different areas of the Town.

  In emergencies, there is also an Intake in the sector called Diablo (lower sector of Sewell) and with pumps (Blaisdell Pump Room) it is sent to the Square Tank and from there it is again pumped as far as the 350,000 gallon tank.

  Distribution of drinking water among the different buildings is done in galvanized steel tubes. These networks have been mainly in service since approximately 1960 and their state of conservation can be considered good to mediocre. The most frequent problems are the incrustations that accumulate inside the pipes.

- Industrial Water System

  Its process begins with the harnessing of waters from:

  - General gravitational drainage pipes in the mine and at the Lower Coya Intake.
  - Drainage water recovery system and inside the mine (at La Junta and Tunnel Adit 71).
  - Agua Dulce (Sweet water) Intake.

  These waters reach the Matadero station where, by means of a pumping system, they are sent on to the Blaisdell Pump Station and from there they are pumped to the Cabeza Tank located in the area around the Sewell Shaft. Through a network of steel pipes they are then distributed to the Grinding and Milling Plants.

  The oldest installations in the system, and still functioning (in 25" diameter wooden pipes) date back to 1920, since when the industrial water system has been working perfectly. During the last few years (1995 to 2001), a part of the piping of the distribution system has been replaced.

- Firefighting Water System

  This network consists of an accumulation tank holding 350,000 gallons that is located high up above Sewell from where the water runs down through steel pipes to the 54 taps that are distributed around the Town. The firefighting networks are in a perfect state of maintenance although some of the tap recesses are in a mediocre state.

Construction of drinking water system.


Rebolledo bridge.

3.d.III-3.3. Drainage System

Sewage waters are led to a concrete canal that begins in the sector of the Romana (the highest part of Sewell) and ends in the Sedimentor Box for Sewage Waters in the area of the Sewell Grotto. These waters are then sent on to the industrial processing areas (Grinding and Milling Plants) by pumps from the Matadero Pump Room to the Blaisdell Pump Room and from there to the Cabeza Tank.

The buildings all have internal and external networks made from cast iron (of the bell and spigot type) which recollect and conduct such waters as far as the central concrete canal.

The drainage system has been in service now since 1938 and its state of conservation can be rated as mediocre (some pipes have incrustations).

3.d.III-3.4. Electricity System

Built in 1911, it subsequently underwent several modifications to adapt it the increasing demands of the Town and the plant until what we see today. Its operating frequency is 60 Hz. As a result of having been designed and built when the owners of the company were Americans and in Chile there was still no National Electricity Grid and which, when it did arrive, did so with 50 Hz.

Demand became as high as 45 MW (Megawatts) in Sewell's heyday at the beginning of the nineteen seventies, but at present, it stands at around 28 MW when the plants are working at full capacity.

The Sewell Electricity System is fed by a double-circuit High Tension Line of 69 KV / 60 Hz. from the Coya Hydraulic Plant located approximately 30 Km. away on the banks of the River Cachapoal.

The high tension line reaches the Colina Substation next to the Grinding Plant. The Substation is in good condition and functions well, supplying the needs of an older large part of the Mine, the Sewell Grinding and Milling Plants, the Blaisdell and Matadero Pump Rooms and all of the needs of the buildings and workshops located in the Town.

Voltages are mainly: 13.8 - 7.2 - 2,4 and 0.6 KV. and to obtain them, the Substation has 10 main transformers and a large amount of cabinets from which feeders depart towards the points of consumption. Each one for these cabinets has the corresponding maneuvering equipment and protection measures.

Electricity Distribution consists of networks of cables and their corresponding supports which carry the electric energy toward the points of consumption as well as through substations spread distributed all over the Town that lower the voltage.

This system of electricity will function with 60 Hz. until the operations of the Sewell Concentrator Plant are finally closed down which is scheduled for the end of 2005. From then onward, it will do so with 50 Hz, so minor modifications will have to be made to it.

The state of conservation of these installations is good, but given their age, a lot of effort is needed which is carried out by the Electricity Maintenance Unit.

3.d.III-3.5. Civil Works

Includes mainly the following Works:

- Rebolledo Bridge built in 1942 to cross the River Coya and carry the canal that transfers the copper pulp produced in the Sewell Concentrator as far as the Colón Concentrator where the flotation process ends. The pulp arrives at the bridge through the Sewell tunnel which begins at the lower part of the Concentrator, crossing the Town from south to north.
  The state of structural conservation of the bridge is good thanks to the maintenance plans that are carried out by Plant Management and the Civil Maintenance Unit.

- Walls Against Avalanches, located on the north slope of the town. Were built in 1945 and their state of conservation is good, despite there not being a specific maintenance plan for them which is probably a result of their excellent design and construction.

- The Service Tunnel, located in the sector of the former railway station, which enables pedestrian communication between the intermediate area of the Town (Morgan Square and upwards) and its lower part. It dates from 1940 and is built of reinforced concrete. Its state of conservation can be called good although there are signs of deterioration appearing in it which is due to its poor waterproofing.

3.d.IV. Conclusions regarding Present Conservation

As a result of an analysis and assessment of the State of Conservation of all of the physical properties in Sewell, the conclusion can be reached that although it is true that not all of the buildings in the Town are in identical state of conservation, the large majority of them can be classified as "Good"; i.e. the present state of their structures, roofs and exterior walls have been adequately maintained and conserved. The same situation is perceived with regard to the industrial machinery and the service infrastructure which, despite their age (over 75 years old) and the inclemency of the high Andean environment, they are still in an optimum state of operation. This is due to the following:

1º The fact that the Sewell Mining Town has been built within El Teniente Division of Codelco-Chile's productive area which means that they are well safeguarded against any possible action and tampering by third parties from outside the company. It should also be pointed out that there is no free access to the Town and it may only be entered with the company's authorization.

2° The need to maintain the old industrial facilities of the Sewell Concentrator in good working condition has meant that its installations have had to be always kept in good working order.

3° The fact that the El Teniente Division has an internal organization with technical units that are responsible for the maintenance of the different facilities and they have the necessary human and financial resources with which to do so, allowing the property to be in such high quality.

4° The existence of a Strategic Action Plan for the Conservation of Sewell that was set up in 1998 when the Town was declared a National Monument by the National Monuments Council of Chile. The aim of this plan is to preserve and restore the mining industrial, architectonic and cultural heritage that Sewell represents.

The Strategic Action Plan is undertaken by a technical unit of the El Teniente Division (Architecture and Construction Unit), which is carrying out its different action lines successfully, prominent among which is "Heritage Restoration" that also includes such aspects as security and the environment.

In view of the background information mentioned, it can be concluded that one of the largest efforts made in aid of the nomination of this old Town is, without a doubt, how it was preserved and permanently maintained, which is conducive to the development and restoration of its heritage in the long term.

3.e. Policies and programs related to the presentation and promotion of the property

It is worth mentioning that attention to these aspects is part and parcel of the Strategic Action Plan for the Conservation and Diffusion of Sewell and its corresponding action lines whose aims and implications are described in great detail in chapter 4, sections c), f) and h) of this nomination. This Plan guided the Town's restoration plans between 1998 and 2004. In chapter 4 we shall give an account of the general structure of the Town's Management Plan that will orient its management during the new phase which will consolidate and enlarge upon what has been done until now.

In that chapter, it will be explained how the obligations established in article 4 of the Cultural and Natural World Heritage Convention are being shouldered, in the sense that they "identify, protect, conserve, refurbish and transmit culture and natural heritage to future generations". These challenges have been assumed by Codelco-Chile today with its own resources and, gradually, other technical and financial resources will be incorporated once the "Sewell Foundation" - still being formed - gets off the ground (see point 4.g.).

Moreover, in the next chapter we shall also recount compliance with the indications established in article 5 of the aforementioned Convention because, as from 1998, the Sewell Mining Town was declared a National Monument. For the time being, we shall just briefly refer to what has been done and what was particularly intensified as from the nineteen nineties onward.

Generally speaking, for the people living in the 6th Region of "Libertador Bernardo O'Higgins" and in particular for those who, at some moment in their lives, lived in Sewell, this Town is intimately limited to their collective memory, given the sympathy they feel for the special way of life they led, which generates strong feelings of attachment with that place. They have permanently been toiling in favor of its protection and conservation and today they are the primary reference point in any initiatives regarding the Town's restoration. Over the last few years, they have had a big influence over and they have actively taken part in the Strategic Action Plan aimed at Sewell's conservation associated with the El Teniente Division of Codelco-Chile itself.

It should also not be forgotten that the El Teniente Division of Codelco-Chile has conducted opinion polls among the community of the 6th Region aimed at evaluating its perception of the company's plans and, among others, its management regarding the recovery of the Sewell Mining Town. These showed that of all of the initiatives the company is tackling, the Sewell Project is the one that received greater approval.

The fact that the old-Sewellians are well and formally organized in groups going back a long time is a point in their favor. As a matter of fact, those living in the city of Rancagua have organized themselves into the following organizations:

- Sewell Social Circle: a private legalized body consisting of former workers and residents of Sewell, whose commitment, affection and fondness for the Town has encouraged them to keeping its memory alive and taking care of the Town in all of its aspects.

- Mining Family: a grouping of families formerly resident in Sewell who have got their efforts together to preserve the place they lived in at one time.

Building N° 123.

Mining Cooper Industry Museum, 2004.

On the other hand, for the State-owned Codelco-Chile, conserving this property has now become an imperative of profound significance because it is a witness to the beginning and the development of the copper industry in this country on a large scale which, at the same time, is preponderantly important for the country's economy as well as its political and social history. Promoting copper heritage has become a priority as a result of the forthcoming celebration (in 2005) of the Centenary of the Chilean Copper Industry, within whose framework a national level of reflection and sympathy is trying to be aroused for the copper industry as a very important part of the country's development.

Chilean institutionalization establishes that cultural heritage is protected and preserved and, although the State's financial resources available for this are scarce (given the magnitude of the tasks in hands), it does have personnel who are highly committed, who have the technical training and experience in the spheres of research, conservation and the diffusion of heritage, both as regards tangible as well as intangible aspects.

For that reason, in 1998 Codelco-Chile signed a cooperation agreement with the National Monuments Council aimed at identifying, protecting, conserving, restoring and refurbishing copper mining industrial heritage. Over these years, an intense job has been undertaken jointly that concentrated on the Sewell Mining Town.

Another important work front of support in aid of the promotion and conservation of this property are the professionals from different disciplines, -historians, architects, engineers- who, for decades have studied the property and encouraged its conservation, even under very adverse conditions such as when the demolitions were being conducted (in the nineteen seventies and eighties).

Today, not only has the vision been completely overcome of the preservation of a property under threat, but also the commitment as to conserve and restore it has been settled at every level. A lot of progress has been made as regards the different aspects this required; however, there is still a long way to go. The efforts related to the different steps involved continue and acquire greater commitment as times goes on and a consciousness heightens regarding the importance of retaining this Town's values. So, this nomination is a part of this effort that is aimed at recognizing and heightening it.

For the National Monuments Council, the case of the Sewell Mining Town is somewhat a paradigm. The steps taken to declare it a National Monument go back to the nineteen eighties, when demolition was in full swing and when the Town's whole existence was threatened. This task was frustrated as a result of the existence of a general consciousness in the country that was hardly in favor of conserving heritage, rather it was immersed in a narrow-minded mentality of economic progress at any cost. During the nineteen nineties, however, this mentality began to change. Not only was the company's support enlisted for its declaration as a National Monument, but also the enterprise materialized through the concrete and all-encompassing action of a commitment for conservation, thus transforming the case of Sewell into an outstanding example of industrial heritage.

Chapter 4

Management

Tourists at Morgan Square.

Visitors at Cooper Mining Industry Museum.

Building Nº 152 during restoration.


Miners, decade 1920.

4. MANAGEMENT

4.a. Ownership

The Sewell belongs to the El Teniente Division of the National Copper Corporation of Chile, a Mining, Industrial and Commercial State-owned corporation.

4.b. Legal Status

The National Copper Corporation of Chile, (Codelco-Chile), is the largest copper producing company in the world, it belongs to the State of Chile and it was created by Decree Law Nº 1.350 of January 30 1976, beginning its operations on April 1 of that year.

Codelco-Chile has in total five operative divisions, one of which is the El Teniente Division, (which mines the copper deposits of the same name). Among its other facilities, it owns the Sewell Mining Town. The other divisions belonging to the corporation are Chuquicamata, Radomiro Tomic, El Salvador and Andina.

The El Teniente mining and industrial works began their activities in the year 1905 as a result of an initiative by William Braden, a US citizen who formed the Braden Copper Company, which subsequently became a subsidiary of the Kennecott Copper Corporation of the United States. In 1968, when copper was nationalized, the State of Chile purchased 51% of the shares of that company and formed what was called Sociedad Minera el Teniente S.A., which was replaced in 1971 by a collective State-owned company as a result of the nationalization of the copper mining industry in this country.

Finally, in 1976, the name was changed to the National Copper Corporation of Chile. The ownership of the Sewell Mining Town is registered in the Property Register of Rancagua, Sixth Region of "Libertador Bernardo O'Higgins", Chile for the year 1967, Repertory Nº 1036, on page 283 - Nº 316 - as an acquirement by the Sociedad Minera El Teniente S.A. from the Braden Copper Company.

The Sewell Mining Town is also a Chilean National Monument, meaning that it is a heritage officially acknowledged as such and it falls within the scope of Law Nº 17.288 "National Monuments". This is by virtue of Exempt Decree of the Ministry of Education Nº 857 enacted on August 27 1998 which declared the Sewell Mining Town a National Monument in the category of Typical and Picturesque Zone.

4.c. Protective measures and means of implementing them

El Teniente's production, until now, has been the basic way for protecting Sewell's integrity, the Concentrator's maintenance costs have been shouldered by Plant Management and these old facilities will remain in operation until the end of 2005, after which this industrial heritage will be conserved under a Strategic Action Plan for the Conservation and Diffusion of Sewell. The necessary financial resources have already been earmarked for this.

So far as the residential sector and the services of the Town are concerned, between 1970 and 1980, "Operation Valley" was put into practice whose object it was to transfer the workers and their families from Sewell to the city of Rancagua. This was a part of "Plan 280" which consisted basically in increasing plant production to 280,000 tons of fine copper per year and a reduction in operating costs.

Despite this translocation, Sewell did not remain uninhabited because between 1980 and 1998, the town served as a residence for workers belonging to contractor companies who were rendering mining project services. As a result of this, the inhabitants were no longer the miners and their families but workers by themselves, but Sewell continued to be inhabited and this was vital for it to continue to function with a certain level of maintenance and, above all, keeping the town's integrity intact.

In 1998, two extremely relevant facts for the Town's future occurred. On the one hand, the Caletones Decontamination Plan determined that the contractors' workers could not longer be accommodated in the Town due to the high levels of contamination extant there. Furthermore, that year the Town was a declared a National Monument.

4.c.I. Legal protection

Basic legislation for protecting cultural heritage in Chile falls under Law Nº 17.288, which legislates National Monuments. It has been in force since its publication in edition Nº 27.563 of the Official Gazette of February 4 1970.

Law Nº 17.288 regulates the composition, attributions and functions of the National Monuments Council which is in charge of supervising and protecting such properties. The Council is a technical branch of the Ministry of Education that consists of representatives from different public and private institutions. According to prevailing legislation in this country, the Ministry of Education, acting at the behest of the President of the Republic, is the one responsible for enacting national monument declaration decrees.

Law Nº 17.288 establishes five categories of National Monuments. In the specific case of the Sewell Mining Town, it was declared a National Monument in the Typical Zone category. A Typical Zone is a National Monument category that applies to urban or rural sites which have an architectonic, landscape, urban or historic value.

This appointment was made by means of Exempt Decree Nº 857 of August 27 1998, where the following is established in its sole article:

"The Sewell Mining Town, located in the municipality of Machalí, Province of Cachapoal, 6th Region of "Libertador Bernardo O'Higgins" and whose boundaries are established inside the polygon formed by the letters A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, A, on the drawing that is attached and which is a part of this Decree, is hereby declared a Typical Zone".

The application of this Decree is explained in article 29 of Law Nº 17.288 that points out that "For the purpose of maintaining the environmental characteristic of certain towns or places where there are archeological ruins or ruins and buildings declared as historic monuments, the National Monuments Council may ask that the protection and conservation of their typical and picturesque aspects of such towns or places or certain areas thereof be declared of public interest".

In addition, article 30 points out that "The declaration stemming from the previous article will be made by means of a Decree and its effects will be as follows":

1.- To erect new buildings in a zone declared typical or picturesque or to undertake reconstruction works or merely conservation, a prior authorization will be required from the National Monuments Council which will only be granted when the works fall into line with the general architectonic style of that zone and in accordance with the projects submitted.

2.- In zones declared typical or picturesque, any announcements, notices or hoardings, parking areas for cars and the sale of fuels and lubricants, telegraph or telephone wires and, generally speaking, any electrical installations, kiosks, posts, shops or any other buildings, either permanent or provisional, will remain subject to the regulations of this law.

It is worth highlighting that as regards the protection of the site and all of the properties pertaining to Sewell, they belong to the State of Chile, through Codelco-Chile, so any public body may act on behalf of preserving this National Heritage.

The status of National Monument is safeguarded and guaranteed by territorial zoning condition mechanisms, such as the Regional Plan for Urban Development, the Inter-Community Plan, the Zoning Plan for Municipalities and Sectional Drawings, all of which govern the urban development of towns at different levels falling under the umbrella of the General Urban Development and Construction Law.

For further information, please see Annex 4.c.I -1, Law Nº 17.288 concerning National Monuments, and Decree Nº 857 that declares Sewell as a National Monument in its Typical Zone category.

4.c.II. Forms of Implementation

As regards its status as a National Monument, the Sewell Mining Town is protected under the aegis of the National Monuments Council which has a say in whatever encroachments may be made regarding the property. With regard to the Sewell Mining Town belonging to the El Teniente Division of Codelco-Chile, everything regarding maintenance and conservation is undertaken by the units already mentioned of the Division itself, which really amounts to personnel who are assigned for this task and who go about their work under the supervision of the Architecture and Construction Unit of El Teniente Division which is responsible for the technical and operative administration of the Sewell Mining Town.

On May 27 1999, a cooperation agreement was signed between the National Monuments Council and Codelco-Chile.

Building Nº 106.

This agreement remained in force for 3 years, renewable and it was based on the fundamental mission of the National Monuments Council (as the technical body representing the Ministry of Education), which involved : recording, valuing and divulging the country's Monumental Heritage and, on the other hand, the mission of Codelco, the country's leading copper producer, who wishes to cooperate in the conservation and diffusion of cultural cupriferous heritage which is an essential part of the nation's identity.

Within the framework of this Agreement for Cooperation, the task facing the Sewell Mining Town was addressed, establishing the following as top priorities:

1° Prepare, in conjunction with the El Teniente Division, a Master Encroachment Plan on the Sewell Mining Town in the city of Rancagua, 6th Region of "Libertador Bernardo O'Higgins" that would orient and regulate any encroachments and new buildings in the area declared a Typical and Picturesque Zone with a view to protecting the overall historic, architectonic, urban and landscape values of the area in question.

2° Cooperate with the El Teniente Division in the preparation and putting into practice of a Heritage Restoration Plan oriented toward tourism and culture that seeks the sustainable conservation of the Sewell Mining Town and which will be undertaken in conjunction with the Master Plan referred to in the previous point.

3° Sponsor the nomination of the Sewell Mining Town as a World Heritage Site before the United Nations Organization for Education, Science and Culture within the framework of the World Cultural and Natural Heritage Convention by the Government of Chile and jointly prepare the corresponding Nomination File.

Buildings N° 102 and N° 501.

4.d. Agencies with management authority

The National Monuments Council exercises administrative authority over the supervision of and compliance with legislation pertaining to National Monuments within the territory of the boundary established in the protection decree for the Sewell Mining Town.

Unlike a Heritage Site within a multifunctional city where different state bodies function with administrative authority, in the case of the Sewell Mining Town, it is Codelco - Chile and, very especially it's El Teniente Division, which exercises this authority.

It is worth mentioning that as from 2006, these functions will be in the hands of the Sewell Foundation recently formed by the company aimed at optimizing and encouraging the management of the Town.

4.e. Level at which management is exercised, name and address of responsible person for contact purposes

Institution : Codelco-Chile, or The National Copper Corporation of Chile
Level : El Teniente Division
Legal representative : Ricardo Alvarez Fuentes, Engineer
Position : General Manager
Address : Av. Millán 1020, Rancagua, 6th Region of "Libertador O'Higgins"
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4.f. Agreed plans related to property

During the 1999 to 2004 period, the essential planning instrument relating to the property was the "Strategic Action Plan for the Conservation and Diffusion of Sewell" that was prepared in 1999 by the El Teniente Division of Codelco-Chile, by means of a contract with the Chile Foundation and the Consultant MECSA.

In this section, we shall deal with both the contents as well as the way in which this Plan was conceived and put into practice and which has been gradually enriched and enlarged as a result of contributions provided by outsiders as well as with the experience itself of the ones in charge of applying it. So it was that in 1999, the National Monuments Council handed over the "General Criteria necessary for addressing the Master Plan in the Typical Zone of the Sewell Mining Town" that was one of the basic components when it came to preparing the Management Plan. Moreover, the views of different key persons were taken into account, among whom were the national, regional and local authorities, former Sewellians as well as experts from different areas related to heritage and its conservation (architecture, history and engineering).

This meant that in 2004, the Management Plan for the property was addressed and prepared which included the guidelines and experience accumulated during the Strategic Action Plan; enlarging it, adding to it and projecting a new stage for the property during which novel aspects would be tackled and the property's administration would be optimized by means of more specific guidelines and criteria.

We shall leave for the last section of this chapter, an explanation of how the Management Plan is structured. In the time being, we shall explain the Strategic Action Plan that has guided the property's management over the last 6 years, with a summary thereof, because the complete information really belongs to a part of the annexes of this nomination.

4.f.I. Reasons for establishing the Strategic Action Plan

The reasons for establishing the Plan were as follows:

1° The Declaration of National Monument in the category of a Typical and Picturesque Zone of the 6th Region was obtained in 1998 by the Sewell Mining Town, which meant that the company was duty bound to conserve and protect the Town.

2° The Caletones Decontamination Plan established to overcome the emission of contaminants which in 1998 determined that contractors living in quarters in the Sewell Mining Town were to be relocated. This meant that the urban (not the industrial) area of the Town would be left unproductive so it became imperative to conserve it because it was a monument.

3° The agreement reached in the Chamber of Deputies in December 1998 that proposed the creation in Sewell of the "Mining Museum" and the steps that began to be taken for its nomination as a UNESCO World Heritage Site.

4° The concern shown by old-Sewellians, the regional community and bodies related to heritage regarding the conservation and diffusion of Sewell's cultural and mining heritage, a concern that was taken to heart by the owner-company.

5° The closure of the Sewell Concentrator operations at the end of 2005 which will open up the challenge for conserving and restoring it.

4.f.II. Aim and Scope of the Plan

The "Plan" is a Management Model that, realistically and wholly, is aimed at conserving and divulging Sewell in gradually self-sustaining terms with a view to its development as a tourist and cultural focus point associated with a Regional system of places of interest.

Because of the situation the company was facing regarding it, this Plan emphasizes the basic premise of sustainability. Regardless of the fact that the property cannot pay its way, at least in the primary stages, it appeared that the core challenge would be that of achieving a happy balance between costs and benefits and paving the way for long term conservation.

4.f.III. Basic premises for formulating the Plan

When formulating the Plan, the following basic premises were considered:

a) Codelco-Chile's role, whose core function is that of mining its deposits, maintaining the right relations with its social environment (a "Good Neighbor" policy) which is a part of its strategic guidelines.

b) The participation of private persons in handling its equity assets which runs parallel to Codelco-Chile's policy of concentrating on its main business (mining).

c) Sewell, the Mine and the tourism potential of their immediate surroundings enable tours to be created. This idea means generating alliances with other attractions and tourist spots in the region.

d) Community participation, especially concerning the old-Sewellians as the leading players in the Town's new future. This is vitally important given the memories that these groups have regarding Sewell and El Teniente's cultural heritage and the commitment acquired by them for its preservation.

e) To work from the very beginning with high standards of quality which is a part of the "Quality" policy promised by Codelco Chile in everything it does. Whilst undertaking the conservation of the property, this promise conjoined with quality, is the stepping stone to the property keeping its authenticity and integrity and within a consequent and conscious management of the Town's value and significance.

4.f.IV. Methodologies when addressing the Plan

From the aim, scope and basis premises defined for the Plan, the methodology used took into consideration the following activities:

Tourist at residential building in Sewell.


Building N° 129 under restoration.

Sewell website: www.sewell.cl

a) Analyzing, Evaluating and Diagnosing the Present Situation

This activity conducted a complete survey or investigation into the physical, functional and financial aspects of Sewell and its surroundings; furthermore, a SWOT analysis was conducted aimed at detecting strengths, weaknesses, opportunities and threats that could positively or negatively affect the plan's objectives.

With this in mind, several meetings were held and visits made to other towns under the aegis of the El Teniente Division, the mine, surrounding villages and places of interest in the area. With the same idea, meetings were also held with Political Institutions and businessmen which enabled us to see their views and eight up the plans they had regarding the area being studied.

The political institutions expressed a lot of interest in contributing toward preserving and divulging Sewell's historic and cultural characteristics and the businessmen, on the other hand, were interested in developing commercial relations related to special interest tourism. Old-Sewellians, meanwhile, found in this process, a way in which to channel their concerns as regards cooperating actively in the conservation of the Town.

From what was recollected, a Diagnosis was issued that summarized the conclusions regarding the present situation as well as the potential for the Town.

b) Studying the alternatives

Bearing in mind the Basic Premises in the formulation of the Plan and a Diagnosis of the Present Situation, options were studied and evaluated that responded to the objectives themselves. These options were supposed to suggest new ideas from a strategic point of view, management models, sources of financing and action aimed at their implementation. Validating them took into consideration technical and financial assessments after which the best option to be developed was recommended.

c) Developing the option recommended and formulating the Plan

This consisted in the preparation of the documents that defined the following aspects, among others:

- General Zoning (uses proposed) and action in this direction.
- Defining stages and targets for implementing the proposal.
- Preparing investment budgets.
- Drawing up Action Plans and Strategic Action Programs.

4.f.V. Guidelines for the Action Plan and what has been done to date

To get the Plan off the ground, seven lines of action which are interdependent and coherent with the management model proposed were designed and putting them into practice involves short, medium and long term activities.

The aims and what has been done to date in each one of the these lines are shown hereafter:

4.f.V-1 Conserving and Restoring Tangible Heritage

This line's aim involves restoration works, environmental health and improving safety conditions. Between November 1999 and June 2004, a total of 18 buildings covering a surface area of 28,000 m² have been restored externally in which US$ 1,200,000 has been invested.

The works basically considered repairing and/or changing roofs, repairing exterior faces and windows, outdoor painting, repairing street paving and staircases, installing railings and protection bars, restoring Morgan Square and other public spaces, restoring building N° 106 (Chile's oldest Bowling) and restoring the inside of building N° 20, the Teniente Club (the former emblematic social club frequented by US employees), Refurbishing the Conference Room and Cafeteria (building N° 105) and refurbishing the Copper Mining Industry Museum (Building N° 129).

The works were undertaken by contractors whose contracts were administered by the Architecture and Construction Unit whose mission is to supervise the whole of the Strategic Action Plan.

4.f.V-2. Divulging Heritage

Includes any action taken aimed at transmitting the historic and cultural values that Sewell represents and, for this, promotion and participation in activities such as seminars, congresses, chats, exhibitions, cultural and community events were taken advantage of as well as publications and issues through different means of communication and a web page. In this section we included both the scheduled activities within the framework of the Action Plan itself and undertaken by the El Teniente Division as well as others that were done by other persons and which, without being totally involved, did enrich and contribute toward to its success.

Between 2002 and 2004, the El Teniente Division held numerous events, many of which also arose spontaneously, organized by public institutions, union associations and organized communities. It should be mentioned here that they have powerfully enhanced the profile of this property within a series of pre-eminent heritage sites in Chile and divulging its existence by different groups.

What should be highlighted is that there has been a radical change in relation to this property over the last few years. Previously, the Sewell Mining Town, given its location, with access tightly controlled and the nonexistence of a concrete program for its promotion, hardly received any visitors at all and even some of those involved in the world of heritage had never visited it.

The activities mentioned have always had the backing of the El Teniente Division and there have been important moments when its significance and projection have been debated as well as regarding how its should be restored. We shall just touch on some of these activities which were the most relevant:

- **National Congresses of the Architects' Association of Chile:** the association representing architects in Chile holds every two or three years national congress in different locations each time. Of special importance for the Sewell Mining Town was the 16th Congress (in 1999) held in Valparaíso and the 17th that was held in Sewell itself. It was in Valparaíso that for the first time the association put the Strategic Action Plan forward, and it was there that Sewell was able to showcase the views of the professionals concerning heritage.

- **5 Seminars, 4 of which were held in Sewell:** among them was the Conservation and Revitalization Seminar on Sewell, held in December 2003 at the site with the support of different national bodies connected to heritage, as well as the UNESCO World Heritage Center[1]. An important achievement that ensued from this encounter was that old-Sewellians and personnel from El Teniente who took part placed an analysis of this property within a series of industrial settlements at a universal and national level. It was here that the experience of the Humberstone and Santa Laura Saltpeter Works as well as other settlements in Europe were made known and it was thus that Sewell's profile was heightened, both specifically as well as being an outstanding example within its genre.

- **5 Exhibitions within the framework of Sewell's Nomination as a UNESCO World Heritage Site.** One of them was held in 2002 in Santiago in the Baquedano Metro Station which is one of the busiest in the capital. This exhibition was on a grand scale and included both copper mining as well as manufacturing processes that are undertaken by El Teniente, its history and the values of the Sewell Mining Town.

- **Artistic competitions and community activities with old-Sewellians.** The El Teniente Division has regularly held - as a part of its Good Neighbor policy - cultural activities with students from schools in the region, that have resulted in the organization and support, among others, of painting, literary and musical events which have also had the participation of old-Sewellians through the EXTECU (El Teniente Cultural Club).

- **Web pages:** The El Teniente Division created the Web Page http://www.sewell.cl, that makes a trip back into the history of "The birthplace of the Copper Industry". It was launched in 2001 and obtained an award from the "International Print and Radio Festival of New York" in 2002 in the website category of "Overall Design". El Teniente Division's web page, www.codelco.cl, as well as that belonging to the National Monuments Council, www.monumentos.cl, has done a lot toward promoting the property.

1 We are grateful for this contribution that led to the industrial heritage expert, Gracia Dorel Ferré taking part.

- **Documentaries:** Professors Luis Gómez and Heinz Leser made a documentary in 1998 called "Sewell, a mining town in the middle of the Andes" which was showcased within the framework of the 5th World Conference of Wooden Structures held in Lausanne, Switzerland. This documentary was key to promoting the site in those years. The same can be said for the series of micro-programs prepared by National Television in Chile entitled "Born and Bred: testimonies from Sewell", which brought to the forefront the collective memory of the former inhabitants of the Town on film.

- **Publications:** Of great importance was the publication, with the help of the El Teniente Division of the second volume of El Teniente. The Men and the Mineral (1945-1995), by the author Celia Baros, whose first volume referred to the 1905-1945 period[2]. This historic research is the most recent and complete regarding El Teniente Mining, covering both the company's history as well as the productive, social and cultural atmosphere of the times.

In the Annexes are found cuttings from publications that the mass media has featured regarding this property and which increased significantly after it was declared a National Monument and the Strategic Action Plan was first put into practice.

4.f.V-3. The Copper Mining Museum

The line of action is aimed at acknowledging the role that Sewell had in the birth of the Copper Industry and, at the same time, show how it contributed toward this activity within the country's economic and social development.

The first stage of the Museum was inaugurated in December 2003 and it needed 18 months' of work involving research, design, selection, construction and assembly which also called for an investment worth US$ 220,000.

For the installation of the museum, the building which formerly housed the Industrial School was chosen because it would maintain to a certain extent the educational use this building had at one time and its significance in the memory of those who studied, dreamed and trained for the working world there. Its architectonic characteristics were also taken into account, both regarding its formal aspects, given the fact that it is a building that was designed in 1936, as well as its modernist style (the sole example of such a style in Sewell), besides having enough space in which to establish the different exhibition halls.

The museum covers a surface area of 785 m2 on two floors and has 8 halls where the following are exhibited:

- The significance of copper in the development of humanity
- Geology and Mineralogy
- The evolution of the El Teniente Mine

2 Baros, Celia: op.cit.

Students visiting the Cooper Mining Industry Museum.


Tourists at Morgan Square.

- Mining Engineering and Safety
- Life in Sewell
- A collection of Copper objects from antique civilizations. This hall contains over 250 pieces from different parts of the world

A part of the objects exhibited in the museum were donated by old-Sewellians. The enthusiastic cooperation of "The Mining family" and the "Sewell Social Circle" deserve a special mention because they took part in the campaign aimed at recollecting the objects as well as their own experiences.

Work currently is going on in the design of the following museums:

- Sewellian Architecture that will be housed in building N° 101 and which is scheduled to open in 2006,
- The Sewell Concentrator (when these facilities close at the end of 2005) and scheduled for 2007, and
- The Museum called "Inside the Mine" which is being undertaken as a result of the Cooperation Agreement signed between Codelco-Chile and the Mining Museum of Bochum in Germany which is the largest of its kind in the world.

4.f.V-4. Financial Sustainability

This is aimed at gradually generating financial resources for the self-sustainable conservation and diffusion of Sewell.

Financing the initial phase of the Plan fell under the sponsorship of the El Teniente Division; however, the main objective of this line is to achieve self-sustainability in the long term and it is expected that it will be capable of financing at least 75% of the costs necessary for conserving this heritage in 15 years' time.

For this purpose, the El Teniente Division has signed six contracts with Tour Operators under which the public can visit Sewell as well as the El Teniente Mine and the Caletones Foundry. The revenue generated from these contracts and the marketing of souvenirs are contributing toward partially conserving the site. In 2003 these activities generated US$ 30,000 and it is expected that in 2004 this income will reach US$ 42,000.

On the other hand, the Sewell Foundation, currently being legalized, will enable funds from the State, the private sector, international bodies and foundations to be harnessed as donations for cultural aims. This Foundation has been funded with a large initial capital that was furnished by Codelco-Chile itself, but later on it will generate its own additional income for long term conservation.

4.f.V-5. The Sewell Foundation

Bearing in mind that Codelco-Chile's basic business is industrial mining and manufacturing and that its condition as a State-owned body denies it the possibility of asking for or harnessing funds that have nothing to do with its main line of business, it was deemed necessary creating a non-profit organization devoted specially to managing and administering Sewell's assets. This will enable there to be efficient tools to be in place for that object and, and at the same time, involve the public to a larger degree. On the Board of the Foundation there will be representatives from institutions of a public, cultural and social (old-Sewellians) nature, besides Codelco.

The creation of this Foundation was approved in August 2004 under agreement N° 20/2004 of the Board of Codelco-Chile. It will have its own board of nine members (appointed by the Chairman of Codelco), a capital of US$ 2,000,000 (furnished by Codelco-Chile) and its basic objectives will be the following:

1° Conserve and develop the Sewell Mining Town as a Museum site for the Copper Mining Industry.

2° Divulge Sewell's mining, architectonic tangible and intangible cultural heritage.

3° Generate financial resources that will gradually contribute toward the self-sustainable conservation of Sewell in the long term.

4° Obtain support from national and international bodies devoted to preserving and transmitting cultural heritage and generate the mechanisms for harnessing resources that will be addressed to organizing educational and/or cultural programs.

5° Foster and coordinate cultural exchange relations with national and foreign experts, other foundations and similar organizations.

6° Put into practice the Management Plan regarding the site's heritage within the nomination of the property as a UNESCO World Heritage Site.

7° Acquire pieces and objects that contribute toward enriching the collections in the Copper Mining Industry Museum.

As well as furnishing the resources, Codelco-Chile will transfer to the Foundation, in commodatum or loan for an indefinite period, the land, buildings and other facilities that are found in the area of Sewell declared a National Monument.

Enacting the Government's decree that authorizes the creation of the Foundation is scheduled for April 2005 to coincide with Sewell's Centenary and, consequently, that of the Copper Mining Industry.

4.f.V-6. Generating Strategic Alliances

This line of action is aimed at promoting Sewell and integrating it with other tourism services in the region. The El Teniente Division is supporting these alliances in order to consolidate the concept of tours with which both Sewell as well as the other products that are developed, obtain mutual benefits. The creation of such alliances is centered around the management capacity of businessmen in this sector, with the backing of public bodies such as the National Tourism Board (SERNATUR), the Corporation for Development and PROCHILE.

Annex 4.f.V-6 deals with action taken in this field.

- An agreement signed between PROCHILE and SERNATUR and the formation of a Tourism Services Export Committee aimed at encouraging what is available for tourism in the 6th Region. Sewell is enshrined within the concept of "Special Interest Tourism" in the field of "Cultural Attractions".

- Action taken by the Pro-O'Higgins Corporation and its Development Project "Mountain Tourism" which integrates the different attractions linked to mountains under a criterion that adds to and complements this activity.

- In 1998, the El Teniente Division signed a cooperation contract with the Regional Secretariat of the Ministry of Education which has enabled some 4,500 schoolchildren to visit Sewell annually.

Furthermore, the National Monuments Council has fostered this project with its declaration of National Monument, the Agreement for Copper Heritage Conservation signed in 1999 and the subsequent granting of the "National Monuments Conservation Award" in 1999 as well as the promotion of the site within the framework of its institutional tasks.

4.f.V-7. Nominating Sewell as a UNESCO World Heritage Site

This nomination of the Sewell Mining Town for inclusion on the UNESCO World Heritage List is also one of the important lines of the Strategic Action Plan (besides the fact that this is a very significant recognition), because it will consolidate and project the process with which Codelco-Chile is very much involved. This is due to various reasons:

- It reaffirms with greater solemnity in the international community the strong commitment that the State of Chile in general and Codelco - Chile in particular have as regards the conservation of this site.

- It opens up new possibilities for us to get to know and appreciate the experiences and skills applied to other heritage sites that we can harness to this site's benefit.

- It contributes toward reinforcing the diffusion of this property throughout the world as regards an appreciation of its universal values, enabling us to share the wealth it represents.

- It renews and gives a new dimension to the national community regarding the history of mining, strengthening the consciousness that this gesture represents undertaking, making others aspects for the people involved, particularly miners, a monument of vast proportions from an educational and social point of view.

With this aim in mind, this file has been put together which it is hoped will enable the values, history and management that underpin the nomination to be made available.

So, it was important to create a consciousness in and a commitment by the people regarding the recollection of signatures in support of the nomination of the Site and which began with a ceremony that took place at the Sewell Mining Town in August 2000.

Having said that, besides its possible listing, the nomination process as such has been extremely positive inasmuch as catalyzing a sustained effort of reflection, evaluation and perfection of the site's management and its planning.

4.f.VI. Problems or difficulties that had to be overcome

The main difficulties that had to be overcome within the framework of the preparation and application of the Strategic Action Plan referred not so much to material impediments but rather to problems relating to mentalities and perceptions. These were such that having faced them and managed them led not to costs but to benefits that contributed toward consolidating the effort made.

One first difficulty was the reticence and mistrust showed by old-Sewellians and unions and associations who were living witnesses of how Sewell had been abandoned and destroyed during the seventies and the eighties.

These feelings rose to the surface when, in 1998, the El Teniente Division began the job of preparing the Action Plan. It could hardly be believed that the El Teniente Division was concerned with safeguarding Sewell's heritage.

Today, those negative feelings have gone into reverse due to the commitment shouldered by Codelco - Chile and compliance therewith through action taken in the course of the Strategic Action Plan. One example of this are the public opinion surveys conducted by the El Teniente Division, the results of which show that there is high level of public approval for what the Division has done so far regarding Sewell's conservation. Another piece of evidence is the active participation of old-Sewellians in the establishment of the Mining Museum in Sewell through the accounts lived by the people themselves and the search for and recollection of objects and pieces.

Within this company's field, another difficulty that had to be overcome was the Division's inexperience in tendering tourist development contracts, basically because of the singular nature of the product the Company was dealing with (mining heritage tourism), the lack of specialized operators providing such a service and the definitions in the contractual conditions aimed at making them attractive and easy to control for the El Teniente Division.

Architects' Association seminar.


Students visiting Sewell.

The first contract was assigned exclusively to one sole contractor who, a little while after, stopped paying the Division the amounts agreed, so it was necessary to bring the contract to an end. Today there are 6 tour operators with contracts with El Teniente Division who are organizing trips to both Sewell and to the mine.

On the other hand, within the company itself there were clearly groups for whom heritage conservation was totally beyond them. People and their views had to be overcome who viewed the whole process as being totally anti-economic and senseless and a contradiction of what the company's aims really were, supposedly "freezing" assets and ruling out a profit-making motive. So it was that a good deal of these efforts were aimed in the direction of appropriating this site by the persons interested in it and demonstrating that it deserves to be maintained and should remain a standing memory to those who went before us and that it is an essential part of the objectives and interests of the company and the country. Today, Codelco-Chile has fully shouldered its commitment to the conservation and development of this heritage called Sewell.

On the other hand, the National Monuments Council, whilst doing its job of supervising the property, had to face a series of huge obstacles with certain special characteristics, particularly the fact that it was a property that was ensconced in the heart of an ongoing industry, a good part of which is still operating (the Concentrator). It was assumed in this case that care had to be taken as the case progressed. Contrary to what was expected, there were no problems in understanding with the persons in charge in the company, with whom dialogue was fluid and fruitful. The Council had to put forward a sound study of the characteristics of the property which ran parallel to a deepening of an understanding of industrial heritage in general.

4.f.VII. The Plan's Beneficiaries

The groups and/or persons beneficiaries of the Plan can be grouped together as follows:

1° **Old-Sewellians and their organizations who gradually received the benefits of the Strategic Plan which flowed in two directions:**

- An acknowledgment of their pleas for safeguarding the heritage of Sewell, both as far as restoration and conservation of the physical properties were concerned as well as rescuing their cultural heritage of an intangible nature.

- Remunerated work, such as tour guides and other jobs in the contracts that the El Teniente Division signed with Tour Operators.

2° **Public and/or Municipal Institutions, linked to Education and Culture (schools, professional colleges, institutes, regional museums, etc.).** The benefits for this group are related to a knowledge of Sewell and/or manufacturing processes through which steps are taken regarding the significance of copper for the country and the region. Over 4,500 students every year visit Sewell and the El Teniente mine.

3° **Private Bodies and Tourist Organizations**, whose interests are related to the promotion, development and sale of tourist activities. Sewell clearly is grouped within special interest tourism, like the Wine Route, for example. Both tourist products have been developed alongside each other, rarely overlapping, but contributing toward the region's economic growth. The aforementioned activities involve around 500 persons directly and 1,500 indirectly.

4° **Institutions or persons connected to Culture**, interested in getting to know heritage and technology in an entertaining and surprising manner. The large majority are the elderly and regarding whom the National Tourist Board recently signed contracts with Municipalities in the Metropolitan Region aimed at organizing visits and tours of the site and the mine. It is estimated that 6,000 persons a year will be able to take part in them.

4.f.VII- 1. Direct participation of the Beneficiaries in the Plan

Nowadays, old-Sewellians are taking part directly in carrying out the Strategic Action Plan. It is worth remembering that one of the basic premises for it being prepared was community participation, given the commitment acquired by them in preserving Sewell.

These groups have taken part in campaigns aimed at recollecting objects for the Mining Museum, cleaning areas in the Town or simply telling tales of their past lives there and anecdotes. Moreover, they have even participated in recollecting signatures for this Nomination for which albums were made available.

National, regional and local authorities have participated in the building up of the Plan and they are constantly providing new ideas through how they view it. So far as they are concerned, the wide variety of friends of Sewell regarding its heritage cooperate through the aforementioned activities, particularly the Seminars, enabling the view to be widened and deepened which is the company's task in this respect.


Old-sewellian with family.

Hereafter are how the beneficiaries and/or the community in general will be able to participate:

1º Indirectly, through their institutions (public or private) or their social or union associations and/or as natural persons who will be related to the Sewell Foundation.

2º Directly, by becoming a member of the Board of the Sewell Foundation where they will have a voice and a vote in its decisions or becoming a member of the Foundation's Consultative Committee (an intermediate body with a big following oriented toward channeling concerns and proposals for development).

4.f.VIII. Impacts and Perspectives of the Plan

This Plan has already given the fruit expected and this only strengthens the trust that people have in that its long term results will be those that were projected. Now, it is being projected more completely and fully in the manner of a comprehensive Management Plan.

4.f.VIII-1 Sphere of influence

The Strategic Action Plan is having a direct and positive impact on the municipalities of Rancagua and Machalí as a result of cultural and tourist developments. It is estimated that its sphere of influence will eventually reach the Metropolitan, Fifth and the remainder of the Sixth Region (where the important towns of Santiago, Valparaíso, Viña del Mar, Rancagua, San Fernando and Curicó are located).

Gross Potential Demand in total in these regions amounts to 7.6 million persons. Bearing in mind that the target population is persons between the ages of 12 and 75 years of age, family groups seeking educational experiences, groups of professionals and students with an interest in architecture, engineering, mining, metallurgy, etc., the conclusion is easily reached that real demand could rise as to as high as 120,000 visitors a year, which is equal to 1.6% of that gross demand.

4.f.VIII-2. Contributing toward an improvement in people's quality of life

120,000 visitors a year expected could positively affect the development of cultural activities, tourist services (gastronomy, hotels and transport), arts and crafts and other affinity businesses and services.

On the other hand, the project will generate direct and indirect jobs for persons connected to the Town as well as for those who will be drawn by an increase in the development of tourism in the region.

4.f.VIII-3. Contributing toward strengthening the community and people's participation

The community in the 6th Region has been strengthened by its participation in the project because Sewell is a symbol of heritage in the collective memory of its inhabitants, particularly for old-Sewellian organizations such as the "Mining Family" and the "Sewell Circle" who will directly participate in the Sewell Foundation. Likewise, other institutions and organizations will strengthen their participation trough the Consultative Council belonging to that Foundation. See point 4.f.VII-1.

4.f.IX.The Plan's effectiveness in accordance with initial objectives

The basic objectives of the Action Plan regarding conservation and diffusion of its heritage are being satisfactorily met in terms of gradually progressing toward the target of financial self-sustainability and the generation of tours, thus validating the management model proposed in the action lines that were designed for this purpose.

As can be appreciated in point 4.f.V., the working lines that are being carried into fruition regarding the Plan, are demonstrating their efficiency so we could call it a "Road Map" that has served as the firm foundations for the challenge of seeing Sewell conserved, known and enjoyed for all time.

4.f.X. Elements that make the Strategic Action Plan so important compared with other similar cases

The case of Sewell is important both in itself as well as in its projection toward other properties, particularly those of an industrial heritage nature. That is because of the success it is obtaining as regards sustaining its conservation and diffusion it in the long term, envisaging for that whatever financial and human resources are necessary.

The success obtained up to now means that it can be presumed that, generally speaking, the plan can be replicated, especially regarding strategic planning processes, the model for generating and operating heritage sites and the establishing of alliances with other attractions in the surroundings when it comes to organizing tours.

Notwithstanding this experience, everything depends on the characteristics and conditions extant of the property as well as what degree of participation and support it receives from within the organized community.

The financial sustainability model is gradually generating revenue for conserving Sewell, which will be increased in the measure that other attractions near Sewell become available and are added to the tours and, in this way, generate a synergy with the ensuing benefits both for Sewell as well as for the other attractions.

4.f.XI.Ways in which to sustain and improve the Plan over time

The Plan's sustainability and any improvements to it, in future projections, will take into account the following aspects:

1º Effectively and fully putting into practice the specific actions plan and programs of each one of the Action Lines.

2º A strategic view and the capacity of the Sewell Foundation to see opportunities for growth by means of the generation of alliances or other management methods.

3º Codelco-Chile's support, commitment and involvement as well as that of the community and public and private institutions in materializing and improving upon the Plan.

Tourists at Sewell.


Children visiting Sewell.

4° Continuous following up and monitoring the work undertaken as a result of checking that all targets are met as regards the plan as well as measuring management indicators.

5° A review or modification of the General Plan and its action lines as a result of monitoring it.

6° Continuous and deep-seated knowledge, reflection and a valuation of the property's significance in its multiple dimensions, both at a level of the community as well as among the many persons involved in its management and supervision.

7° Adding to the Plan with general criteria and programmed lines which will perfect its quality which is the essential objective of the whole Management Plan to be applied as from 2005.

4.f.XII. Tourism

Tourism in the 6th Region of "Libertador Bernardo O'Higgins" is a part of the Regional Development Strategy because it happens to be one of its most important aspects. Consequently, the National Tourist Board (SERNATUR), prepared a Master Tourism Development Plan in which it proposes strategic action oriented toward integration, identity and regional production.

These aspects lead to a consolidation of the development of tourism among others, the establishing of the Heritage of the Sewell Mining Town and the El Teniente mine.

This concept of the development of regional tourism during the stage of diagnosing the preparation of the Strategic Action Plan became a big potential for Sewell which will continue to grow when combined with other attractions, such as the mining operations and places in interest within the municipality of Machalí. This conclusion was the result of a territorial analysis that pinpointed the existence of three tourism areas in which tours, in combination with each other, could be got going, albeit each one maintaining its own particular characteristics. They are:

- Recreational Urban Tour: includes the cities of Rancagua, Machalí and attractions on the north and south banks of the River Cachapoal.

- Ecotourism Tour: includes the Natural River Cipreses Reservation, a Protected Wildlife Area belonging to the State but administered by CONAF (National Forestry Commission).

- Heritage - Technological Tour: includes the Sewell Mining Town, the El Teniente Mine and the El Teniente Division's industrial facilities.

There are also other tourist attractions in the area, all of which are up and running, which help enrich the supply of recreational possibilities. They are:

- Ski resort of Chapa Verde: located inside El Teniente Division's operational area which has ski-lifts and accommodation in cabins.

- Cauquenes Spa: located on the south bank of the River Cachapoal, (5 Km to the west of Coya). It has a grand hotel, thermal baths and outstanding cuisine.

- Coya Country Club: located 3 Km from Coya: it has a restaurant, a conference center, swimming pool, tennis courts and an 18-hole golf course.

- House Nº 100: an emblematic property of Georgian style which initially was home to the General Manager of the Braden Copper Company. It is located in Coya and nowadays it is used as a reception area with its own accommodation for Heads of State and visiting dignitaries. It has 4.25 hectares of parkland full of lawns and native and foreign trees planted when the house was built.

Because of this wide supply, it was proposed implementing the Tourism Development Plan gradually and which could begin immediately and progress toward covering the whole of the area whose center would be in Coya, where the three tours intersect each other.

The stages taken into consideration in this plan are the following:

a) **Sewell, an attraction on its own**
This stage proposes tourism and cultural visits to the Town with one-day tours which also include visits to the Museum. Also envisaged is the establishment of areas for refreshments and the sale of souvenirs.

b) **Sewell - Mine - Industrial Facilities**
This stage involves enriching the tours by incorporating, besides Sewell, visits to the mine, the Caletones Foundry and the concentrate plants of Sewell and/or Colón. These visits would allow Sewell to be better showcased as regards its history and role among El Teniente Division's production processes and incorporate a public interested in mining technology. These are also day tours.

c) **Coya, Axis of the Tours**
This stage includes the consolidation of the tour system as it includes all three tours. Sewell, then, would be one of our major tourist attractions.
Because the three tours intercept each other in Coya, the system would have this place as its operations center where such services as board and lodging would be provided so that they could become two or more day visits. Hotels and the like would have to be built to house all of these operations.
Building the Coya Tourist Center would positively affect the economic and social development of the Region and specially Coya.

This tourism plan is associated with the Strategic Action Plan for the Conservation and Diffusion Action Plan of Sewell as regards its lines for "Economic Sustainability" and the "Generation of Strategic Alliances". See points 4.f.V- 4. and 4.f.V-6, respectively.

Moreover, the Tourism Development Plan encompasses and channels the partial projects that act on behalf of Sewell inasmuch as the "Role of other institutions in the management of the project" are concerned. See point 4.f.VII-1.

At present, stage "b" of the Tourism Plan is fully operational; i.e. visits to Sewell, the Mine and Industrial Facilities. During 2003, a total of 12,554 persons visited these facilities and it is expected that this number will rise to 16,000 in 2004.

It should be pointed out that the visits were made both through tour operators as well as a result of invitations extended by the El Teniente Division to groups of persons in the low income bracket or groups associated with institutional commitments. This means that the company's institutional policy is to conduct these visits on behalf of whoever cannot afford the services of tour operators.

The revenue generated in 2003 as a result of tourism activities in Sewell amounted to US$ 30,000 and it is expected that this will reach as much as US$ 42,000 in 2004.

It is worth mentioning that in 2002, the Strategic Action Plan for the Conservation of Sewell was distinguished by the Ministry of Housing and Urban Development of Chile in First Place (in the inter-community category) in the competition called "Good Urban Practices", because of its contribution to regional development and citizen participation.

Besides, in 2001 and 2004, SERNATUR (the National Tourist Board), conferred on the Strategic Action Plan its distinction of "Regional Tourism Merit" for its contribution to the development of this activity.

On the other hand, a Delegation from the 6th Region of the Association of Architects awarded the "Manso de Velasco" Prize in 2001 to the architect, Luis Gómez Lerou, as the one behind the defense of the heritage of Sewell and in 2002, to the architect, Felipe Ravinet de la Fuente, as Director of the Sewell Reconversion Plan.

The awards mentioned are in addition to the one granted in 1999 to Codelco - Chile of the "Prize for the Conservation of National Monuments" in its corporate category given by the National Monuments Council of the Ministry of Education. This award was based on the company's policy in relation to the Sewell Mining Town.

4.g. Sources and levels of finance

The Government of Chile, through the El Teniente Division of Codelco - Chile, whilst sponsoring the declaration of Sewell as a National Monument, took on the obligation to look after this property, bearing in mind the financial and human resources it will need in the long term.

As mentioned in 4.f.V- 4. (financial sustainability) financing the initial stage of the Strategic Action Plan (for the years 1999 to 2005) was done directly by Codelco - Chile, El Teniente Division at a rate of US$ 250,000 per annum. This figure includes all of the resources invested in Sewell, both as regards physical maintenance and recovery of the buildings as well as promotional and diffusion activities and management initiatives.

However, as from 2006, financing the Plan will be shouldered by the Sewell Foundation, and it will have to consider the following revenues:

- Capital furnished by Codelco-Chile for the creation of the Sewell Foundation, equal to US$ 2,000,000 to be paid over 8 years (US$ 250,000 per annum)

- Other Income: corresponds to whatever is generated or created by the Sewell Foundation itself as a result of its own administration activities.

- Operational Revenue: refers to whatever is generated as a result of running tourist enterprises.

Hereafter is a flowchart of revenue and expenditure for the period between 2006 and 2016, (expressed in thousands of US$) approved by the Board of Codelco - Chile for the authorization of the creation of the Sewell Foundation. At the end of the period, the flow of expenses shows an accumulated operational surplus of US$ 252,000.

Year	Capital Furnished	Other Income	Operation Income	Total Revenue	Operation Expenses	Operational Surplus	Accum. Operational Surplus
2006	250	5	50	**305**	**250**	55	**55**
2007	250	5	60	**315**	**320**	-5	**50**
2008	250	6	70	**326**	**360**	-34	**16**
2009	250	8	75	**333**	**310**	23	**39**
2010	250	9	80	**339**	**250**	89	**128**
2011	250	10	90	**350**	**250**	100	**228**
2012	250	12	100	**362**	**250**	112	**340**
2013	250	15	110	**375**	**240**	135	**475**
2014		17	120	**137**	**230**	-93	**382**
2015		20	130	**150**	**225**	-75	**307**
2016		25	140	**165**	**220**	-55	**252**
Total	2,000	132	1,025	3,157	2,905	252	252

Building N°152 before and after restoration.


Building N°152 during restoration.

4.h. Sources of expertise and training in conservation and management techniques

It is worth mentioning that in the practical field of the works, the El Teniente Division has had, since the very beginning, highly qualified and specialized labor when it came to undertaking the works of execution and management or directly supervising the work entrusted to contractors in specialized installations. See point 3.d.

As from the nineteen nineties, training had to be enlarged to instruction in specific matters related to heritage. The main supplier of experience and training in administration and conservation techniques in the case of the Sewell Mining Town was the National Monuments Council as the technical body of the Ministry of Education of Chile. This was done directly or indirectly, thus making the bonds between both bodies greater.

This provision of experience and training in the matters mentioned was done within the framework of the Agreement signed between the National Copper Corporation of Chile and the National Monuments Council. See point 4.c.II.

Besides this Agreement, from 1998 onwards after Sewell had been declared a National Monument, Codelco-Chile began a specific training process for its architects and other professionals in heritage conservation and management techniques so as to achieve a certain level in these matters. This training process took place with study visits abroad, specific courses and professional exchanges with experts on the subject.

The sources of this training at a national level are basically Chilean universities although our country now has several prestigious Schools of Architecture that provide instruction also in the field of heritage. As regards museology, in particular we have the Board of Libraries, Archives and Museums, a state sponsored department also reporting to the Ministry of Education. The Seminars held in Sewell and in other places around the country on industrial heritage have also been an important source of expertise for the ones in charge of the conservation of the Town.

During this first stage of the application of the Strategic Action Plan, important also were the sources of training in other industrial heritage sites inside and outside our country. Other sites and the establishment of links with their persons in charge were sought, not only with a view to learning from others' experiences in conservation and sustainable management, but also to better understand the intrinsic values that the Sewell Mining Town has both specifically as well as within the series of industrial settlements there are in the mining industry. Among the study visits made, one was to mining heritage in the United States and another to Germany (Rammelsberg and Goslar, Bochum) as well as to the Humberstone and Santa Laura Saltpeter Works in Chile

4.i. Visitor facilities and statistics

The Annual Tourism Report shows that the 6th Region of "Libertador Bernardo O'Higgins" (16,387 km2 and 780,627 inhabitants according to the 2002 Census), due to its proximity to the capital city of Santiago (Rancagua, the regional capital is only 85 kilometers distance away), does not have a large number of tourist accommodation establishments. Visitors come to the region on day tours that might also include Sewell nowadays. On the other hand, as regards gastronomy, the 6th Region has 96 recommended restaurants, among which is the Coya Country Club and the Cauquenes Spa located 30 and 35 Km. to the west of Sewell, respectively.

4.i.I. Tourist Services

The 6th Region of "Libertador Bernardo O`Higgins" has three provinces, of which the El Teniente Mine and the Sewell Mining Town as well as the Regional Capital of Rancagua are all located in the one province of Cachapoal. At present in the Province of Cachapoal, infrastructure for tourism and which, indirectly, is valid also for the Sewell Mining Town is mentioned hereafter.

a) Accommodation (hotels, pensions and motels).
Number of Establishments: 18
Number of rooms: 436
Number of beds :1,119

b) Restaurants.
Number of Restaurants and Snack Bars: 62.

c) Tourist Agencies: 10.

d) Santiago - Rancagua Bus Companies.
Two bus lines with departures every 15 minutes.

e) Santiago - Rancagua Train service.
Metro trains with 17 departures every day between Santiago and Rancagua and vive versa.

f) Car Hire: 4 agencies.

Furthermore, in the municipalities of Rancagua and Machalí, all of the nation's banks have branches as well as facilities for changing foreign currency (2), Post Offices (24) as well as commercial and institutional services befitting a regional capital, (in the case of Rancagua) and a municipality, (Machalí) with 214,344 and 28,628 inhabitants respectively, judging by the 2002 Census.

On the other hand, visitors to Sewell will find the following tourist services:

- Maitenes Visitors' Reception Center: Located 20 Km. to the east of the city and 38 Km. to the west of Sewell, is the checkpoint and entrance to El Teniente Division's property. This Reception Center functions in building Nº 8 and it has: Reception Room, Video Projection Room, Changing Rooms for mining safety equipment (for visits down the mine), Storeroom and Maintenance for mining safety equipment, kitchenette and bathrooms for visitors. It will shortly also have a store for selling souvenirs and a Cafeteria.

- The Sewell Mining Town has the following facilities:
  - Building Nº 105 has a Restaurant, Guest Reception Room, Conference Room (for 180 persons) and bathrooms for visitors.
  - Building Nº 157 has a Cafeteria for workers and/or visitors.
  - Building Nº 106 has a Bowling (the oldest one in Chile).
  - Building Nº 20 (The Teniente Club) has a Conference Room for 280 persons.
  - Building Nº 501 has a First Aid Post.
  - Building Nº 231 is a Catholic Church (Mass held on one Sunday per month)
  - Building Nº 129 is the Mining Copper Industry Museum which also has an exhibition hall, conference room and a place where souvenirs are sold.
  - Morgan Square is available for outdoor events. In the medium term, the following will be made ready: a pitch-and-toss court (typical Chilean game), other viewpoints and an open air museum of Mining Machinery.

- Inside the Mine the following attractions are available
  - Underground Level 6 has a Video Projection Room, a Museological Recreation of an old mine, self-service cafeteria, bathrooms for visitors and a first aid post.
  - Level 6 has a "Drusa" (caves containing natural crystal and mineral formations) and a Primary Grinder (of colossal size).

4.i.II. Visitor Statistics

Arrivals of tourists in the 6th Region of "Libertador Bernardo O'Higgins" over the last seven years are shown in the following table:

Year	Arrivals		
	Foreigners	Chileans	Totals
1997	2,870	68,064	70,934
1998	3,484	83,933	87,417
1999	3,050	52,717	55,767
2000	3,524	63,872	67,396
2001	2,258	44,016	46,274
2002	6,284	70,168	76,452
2003	8,394	85,840	94,234

Estos antecedentes provienen del Instituto Nacional de Estadísticas, y están basados en These figures were provided by the National Statistics Institute and they are based on overnight stays in some sort of commercial accommodation; i.e. they do not include day visits made by persons coming from nearby cities. Worthy of Notice is the large increase in tourists arriving in the 6th Region over the last two years (2002 to 2003).

Each visitor's arrival in the Sewell Mining Town is recorded in the "Tourist Visitor's Book", a document that is required at the Maitenes Checkpoint, the only entrance there is to El Teniente and, therefore, Sewell. The Tourist Visitors' Book enables statistics to be kept of all visitors and at the same time keep a record of each person should this be necessary in the event that El Teniente's personal accident insurance is needed.

So it is recorded that visitors to Sewell and the El Teniente Mine between December 2003 and September 2004 were accounted for as follows:

Years	Method used for visit			Totals
	Tour Operators	Invited by El Teniente Division		
		External[1]	Internal[2]	
2002	1,420	1,851	240	3,511
2003	6,432	3,289	2,483	12,204
2004[3]	7,890	4,130	2,300	14,320
Totales	15,742	9,270	5,023	30,035

(1) Codelco's institutional commitments with the community
(2) Workers belonging to El Teniente Division and their families
(3) January to November 2004

Years	Visitors' Destination			Totals	Observations
	Sewell[1]	Mine[2]	Sewell-Mine[3]		
2002	2,595	336	580	3,511	august - december
2003	6,992	962	4,250	12,204	all of 2003
2004	8,432	1,489	4,399	14,320	january - November
Totals	18,019	2,787	5,404	30,035	

Notes:
(1) Sewell only
(2) Mine only
(3) Sewell and Mine together

Visitors at Sewell.


Old compressor inside the mine.

4.j. Property management plan and statement of objectives

The Strategic Action Plan for the Conservation and Diffusion of Sewell and its different work lines are the basis of the Management Plan whose preparation was tackled in 2004 aimed at systemizing the experience accumulated as well as enlarging, adding to and improving upon the planning instruments that had guided management over the previous six years. It became necessary to establish a specific instrument in this sense which basically responded to the following objectives:

a) Establish instructions for any encroachment that would act as guidelines and regulate and safeguard the conservation of heritage, bearing in mind prevailing regulations. These instructions of a technical nature fix what requirements must be complied with for encroachments that imply restoration works or merely conservation.

b) Systemize all activities or action to be taken in the shape of programs formally established that ensure the property's conservation and diffusion in the long term, as well as enlarging the fields to be covered with the new programs that tackle other aspects related to conservation and restoration.

c) Systemize control and monitoring efforts that enable compliance to be checked of action taken, using a series of conservation and management indicators.

d) Establish ways in which to check what action was promised for it or, if the case may be, incorporate new action that enables the management of conservation and heritage diffusion to be improved, bearing in mind monitoring and new strategic views.

The Management Plan for the property then is a regulatory and planning instrument aimed at managing the conservation, diffusion, development and restoration of the "Cultural Capital" that the Sewell Mining Town represents.

These functions must necessarily be fully in harmony with compliance with prevailing regulations (both national and international), instructions issued by the authorities and the Action Plan for the Conservation and Diffusion of Sewell. At the following page a chart shows the General Consideration and most relevant aspects when formulating the Management Plan for the Site.

4.k. Staffing levels (professional, technical, maintenance)

At present, in the El Teniente Division, anything related to administration and conservation of the Sewell Mining Town as well as undertaking the Strategic Action Plan for the property, already explained, falls under Services and Supplies Management through the Architecture and Construction Unit whose person in charge is an Architect with a sound and extensive knowledge of the Town and who, ultimately, supervises the works that Codelco-Chile has promised for the area declared a National Monument.

The Sewell plan has the following team of expert professionals who, besides administration, handle the technical aspects and management:

- 1 Project Chief in Sewell (at the same time he is the Architect and Construction Unit Head)
- 1 Coordinating / Designer Architect
- 1 in charge of the Mining Museum
- 1 Works Inspector
- 1 Technical Draughtsman
- 1 Administrative Assistant
- Variable Staff, Depending on the workload, the following are hired seasonally: Architects, Surveyors, Draughtsmen or any other specialist that is necessary for obtaining the right results.

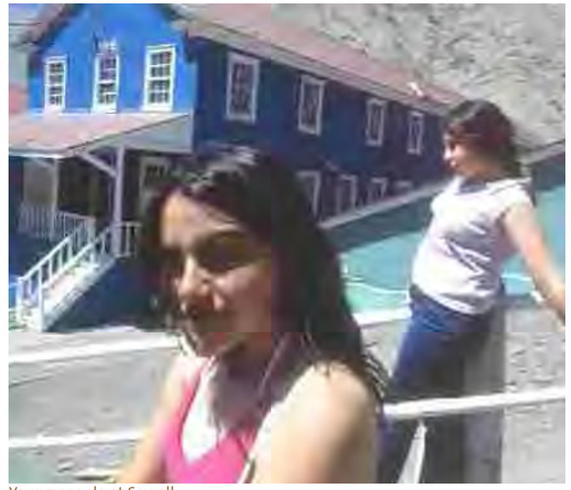
In the near future, managing cultural, technical, financial and administrative functions will be done by the Sewell Foundation, which will have at its disposal a functional organization with whatever human and financial resources are needed for carrying out its job.

On the other hand, restoration and/or conservation work is being carried out by specialist contractors under contracts that establish regulations and guidelines to be developed. These contracts are administered and supervised by the professional team described above.

Furthermore, in the Town itself and in the immediate surroundings, are the personnel from all of Codelco-Chile El Teniente Division's units that were mentioned, particularly in the section relating to the conservation of the property, i.e. Road Maintenance, Water Resources, Electrical Maintenance and Civil Maintenance Units.

In the field of diffusion and promotion, it also has personnel from the Communications Board of the El Teniente Division that play an active part in everything concerning the organization of visits and activities, generating products for diffusion and supporting diffusion by others, etc.

GENERAL CONSIDERATIONS AND MOST RELEVANT ASPECTS WHEN FORMULATING THE MANAGEMENT PLAN FOR THE SITE		
Level	**Considerations**	**Implications**
A.	**Legal Framework (prevailing legislation)**	
A.1.	National Monuments Law and Decree 857 declaring it a National Monument	
A.2.	Law and General Ordinance on Urban Development and Construction	
A.3.	Law pertaining to Codelco	Definitions, responsibilities and attributions
A.4	Basic Law for the Environment and Regulations	
A.5	Caletones Decontamination Plan	Description of Implications
B.	**Physical Aspects**	
B.1.	Territorial Identification	Location, Areas, Surfaces
B.2.	Environmental conditions	Climate, fauna and flora, geology, contamination and others
B.3.	Property's Components:	
	- Public Spaces, roads and paths	Description
	- Industrial Facilities: machinery and buildings	Structural Components
	- Non-industrial Buildings: housing and services	Technical Specifications
	- Infrastructure	
B.4.	Use of the Property	Description and use of the land
C.	**Heritage Values of the Property**	
C.1.	Industrial-Mining	Essential values and critical aspects for Management
C.2.	Architectonic and Urban Styles	
C.3	Sociocultural	
C.4	Historic	
D.	**General Principles**	
D.1.	Regarding a knowledge of the property	That orients objectives and implications for managing the property
D.2.	Regarding managing the property	
D.3.	Regarding encroachment methods	
E.	**Action Lines**	
E.1.	Research	
E.2.	Conservation, Safety and Environment	Description, objectives and specific implications
E.3.	Divulging Heritage	
E.4.	Financial Sustainability	
E.5.	Mining Museum	
E.6.	Generating strategic alliances	
F.	**Aspects to bear in mind when formulating the Management Plan**	
F.1.	Technical Aspects	Factors that affect the property Conservation Criteria Physical planning (use of the land, defining routes, environmental health) Management and cost programs
F.2.	Operational Aspects	Capability of withstanding facilities. Environmental Management
F.3.	Financial Aspects	Costs and Financing. Controlling Income - Expenditure - Flows
F.4.	Administration Aspects	Work lines: cultural, operational, Technical and FinanciaL
F.5.	Management and Monitoring Control	Actions and who is responsible Monitoring Frequency Defining management indicators (quantitative and qualitative)



Young people at Sewell.

Chapter 5

Factors Affecting the Property

Snow clearance at railroad station.

Partial destruction at Sewell Concentrator.

Firemen Practice.


Sewell Concentrator.

5 FACTORS AFFECTING THE PROPERTY

5.a. Development Pressures

The copper mining industry in Chile went through a boom period at the end of the sixties and the beginning of the seventies as a result of the so-called "Chilenization of Copper"; a State-sponsored policy aimed at taking control of the ownership of the deposits which, hitherto, had been in the hands of North Americans and, on the other hand, with the intention of increasing the production of copper so as to establish the so-called "Cornerstone" of the nation's economy or what was and still is called "Chile's salary".

In 1967, during the Presidency of the Republic of Eduardo Frei Montalva and under Law Nº 16.624, "Chilenization" actually took place whereby the State acquired 51% of all of the country's copper mining deposits. This gave way then to the Investment Plan called "Program 280", whose aim it was to double copper production by the year 1972. This plan marked the beginning of the translocation of the people living in the Sewell Mining Town to the city of Rancagua in what was called "Operation Valley", basically moved by the decision to lower operating costs. So it was that the inhabitants of Sewell suddenly found themselves living in the midst of a traditional urban area.

Now, the workers had to travel daily by bus and along a good quality highway which cut down the journey time from 5 hours by train to a short one hour trip and which made the existence of a town at the mine pointless for those working there. Therefore, Sewell which, at one time had been home to over 15,000 residents, became a ghost town overnight.

In 1971, when Salvador Allende Gossens was President of the Republic and with the unanimous approval of the Chilean Parliament, the whole of the Copper Mining Industry was nationalized. The measure launched the "Day of National Dignity" and, in the process, nationalization consisted of the wholesale and complete acquisition of all properties belonging to copper mining companies.

So, after nationalization occurred, some of the buildings in Sewell began to be modified so far as their use was concerned and in harmony with the country's new social, political and economic reality. The El Teniente Club, for example, hitherto the exclusive domain of North American personnel, became the "Miners' Cafeteria" with low-priced meals. At the same time, some of the uninhabited houses were seized and pillaged and this was something that revealed a serious housing problem in Rancagua.

In view of this situation, the El Teniente Mining Company began a demolition program so as to get rid of the "unoccupied" buildings and recover and sell off the remains as scrap and demolition material to anybody interested.

When the Military Government was installed as a result of a coup d'etat in 1973, the Town was falling to pieces little by little and the remainders of the buildings were used in other ways. That coincided with a period when a certain amount of the mining company's business began to be outsourced which meant hiring contractors who arrived with their own workers and so they were housed, to a large extent, in the Sewell Mining Town in single men's dormitories. Assigning the buildings like this meant modifying the interiors of some of them and they all underwent a period of wear and tear, whilst others were still being torn down.

This situation dragged on until 1990 when all demolition work was stopped which happened to coincide with the country's return to a democratic system of government. Not withstanding the foregoing though, the Town was still used as accommodation for contractors' workers but this came to an end in 1998 when, as a result of the area around the mine being declared a contaminated saturated zone (1994) and the consequent establishment of the Caletones Decontamination Plan (1998), the population of contractors had to be transferred to Rancagua.

A definitive change in policy with regard to Sewell came about in 1998 when the Town was declared a National Monument, and it was at that point that a Strategic Action Plan was formulated for its Conservation and Diffusion. This nomination marked a new milestone in the Town's history which is now in the process of being restored with its historic values and heritage in the process of being rescued.

Today, an "Environmental Liability" still remains that was left over from the period when the Town was partially destroyed because of the rubble and materials that were never carted away after tearing down the buildings. These remains, prior inspection and analysis, will be removed from where they are between 2005 and 2006 as a part of the Environmental Health Plan which already has a budget of US$ 210,000 at its disposal.

The Sewell Concentrator is still functioning there but this will close down at the end of 2005, and its closure plan has already been drawn up which entails a controlled and scheduled abandonment including cleaning and clearing away any remains that could affect the Town's integrity as a heritage. Therefore, any intrusion and/or adaptation as a result of the El Teniente Division's mining operations are already under control which, in no event whatsoever, will ever take place inside the area currently declared as a National Monument and neither in the area established as a Buffer Zone as a result of its nomination as a World Heritage Site.

In relation to the road leading into Sewell, this is also used by the mining industry which guarantees that it will always be kept in good shape during most of the year. Even in winter time, it remains open.

Unlike what has taken place in other industrial towns, in our case there is no threat present of any pressures brought to bear by growth and development in the vicinity as a result of the closure of Sewell as an industrial town because its productive activities will be closed down in a scheduled and organized fashion and it will be done with its heritage being converted into tourist attractions.

5.b. Environmental Pressures

The Sewell Mining Town does have some levels of atmospheric pollution as a result of the gases emitted by the Caletones copper Foundry located six kilometers to the west of the Town of Sewell.

The moment this phenomenon was detected, the National Commission for the Environment (CONAMA) declared a zone saturated in sulfurous anhydride and particulate matter over an area of 120,000 hectares which included a part of the municipalities of Mostazal, Codegua, Requinoa and Machalí, the last named being the one where the Town of Sewell is located. This declaration was made official in Supreme Decree N° 179 of the Ministry and General Secretariat of the Presidency published in 1994.

As a result of this declaration, Codelco established a Caletones Decontamination Plan investing US$ 270 million in the process which was made official in Supreme Decree N° 81 of the Ministry and General Secretariat of the Presidency published in 1998.

This Plan envisaged the construction of two gas cleaning plants. The first plant went into operation in December 1998, decreasing sulfurous anhydride emissions by 40%. This took place in the same year as Sewell was named a National Monument.

The second gas cleaning plant went operational in January 2001 and this has led to a progressive reduction of emissions of sulfurous anhydride, capturing 85% of them. It is now within the plans of Codelco - Chile to eventually capture 95% of these emissions. On the other hand, CONAMA is studying whether to lift the declaration of Saturated Zone.

Monitoring the quality of the air is done daily aimed at complying with primary and secondary regulations in this sense.

5.c. Natural disasters and preparedness

In the sections on life in the Sewell Mining Town, it was explained that the main factors causing deterioration and/or destruction therein were mainly human. This does not altogether rule out such factors as earthquakes, climate as well as fires and action by wood boring creatures as being also potentially threatening to the Town.

5.c.I. Earthquakes

The area where the Town of Sewell is located, like the whole of the central zone of Chile, is every so often affected by earth tremors of various intensities whose epicenters are mostly along the coast or up to 200 kilometers seaward in the so-called Andean Subsidence Area.

Studies show that the occurrence of earthquakes affecting this area have been great (M = 8.25 Richter) with a hypo central distance of 180 kilometers and others not so great (M = 7.0 Richter) with an epicenter of around 50 kilometers.

Regardless of this though, there is no history of any disasters in the Town as a result of earthquakes and this is due to the Platform Frame construction system used that gives buildings several stories high a resistant structure but which is sufficiently flexible to behave optimally under the stress of seismological occurrences. In addition to this are the foundations of the buildings that are encased within highly resistant rocky matter that helps keep their structures in place.

Collapse at Sewell Concentrator.

Avalanche destruction of old bridge over Coya River.

5.c.II. Climate

Sewell's climate is of the temperate mountain type, typical of the Central Zone of Chile. Temperatures vary depending on the season of the year and range between - 8°C in winter to 23° C in summer. Rain or snow falls are moderate and consist mostly of snow in winter with drifts averaging 1 up to 8 meters in depth. See point 3.a.I.

What has been detected as a result of damages as a result of the climate, without bearing in mind avalanches, is the action caused by snow drifts which at times have caused minor damage to entrances, roofs, windows and doors.

Avalanches were always uppermost in everybody's minds, as a result of the weather in Sewell. One prominent example was when the Town was in full development (between the thirties and the sixties) when avalanches occurred mainly in the area around La Junta - this is where the Rivers Coya and Teniente meet - one of which destroyed some buildings and there was even loss of human life. It also caused a tailings bridge to come down which, at that time were made from timber, as a result of which this particular bridge is now built of metal with only two struts (Rebolledo Bridge, built in 1942). This disaster also gave rise to the construction of a huge containment wall from one of the bridge's struts and which continues as far as La Junta along the northern edge of the Town.

Moreover, throughout the hills behind the Town, a series of large thick metal poles were encased in the ground where snow tended to accumulate so as to avoid massive falls onto the Town.

5.c.III. Fires

Given the predominance of timber used in the construction of the residential and service buildings of the Town, fire would appear to be a serious risk. However, any fires that have affected Sewell were few and swiftly brought under control, largely because of the good safety infrastructure against fire the Town always had since its very beginnings and which, albeit less of a risk nowadays, enables the Town to continue to remain safe. On the other hand, at the altitude the Town is located in the midst of the Andes, rising to heights over 2,200 meters above sea level, the air contains less oxygen and this lessens the risk of any likely spontaneous combustion.

5.c.IV. Wood boring creatures

Because of the use of hard and noble timbers in its construction system of Frame Platforms and the buildings' protection, with roofs made from galvanized iron and concrete stucco, it is worth mentioning that the buildings have withstood the passing of the years in good condition. On the other hand, the existence of wood boring creatures has been prevented because of the low temperatures in Winter and the freshness of the air in Summer; besides, any humidity arising from rain or snow falls disappears very quickly because the whole area is well ventilated, thus making it difficult for such wood borers to survive. In any event, it is taken as a must that periodically the buildings are applied coatings of fungicides as well as protective paintwork and varnish.

5.d. Pressures caused by tourism

Because Sewell is located on the inside of a mining and industrial area, access by tourists to the Town is automatically restricted and compliance is made obligatory with all types of industrial safety measures in order to avoid any interference with production. Because of this, to enter the Town, an authorization has to be issued by the El Teniente Division which means complying with the aforementioned requirements which are part and parcel of all contracts with tour operators.

Likewise, the amount of visitors per day, the number of tourist guides per person and visiting timetables are all regulated in those contracts. In spite of these conditions and restrictions, as mentioned previously, the number of visitors in 2004 is estimated to be as high as 16,000 persons, without the facilities becoming overwhelmed and, under present conditions, the Town is capable of receiving as much as 40,000 visitors a year. On the other hand visits, either organized by tour operators or by the El Teniente Division itself, are always conducted by a trained guide. This means minimizing the risks of any undue behavior or attempts against the property by tourists. See Annex 5.d. "General Conditions regarding visits to Sewell and the El Teniente Mine through tour operators".

At present, there are eight companies operating tours to the Town and they are complying to the letter with what their corresponding contracts dictate. Besides, these visits are progressively helping to finance a part of the resources necessary for conserving Sewell.

5.e. Number of residents on site and in the buffer zone

Since December 1998, as a part of the Caletones Decontamination Plan, there are no permanent residents in Sewell and neither is it allowed for anyone to stay overnight. Not withstanding the foregoing though, approximately 1,800 workers belonging to the El Teniente Division or to contractors arrive daily to work in the Concentrator or in other areas near the Town, but their stay is restricted to no more than 10 hours at a time.

Heavy snow storming.

Chapter 6

Monitoring

Building Restoration at Sewell.

Miner at Punta de Rieles, 2004.

Central Staircase.


Punta de Rieles.

6. MONITORING

As observed in section e) of Chapter 3 referring to the state of conservation of the physical properties, nowadays basic monitoring of this aspect is done by El Teniente Division's Architecture and Construction Unit resorting, as it so happens, to information provided by other units like, for example, that those in charge of keeping a record of the buildings belonging to the Division. As seen, this unit has implemented a system that bears in mind both the basic variables of the properties: data, materiality, original and present use, height (number of stories) and the materiality of architectonic components measured on the surface. After rating the state of each one of the components individually, depending on the nature and essential vulnerabilities of the industrial and non-industrial buildings, they were awarded points that enabled them to be weighted and a conclusion be drawn regarding the general condition of the property.

Having said that though, what is required within the Management Plan is a more complete monitoring that covers qualitative and quantitative aspects referring to a wide range of programmed lines.

Monitoring activities are related to measuring and controlling compliance with key variables, actions and milestones established beforehand, both with authorities and institutions as well as with targets established in the Strategic Action Plan for the Conservation and Diffusion of Sewell within the Property's Management Plan.

Monitoring will enable at the same time to have information available regarding the targets met or the difficulties there were for compliance. This feedback will make it possible to review and/or adapt the Property's action plan in keeping with the results obtained and the strategic view.

Measuring the results means previously defining quantitative (ideally numeric) and qualitative management indicators that enable the results of the administration to be controlled in the most objective terms possible for a certain period. The variables, action and milestones to be monitored are related, in the first instance, to the conservation and diffusion of Sewell's "Cultural Capital ", which consist of its assets:

- Mining - Industrial.
- Urban - Architectonic.
- Immaterial or intangible.


Catholic Church, building N° 231.

6.a. Bodies and levels associated with monitoring

6.a.I. Institutional

The National Monuments Council, the National Commission for the Environment (as regards the Caletones Decontamination Plan) and the Works Department of the Municipality of Machalí.

6.a.II. Codelco and the Sewell Foundation

As we saw in point 4.k., at present Sewell's Action Plan is being administered by the El Teniente Division, in particular the Architecture and Construction Unit which, at this stage, has both monitored the physical property as such as well as following the programmed action lines.

But, from 2006 onward, it will be the Sewell Foundation which, among its many other functions, will have to implement the Management Plan and to monitor the Property as well. Furthermore, because the Sewell Foundation's founder happens to be Codelco-Chile, the latter also monitors it because the Sewell Project is a part of its Relations with the Environment or "Good Neighbor" Policy.

6.b. Administrative arrangements for monitoring the property

Key indicators for measuring the state of conservation are the result of an assessment of the importance that one or several components have pertaining to the property as regards its general preservation and the formulation of objective indicators that give an account of them. Choosing these indicators will be related to the material or immaterial characteristics of the property and in this sense, there exists two large types of properties:

- **Material or Physical Properties.**
  Refers to the Mining - Industrial and Urban - Architectonic heritage and in these cases, the indicators will mainly be quantitative and related to those components that are key to conserving the property. See points 3.d.II. "Factors impacting the Conservation of Sewell" and 3.d.III. "An Analysis and Evaluation of the State of Present Conservation".
  So, for example, when it comes to conserving the buildings, the state of the roofs are of utmost importance, because if they have deteriorated it means that rain water or snow filters in which could lead to the destruction of the buildings and their interior components. In this case the indicators shall be the amount of m2 that are in good, mediocre or poor state of conservation.
  The main deteriorating factor of the non-industrial buildings is snow, especially as regards their roofs and those timbers that are exposed to humidity. The second factor is the use of wood on the outside that was never treated with preservatives which, over the years, reveal cracks that mean that their useful lives are almost over.
  As regards industrial buildings, the main deteriorating factor is rust in metallic elements and it is worth mentioning that the atmosphere itself is to blame for this phenomenon, so protecting structures with anti-rust is fundamental.

- **Immaterial or intangible properties**
  They refer to socio-cultural or intangible heritage; in this case the indicators will mainly be qualitative and related to the efficiency of whatever action is taken to conserve the essential elements.
  For example, with projects that enable the traditions of old-Sewellians to be rescued or projects oriented toward the people taking part, in these cases, the indicators will be the levels of efficiency such projects have and which is something that can be measured by means of opinion polls, besides their amount.
  With immaterial or intangible properties, the conservation of their historic or cultural integrity is fundamental and from this perspective it is vitally important; to conserve traditions, legends and, generally speaking, any manifestations that are culturally intangible. In this sense then, passing on the historic memory from father to son is basic, especially when the former are getting old.

6.c. Administrative agreements or plans for monitoring the site

Since prior to the Sewell Declaration as a National Monument (in 1998), the El Teniente Division had made a commitment to preserve the Town for which the Strategic Action Plan was formulated which permanently monitors the different action lines of the work, because they are a part of the performance agreements that the El Teniente Division has with Codelco-Chile's head office. The Division's commitments with regard to Sewell are associated with its strategic "Relations with the Environment " or "Good Neighbor Policy" actions and any progress made along the different work lines of the Strategic Action Plan for Sewell is audited quarterly in order to check compliance with commitments shouldered.

This monitoring and auditing will continue to be undertaken by Codelco-Chile until such time as the Sewell Foundation has been well established and it will then be up to the latter, among other aspects, to establish cooperation agreements with other similar foundations (domestic or international) so as to supervise all of the aspects that make the maintenance and diffusion of this Town that is being nominated as a World Heritage Site operative.

Besides what has been mentioned, there also exists an Agreement signed on May 27 1999 between the National Monuments Council and Codelco-Chile (See point 4.c.II) that is related to monitoring the site.

Sewell, Central Staircase.

Chapter 7

Documentation

7. DOCUMENTATION

7.a. Photographs, slides, films and videos

Attached is a dossier with historic photos and slides of the Sewell Mining Town and another of the property in its present state.

Included also is an authorization for the UNESCO to use the images and a list thereof. Credits are also being sent and an explanation of the images in English and in Spanish.

Also included are some CDs, such as:

1. "Man and the mountain", a film shot in the nineteen fifties at the behest of the Braden Copper Company, directed and narrated by Armando Rojas Castro concerning the company's affairs. It is split into two parts: 1: Industrial Development and 2: Human Development (black and white).

2. "Sewell, a mining town in the heart of the Andes", a documentary prepared in 1998 as a paper that the professors and architects, Luis Gómez L. and Heinz Leser S. read to the 5th World Conference on Timber Structures EPFL - IBOIS that was held between August 17 and 20 in Lausanne, Switzerland. It gathers together a record on film and provides an emphasis on the buildings of the architectonic property that was built of timber. 15 minutes. Fin Comunicaciones Ltda.

3. Webpage www.sewell.cl, an Internet site unveiled in November 2001 that takes the visitor on a journey through the history of the "Birthplace of the Copper Mining Industry", its buildings and its people.

4. "Born and bred; testimonies from Sewell", a series of mini-programs of 8 chapters lasting 8 minutes each, shot in 1999 for National Television of Chile -O'Higgins Network by Fin Comunicaciones Ltda.

5. "Sewell, presence and nostalgia. Life in a Mining Town" is a multimedia project in CD format with complete interactive audio-visual material that rescues photos from the beginnings of the El Teniente Mine up to today. It also bears the testimonies of those who shared their lives there presenting it's cultural legacy and inviting us to make a virtual journey through the Mining Town of Sewell, discovering its staircases and buildings. It was produced by the Council for Culture and Arts of the 6th Region of "Libertador Bernardo O'Higgins" and addressed by Alexis Lizana E. with the cooperation of Sandra Condeza A. and Celia Baros M.

7.b. Copies of the administration's drawings of the property and extracts of other drawings relevant to it

The following documents are attached to this file:

1. Strategic Action Plan for the Conservation of Sewell

2. Caletones Decontamination Plan

3. Tourism Development Plan of the 6th Region of "Libertador Bernardo O'Higgins"

4. Public deed of the formation of the Sewell Foundation

7.c. Bibliography

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- Braden Copper Company: What is Braden? Vega Querat. Chile. 1957.
- Bassa Doizi Iv·n: Cultural Conditions for the Formulation of a Strategic Management Model for Chilean Companies. Thesis prepared when opting for a degree in Engineering Sciences. Catholic University of Chile, Santiago. 1996.
- Codelco - Chile, El Teniente Division: Engineering Report IG - 4836, 1978.
- Codelco-Chile, El Teniente Division: A History of the Pioneers of Quality (1905 - 1988). 93 years of El Teniente. Rancagua, 1998.
- Chaline, Claude: "Les villes nouvelles dans le monde" Presses Universitaires de France. 1985.
- De Bloj H.J.; Murphy A.B.: Human Geography. Culture, Society and Space. 6th Ed. John Wiley and Sons, Inc. N. York, 1988.
- de Solminihac Iturria, Eugenio: Sewell and its intangible heritage, unpublished document, October 2002.
- de Solminihac Iturria, Eugenio: Sewell as a Human Organizational Settlement. Paper read during the Seminar on Industrial Heritage organized by the Association of Architects and the Faculty of Architecture of the University of Santiago held in Santiago on July 8 2004.
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- Fuenzalida Grandón, Alejandro; Work and Life in the "El Teniente" Mine. Barcelona Printing Company. Santiago, 1919.
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- Garcés, Eugenio, et. al.: Cooperation Agreement: Proposal for a study into the conservation, renovation and recycling of the Town of Sewell, its houses and services (El Teniente Division - Codelco). Catholic University of Chile, Faculty of Architecture and Beaux Arts, Projects and Research Board, 1991.
- Garcés F. Eugenio et al.: Copper Mining Towns in Chile (1905 - 2000). Fondecyt Research 1990485. Catholic University of Chile.
- Garcés, Eugenio: "Copper cities. From mountain camp to mountain hotel as a variation of a Company Town". In: Magazine Eure, Vol. XXIX, N° 88, Santiago, Chile, December 2003. pp. 131-148.
- Government of Chile, Ministry of Education, National Monuments Council: Nomination of the Humberstone and Santa Laura Saltpeter Works for their inscription on the World Heritage List,. December 2003
- Gómez Lerou, Luis: (Town) Sewell. From a protectionist company for its workers to a responsible community for the future, Santiago, 2002. Unpublished document.
- Gómez, Luis; Leser, Heinz and Salomone, Vanesa: Description of the Platform Frame Construction System. Construction Sciences Department, Faculty of Architecture and Urban Development of the University of Chile, 2003. Unpublished document.
- Gómez Lerou, Luis: Types of Residential Buildings, Services and Mixed (non-industrial) built of timber, 2004. Unpublished document.
- Guzmán, M. Cecilia: Sewell. Title Project. Faculty of Architecture and Urbanism, University of Chile, Santiago, October 1982.
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- Egaña Salazar, Maríano: Interview. Historian and advising sociologist during "Operation Valley" of the "280 Expansion Program", Santiago. 2002.
- Lepe Inostroza, Pablo Ignacio: The Company Town as a way of life. The case of Sewell. Research Seminar, University of Chile, Faculty of Architecture and Urbanism, School of Architecture, Department of Construction Sciences. Guiding Professor: Luis Gómez Lerou, Architect. Undated.
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- Website of the National Parks Service of the United States: www.nps.gov/wrst/kennecott.htm.
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- The Moscow Charter for Industrial Heritage. The International Committee for the Conservation of Industrial Heritage (TICCIH). July, 2003.
- Zauschquevich, Andrés and Sutulov, Alexander (directors): Chilean Copper. Copper Corporation, Santiago, 1975.

7.d Addresses of places where inventories, records and archives are deposited

The main sources of information related to the Sewell Mining Town are found at:

- Architecture and Construction Unit, Superintendency for Production Services, Codelco-Chile, El Teniente Division. Millán N° 1020, Rancagua.
- Operations Management Department; Project Management Codelco-Chile, El Teniente Division. Millán N° 1020, Rancagua.
- Legal Service, Codelco-Chile, El Teniente Division. Millán N° 1020, Rancagua.
- National Monuments Council. Av. Vicuña Mackenna N° 84. Providencia - Santiago.
- National Archives. Miraflores N° 50. Santiago.
- National Library. Av. Libertador Bernardo O'Higgins N° 651. Santiago.

7.e. Annexes:

These are organized according to the number of the chapter of the section to which they refer thematically. Hereafter is a list of their contents, without mentioning bibliographic references which already appear in the text and in the bibliography.

3.a. Description

- Climatic Conditions
- Description of the Platform Frame System (see also Annex 3.d.)

3.b. History and Development

- Historia del Concentrador Sewell
- Sewell and its Intangible Heritage
- Sewell as a Human Organizational Settlement

3.c. Records

- Engineering Report IG - 4836.
- Proposal for a study into the conservation, renovation and recycling of the Sewell Mining Town; buildings of homes and services.
- Codelco-Chile, Strategic Action Plan for the Conservation of Sewell.
- Sewell Mining Settlement.
- Copper Mining Towns in Chile.

3.d. State of Conservation

- Technical Records of Industrial and Non-Industrial Buildings.
- Tables (N°s 1 to 6) architectonic characteristics and components of the buildings, a detailed evaluation of their state of conservation.
- Inventory of Machinery in the Sewell Concentrator

4.c. Protection Measures

- Law N° 17.288 (1970) for National Monuments.
- Exempt Decree N° 857 (1998) of the Ministry of Education that declares the Sewell Mining Town as a National Monument in the category of Typical or Picturesque Zone.

4.f. Plans

Besides what was mentioned in section 7.b., the following documents are attached:

- Agreement between Pro-Chile and Sernatur.
- Project for Promoting Mountain Tourism, Pro-O¥Higgins Corporation.
- Agreement between El Teniente Division, Codelco - Chile and the Regional Ministerial Secretariat for Education of the 6th Region of "Libertador Bernardo O'Higgins".
- Agreement for Copper Heritage Conservation, National Monuments Council - Codelco-Chile.
- Agreement for Cooperation between Codelco - Chile, DMT Gesellschaft f¸r Lehre und Bildung Mbh and the Deutsches Bergbau - Museum Bochum (The German Mining Museum).

5.d. Tourism

- General Conditions for looking after visitors to Sewell and the El Teniente Mine through tour operators

7.f. Additional elements

Copies are attached of the following documents, research papers and books, mentioning the section in the central text to which they refer thematically:

Documents, Research Papers and Books	References
Title deeds to the property, year 1967, Repertory N° 1036, pages 283-316.	4.b.
Registration in the Notary Public of José Vicente Fabres, 28.10.1916, pages 285 N° 518	4.b.
Document C.M.N. "General criteria necessary for tackling a Master Plan in the Typical Zone of the Sewell Mining Town".	4.c.II.
Testimonies and events related to heritage, undertaken in Sewell; a breakdown and graphic information.	4.f.V -2.
Publications in the press on community events and institutional and professional bodies.	4.f.V -2.
Survey conducted by Codelco-Chile El Teniente Division among the community of the 6th Region.	4.f.V - 6
Book of Signatures in support of the nomination of the Sewell Mining Town for inscription as a World Heritage Site of the UNESCO.	4.f.VII -1

Books	References
EL TENIENTE: THE MEN AND THE MINERAL - 1945. Volume I,	3.b.III - 8
María Celia Baros M.	3.b.II.
Codelco-Chile, El Teniente Division, Institute of Mining Engineers of Chile, O'Higgins Nucleus. ISBN: 956 - 7541-01-09, November 1995.	
EL TENIENTE: THE MEN AND THE MINERAL - 1995. Volume II,	3.b.III - 8
María Celia Baros M.	3.b.II.
Codelco-Chile, El Teniente Division, Institute of Mining Engineers of Chile. O'Higgins Nucleus. ISBN: 956 - 7541-03-5, November 2000	
CHILEAN MINING, Alexander Sutulov	3.b.III -8
Metallurgic Mining Research Center	3.b.I.
Inscription N° 45568 year 1976	
SEWELL BY THE HAND OF LUKAS,	3.b. III - 8
Renzo Pecchenino, Lukas Foundation	
Dominic printers, Valparaíso 2000	
PAGES FOR THE HISTORY OF RANCAGUA, René Leiva Berríos	3.b. III - 8
Offset Publications, 1986, Inscription N° 52.011	
REMINISCENCES OF EL TENIENTE, René Leiva Berríos	3.b. III - 8
Alto Aconcagua Publications, Offset Printers, December 1987	
Inscription N° 68.426	
THE MINER IN OSCAR CASTRO, René Leiva Berríos	3.b. III - 8
Offset Printers, 1990, Inscription N° 77.425	
PLEASED TO MEET YOU, PABLO!, René Leiva Berríos	3.b. III - 8
Offset Bellavista Ltda. Printers, December 1993.	
Inscription N° 88.900	
TIME BETWEEN THE TEMPLES AND OTHER TALES	3.b. III - 8
Tales from the El Teniente Mine, Fernando Riveros Barahona	
Own Publication 1986	
BETWEEN ACTS, Fernando Riveros Barahona	3.b. III - 8
Published by the Fénix Literary Circle, September 1990	
THE DEEP RESTLESS SEA, Fernando Riveros Barahona	3.b. III - 8
Fénix Publications, October 1998, Inscription N° 100.916	
LOOKING BACK DOWN THE ROAD, Isolda Pradel	3.b. III - 8
Talamí, Rancagua 1995, Inscription 93.832	
SEWELL, A BROKEN JAR, Walter Pineda Cepeda	3.b. III - 8
H. González V. Publications, August 1982.	
LUNARASCA, Walter Pineda Cepeda	3.b. III - 8
H. González V. Publications, August 1986. Inscription N° 65.105	
"LOLA" THE PHANTOM OF THE MINE, Tteugord Serec K.	3.b. III - 8
Eureka Publications, Inscription N° 121.122	

7. g. Distinctions

- The Conservation of National Monuments award granted by the National Monuments Council in 1999 as a result of the restoration of the Sewell Mining Town.
- Distinctions awarded by the Association of Architects of Chile, 6th Region Delegation, to Messrs. Luis Gómez Lerau and Felipe Ravinet de la Fuente for their contribution to the defense and conservation of the Sewell Heritage during 2001 and 2002, respectively.
- The International Print and Radio Festival of New York award granted in August 2002 to the webpage www.sewell.cl.
- Distinctions awarded by the National Tourist Board, 6th Region of "Libertador Bernardo O'Higgins" for "Regional Tourist Merit" for the years 2001 and 2004.
- Award given by the National Council for Urban Reform, Ministry of Housing and Urban Development, National Good Practices Competition, year 2002, for the Strategic Action Plan for the Conservation of Sewell.

8. SIGNATURE ON BEHALF OF THE STATE PARTY

On behalf of the Government of Chile, this File for the Nomination of the Sewell Mining Town as a World Heritage Site is signed by:

Hernán Sandoval O.
Plenipotentiary Ambassador of Chile Before Unesco

Sergio Bitar Ch.
Ministry of Education
President of the
National Monuments Council

Sewell

Postulación del Campamento Sewell para su Inscripción en la Lista del Patrimonio Mundial de la Unesco

NOMINATION OF THE SEWELL MINING TOWN

FOR INCLUSION ON THE UNESCO WORLD HERITAGE LIST

DRAWING Nº 1

CONTENT :

SOUTH AMERICA AND 6TH REGION

LEGEND :

- CONTINENTAL BORDER
- COUNTRY BORDER
- CONTINENTAL CHILE
- 6TH REGION

SCALE :

GRAPHIC SCALE

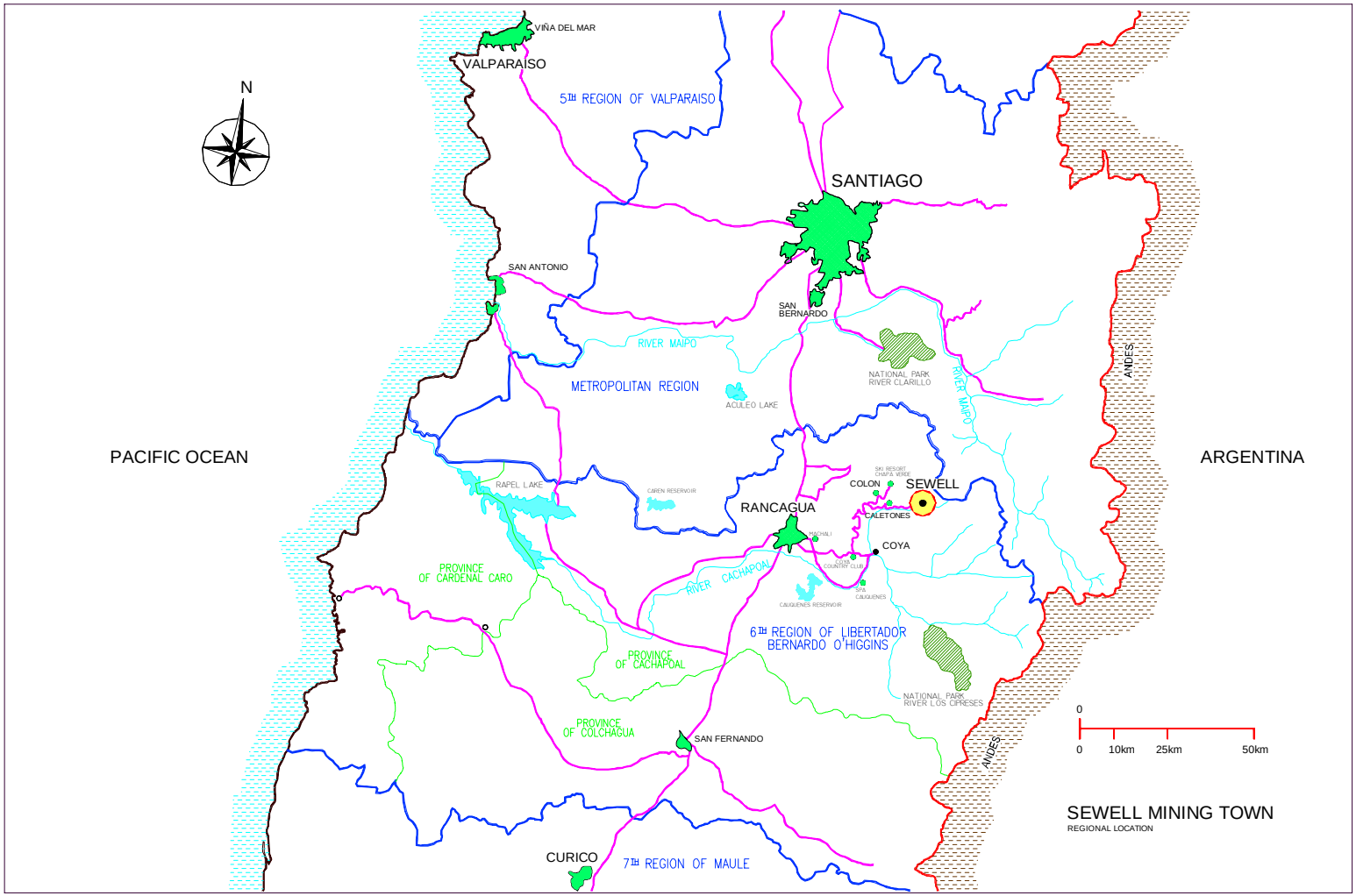
DATE :

December 2004

N

GOVERNMENT OF CHILE
MINISTRY OF EDUCATION
NATIONAL MONUMENTS COUNCIL

CODELCO CHILE
EL TENIENTE DIVISION



NOMINATION OF THE SEWELL MINING TOWN

FOR INCLUSION ON THE UNESCO WORLD HERITAGE LIST

DRAWING N° 2

CONTENT :

GEOGRAPHIC LOCATION OF SEWELL IN THE 6 TH REGION

LEGEND :

- HIGHWAY OR ROAD
- COUNTRY BORDER
- REGIONAL BORDER
- PROVINCIAL BORDER
- LAKE OR RESERVOIR
- NATIONAL PARK
- RIVER OR STREAM

NB :

SANTIAGO - RANCAGUA 85 kms.

RANCAGUA - SEWELL 60 kms.

SCALE :

GRAPHIC SCALE

DATE :

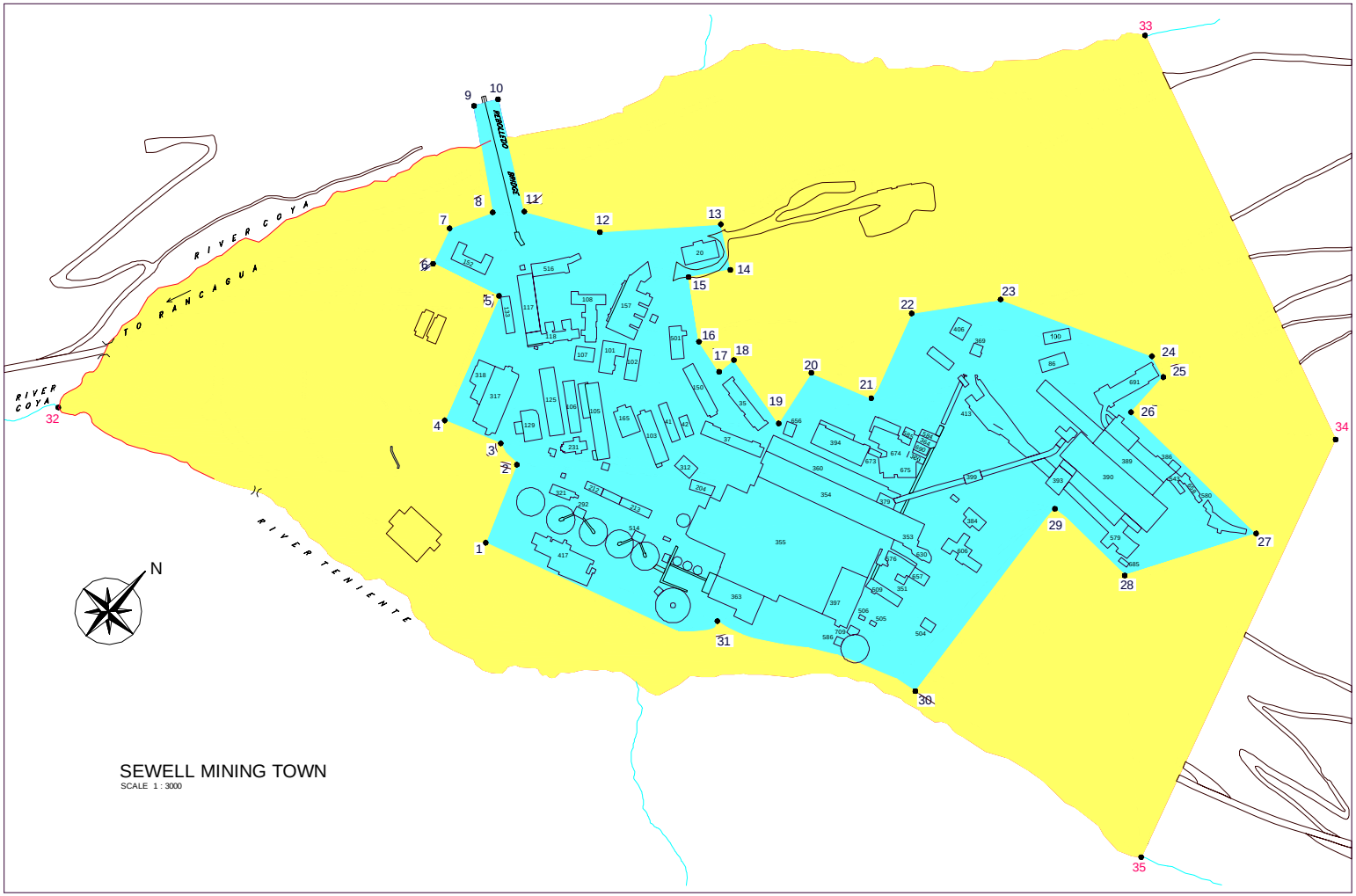
December 2004

N

GOVERNMENT OF CHILE
MINISTRY OF EDUCATION
NATIONAL MONUMENTS COUNCIL

CODELCO CHILE

EL TENIENTE DIVISION



NOMINATION OF THE SEWELL MINING TOWN

FOR INCLUSION ON THE UNESCO WORLD HERITAGE LIST

DRAWING N° 3

CONTENT :

NOMINATION AND BUFFER ZONE BORDERS

LEGEND :

NOMINATION AREA BORDER
Polygon 1-2-3-4-5-6-7-8-9-10-11-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30-31-1

BUFFER ZONE BORDER
Polygon 32-33-34-35-32

NOMINATION AREA 17.2 Hectares.

BUFFER ZONE 33 Hectares.

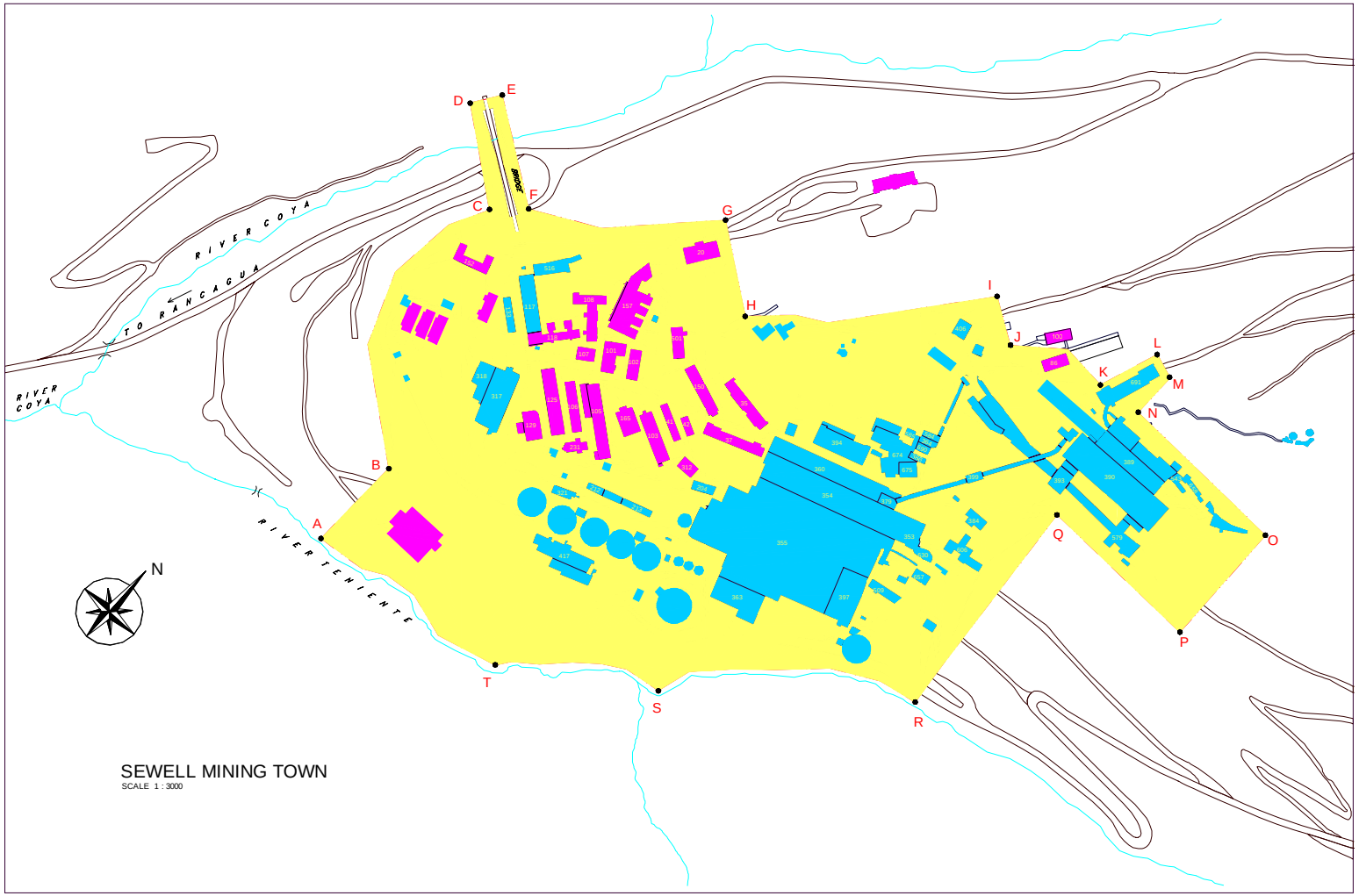
SCALE :
1 : 3000

DATE :
December 2004

N

GOVERNMENT OF CHILE
MINISTRY OF EDUCATION
NATIONAL MONUMENTS COUNCIL

CODELCO CHILE
EL TENIENTE DIVISION



NOMINATION OF THE SEWELL MINING TOWN

FOR INCLUSION ON THE UNESCO WORLD HERITAGE LIST

DRAWING Nº 4

CONTENT :

GENERAL DRAWINGS OF TOWN AT PRESENT

LEGEND :

BORDERS OF AREA OF NATIONAL MONUMENT (Typical and Picturesque Zone)
Polygon A-B-C-D-E-F-G-H-I-J-K-L-M-N-O-P-Q-R-S-T-A
: 21.2 Hectares

INDUSTRIAL BUILDINGS

NON - INDUSTRIAL BUILDINGS

SCALE :
1 : 3000

DATE :
December 2004

N

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MINISTRY OF EDUCATION
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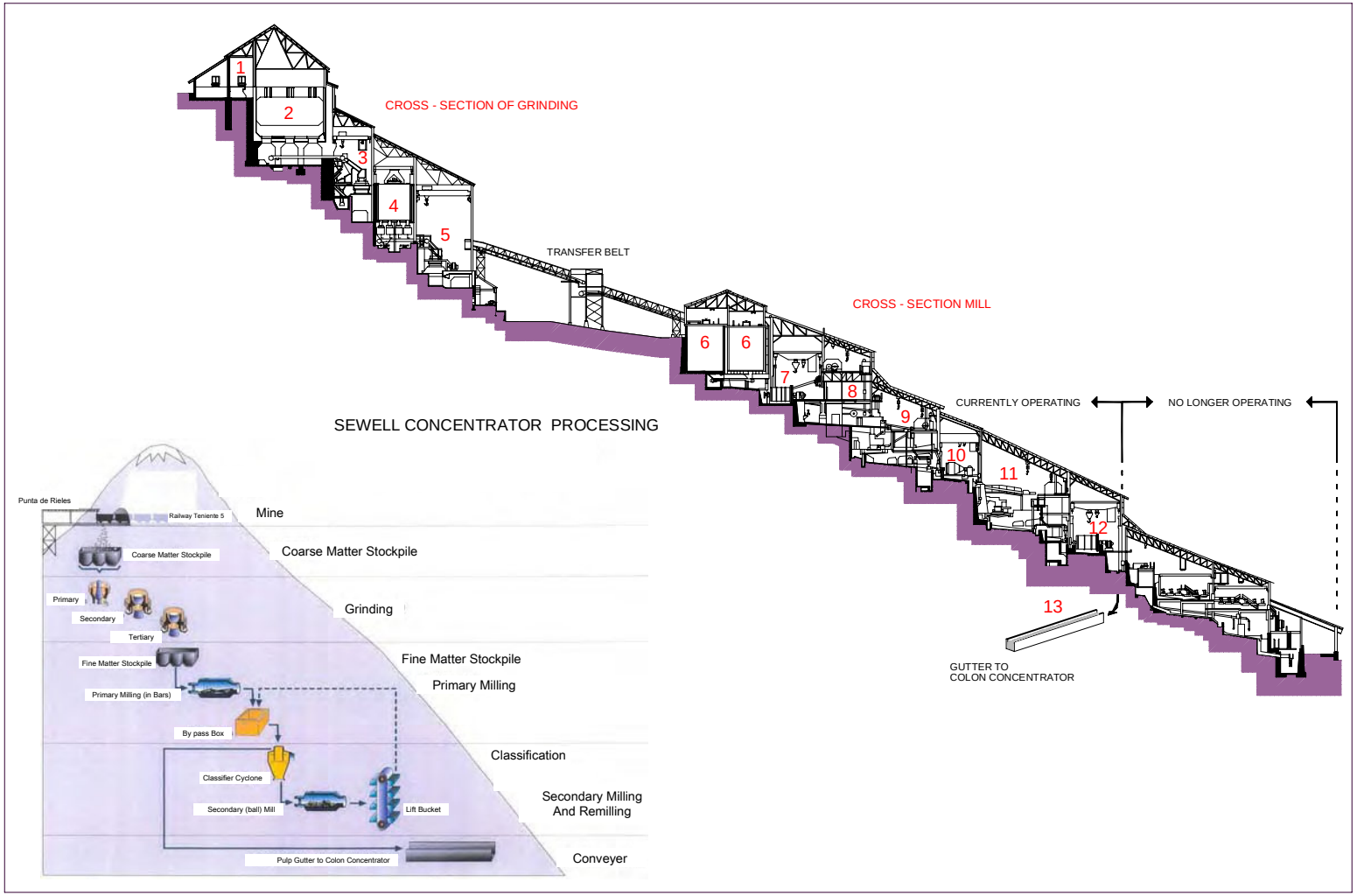
CODELCO CHILE
EL TENIENTE DIVISION



SEWELL CONCENTRATOR PROCESSING

NOMINATION OF THE SEWELL MINING TOWN

FOR INCLUSION ON THE
UNESCO WORLD HERITAGE LIST

DRAWING Nº 5

CONTENT :

SEWELL CONCENTRATOR
DIAGRAM AND CROSS - SECTION
OF PROCESSING

LEGEND :

GRINDING PLANT
BUILDINGS Nº 386 - 389 - 390 - 503 - 672

1 TRAINS FROM INSIDE MINE
2 COARSE MATTER STOCKPILE
3 PRIMARY GRINDERS
4 COMPENSATING STOCKPILES
5 SECONDARY AND TERTIARY GRINDERS

MILLING PLANT
BUILDINGS Nº 354 - 355 - 360 - 363 - 379 - 397

6 FINE MATTER STOCKPILES
7 PRIMARY MILLS
8 PRIMARY CLASSIFIERS
9 CLASSIFYING CYCLONES
10 SECONDARY MILLS
11 SECONDARY LIFTS AND CLASSIFIERS
12 REMILLING
13 PULP GUTTER TO CONCENTRATOR

SCALE :
NO SCALE

DATE :
December 2004

N

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MINISTRY OF EDUCATION
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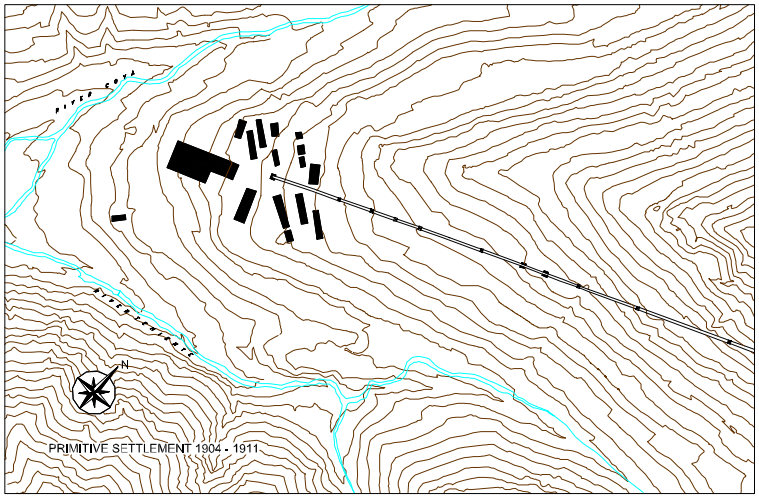

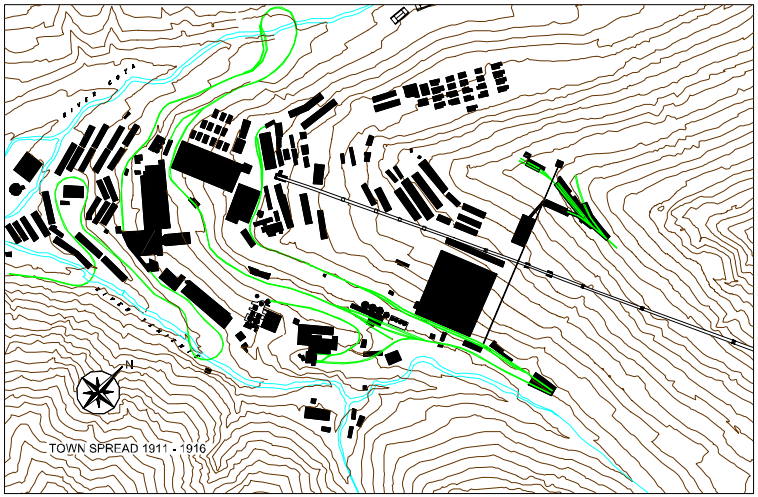

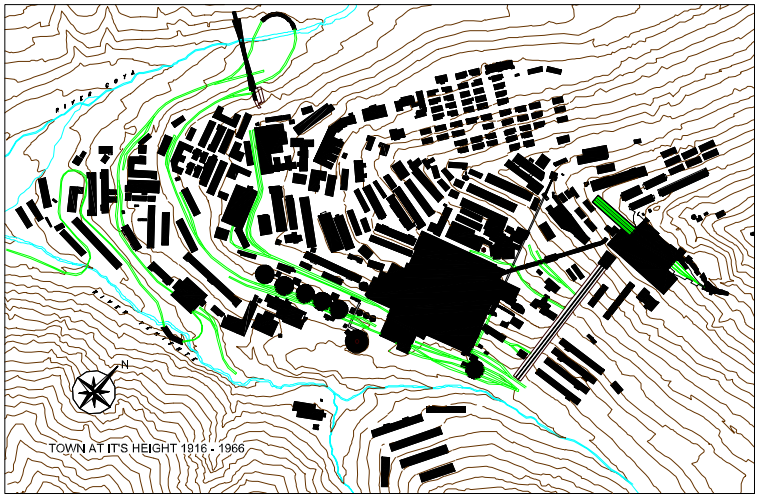

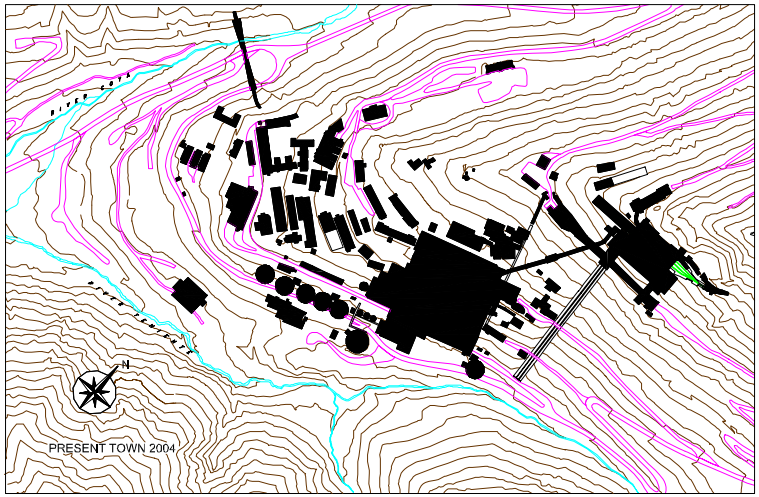

NOMINATION OF THE SEWELL MINING TOWN

FOR INCLUSION ON THE UNESCO WORLD HERITAGE LIST

DRAWING Nº 6

CONTENT :

SEWELL'S EVOLUTION

LEGEND :

- BUILDINGS
- RAILWAY LINE
- ROADS
- CONTOURS
- RIVER

SCALE :

NO SCALE

DATE :

December 2004

N

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MINISTRY OF EDUCATION
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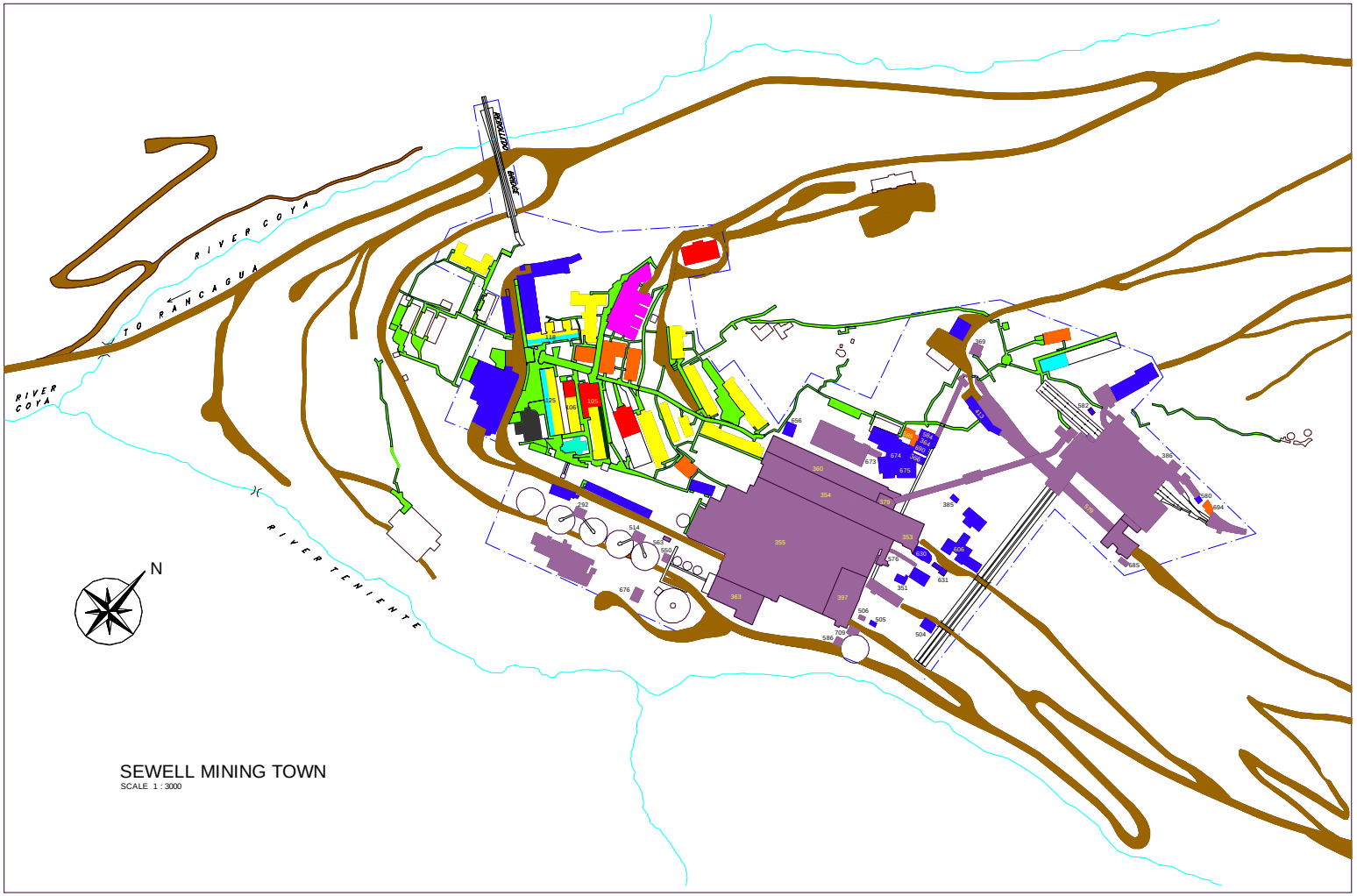

NOMINATION OF THE SEWELL MINING TOWN

FOR INCLUSION ON THE UNESCO WORLD HERITAGE LIST

DRAWING Nº 7

CONTENT :

FORMER USE OF BUILDINGS (UNTIL 1970)

LEGEND :

- HOUSING
- OFFICES
- SHOPS AND SERVICES
- HEALTH
- EDUCATION
- RECREATION
- COMPANY BUILDINGS
- CHURCH
- PRODUCTION FACILITIES
- FOUNDRIES, WORKSHOPS AND STOREROOMS
- ROADS
- PATHWAYS
- NOMINATION ZONE LIMIT

SCALE : 1 : 3000

DATE : December 2004

N

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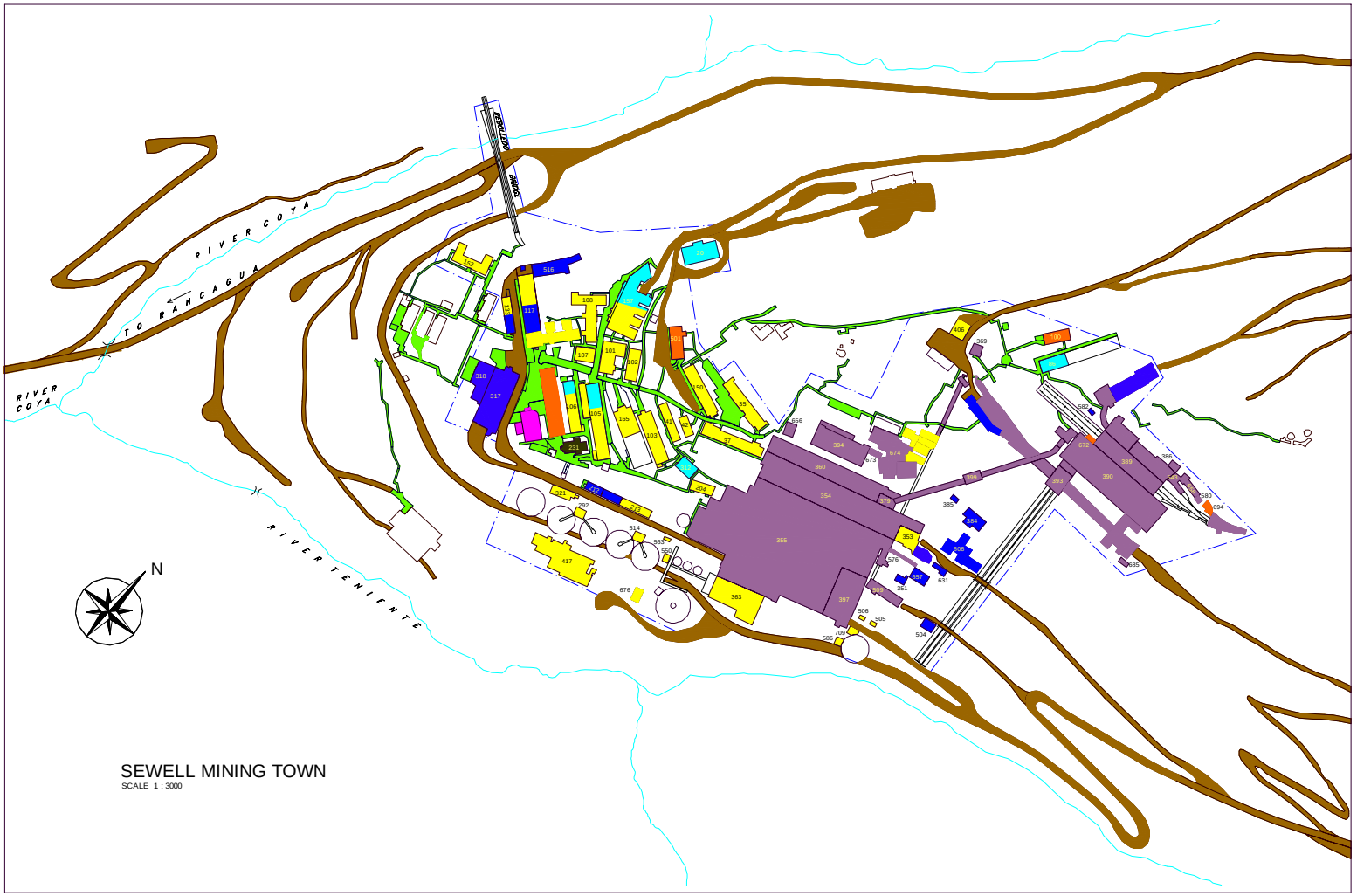

NOMINATION OF THE SEWELL MINING TOWN

FOR INCLUSION ON THE UNESCO WORLD HERITAGE LIST

DRAWING Nº 8

CONTENT :

CURRENT USE OF BUILDINGS

LEGEND :

- OFFICES
- ADMIN. AND SERVICES
- MUSEUM
- CHURCH
- PARTIALLY USED OR UNUSED
- FOUNDRIES, WORKSHOPS AND STOREROOMS
- PRODUCTION FACILITIES

GENERAL

- ROADS
- PATHWAYS
- NOMINATION ZONE LIMIT

SCALE :

1 : 3000

DATE :

December 2004

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NATIONAL MONUMENTS COUNCIL

CODELCO CHILE

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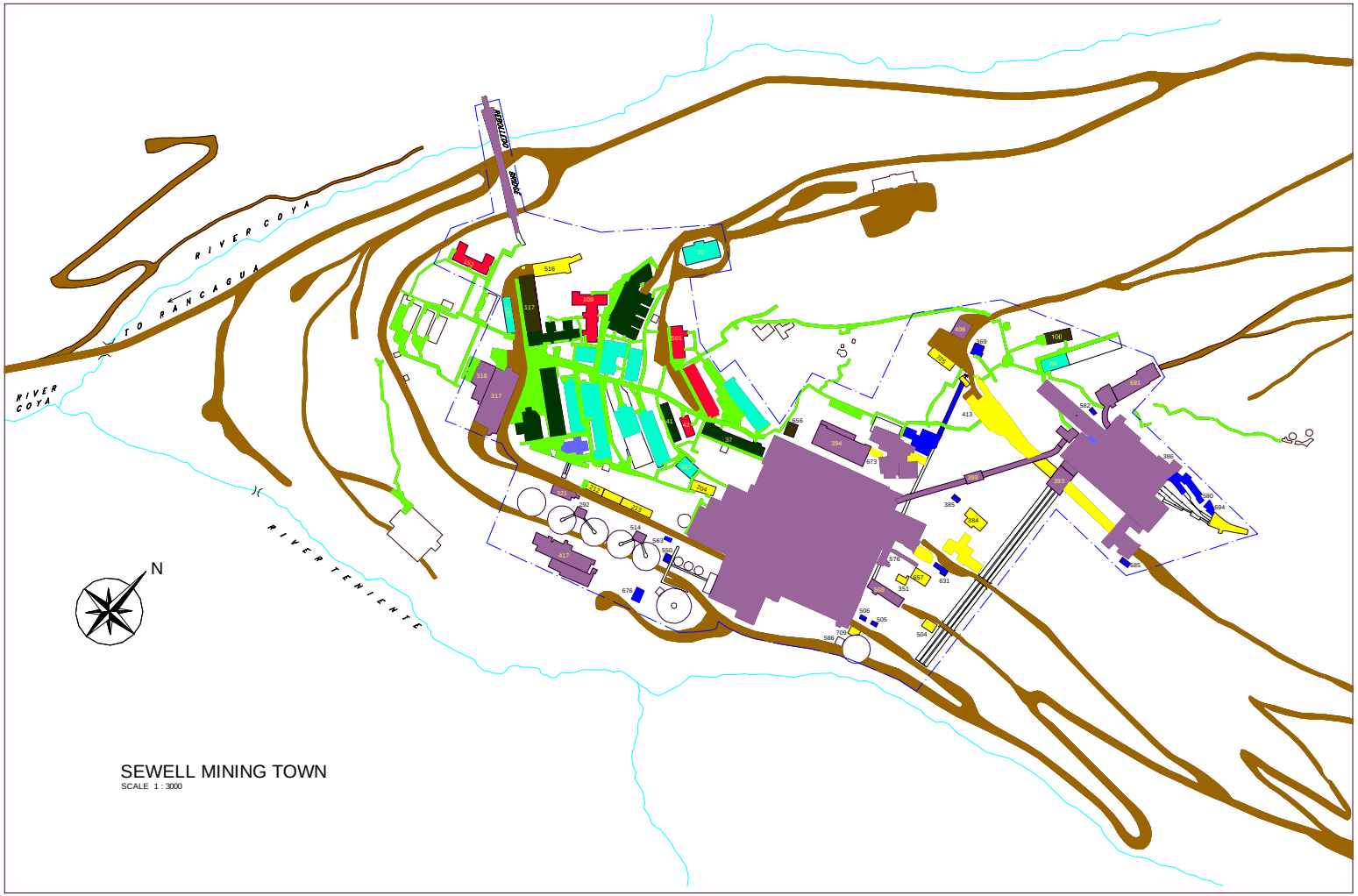

NOMINATION OF THE SEWELL MINING TOWN

FOR INCLUSION ON THE UNESCO WORLD HERITAGE LIST

DRAWING Nº 9

CONTENT :

HEIGHT OF BUILDINGS

LEGEND :

HEIGHT OF NON - INDUSTRIAL BUILDINGS

- 1 STORY
- 2 STORIES
- 3 STORIES
- 4 STORIES
- 5 STORIES OR MORE

HEIGHT OF INDUSTRIAL BUILDINGS

- 4 to 5 mts.
- 6 to 9 mts.
- 10 or more mts.

GENERAL

- ROADS
- PATHWAYS
- NOMINATION ZONE LIMIT

SCALE :

1 : 3000

N

DATE :

December 2004

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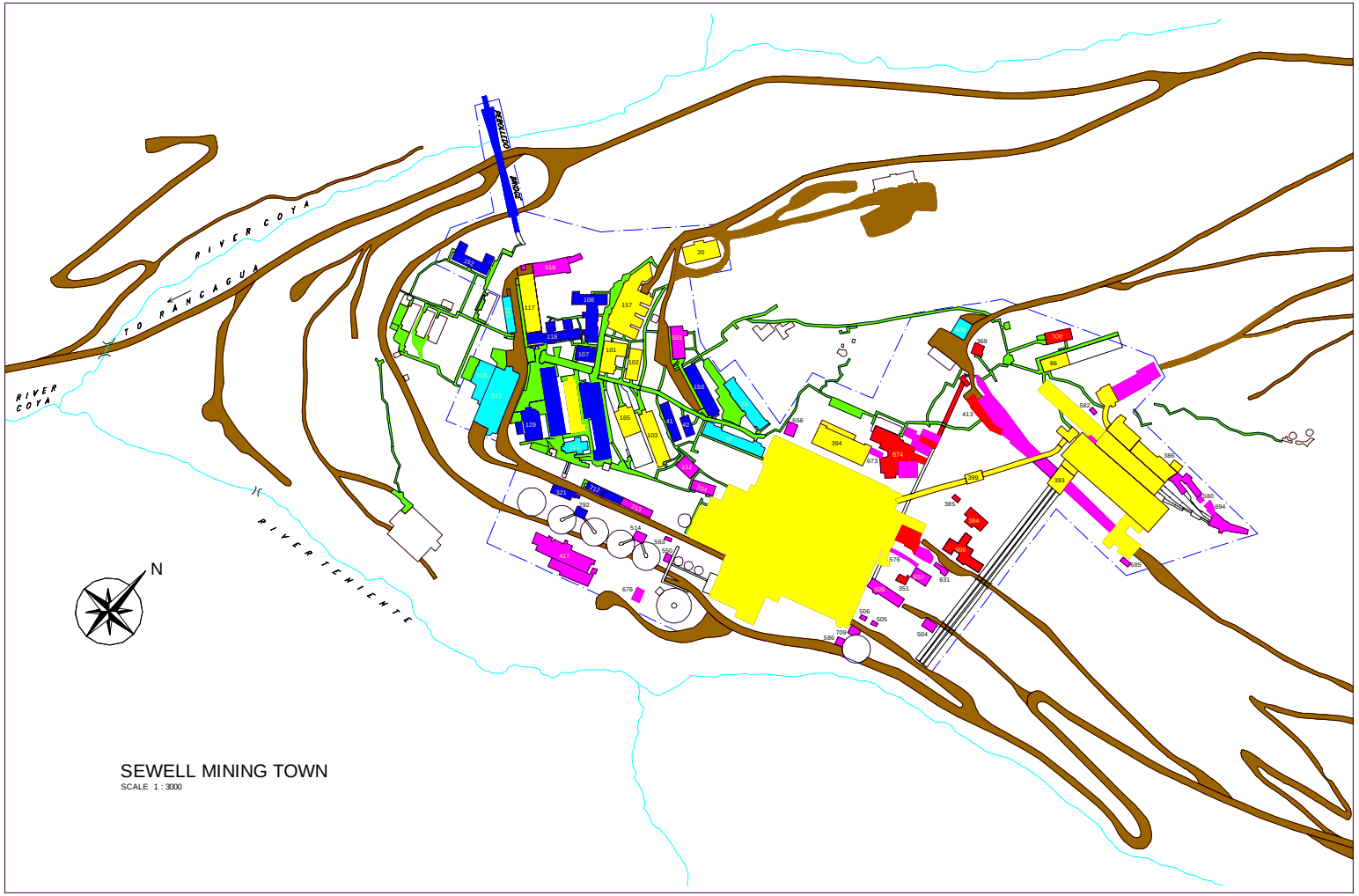

NOMINATION OF THE SEWELL MINING TOWN

FOR INCLUSION ON THE UNESCO WORLD HERITAGE LIST

DRAWING Nº 10

CONTENT :

YEAR BUILT

LEGEND :

INDUSTRIAL AND NON - INDUSTRIAL BUILDINGS

- 1915 - 1925
- 1926 - 1935
- 1936 - 1945
- 1946 - 1955
- 1956 - 1980

GENERAL

- ROADS
- PATHWAYS
- NOMINATION ZONE LIMIT

SCALE :

1 : 3000

DATE :

December 2004

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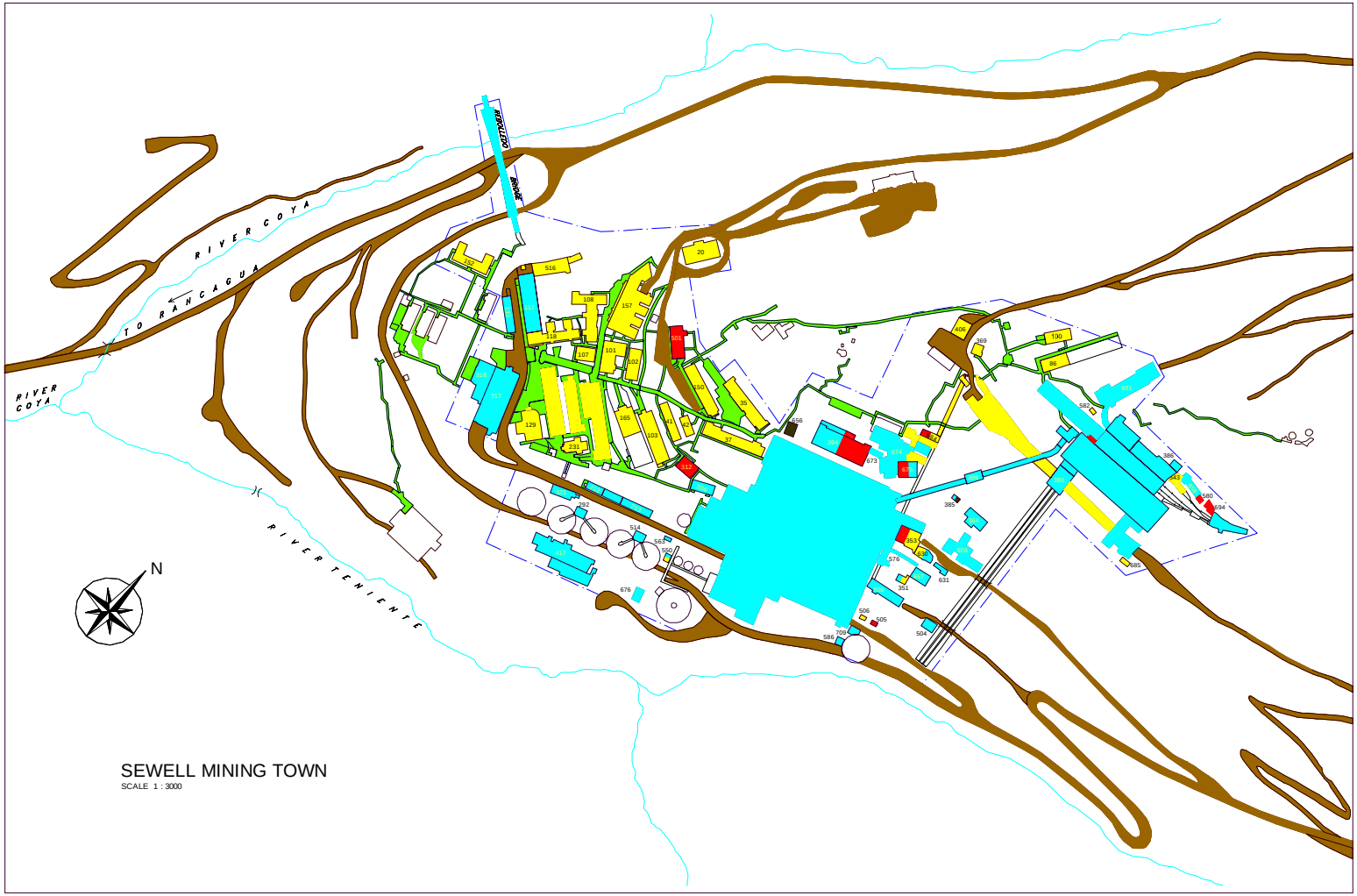

NOMINATION OF THE SEWELL MINING TOWN

FOR INCLUSION ON THE UNESCO WORLD HERITAGE LIST

DRAWING Nº 11

CONTENT :

MATERIALITY OF BUILDINGS

LEGEND :

INDUSTRIAL AND NON - INDUSTRIAL BUILDINGS ACCORDING TO SUPPORTING STRUCTURES

- STEEL
- TIMBER
- CONCRETE
- REINFORCED MASONRY

GENERAL

- ROADS
- PATHWAYS
- NOMINATION ZONE LIMIT

SCALE : 1 : 3000

DATE : December 2004

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NOMINATION OF THE SEWELL MINING TOWN

FOR INCLUSION ON THE UNESCO WORLD HERITAGE LIST

DRAWING Nº 12

CONTENT :

CURRENT STATE OF CONSERVATION OF BUILDINGS

LEGEND :

- GOOD
- MEDIOCRE
- POOR

GENERAL

- ROADS
- PATHWAYS
- NOMINATION ZONE LIMIT

SCALE :

1 : 3000

DATE :

December 2004

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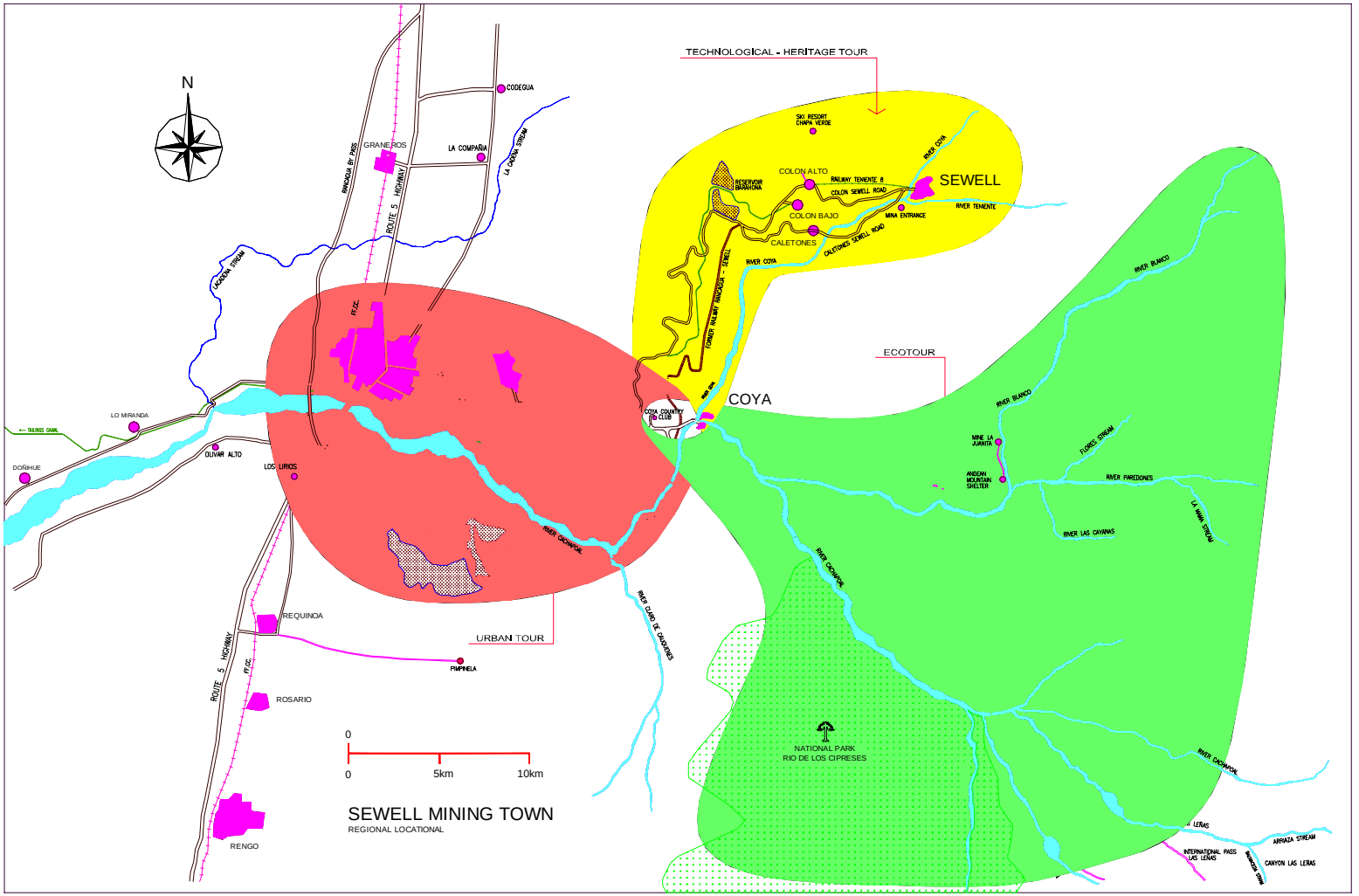

NOMINATION OF THE SEWELL MINING TOWN

FOR INCLUSION ON THE UNESCO WORLD HERITAGE LIST

DRAWING Nº 13

CONTENT :

TOURS AROUND SEWELL

LEGEND :

- HIGHWAY OR MAIN ROAD
- SECUNDARY ROAD
- RIVER, STREAM OR LAKE
- PARK OR NATIONAL RESERVATION
- TOUR 1
- TOUR 2
- TOUR 3

NB :

RANCAGUA - SEWELL = 60 km

SCALE :

GRAPHIC SCALE

DATE :

December 2004

N

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MINISTRY OF EDUCATION
NATIONAL MONUMENTS COUNCIL

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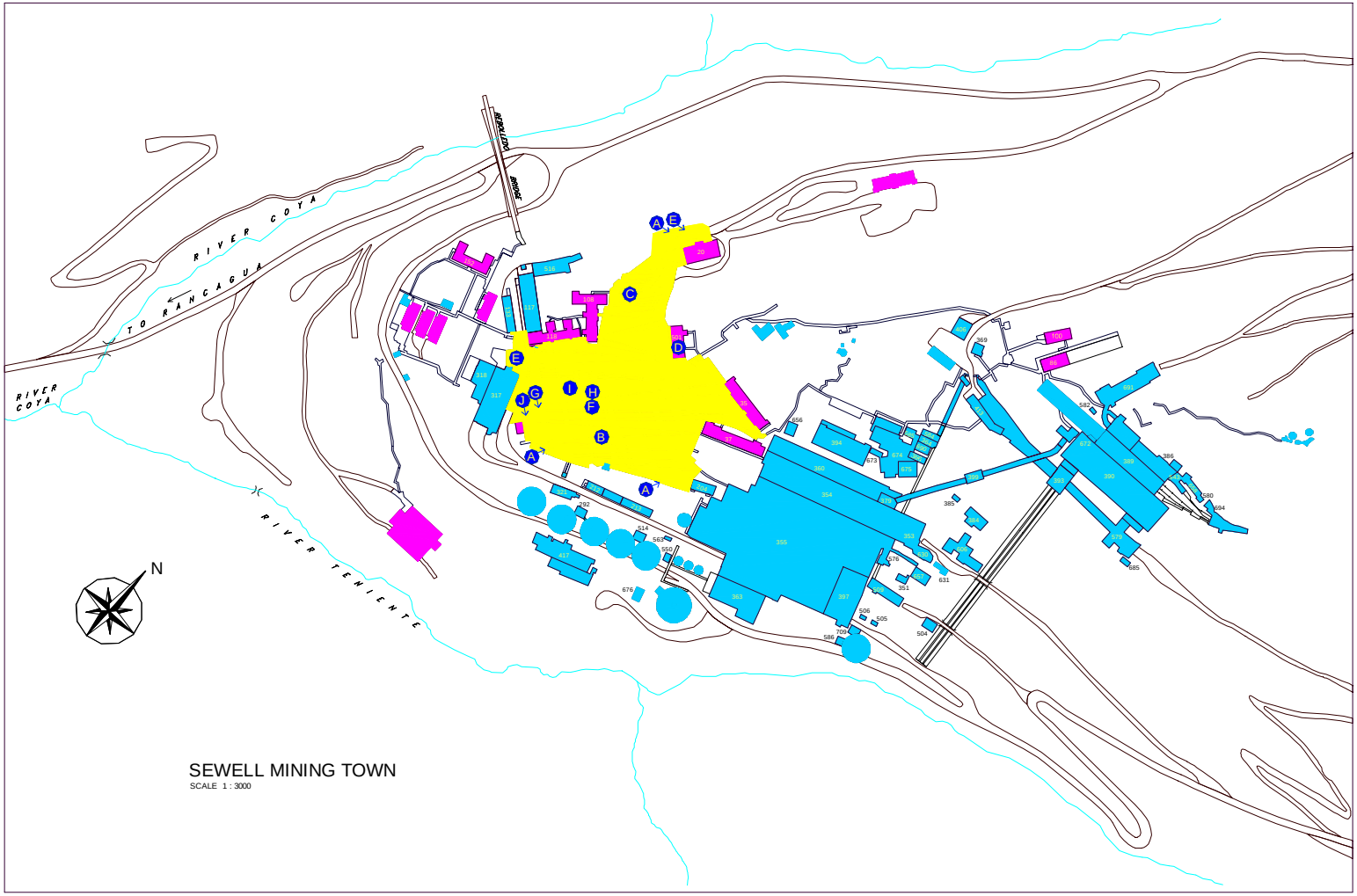
EL TENIENTE DIVISION



NOMINATION OF THE SEWELL MINING TOWN

FOR INCLUSION ON THE UNESCO WORLD HERITAGE LIST

DRAWING Nº 14

CONTENT :

TOURING AREA AND FACILITIES

LEGEND :

- TOURING AREA
- INDUSTRIAL BUILDINGS
- NON - INDUSTRIAL BUILDINGS
- A VIEWPOINT
- B REST ROOMS
- C CAFETERIA
- D FIRST AID
- E PARKING
- F CONVENTIONS CENTER
- G INFORMATION
- H CAFETERIA
- I BOWLING ALLEY
- J COPPER MINING INDUSTRY MUSEUM

SCALE : 1 : 3000

DATE : December 2004

N

GOVERNMENT OF CHILE
MINISTRY OF EDUCATION
NATIONAL MONUMENTS COUNCIL

CODELCO CHILE
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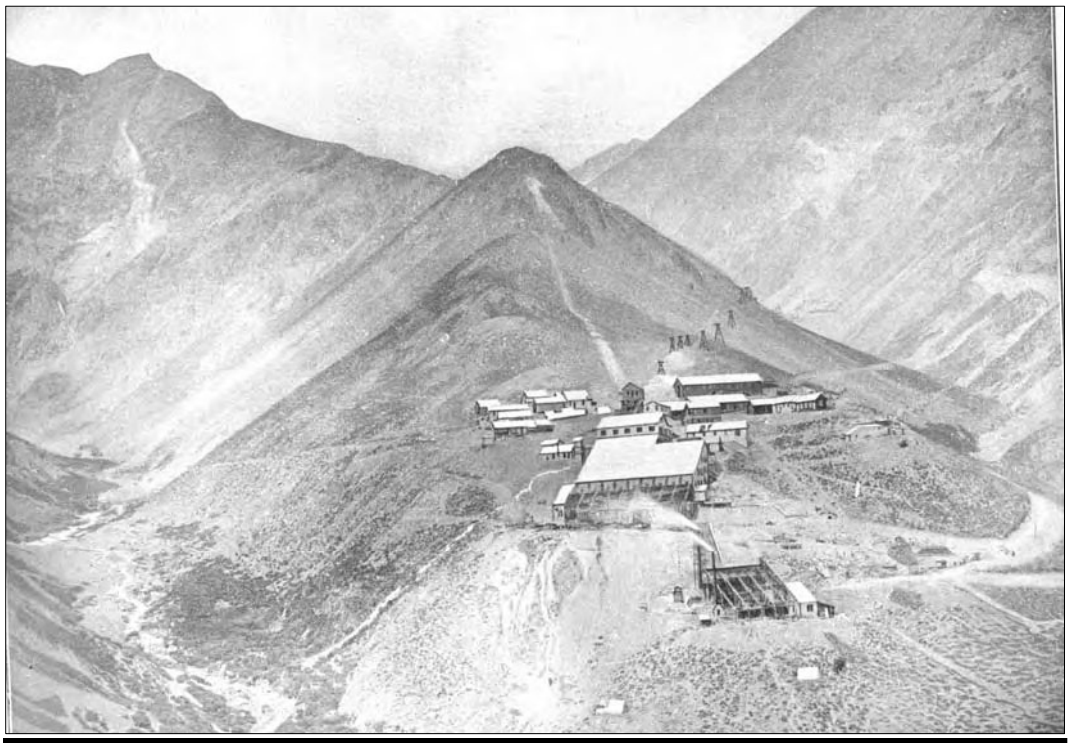


Photo Nº	Year	Description
001	1909	“The Establishment” camp

Photo Nº	Year	Description
002	1922	“Teniente C”, “Fortuna 4” (Sunk Town) and “Fortuna 5” camps

Photo Nº	Year	Description
003	1916	“Teniente C” camp, terminalt for wagons

Photo Nº	Year	Description
004	1922	“Teniente C” Camp

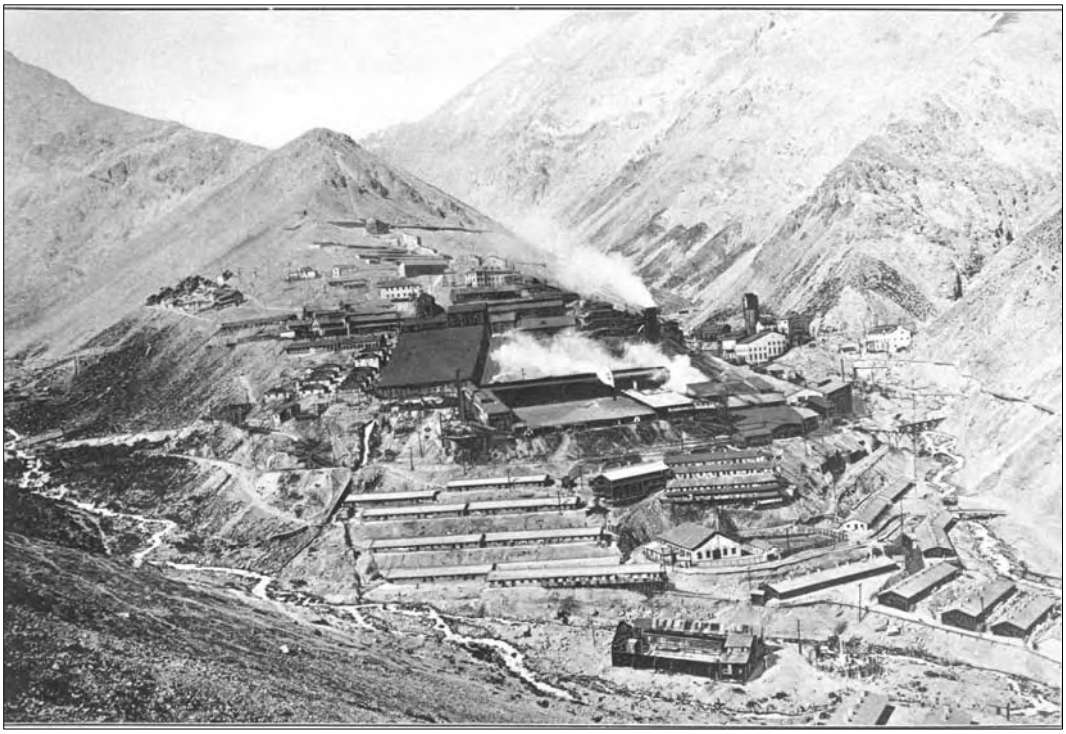


Photo Nº	Year	Description
005	1915	Sewell Mining Town, Foundry

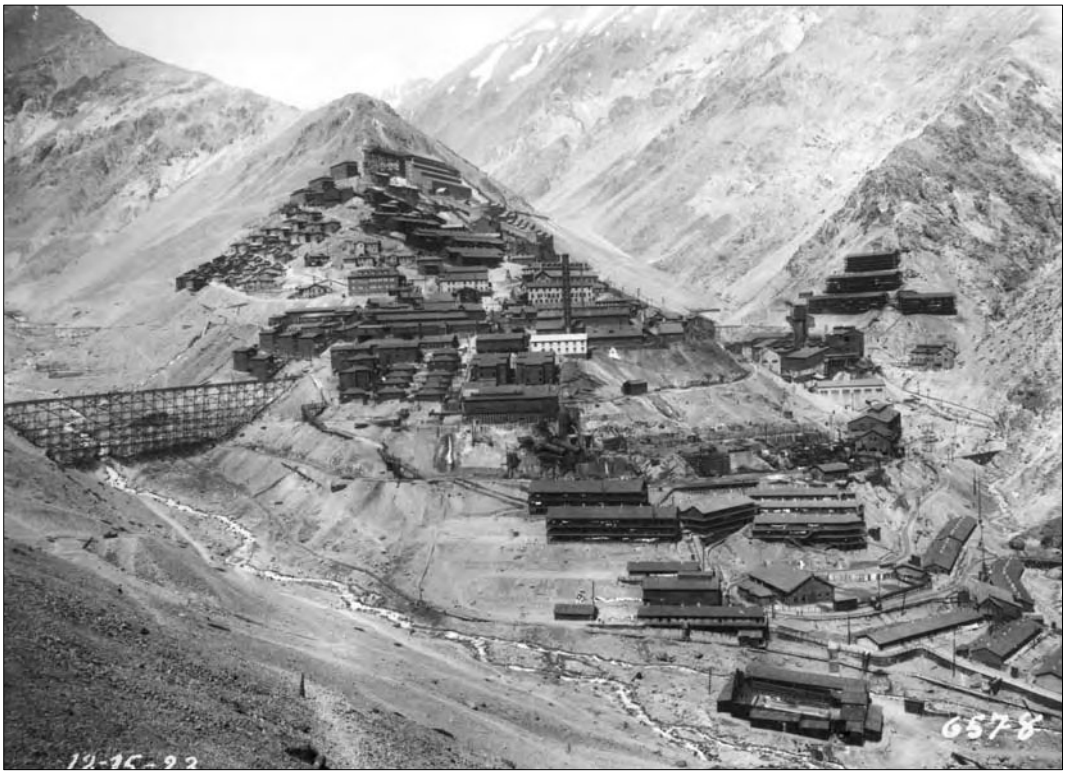


Photo Nº	Year	Description
006	1923	Panoramic view of Sewell

Photo Nº	Year	Description
007	1950-1960	Sewell Mining Town, Foundry

Photo Nº	Year	Description
008	1962	Sewell Mining Town at night

Photo Nº	Year	Description
009	1940-1950	Rebolledo Bridge

Photo Nº	Year	Description
010	1950-1960	Sewell mining town from Coya valley

Photo Nº	Year	Description
011	1919	Wagons carrying equipment

Photo Nº	Year	Description
012	1919	Wagons carrying equipment

Photo Nº	Year	Description
013	1917	Camp site during railway construction works

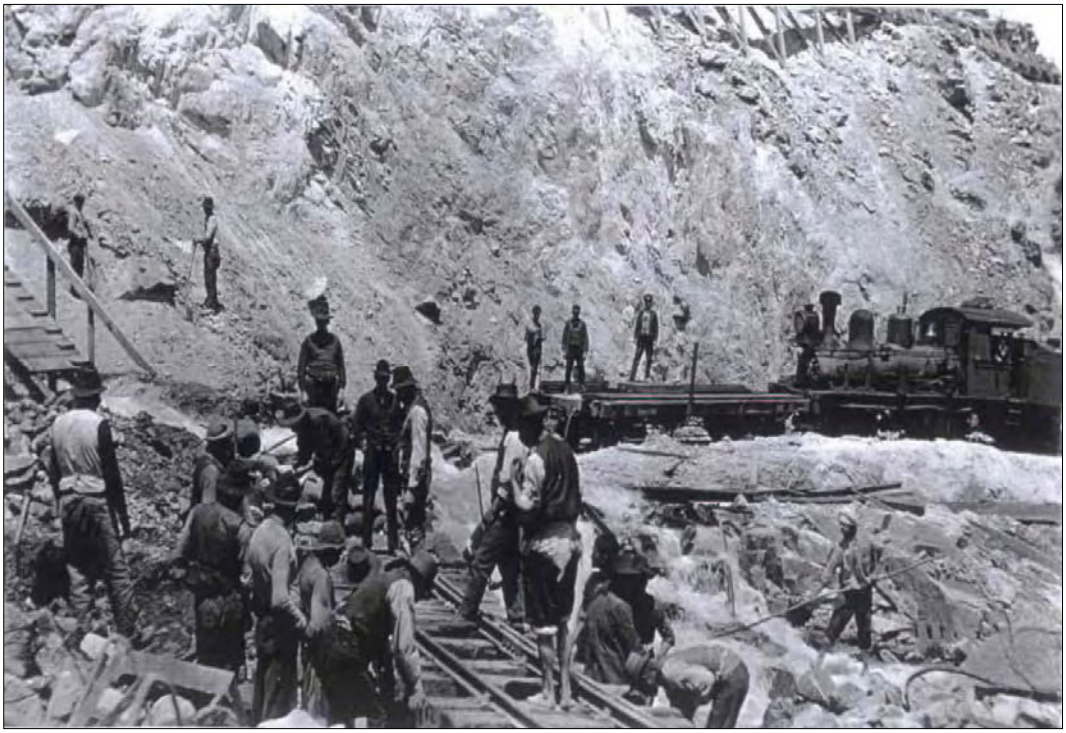


Photo Nº	Year	Description
014	1910-1920	Railway repair works after landslide

Photo Nº	Year	Description
015	1917	Workers at railway works

Photo Nº	Year	Description
016	1920-1930	Works on wooden pipe

Photo Nº	Year	Description
017	1914	Workers handling hot calcines, Sewell Foundry

Photo Nº	Year	Description
018	1914	Worker traveling inside lift bucket (“capacho”)

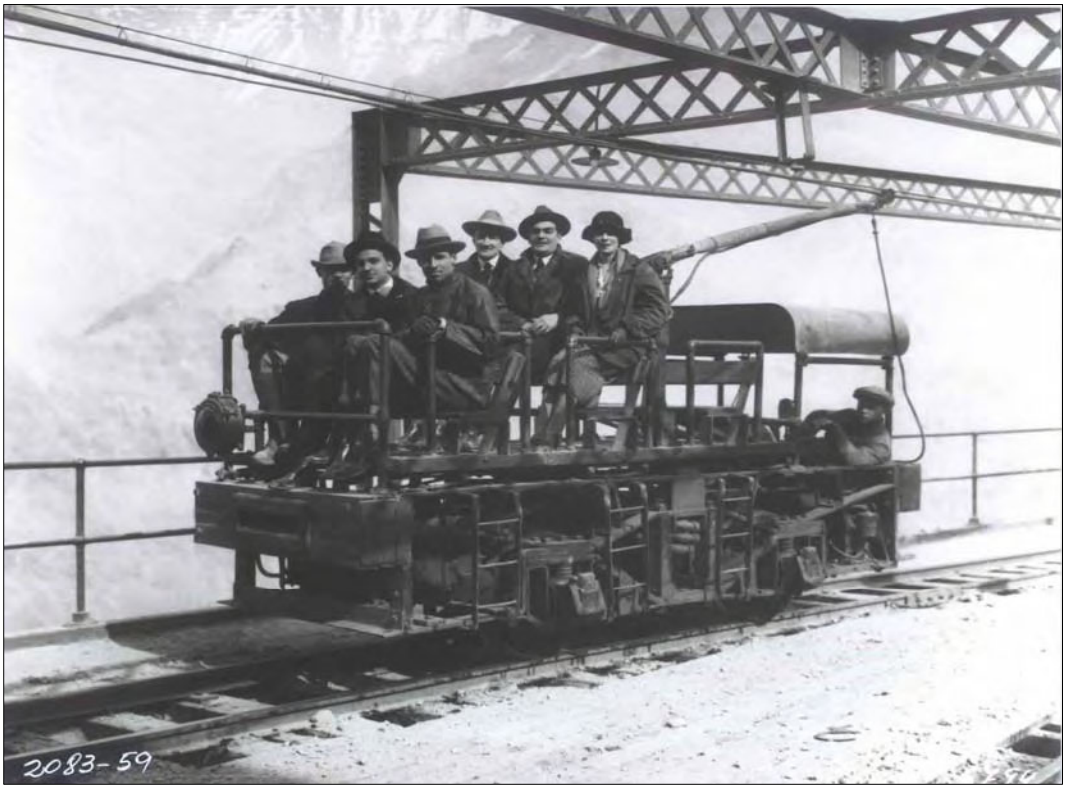


Photo Nº	Year	Description
019	1917	Visit of executives at “Punta de Rieles”

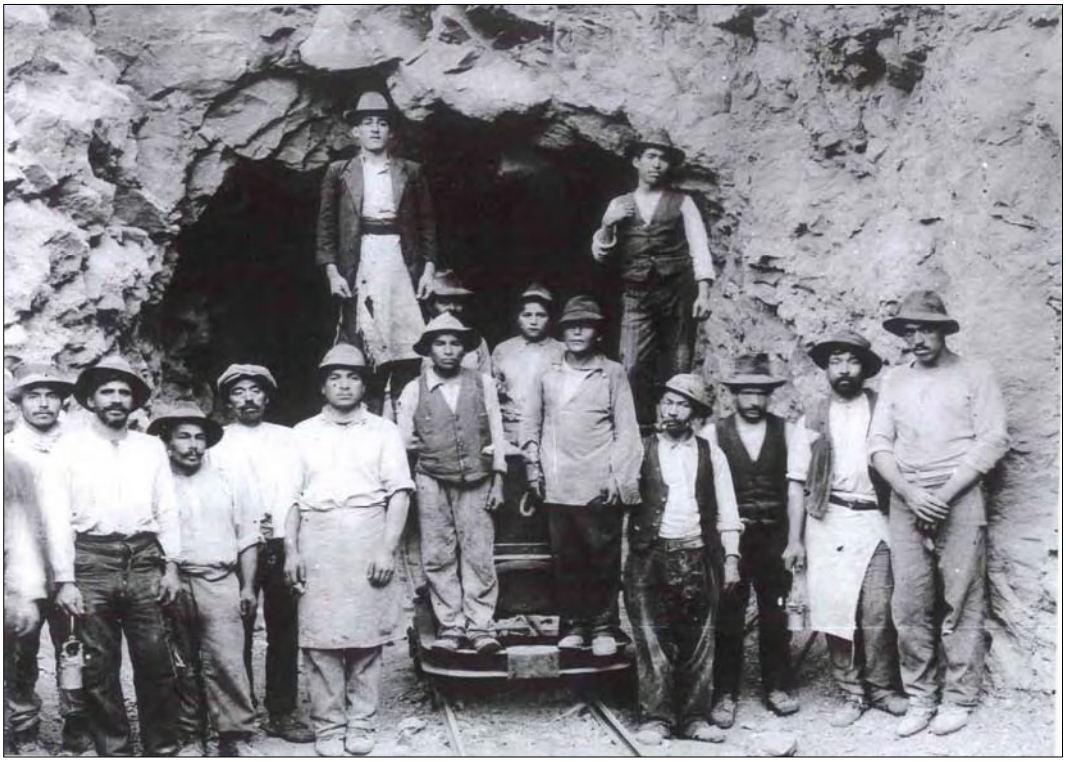


Photo Nº	Year	Description
020	1910-1920	Miners at mine entrance

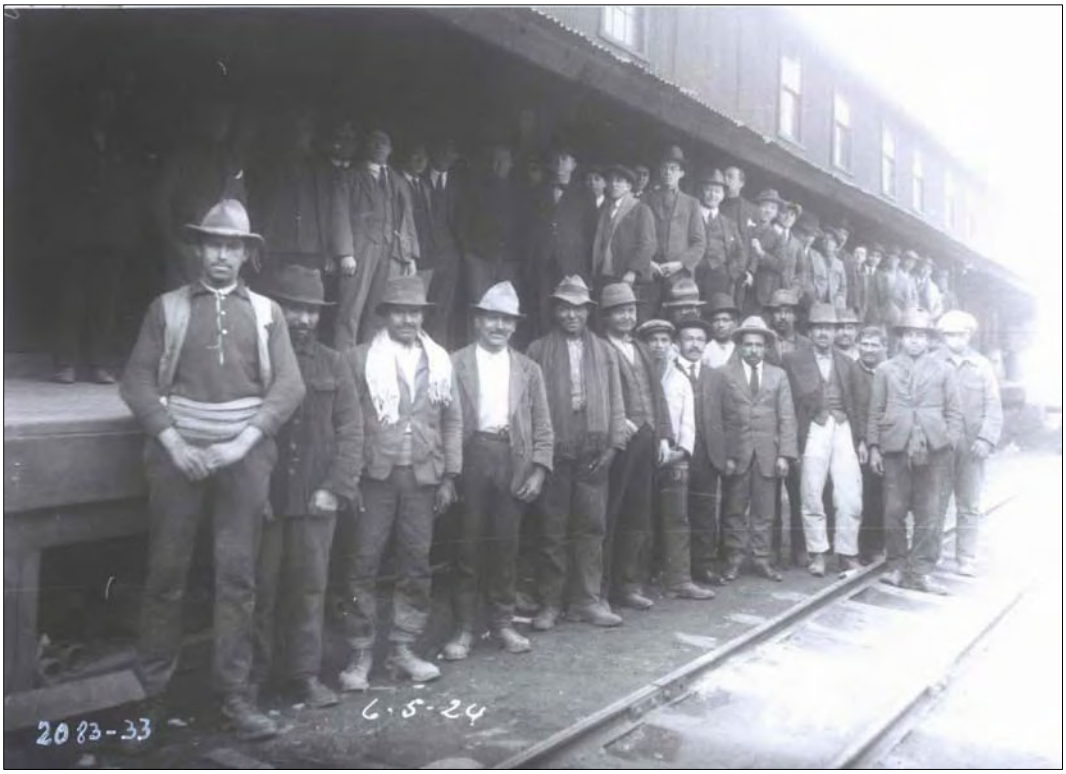


Photo Nº	Year	Description
021	1924	“Enlistment” of miners

Photo Nº	Year	Description
022	1920-1930	Arrival of train with “enlisted” workers

Photo Nº	Year	Description
023	1910-1920	Departure of “enlisted” miners

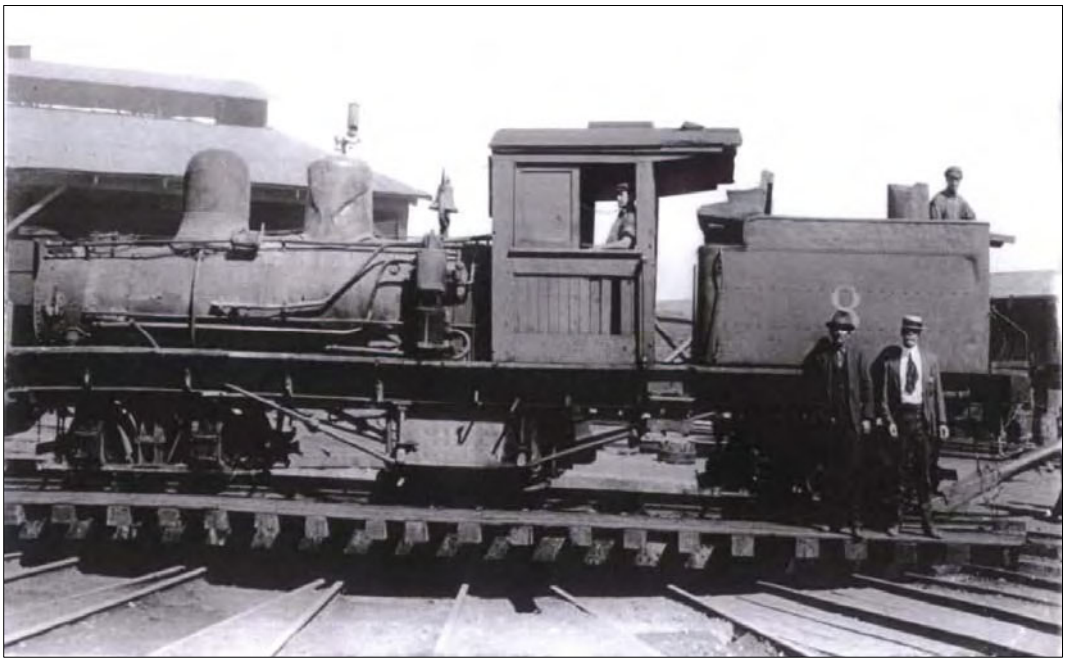


Photo Nº	Year	Description
024	1910-1920	Locomotive moving

Photo Nº	Year	Description
025	1920-1930	Railway repair Foundry

Photo Nº	Year	Description
026	1910-1920	Locomotive derailment

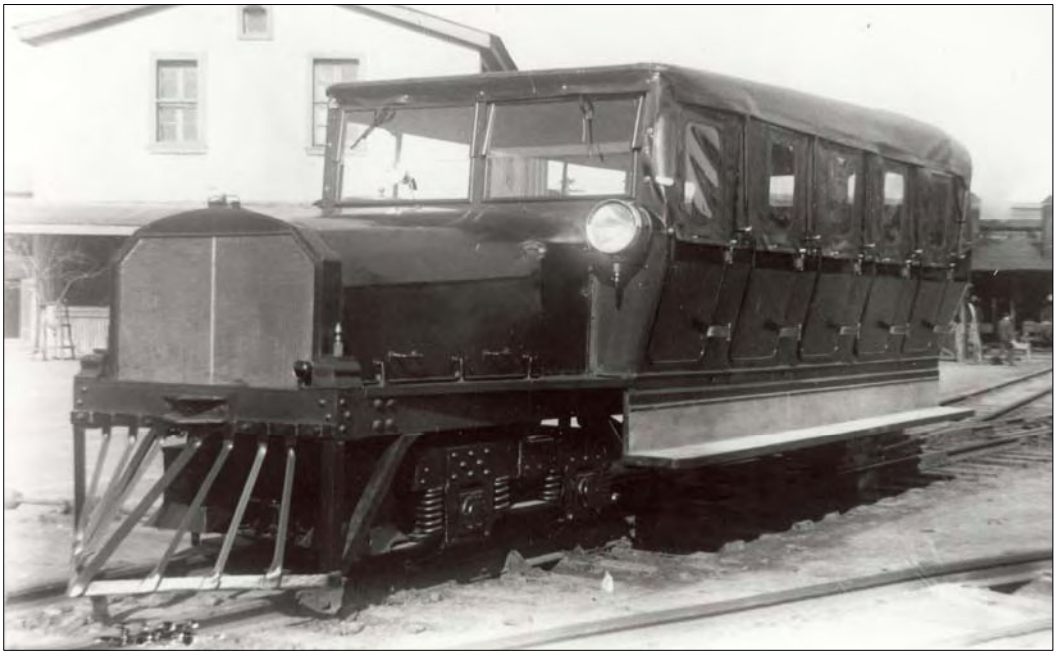


Photo Nº	Year	Description
027	1920-1930	Executive transport coach

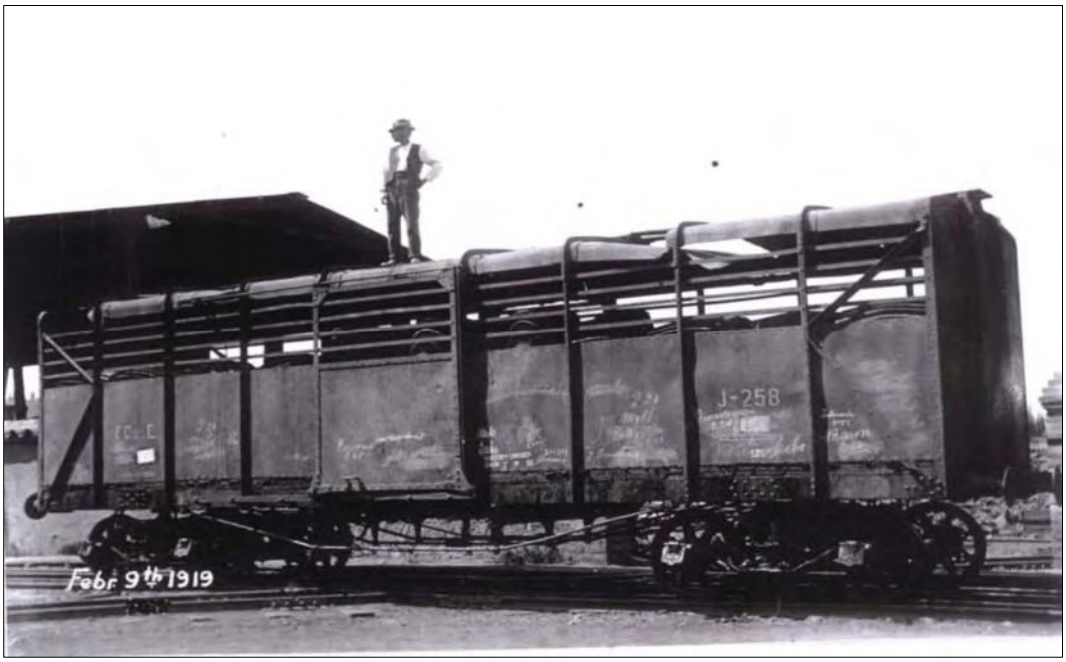


Photo Nº	Year	Description
028	1919	Cattle wagon

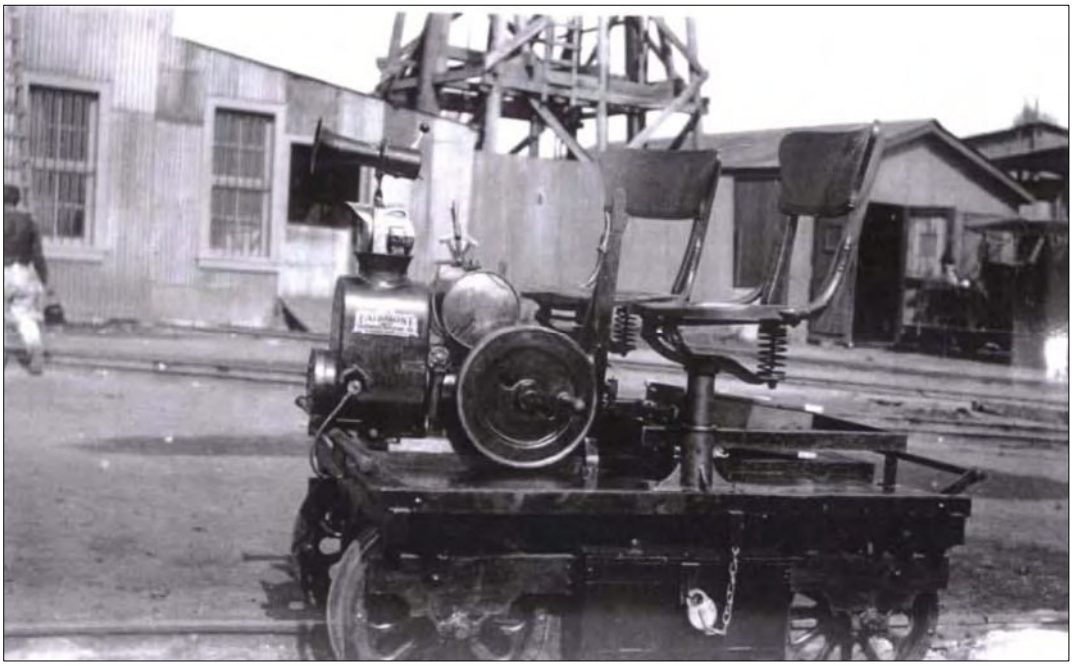


Photo Nº	Year	Description
029	1920-1930	Executive transport coach

Photo Nº	Year	Description
030	1917	Train derailment

Photo Nº	Year	Description
031	1910-1920	Executives arriving at Sewell train station

Photo Nº	Year	Description
032	1920-1930	Coach arrival

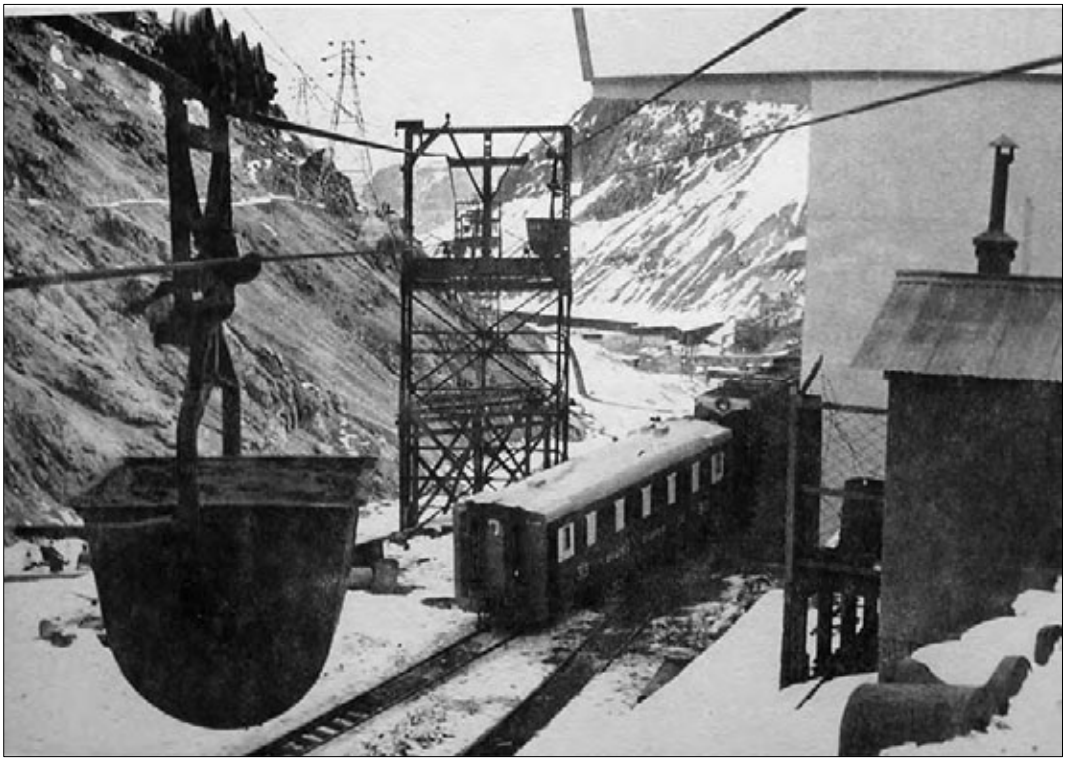


Photo Nº	Year	Description
033	1940-1950	Railway and lift buckets arrival

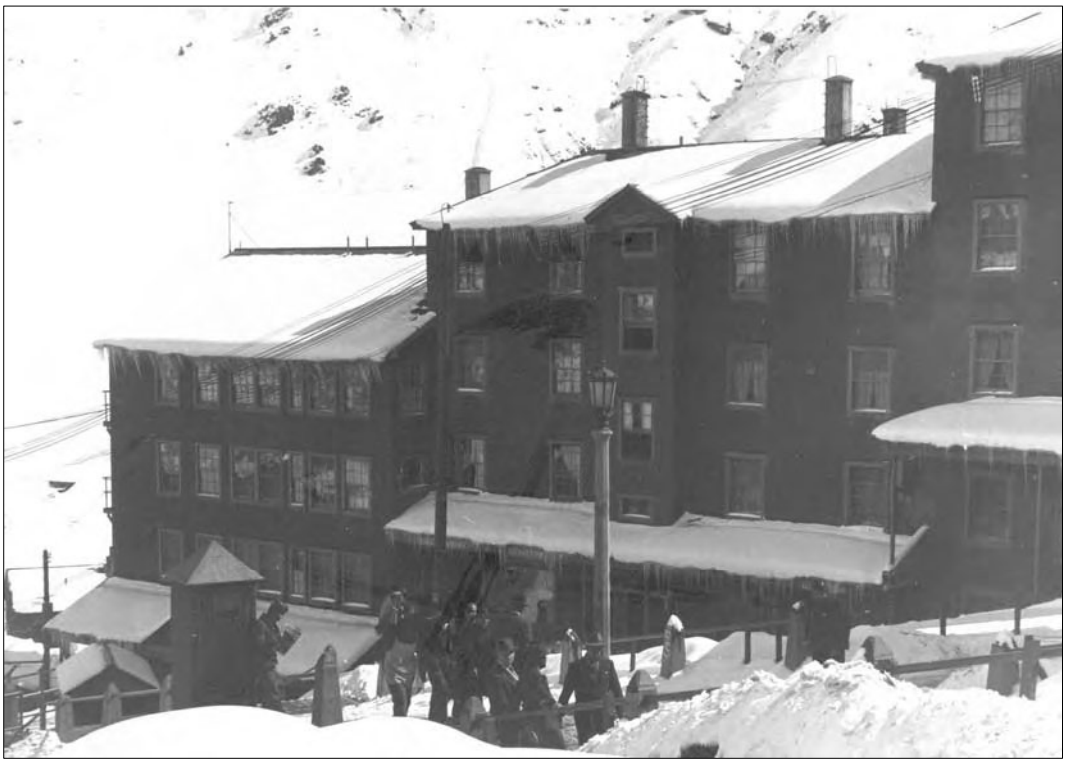


Photo Nº	Year	Description
034	1950-1960	Central Staircase, in front of building Nº 118

Photo Nº	Year	Description
035	1919	Canteen inside mine

Photo Nº	Year	Description
036	1916	Primary School at “Fortuna 4” Camp

Photo Nº	Year	Description
037	1916	Sewell Band in athletic games at “Fortuna 4” camp

Photo Nº	Year	Description
038	1917	Circus band at “Fortuna 4” Camp

Photo Nº	Year	Description
039	1918	Fancy dress Party at Central Staircase

Photo Nº	Year	Description
040	1917	Workers at lunch

Photo Nº	Year	Description
041	1920-1930	Party at firemen's headquarters

Photo Nº	Year	Description
042	1922	Guest reception at Sewell train station

Photo Nº	Year	Description
043	1918	Athletics competition at “La Junta”

Photo Nº	Year	Description
044	1915	Construction of Sewell Bowling Alley, Building Nº 106

Photo Nº	Year	Description
045	1916	Boy Scouts during Swearing In Ceremony

Photo Nº	Year	Description
046	1917	Swearing In Ceremony

Photo Nº	Year	Description
047	1917	Sewell Shop

Photo Nº	Year	Description
048	1920-1930	Sewell Hospital personnel, building Nº 157

Photo Nº	Year	Description
049	1945	First Aids Post

Photo Nº	Year	Description
050	1919	Sewell Hospital, Building Nº 157

Photo Nº	Year	Description
051	1926	Rancagua Yard workshop workers

Photo Nº	Year	Description
052	1917	Rescue Brigade

Photo Nº	Year	Description
053	1920-1930	North America children Party

Photo Nº	Year	Description
054	1920-1930	Chilean School children

Photo Nº	Year	Description
055	1920-1930	Sorensen School students

Photo Nº	Year	Description
056	1940-1950	“Social Club”, building Nº 105

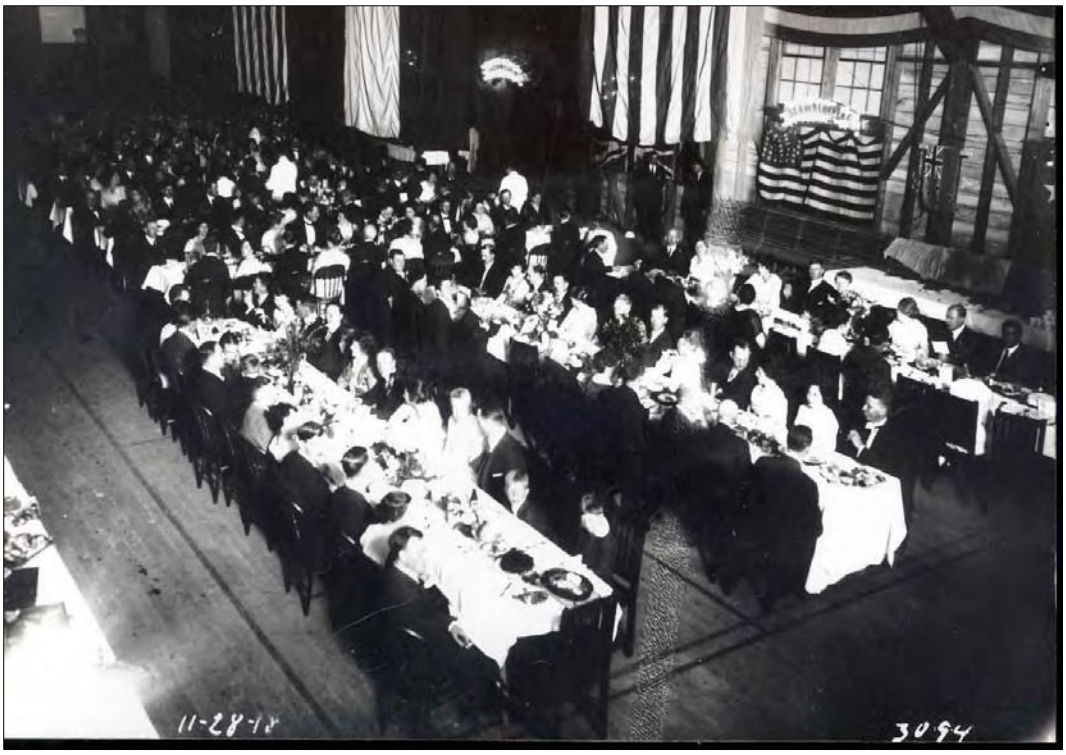


Photo Nº	Year	Description
057	1918	U.S.A. Independence day celebrations July 4th

Photo Nº	Year	Description
058	1910-1920	Chile's Independence day celebrations, September 18th

Photo Nº	Year	Description
059	1920-1930	Visit of executives

Photo Nº	Year	Description
060	1920-1930	Party for executives and their families

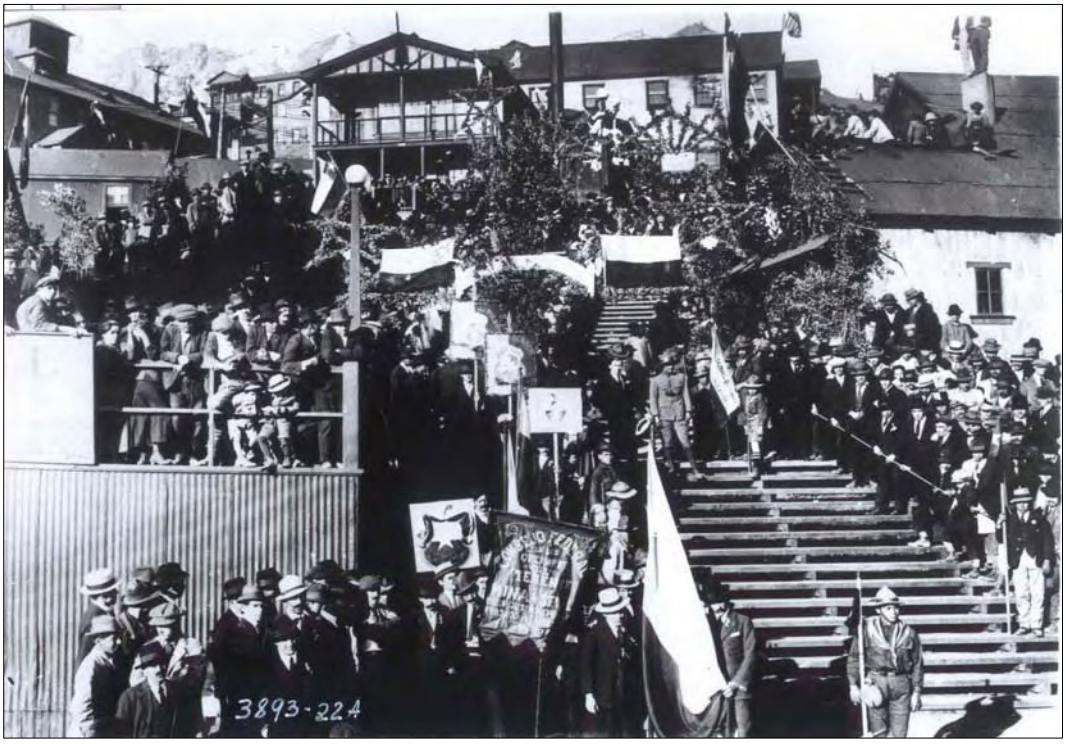


Photo Nº	Year	Description
061	1920-1930	People gathering on Central Staircase

Photo Nº	Year	Description
062	1916	Fancy dress Party

Photo Nº	Year	Description
063	1921	Family dinner for company executives

Photo Nº	Year	Description
064	1917	Swearing In Ceremony in front of police headquarters

Photo Nº	Year	Description
065	1930-1940	Photographer and coach

Photo Nº	Year	Description
066	1920-1930	"Huachuchero", Alcohol smuggler

Photo Nº	Year	Description
067	1927	Celebration in "Miners Square"

Photo Nº	Year	Description
068	1920-1930	Firemen exercising

Photo Nº	Year	Description
069	1943	Engineers visiting at “La Junta”

Photo Nº	Year	Description
070	1950-1960	Family arriving at Sewell train station

Photo Nº	Year	Description
071	1950-1960	Executive's children on Central Staircase in front of building Nº 101

Photo Nº	Year	Description
072	1950-1960	Chilean girls in front of building Nº 105

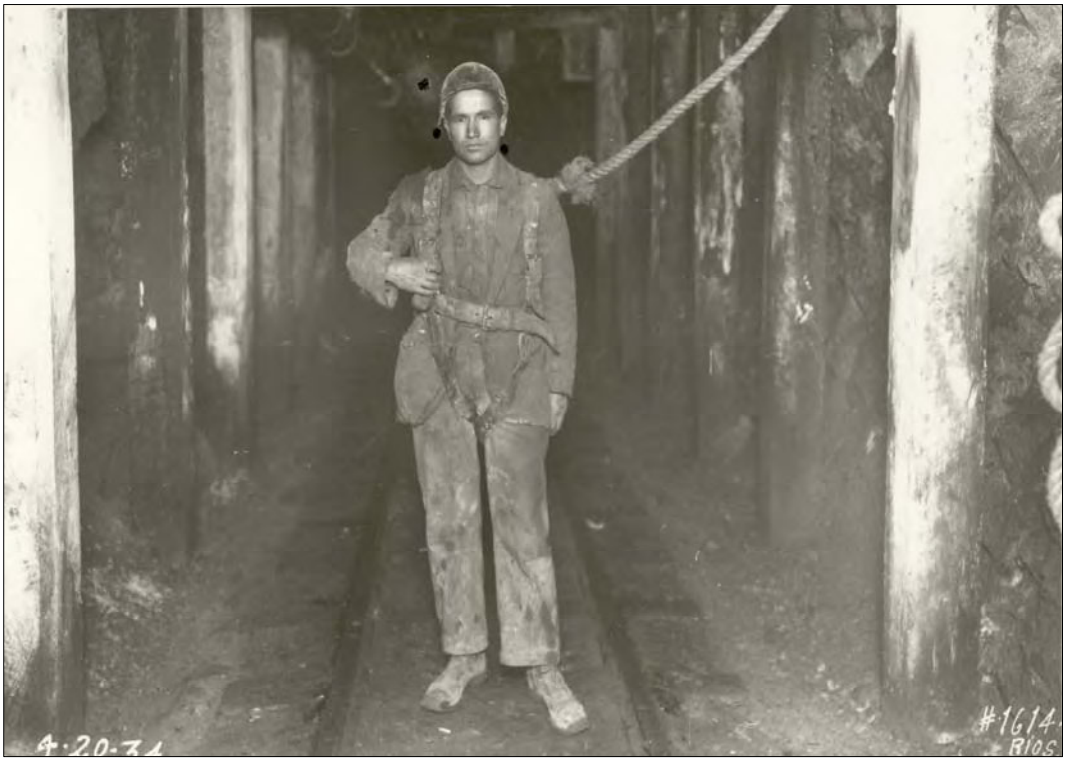


Photo Nº	Year	Description
073	1934	Primitive miner inside the mine

Photo Nº	Year	Description
074	1920-1930	Carpenter's workshop

Photo Nº	Year	Description
075	1936	Safety Awards at Acid Plant

Photo Nº	Year	Description
076	1946	Children at vocational School during a worker's strike

Photo Nº	Year	Description
077	1938	Workers at “Punta de Rieles”

Photo Nº	Year	Description
078	1950-1960	Spring Party at “Agua Dulce”

Photo Nº	Year	Description
079	1930-1940	Avalanche destroys bridge over River Coya

Photo Nº	Year	Description
080	1950-1960	Rebolledo Bridge and passenger's train

Photo Nº	Year	Description
081	1930-1940	Morgan Square, buildings Nº 129 and 125

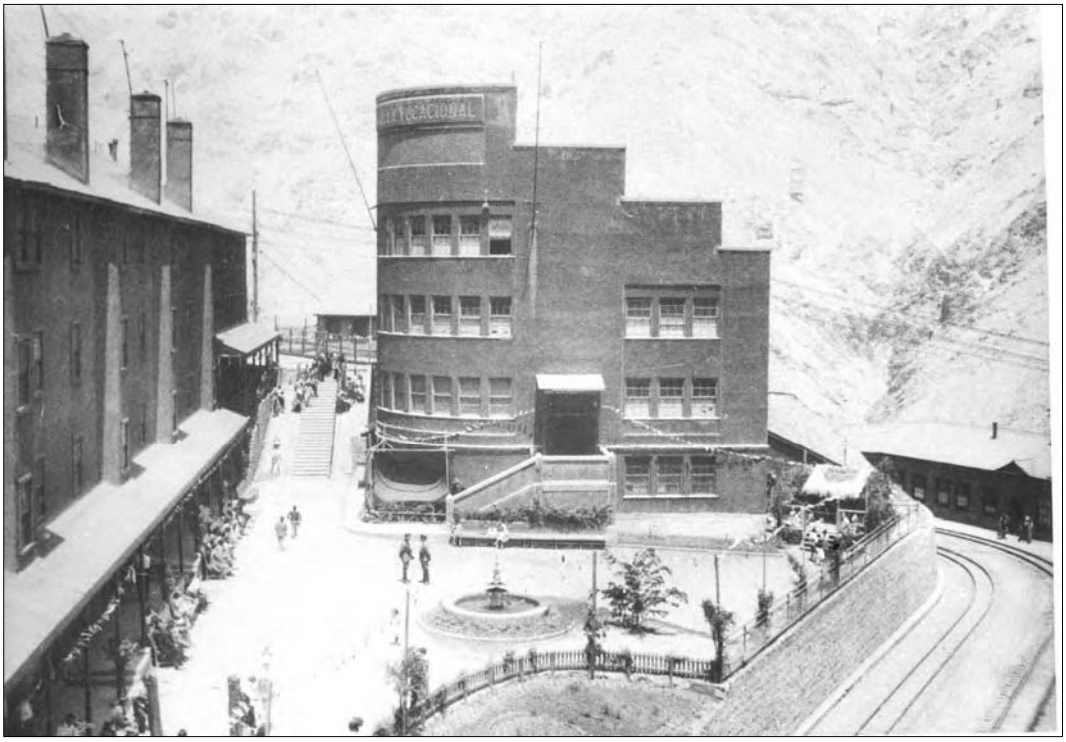


Photo Nº	Year	Description
082	1940-1950	Morgan Square, building Nº 129 (Vocational School)

Photo Nº	Year	Description
083	1930-1940	Railway station from building Nº 129

Photo Nº	Year	Description
084	1941	Avalanche clearance squad over railway line

Photo Nº	Year	Description
085	1960-1970	Central Staircase, building Nº 37

Photo Nº	Year	Description
086	1920-1930	Central Staircase, building Nº 103

Photo Nº	Year	Description
087	1927	Ceremony at “Punta de Rieles”

Photo Nº	Year	Description
088	1960-1970	Central Staircase, train station area in front of building Nº 118

Photo Nº	Year	Description
089	1960-1970	Central Staircase, building Nº 35, ice rink, pitch-and-toss court

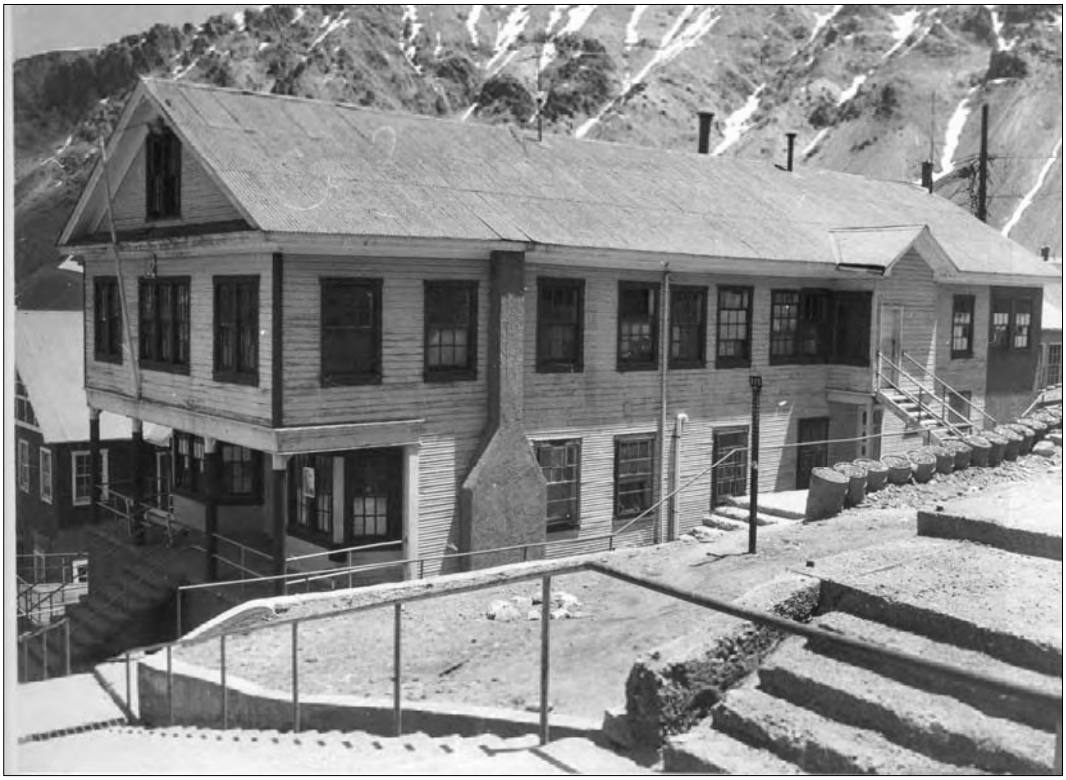


Photo Nº	Year	Description
090	1960-1970	Central Staircase, Building Nº 102, Engineering Department

Photo Nº	Year	Description
091	1960-1970	Building Nº 157, Sewell Hospital

Photo Nº	Year	Description
092	1926	Building Nº 20, “Teniente Club”

Photo Nº	Year	Description
093	1943	Buildings Nº 304 and 303 (“Cabins”)

Photo Nº	Year	Description
094	1960-1970	Building Nº 105 “Social Club”

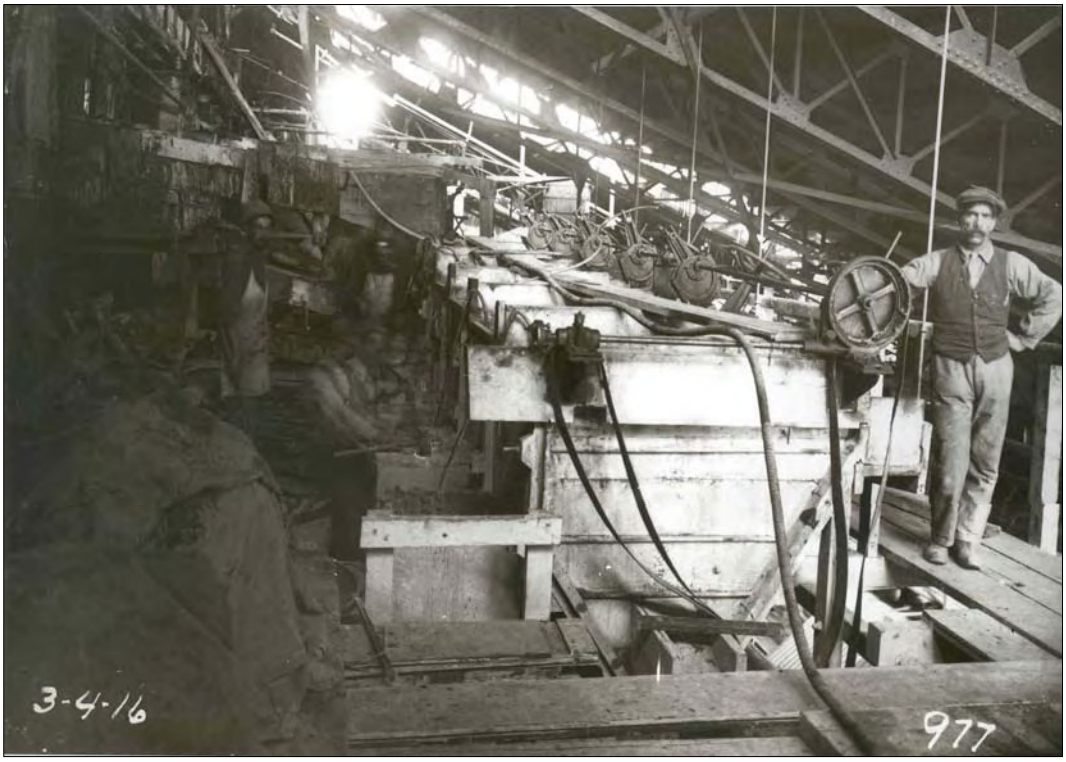


Photo Nº	Year	Description
095	1916	Sewell Concentrator, inside Milling Plant

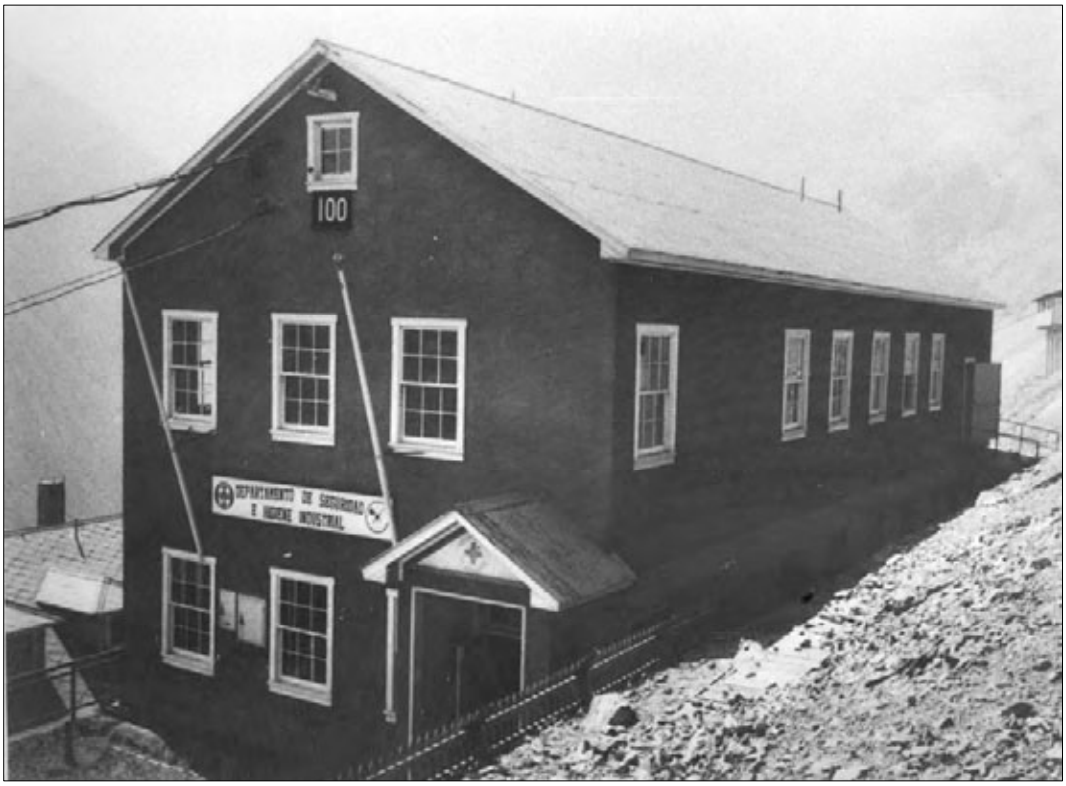


Photo Nº	Year	Description
096	1930-1940	Building Nº 100, Safety Department

Photo Nº	Year	Description
097	1930-1940	Sewell Concentrator, conveyer belt

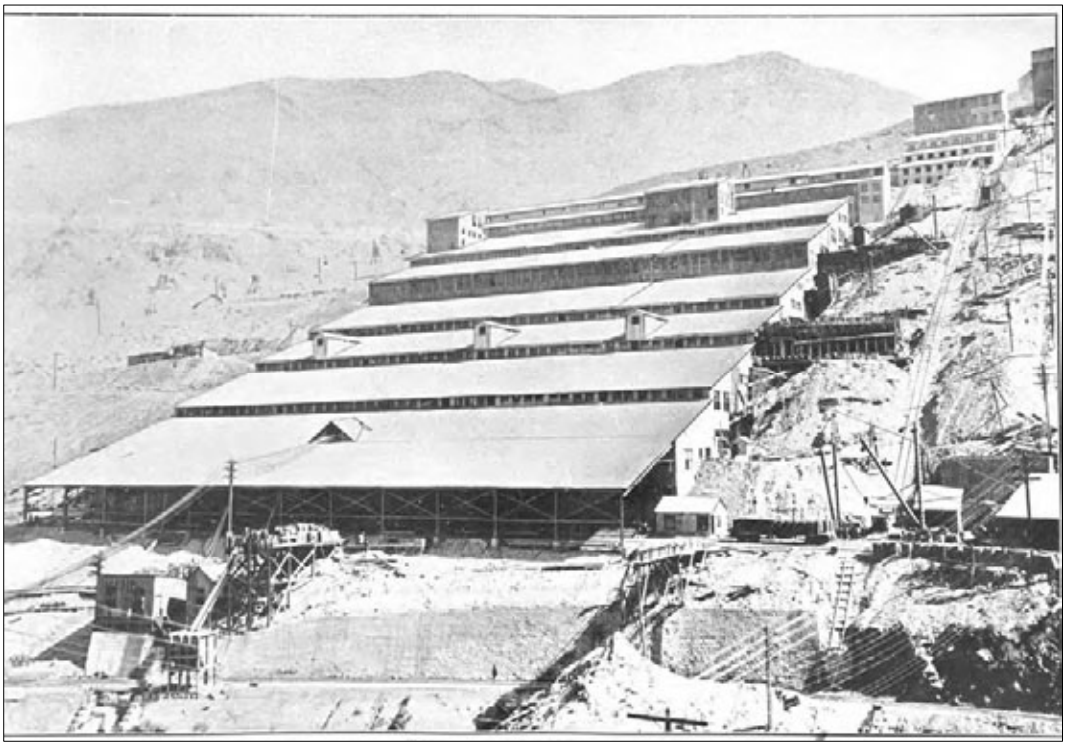


Photo Nº	Year	Description
098	1930-1940	Sewell Concentrator, main industrial unit

Photo Nº	Year	Description
099-100	1920-1930	Sewell Concentrator, inside / Structure collapse at Sewell Concentrator

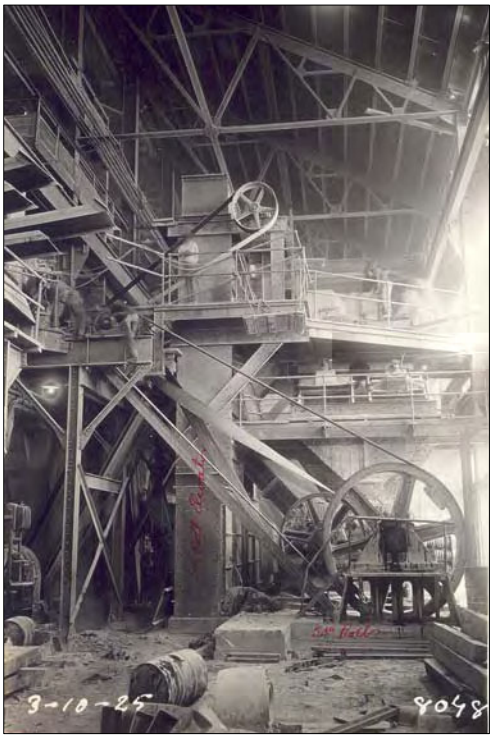


Photo Nº	Year	Description
101-102	1925/1913	Sewell Concentrator, inside Plant

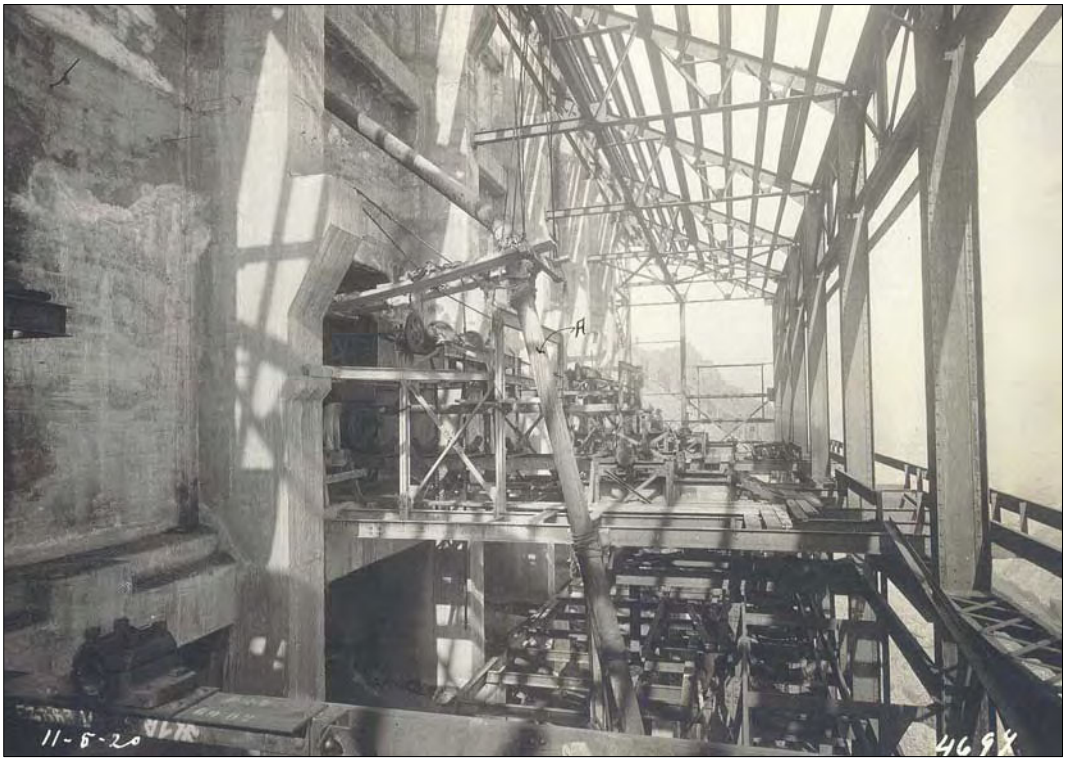


Photo Nº	Year	Description
103	1920	Sewell Concentrator under construction

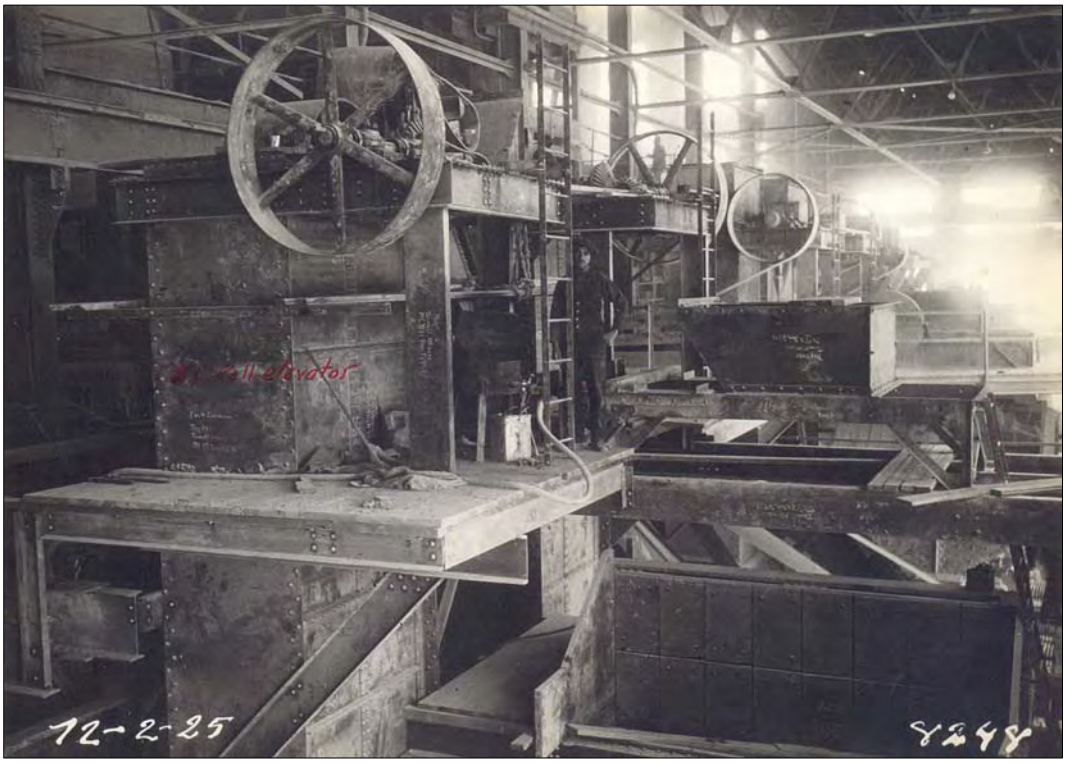


Photo Nº	Year	Description
104	1925	Sewell Concentrator, roll elevators

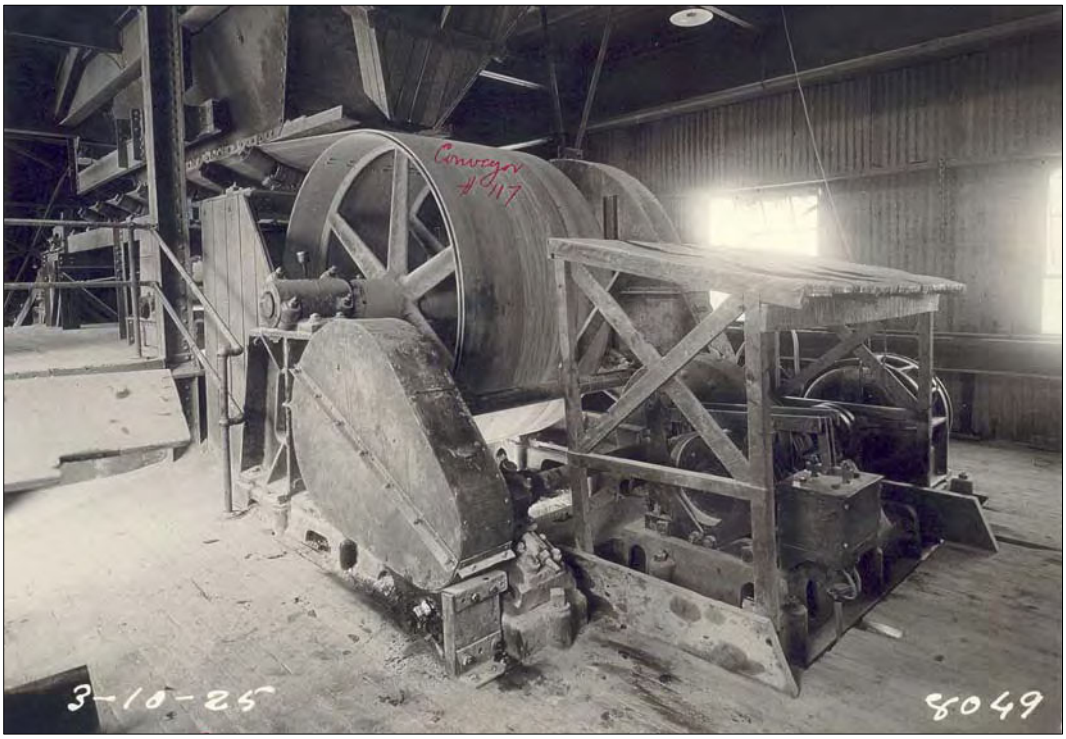


Photo Nº	Year	Description
105	1925	Sewell Concentrator, conveyer belt engine

Photo Nº	Year	Description
106	1920	Sewell Concentrator under construction

Photo Nº	Year	Description
107	1921	Sewell Concentrator under construction

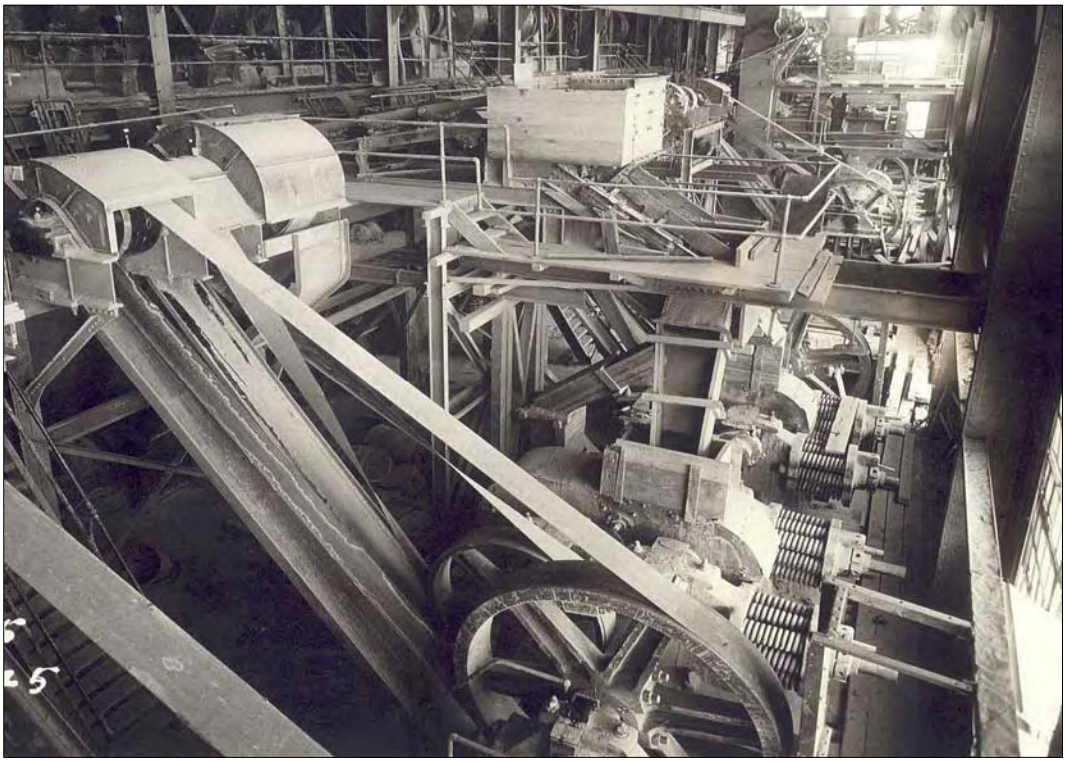


Photo Nº	Year	Description
108	1924	Sewell Concentrator, inside plant

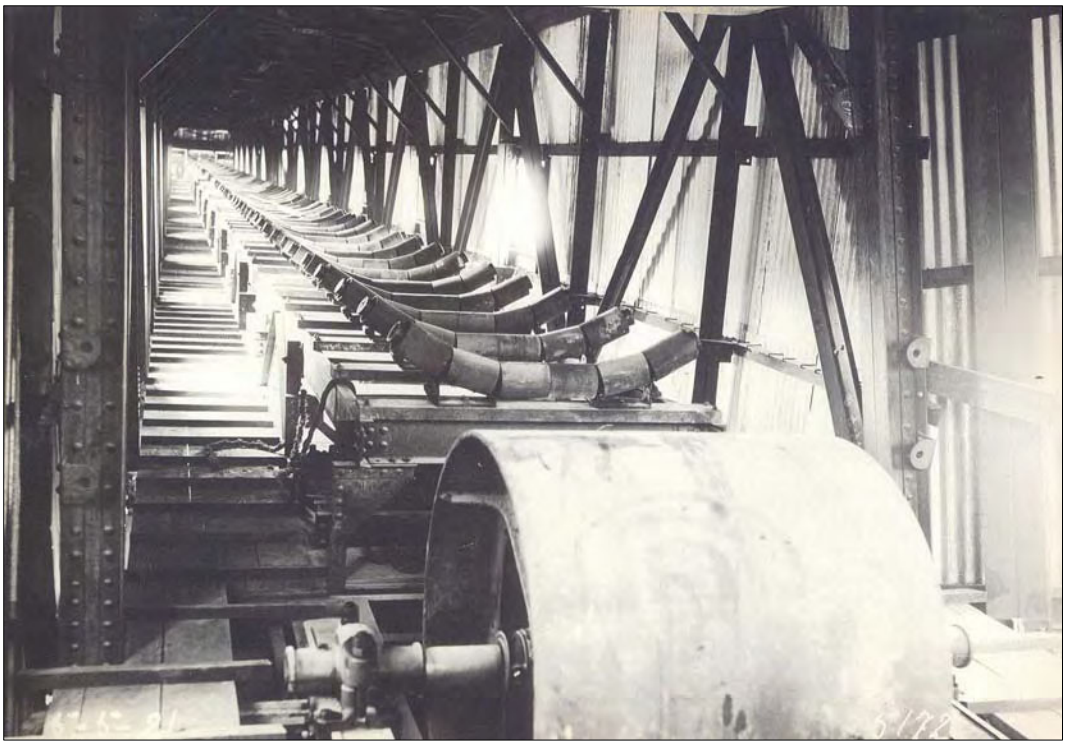


Photo Nº	Year	Description
109	1925	Sewell Concentrator, conveyer belt

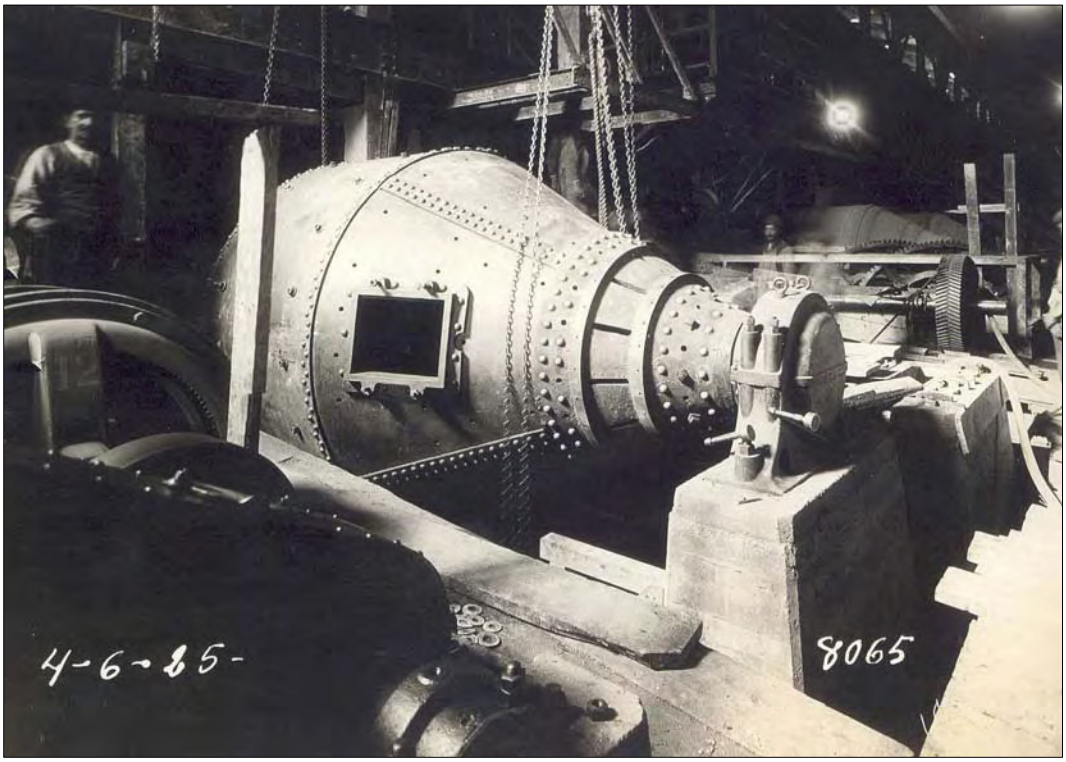


Photo Nº	Year	Description
110	1925	Sewell Concentrator, Hardinge Mill

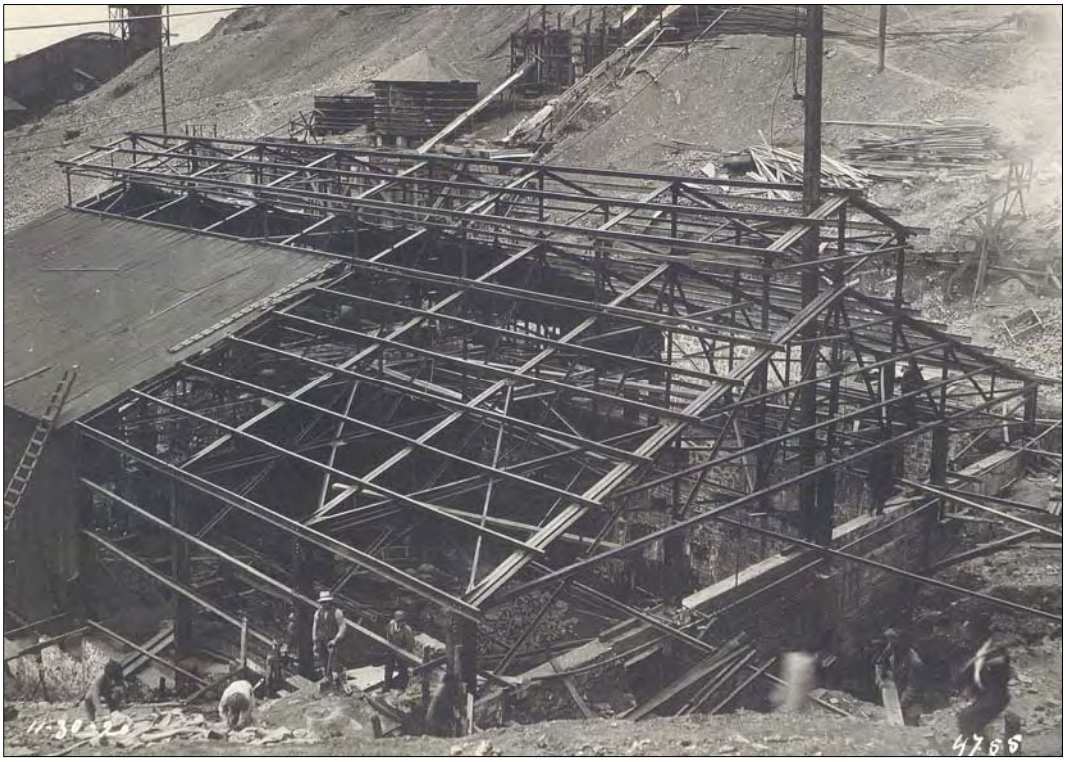


Photo Nº	Year	Description
111	1920	Sewell Concentrator under construction

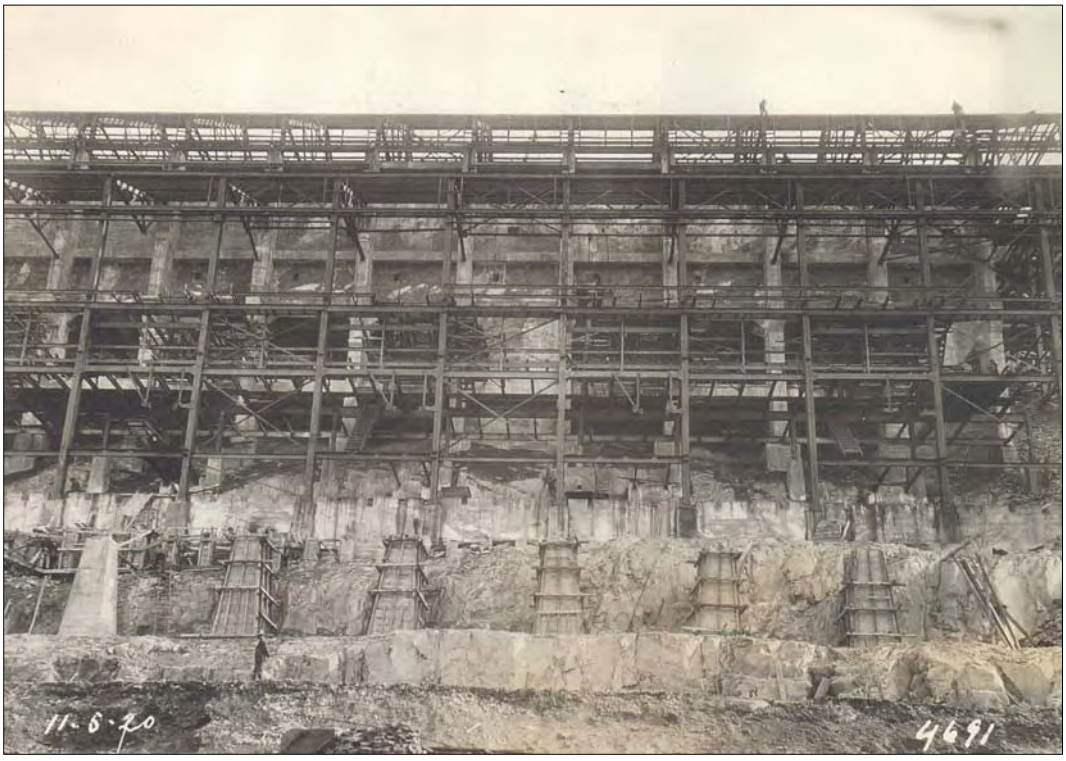


Photo Nº	Year	Description
112	1920	Sewell Concentrator under construction

Photo Nº	Year	Description
113	1921	Sewell Concentrator under construction

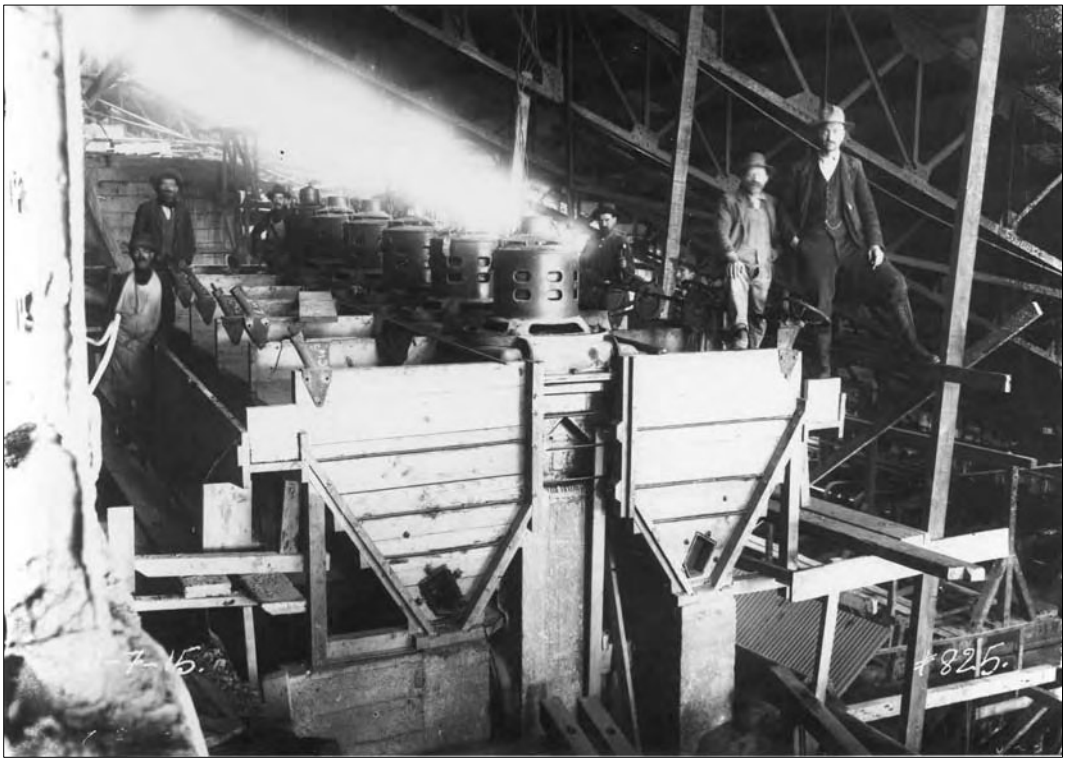


Photo Nº	Year	Description
114	1925	Sewell Concentrator, inside plant

Photo Nº	Year	Description
001	1970	Sewell Mining Town

Photo Nº	Year	Description
002	2004	Sewell Mining Town at present

Photo Nº	Year	Description
003	2004	Morgan Square, buildings Nº 125 and 118

Photo Nº	Year	Description
004	2004	Morgan Square and Building Nº 129, Mining Copper Industry Museum

Photo Nº	Year	Description
005	2004	Morgan Square, Building Nº129 and 125

Photo Nº	Year	Description
006	2004	Buildings Nº 129 and 125

Photo Nº	Year	Description
007	2001	Morgan Square under construction

Photo Nº	Year	Description
008	2001	Building Nº 129 : restoration works

Photo Nº	Year	Description
009	2001	Morgan Square : construction works

Photo Nº	Year	Description
010	2001	Building Nº 129 before restoration

Photo Nº	Year	Description
011	2001	Morgan Square and Building Nº 129 at present

Photo Nº	Year	Description
012	2004	Building Nº 129 and Morgan Square at present

Photo Nº	Year	Description
013	2002	Opening ceremony of the Mining Copper Industry Museum

Photo Nº	Year	Description
014	2002	Mining Copper Industry Museum

Photo Nº	Year	Description
015	2002	Mining Copper Industry Museum

Photo Nº	Year	Description
016	2002	Mining Copper Industry Museum

Photo Nº	Year	Description
017	2002	Mining Copper Industry Museum

Photo Nº	Year	Description
018	2002	Students at the Mining Copper Industry Museum

Photo Nº	Year	Description
019	2002	Building Nº 129, Mining Copper Industry Museum

Photo Nº	Year	Description
020	2002	Buildings Nº 129 and 125

Photo Nº	Year	Description
021	2004	Buildings Nº 125 and 106

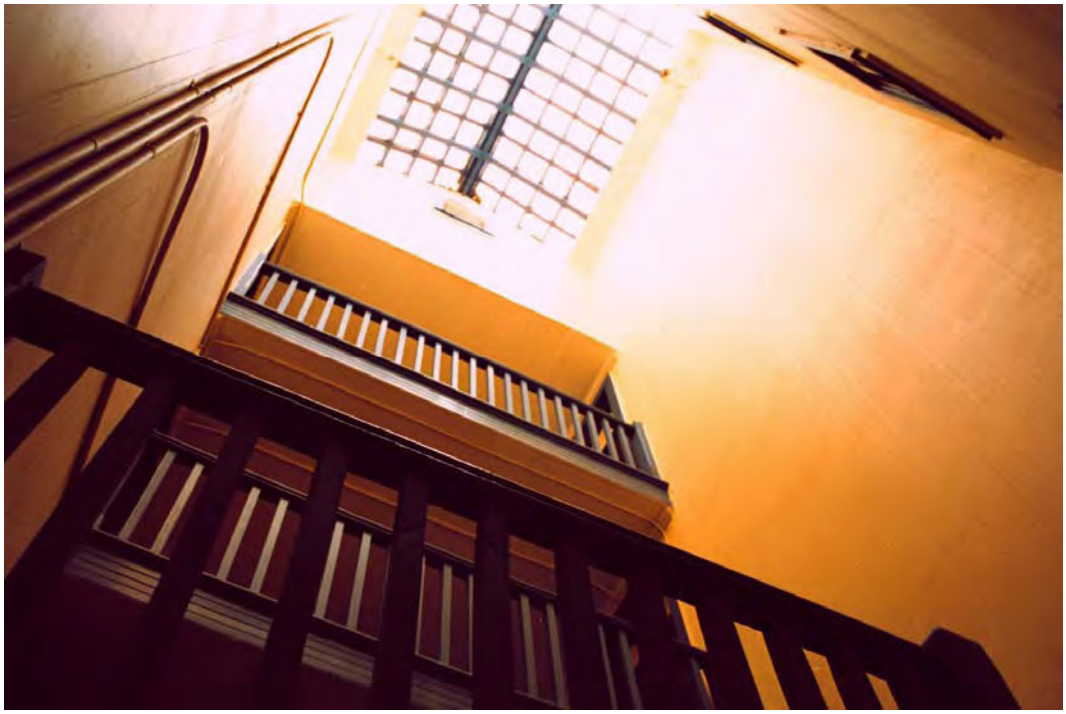


Photo Nº	Year	Description
022	2004	Inside Building Nº 125 at present

Photo Nº	Year	Description
023	2003	Buildings Nº 118 and 108

Photo Nº	Year	Description
024	2004	Building Nº 118 and Cnetral Staircase

Photo Nº	Year	Description
025	2004	Building Nº 231, Church

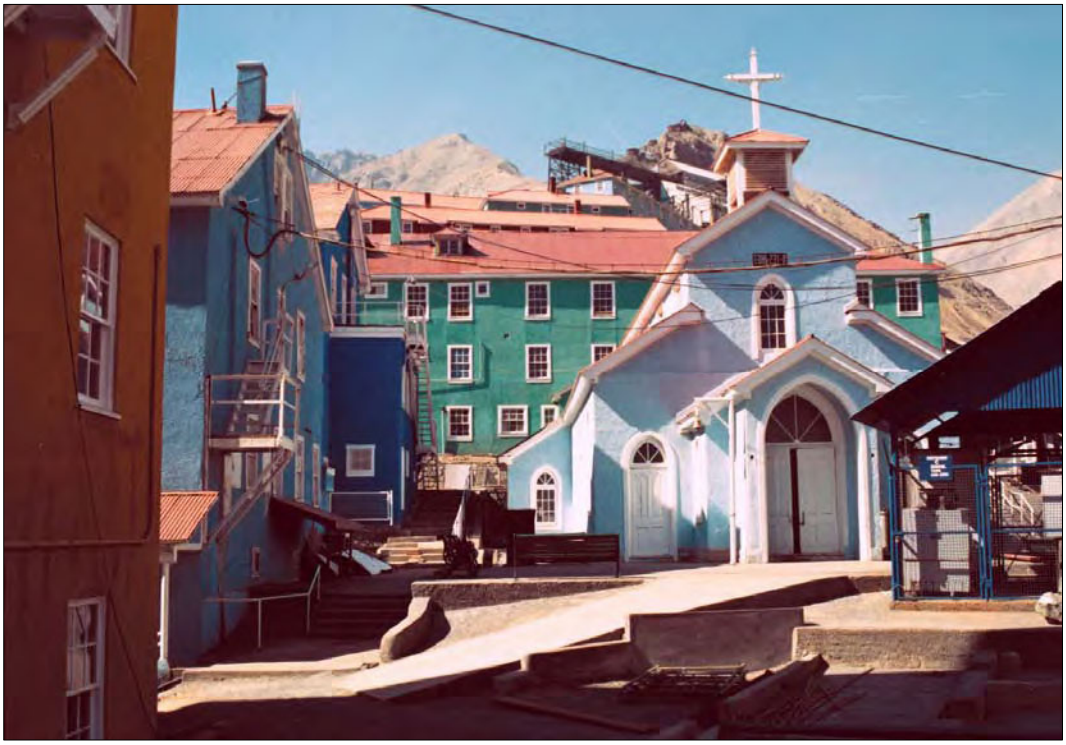


Photo Nº	Year	Description
026	2003	Building Nº 231, Church

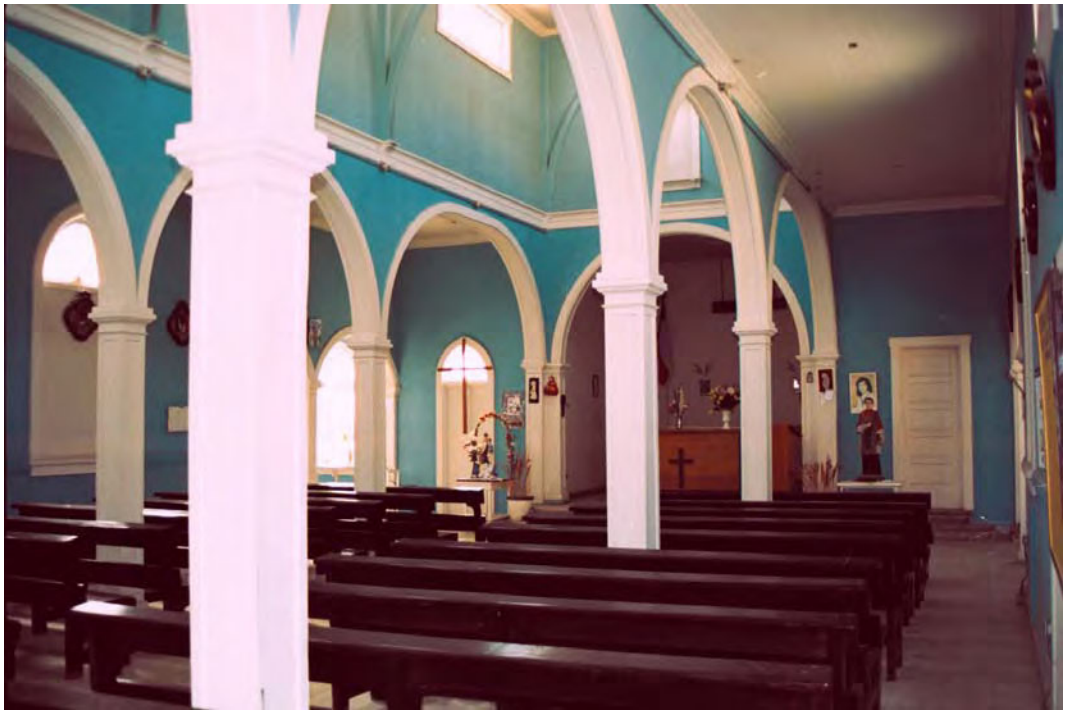


Photo Nº	Year	Description
027	2004	Building Nº 231, Church, inside view

Photo Nº	Year	Description
028	2004	Inside Building Nº 231, Church

Photo Nº	Year	Description
029	2002	Building Nº 106 before restoration

Photo Nº	Year	Description
030	2002	Building Nº 106, before restoration

Photo Nº	Year	Description
031	2002	Building Nº 106 : restoration

Photo Nº	Year	Description
032	2002	Building Nº 106 : restoration

Photo Nº	Year	Description
033	2002	Building Nº 106, bowling Alley restoration

Photo Nº	Year	Description
034	2002	Building Nº 106, bowling alley : restoration

Photo Nº	Year	Description
035	2002	Building Nº 105

Photo Nº	Year	Description
036	2002	Building Nº 125

Photo Nº	Year	Description
037	2002	Building Nº 105: restoration works

Photo Nº	Year	Description
038	2002	Building Nº 105 : restoration works

Photo Nº	Year	Description
039	2003	Central Staircase, buildings Nº 105, 125, 118 and 107

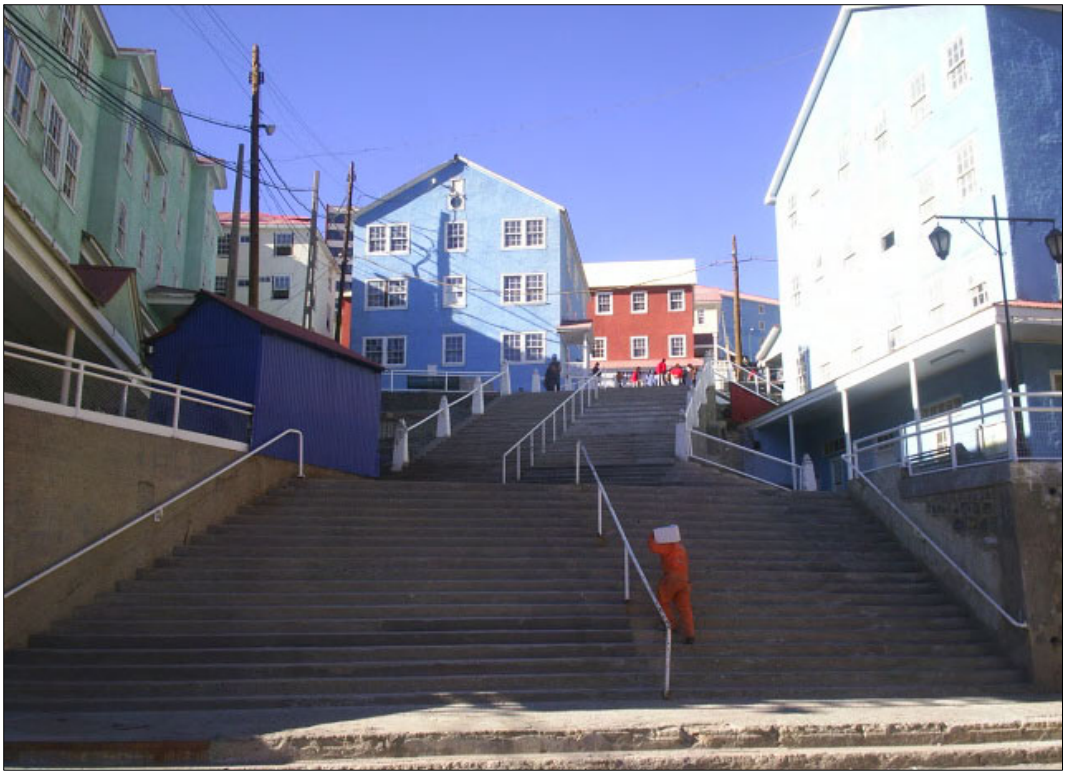


Photo Nº	Year	Description
040	2004	Central Staircase, train station area

Photo Nº	Year	Description
041	2004	Building Nº 165, Theatre entrance restoration

Photo Nº	Year	Description
042	2004	Central Staircase, buildings Nº 103, 165 and 102

Photo Nº	Year	Description
043	2004	Central Staircase, buildings Nº 150, 37, 42 and 41

Photo Nº	Year	Description
044	2004	Buildings Nº 150 and 37

Photo Nº	Year	Description
045	2004	Building Nº 102 after restoration

Photo Nº	Year	Description
046	2004	Building Nº 102 after restoration

Photo Nº	Year	Description
047	2002	Building Nº 102 : restoration works

Photo Nº	Year	Description
048	2002	Building Nº 102 : restoration works

Photo Nº	Year	Description
049	2002	Building Nº 102 : restoration works

Photo Nº	Year	Description
050	2002	Building Nº 102 : restoration works

Photo Nº	Year	Description
051	2004	Secondary pathway between building Nº101 and 107

Photo Nº	Year	Description
052	2004	Building Nº 101

Photo Nº	Year	Description
053	2004	Buildings Nº 150 and 35

Photo Nº	Year	Description
054	2004	Building Nº 42

Photo Nº	Year	Description
055	2004	Building Nº 157 Hospital

Photo Nº	Year	Description
056	2004	Building Nº 157 Hospital

Photo Nº	Year	Description
057	2004	Building Nº 157 Hospital

Photo Nº	Year	Description
058	2004	Building Nº 157 Hospital

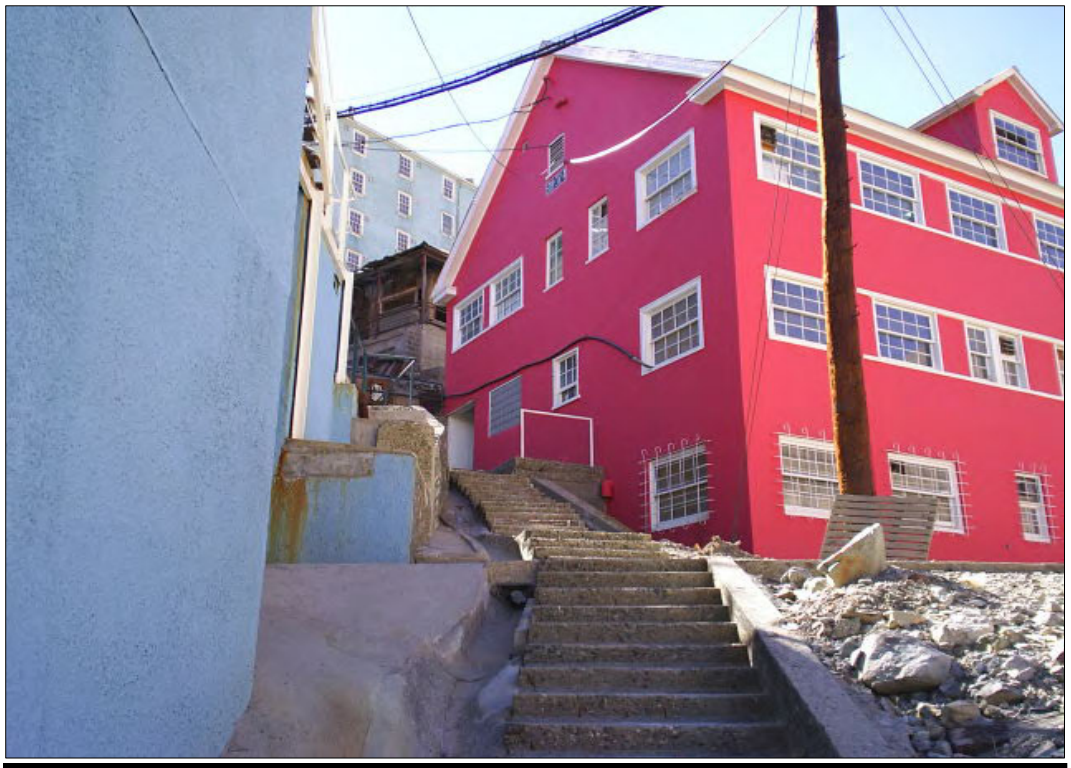


Photo Nº	Year	Description
059	2001	Building Nº 312

Photo Nº	Year	Description
060	2001	Building Nº 312

Photo Nº	Year	Description
061	2004	Building Nº 108 : restoration works

Photo Nº	Year	Description
062	2004	Building Nº 108 : restoration works

Photo Nº	Year	Description
063	2004	Building Nº 108 : restoration works

Photo Nº	Year	Description
064	2004	Building Nº 108 : restoration works

Photo Nº	Year	Description
065	2003	Building Nº 108 before restoration

Photo Nº	Year	Description
066	2004	Building Nº 108 : restoration works

Photo Nº	Year	Description
067	2004	Building Nº 501

Photo Nº	Year	Description
068	2004	Building Nº 501

Photo Nº	Year	Description
069	2003	Building Nº 20 “Teniente Club” before restoration works

Photo Nº	Year	Description
070	2003	Building Nº 20 “Teniente Club” before restoration works

Photo Nº	Year	Description
071	2004	Building Nº 20 after restoration

Photo Nº	Year	Description
072	2004	Building Nº 20 : restoration works

Photo Nº	Year	Description
073	2004	Building Nº 20 : restoration works

Photo Nº	Year	Description
074	2004	Building Nº 20 : restoration works

Photo Nº	Year	Description
075	2004	Building Nº 152 : restoration works

Photo Nº	Year	Description
076	2004	Building Nº 152 : restoration works

Photo Nº	Year	Description
077	2004	Building Nº 152 before restoration works

Photo Nº	Year	Description
078	2004	Building Nº 152 : restoration works

Photo Nº	Year	Description
079	2004	Central Staircase, buildings Nº 37 and 35

Photo Nº	Year	Description
080	2004	Buildings Nº 150 and 37

Photo Nº	Year	Description
081	2004	Building Nº 37 at present

Photo Nº	Year	Description
082	2004	Building Nº 37, corridor at present

Photo Nº	Year	Description
083	2004	Building Nº 37 and Central Staircase

Photo Nº	Year	Description
084	2004	Building Nº 37 and Central Staircase

Photo Nº	Year	Description
085	2004	“Punta de Rieles”

Photo Nº	Year	Description
086	2004	“Punta de Rieles”

Photo Nº	Year	Description
087	2004	Thickening tanks, Sewell Concentrator

Photo Nº	Year	Description
088	2004	Sewell Concentrator

Photo Nº	Year	Description
089	2004	Sewell Concentrator, conveyer belt

Photo Nº	Year	Description
090	2004	Sewell Concentrator, general view

MINISTERIO DE EDUCACION
CONSEJO DE MONUMENTOS NACIONALES

EXPEDIENTE DE POSTULACIÓN DEL CAMPAMENTO SEWELL COMO SITIO DEL PATRIMONIO MUNDIAL

INVENTARIO

POSTULACIÓN DEL CAMPAMENTO SEWELL PARA SU INSCRIPCIÓN EN LA LISTA DEL PATRIMONIO MUNDIAL (Texto Central en castellano) / ***Documento anillado en formato doble carta + / 3 ejemplares***

NOMINATION OF THE SEWELL MINING TOWN FOR ITS INSCRIPTION ON THE WORLD HERITAGE LIST OF THE UNESCO (Texto Central en inglés) / ***Documento anillado en formato doble carta + / 3 ejemplares***

ANEXO 7a: COMPACT DISCS, FOTOGRAFÍAS Y DIAPOSITIVAS / ***Archivador tamaño carta / 2 ejemplares***

ANEXO 7b: PLANES DE ADMINISTRACIÓN DEL BIEN Y EXTRACTOS DE OTROS PLANES RELEVANTES / ***Archivador tamaño carta / 2 ejemplares***

ANEXO 3a	DESCRIPCIÓN
ANEXO 3b	HISTORIA
ANEXO 3c	REGISTROS
ANEXO 3d	ESTADO DE CONSERVACIÓN
ANEXO 4c	MEDIDAS DE PROTECCIÓN
ANEXO 4f	PLANES
ANEXO 5d	TURISMO

Todos estos anexos van en un Archivador tamaño carta / 2 ejemplares

ANEXO 3c: PROPUESTA DE ESTUDIO PARA LA CONSERVACIÓN, RENOVACIÓN Y RECICLAJE DEL CAMPAMENTO SEWELL, EDIFICIOS DE VIVIENDA Y EQUIPAMIENTO
Archivador tamaño carta / 2 ejemplares

ELEMENTOS COMPLEMENTARIOS: DOCUMENTOS E INVESTIGACIONES
Archivador tamaño carta / 2 ejemplares.

LIBROS DE FIRMAS DE LA COMUNIDAD EN APOYO A LA POSTULACIÓN A SITIO DEL PATRIMONIO MUNDIAL DE UNESCO, PARA EL CAMPAMENTO SEWELL. ***Son 2 juegos de 5 volúmenes cada uno.***

Dos ejemplares de cada una de las siguientes publicaciones:

1. EL TENIENTE LOS HOMBRES DEL MINERAL - 1945. Tomo I. María Celia Baros M.
2. EL TENIENTE LOS HOMBRES DEL MINERAL - 1995. Tomo II. María Celia Baros M
3. MINERIA CHILENA, Alexander Sutulov.
4. SEWELL DE LA MANO DE LUKAS. Fundación Renzo Pecchenino, Lukas.
5. PAGINAS PARA LA HISTORIA DE RANCAGUA, René Leiva Berríos.
6. REMINISCENCIAS DE EL TENIENTE, René Leiva Berríos.
7. EL MINERO EN OSCAR CASTRO, René Leiva Berríos.
8. ¡GUSTO DE CONOCERTE, PABLO!, René Leiva Berríos.
9. EL TIEMPO ENTRE LAS SIENES Y OTROS RELATOS. Fernando Riveros Barahona.
10. ENTRE ACTOS, Fernando Riveros Barahona.
11. EL INQUIETO MAR PROFUNDO, Fernando Riveros Barahona.
12. REMIRANDO EL CAMINO, Isolda Pradel.
13. SEWELL, CANTARO QUEBRADO, Walter Pineda Cepeda.
14. LUNARASCA, Walter Pineda Cepeda.
15. LA LOLA EL FANTASMA DE LA MINA, Tteugord Serec K

Una versión en inglés y otra en francés de la presentación DVD de:

SEWELL 1905 – 2005 Heritage of Humanity – Patrimoine de L'Humanité

Sewell Mining Town (Chile)

No 1214

1. BASIC DATA

State Party: Chile

Name of property: Sewell Mining town

Location: The Sixth Region of "Libertador Bernado Higgins" in the Province of Cachapoal, Municipality of Machali

Date received by the World Heritage Centre: 24 January 2005

Included in the Tentative List: 1 September 1998

International Assistance from the World Heritage Fund for preparing the nomination: No

Category of property:

In terms of the categories of cultural property set out in Article 1 of the 1972 World Heritage Convention, this is a *site.* In terms of *Operational Guidelines for the Implementation of the World Heritage Convention* (2 February 2005) paragraph 47, it could also be a *cultural landscape*.

Brief description:

Sewell Mining town, 2,000 metre high in the Andes and subject to extremes of climate, was developed by the Braden Copper company in the early 20th century, to house workers throughout the year for what was the world's largest underground copper mine, El Teniente.

It is a city of steps, with streets too steep for wheeled vehicles: its timber buildings, based on American models and many painted in vivid hues of green, yellow, red and blue, cascade down steep slopes.

Largely abandoned in the 1970s, Sewell's extensive remains are testimony to the fusion between human and mineral resources, a technological revolution in smelting and huge investments of American capital that allowed large-scale copper production and fostered Chile's dominant role in that industry. It also reflects the profound social and economic role that copper mining has played, and continues to play, in national life.

2. ACTIONS

Background: This is a new nomination. Supplementary information has been sent by the State Party and has been received on 18 January 2006.

Date of the Technical Evaluation Mission: 2-6 September 2005

Dates of request for additional information and of receipt from State Party: None

Consultations: ICOMOS has consulted its International Scientific Committee on 20th Century Heritage and TICCIH.

Literature: Garcés, Eugenio, *Las ciudades del cobre. Del campamento de montaña al hotel minero como variaciones de la company town*, in *EURE (Santiago*) vol 29 no 88, Santiago 2003; Garcés, E. et al. *Sewell asentamiento minero* (1904 hasta la actualidad) in *Arquitectura Panamericana*, 001: 104-117, 1992.

Date of ICOMOS approval of this report: 15 January 2006

3. THE PROPERTY

Description

Sewell Mining town is sited at an elevation of around 2,300 metres in the Andes Mountains, 60 km east of Rancagua, which is 85 km south of the capital Santiago. On the slopes of Cerro Negro Hill, the town overlooks the confluence of the Rivers Coya and El Teniente. The nominated site covers 17.2 ha and is surrounded by a buffer zone of 33 ha.

The town and some of the industrial machinery are in the nominated area. The large, deep underground mine, which is still worked, and its processing machinery are excluded.

Sewell Mining Town is a 20th century mining town developed high in the Andes Mountains to exploit on a large scale extensive natural copper resources with new, cutting edge smelting technologies. It reflects the boom in copper production made possible by the investment of large amounts of American capital that gave Chile it pre-eminence as a cooper producer by the 1920s, a role that it still maintains.

Chile hosts about 30% of the world's known copper resources. Copper mining in Chile now accounts for over 35% of global copper production and represents 40% of the country's economy.

Sewell Mining town, together with Chuquicamata and Potrerillos, were developed rapidly in the early years of the 20th century by large American corporations, Andes Copper, the Braden Copper Company and the Chile Exploration company, Chuquicamata.

Sewell was itself developed by the Braden Copper Company. It was named after Barton Sewell, the first president of Braden Copper. At its height, it housed 15,000 inhabitants.

Sewell is a 'planted' town, reflecting architectonic and urban design imported from America. The buildings consist of both mining and domestic buildings constructed by the Braden Company. Sewell, unlike many other mining settlements, thrived continuously throughout its working life from 1904 until it became run down in the 1970s when miners were moved to Rancagua. The orderly withdrawal means that the remaining buildings were not abandoned to become ruinous, as is the case in many mining settlements, and most are still in reasonable condition, with some adapted to other uses.

Underground mining of the rich copper seams still continues in the area, and there is some processing of the ore in the concentrator in the town, but this will cease in

2006. The mine workings are not included in the nomination and there is no access to them through the nominated Sewell Mining town.

In detail the nomination consists of the following attributes:

Town Planning
Industrial Buildings
Non- industrial buildings
Domestic buildings
Social and service buildings

These are considered in turn:

Town planning

The town clings to the mountainside which is devoid of vegetation. The model for the town was drawn up by the company in the United States, but had to be modified to cope with the extreme geographical conditions.

The whole town is built around a large central staircase rising from the railway station. Along its route formal squares of irregular shape were established embellished by the company with ornamental trees and plants. These comparatively small spaces were the main public spaces or squares of the town. Off the central staircase, paths ran along the contours leading to smaller squares and secondary staircases linking the many different levels.

The layout of the town was hierarchical with the houses for company workers reflecting three different categories: Class A for executive personnel, mostly north Americans, Class B for staff in supervisory positions and Class C for labourers.

The industrial buildings are largely located on the shadier south slope, while the residential areas cover the west facing slope that was found from experience to be the most stable area, least prone to avalanches and the one catching the most sun. Social buildings are intermixed with residential buildings.

Industrial buildings

The nominated site contains 63 industrial buildings. Of these, five are located in the Rancagua-Sewell railway station and were storerooms, boiler shop and foundry.

The remainder belong to the Concentrator complex which is where ore and minerals extracted from the mine were ground, (either dry through dry trituring or milled, a wet process) and then concentrated, a process which separates the copper from the rest of the ore using chemical reagents in a flotation process, with the copper adhering to air bubbles and floating to the surface. The concentrate is later smelted and refined.

The present concentrator, built of concrete and steel, was installed in 1915 and is still operating, processing 25% of the ore mined in el Teniente. It is planned to shutdown the concentrator in 2006 and turn it into a museum exhibit. All ore will then be concentrated at the Colon concentrator some 9 km from the site.

Ore arrives at the concentrator located at the highest point of the complex on a train from inside the mine. It is processed through the mills. These include grinders and thickening tanks.

Non-industrial buildings

There are a total of 24 non-industrial buildings on the site.

They were built using the platform timber frame system originating in Canada and the United States in the mid 19th century. Each storey rests on the lower storey of vertical diaphragms and horizontal frames. In Sewell, five is the maximum number of stories. Roofs are of galvanised iron and the external walls plastered and painted.

Until the 1940s, the construction drawings for Sewell were prepared in the United States. Initially, even the timber for its buildings was imported, until the company sourced local supplies. The layout, however, had to be modified from the standard grid pattern employed in other towns to suit the almost precipitous terrain.

Domestic buildings

The majority of surviving domestic buildings are in class B – for staff in supervisory positions. These are located in the centre of the town close to the central staircase. Most are double-faced with a central corridor. They are 3, 4, or 5 stories in height and housed many families, each occupying between 60 and 82 square meters of space.

Class C buildings were sited on the outskirts of the town. Of 4 or 5 stories, they provided collective accommodation for labourers with families and for single workers, dormitories with bunks and lockers for six people.

None of the family houses for class A personnel survive, only one class A boarding house which provided individual bedrooms with bathrooms. This sector of the town was demolished in the 1970s (see below).

Social & Service buildings

To the west of the town is the railway station and adjoining warehouses. To the north is the Old Hospital, the largest non-industrial building in the town. Prominently sited near one of the squares is the Industrial School, constructed in 1936 with a curved and stepped façade in the Modernist style. Several social buildings remain, including a Bowling Alley, Social Club, the Teniente club and a Theatre and Cinema, although only a part of the latter still exists. The comparatively small Catholic Church constructed in 1927 lies to the south of the housing.

History

The existence of the el Teniente copper deposits seems to have been known and mined in pre-Hispanic times. During the 15th - 17th centuries, raw materials were exported by the Spanish and then for two hundred years there was little activity. In 1897 the then owner of the mining rights initiated a survey of the copper seams in the area. On discovering the huge potential of the site, and the fact that extracting the copper would require great investment, an approach was made in 1903 to the North American mining engineer William Braden who had taken part in the Great Exhibition in Santiago in 1894.

Braden arrived in Chile the following year, 1904, and begun acquiring the property. Almost immediately a road was constructed to the nearest railway line at Rancagua. Braden joined forces with E W Nash, President of the American Smelting and Refining Company and with

Barton Sewell, the founder and Vice-President, they created the Braden Copper Company.

Over the next two years the infrastructure was developed, customs exemption agreed by the government of Chile for the large amounts of machinery to be imported from the US, and the mine equipped. By 1906, the first mill and concentrator had been erected, a lift established and an electricity generator installed. All these works involved what was then cutting edge technology, but in an extremely remote and hostile environment which initially led to set-backs. However, mining was officially authorised and begun in 1905.

In 1909 the recession in the US led to financial difficulties and fresh funds were injected by a company belonging to the Guggenheim brothers who took overall control in 1915 and the Braden Copper Company became a subsidiary of Kennecott Copper Corporation.

The operation base for the company was located at Rancagua which developed rapidly as a town. In 1917, the old foundry at Sewell was replaced by a more modern one in Caletones, where a new town also developed.

Although the company was prosperous, conditions for the mine workers in terms of industrial safety was not good. In 1945 a major, tragic, disaster occurred which spotlighted the problems: a fire in the entrance to the mine sent smoke to the galleries below choking 355 workers to death. The 'Smoke Tragedy' led to a government investigation and a widespread national debate on the inadequacy of safety legislation and the power wielded by foreign companies. The company responded by developing a large department of industrial safety.

By the 1950s Chile had become the second largest copper producer in the world. As a result of 'Chilenization' in 1967, the Government of Chile gained a 51% share of the mine and in 1971 the industry was nationalised and the company became a division of the Copper Corporation of Chile. This brought changes such as the El Teniente Club becoming the miners' cafeteria and the class A housing and other buildings being demolished.

At this time a decision was taken to move the population of Sewell further down the valley, in order to provide better facilities.

The town was abandoned as a mining settlement in 1980, remaining in partial use as a dormitory for contractors' personnel, and this led to the modification of some of the buildings and further demolition of others.

Demolition was finally halted at the end of the 1980s and in 1998 the town was declared a national monument.

The mine however still functions and el Teniente division of the Copper Corporation now produces 3% of the worlds' copper.

Protection and Management

The town belongs to the el Teniente Division of the National Copper Corporation.

Legal provision:

The town was declared a national monument in 1998 in the category of Typical and Picturesque zone.

Management structure:

The town is managed by personnel from the National Copper Corporation, Codelco-Chile, under the supervision of their Architecture and Construction unit. In 1999 a cooperation agreement was signed between the National Monument Council and the Codelco-Chile. This was for three years and renewable, and is still in force. Priorities were established as preparing an encroachment plan for the setting of the town; preparing a heritage restoration plan, and sponsoring a nomination for World Heritage status.

The Strategic Plan for the Conservation and Diffusion of Sewell was prepared in 1999. This aimed to develop Sewell's tourist and cultural focus with community participation. It puts in place lines of action dealing with conservation, promotion of knowledge, establishing a museum, economic sustainability, strategic alliances, and the setting up of a Sewell Foundation to optimise the resources of the town – approved in 2004 – to take over the town and its management. This will be functioning in 2006. The Sewell Foundation will be a not-for-profit foundation and unlike Codelco-Chile, will have a mandate to raise funds for the town. Codelco-Chile will be represented on the Board, as will representatives of all other key stakeholders. Codelco-Chile will 'loan' the assets of Sewell town to the Foundation for an indefinite period.

The positive impact of the Strategic plan paved the way for the development of a Management Plan for the site. This was started in 2004 and submitted in January 2006. It is in Spanish. The Plan sets out a detailed Action Plan for the restoration and conservation of the remaining domestic and industrial buildings and the staircases around the site as well as addressing cultural tourism approach to the site.

Currently the National Monuments Council supervises compliance with protective legislation. Starting in 2006, the Sewell Foundation will take over responsibility.

Resources:

The Copper Corporation has resourced the first stages of the Strategic Plan amounting to $250,000 per annum. From 2006, the Sewell Foundation will take over responsibility and the company has agreed to continue its funding for a further 8 years.

Justification of Outstanding Universal Value by State Party (summary)

The Sewell Mining town is the first of its type in Chile to be associated with copper and so is seen as the birthplace of the copper mining industry. It reflects the impact of globalization on the copper industry and the diffusion of huge investments of capital, from already industrialized nations, with local labour resources.

Sewell is the only permanent (in the sense of families living there year round) mountain industrial mining settlement of considerable size in the 20th century. Its planning of standard company buildings around a series of steep staircases, gives it both uniqueness and standardization.

The settlement testifies to the enormously difficult conditions in which miners work at a high altitude and in a

harsh climate and has come to be imbued with profound significance.

The mixture of cultures of the US company and Chilean workers, created dialogue, understanding but also conflicts which have given the site an emblematic character.

4. EVALUATION

Conservation

Conservation history:

In 1999, a year after Sewell was declared a national monument, the Chile Foundation was commissioned by Codelco-Chile to prepare a Strategic Action Plan for the Conservation of Sewell. This was to deliver a realistic proposal for the conservation of the town as a tourist destination. This plan guided the town's restoration between 1998 and 2004. To achieve this, Codelco-Chile signed a cooperation agreement with the National Monuments Council to conserve copper mining heritage in general and in particular to work at Sewell. In the 6 years, 18 buildings and some external spaces were restored externally, and some buildings such as the Teniente Club, Cafeteria, and Industrial School, now used as a Museum, were also restored internally. The total cost of the work was US $1.8 million.

State of conservation:

All the mining machinery included in the nominated area is still in working order and is therefore in optimal condition.

A detailed analysis of the state of conservation of the remaining buildings and structures is included in the nomination. This shows that for industrial buildings, 70% are in good condition, 25% are in mediocre condition and only 5% in a poor state of repair.

For non-industrial buildings, 88% are in a good state of conservation, 12% in a mediocre state and none in a poor state.

The state of conservation of the pubic spaces is stated as mediocre to good.

Protection and Management:

The *Strategic Plan for the Conservation and Diffusion of Sewell*, prepared in 1999, is a very detailed, thorough and involving plan which had a high degree of public participation, particularly from people associated with Sewell as a mining town.

The Plan has been successful in engaging the local community and municipalities in restoration work, and bringing on board tour operators to work in industrial heritage in a very remote location. It led in 2000 to the drafting of a regional tourism strategy.

The Management Plan drafted to follow on from the Strategic Plan is comprehensive and focused on sustainable preservation and rehabilitation for the built heritage at Sewell, through adaptive re-use. This policy is clearly a realistic one and the plan sets out parameters to guide decisions on types of re-use.

In order to ensure that evidence remains of how the buildings were originally used, ICOMOS suggests that a minimum number of original domestic units should be restored and exhibited to display their original function, as a testimony to the living conditions of the miners.

Risk Analysis:

- Abandonment of the settlement

Sewell is no longer a working town – no one has lived in it permanently since the end of the 1990s. A deliberate decision has been taken to turn it into a museum town. The degree of change brought about by new uses is a potential threat to be countered. The parameters set out in the Management Plan should ensure that an appropriate balance is kept. Sewell was a harsh place to live: the challenge will be to demonstrate this reality in the way that the buildings are adapted.

- Reduction of mining activities

The Sewell Concentrator is due to close down in 2006. This will bring to an end all mining activity in the nominated site. Mining will, however, still be undertaken in the deep mine nearby and the road to the town will be used by the mining company and therefore kept open. Although the removal of mining activity will ensure that development will be controlled, it will take away the last vestige of traditional activity from the town. The whole town will become a museum. The Management Plan will need to direct attention to the re-use of the buildings to ensure that traditional uses can be understood by visitors.

- Development pressures and tourism

Currently there is no development pressure as the town is no longer functioning. Tourism could promote the demand for new buildings, but the Strategic Plan addresses the need to protect the environs of the site. The number of visitors is at a manageable level and most are organised by tour operators. As the town is within a designated mining and industrial area, all visitors must have a permit to visit – something organised by tour operators.

- Environmental

Air pollution from the Caletones copper foundry six km to the west of Sewell was addressed in 1998 by a Government decree which has resulted in the Copper Corporation establishing a decontamination plan and the construction of two gas cleaning plants. Contamination of the Sewell site from this air pollution led to its abandonment for any form of permanent habitation at the end of the 1990s. This could be lifted in the near future.

The hostile climate – particularly snow and avalanches – can cause difficulties. Metal poles have been installed in the hills around to try and break up moving snow.

Although Sewell is sited in an area of earthquake activity – as is the whole of central Chile – there is no history of activity in Sewell.

Authenticity and integrity

Authenticity:

What remains of the town was subject to some internal alterations in the 1980s after the mining community left, to accommodate contractors, but much of these alterations are reversible. The buildings that have survived with the

recent careful restoration work have kept sufficient of their construction, layout and features to give them authenticity as part of the company town. Care will need to be taken with adaptive reuse that evidence of former uses is conserved.

Integrity:

The Sewell mining town reached its zenith in the 1960s. In the two decades that followed a considerable part of the town was destroyed. It is the nucleus that remains. Clearly the town as a whole has not survived as an entity, as complete sectors such as the class housing have been demolished. What remains reflects the hierarchical layout of the mining town, with its circulation staircases and zoned housing, built to a standard model. Many of the service buildings also survive. The structures are reasonably intact, some having been restored. Visitors to the town can gain an understanding of the way the town was structured and the relationship between what remains and what has been lost.

Comparative evaluation

Sewell is a remote 20th century company mining town, formed with foreign capital with the use of local workers, and with distinctive spatial characteristics that reflect social hierarchies and the mountainous nature of the terrain in which it was built.

The nomination draws attention to the fact that it was not promoted by a philanthropist, nor designed by individual architects: rather its development was the result of adapting formal plans to the challenging terrain and climate of the Andes. It thus reflects pragmatic solutions by a company to establishing a functioning urban complex for its workers in a hostile environment.

Within Chile, Sewell can be compared with other copper mining towns such as Chuquicamata and Potrerillos in the Desert of Atacama. Both are larger than Sewell. Because of the different, much flatter, terrain, the towns developed around main squares with rectangular grid patterns. All three were however hierarchical in terms of the way zones for housing were laid out. Chuquicamata and Potrerillos were abandoned in the 1990s and in both cases the buildings have suffered as a result. Sewell now remains the best preserved of these three.

The nomination also refers to the Chilean saltpetre towns of Humberstone and Santa Laura, already inscribed on the World Heritage list. In terms of structures alone the comparison is limited: the value of Humberstone and Santa Laura arises from the fact that much of the machinery survives, but also because saltpetre was only mined in Chile and contributed to an agricultural revolution around the world. In these towns too, the miners contributed to landmark changes in employment conditions. Sewell town on the other hand is one of many copper towns around the world and was not distinguished by battles to change working standards.

Looking outside Chile, comparison can be made with other mining company towns set up by the Sewell Company such as the Kennecott copper mining town in Alaska. This has many similarities such as an isolated situation and wooden buildings, but it is smaller than Sewell and less well preserved.

Around the world, there are many other isolated mining towns set up by companies for various types of mining with significant integrity. Company towns in Queensland, Australia, which recently ceased mining precious metals, are similar in size, social complexity and age to Sewell, and more intact. At the Lake Superior Copper District in Michigan, large complex settlement developed in an isolated area prone to heavy snow. Other mining communities such as Butte and Anaconda in Montana, and Douglas and Bisbee in Arizona also reflect similar characteristics to Sewell such as social hierarchies. These examples underline the fact that mining complexes set up in remote hostile environments and reflecting a corporate mining mentality are a world-wide phenomenon.

Sewell is part of this world-wide phenomena. Its distinctiveness lies in a combination of factors none of which are unique: its location and the way it reflects the adaptation of a standard company town to a hostile environment, its establishment with foreign capital and foreign technologies, the use of a local workforce and the fact that much of it has survived. As a prosperous town, it also contributed to the global spread of large-scale mining technology and the success of the copper industry in South America. As such it is seen as an exemplar of a 20th company town.

Outstanding universal value

General statement:

Sewell mining town is of outstanding universal value as an exemplar of early 20th century company mining towns, set up with foreign investment and foreign technologies but adapted to the local terrain and employing a local workforce. It reflects the early, global spread of large-scale mining technology and the prosperity of copper mining in South America.

Evaluation of criteria:

The Sewell Mining Town is nominated on the basis of criteria ii, iii and v.

Criterion ii: Sewell as a distinctive mining town was developed through imported technology, investment and building materials. It is difficult to see how the establishment of Sewell has had a significant impact upon practices in other regions – either through town planning, technology or indirect economic benefits. The technology was widely used, the town plan seems to be a unique and practical response to the environment and Sewell was one part of a much larger copper industry around the world. Sewell did not contribute to any exchange of economic, social or cultural capital in other parts of the world.

Sewell does, however, exhibit the influence of foreign capital, foreign equipment and buildings imported from North America. It can be seen as an exemplar of global phenomena, company towns established through a fusion of local labour with resources from already industrialised nations, which contributed to the global spread of large-scale mining technology. In this sense ICOMOS considers that the property meets this criterion.

Criterion iii: To justify this criteria Sewell would need to show that it was a unique part of a cultural tradition or civilisation – from the point of view of technology, social

structures or economic development. Although the spatial layout of the town is possibly unique, this was a response to environmental conditions rather than being part of a wider cultural tradition or reflecting unique cultural traditions. ICOMOS considers that the property does not meet this criterion.

Criterion v: Although Sewell is possibly unique from the point of view of its spatial layout, and has certainly become vulnerable under irreversible change, so too have many mining settlement around the world. Even in terms of copper cites, there are other comparable examples that reflect the way copper mining was organised in the 20th century, such as in North America and Australia. ICOMOS considers that the property does not meet this criterion.

Criterion iv: This criterion was not suggested but should be considered. Sewell is a typical company town that was adapted to fit the hostile, high altitude mountainous environment. Its architecture was thus standardised in pattern, but unique in layout. It cannot be considered to be exceptional example, other than in terms of its location; rather it is a well preserved example of a company town that is part of a wider global phenomenon. ICOMOS considers that the property does not meet this criterion.

5. RECOMMENDATIONS

Recommendations

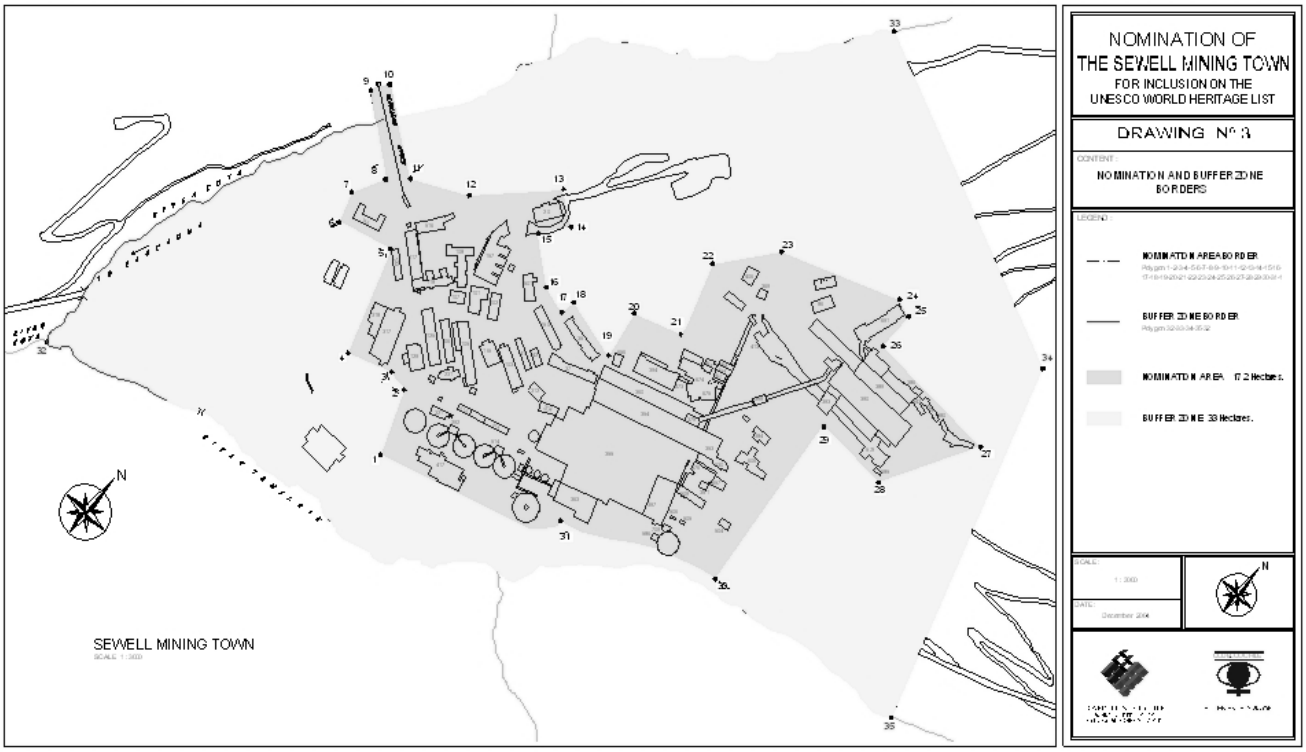
ICOMOS commends the State Party for the detailed nomination dossier. In continuing the restoration of the buildings in Sewell, it supports the principle of adaptive re-use, but recommends that a minimum number of dwelling units be restored rather than adapted to display the realities of mining life in the town and to keep sufficient of the internal layout- of the buildings to ensure that their original functions can be discerned.

Recommendation with respect to inscription

ICOMOS recommends that The Sewell Mining Town, Chile, be inscribed on the World Heritage List on the basis of ***criterion ii***:

Criterion ii*:* Sewell town in its hostile environment is an outstanding exemplar of the global phenomena of company towns, established in remote parts of the world through a fusion of local labour with resources from already industrialised nations, to mine and process high value copper. The town contributed to the global spread of large-scale mining technology.

ICOMOS, April 2006



Map showing the boundaries of the property

View of the town

Concentrator

Class C housing

Ville minière de Sewell (Chili)

No 1214

1. IDENTIFICATION

État partie : Chili

Bien proposé : Ville minière de Sewell

Lieu : Sixième région, *Región del Libertador Bernardo O'Higgins*, province de Cachapoal, municipalité de Machali

Date de réception par le Centre du patrimoine mondial : 24 janvier 2005

Inclus dans la liste indicative : 1er septembre 1998

Assistance internationale au titre du Fonds du patrimoine mondial pour la préparation de la proposition d'inscription : Non

Catégorie de bien :

En termes de catégories de biens culturels, telles qu'elles sont définies à l'article premier de la Convention du Patrimoine mondial de 1972, il s'agit d'un *site*. Aux termes des *Orientations devant guider la mise en œuvre de la Convention du patrimoine mondial* (2 février 2005), paragraphe 47, il pourrait s'agir aussi un *paysage culturel*.

Brève description :

La ville minière de Sewell, à 2.000 mètres d'altitude dans les Andes sous un climat extrême, fut construite par la *Braden Copper Company* au début du XXe siècle, pour loger toute l'année durant les ouvriers de ce qui était alors la plus grande mine souterraine de cuivre au monde, El Teniente.

C'est une ville toute en escaliers, avec des rues trop en pente pour permettre la circulation de véhicules à roues. Ses édifices en bois, basés sur les modèles américains et dont beaucoup arborent de vifs tons de vert, jaune, rouge et bleu, dévalent les pentes abruptes de la ville.

Les vestiges de Sewell, quasi abandonnée depuis les années 1970, témoignent de la fusion entre les ressources humaines et minérales, d'une révolution technologique dans la fonderie et d'énormes investissements de capitaux américains, qui permirent la production de cuivre à grande échelle et favorisèrent la prédominance du Chili dans ce secteur. Ils reflètent également le grand rôle socio-économique que joua et que continue de jouer l'industrie minière du cuivre dans la vie du pays.

2. ACTIONS

Antécédents : Il s'agit d'une nouvelle proposition d'inscription. Des informations supplémentaires envoyées par l'État partie ont été reçues le 18 janvier 2006.

Date de la mission d'évaluation technique : 2-6 septembre 2005

Dates de demande d'information complémentaire et d'envoi par l'État partie : Aucune

Consultations : l'ICOMOS a consulté son Comité scientifique international sur la patrimoine du XXe siècle et le TICCIH.

Littérature : Garcés, Eugenio, *Las ciudades del cobre. Del campamento de montaña al hotel minero como variaciones de la company town*, in *EURE (Santiago)* vol 29 no 88, Santiago 2003 ; Garcés, E. et al. *Sewell asentamiento minero* (1904 hasta la actualidad) in *Arquitectura Panamericana*, 001: 104-117, 1992.

Date d'approbation de l'évaluation par l'ICOMOS : 15 janvier 2006

3. LE BIEN

Description

La ville minière de Sewell se trouve à environ 2 300 mètres d'altitude dans la Cordillère des Andes, à 60 km à l'est de Rancagua, elle-même à 85 km au sud de Santiago, la capitale. La ville, sur les versants du mont Cerro Negro, surplombe le confluent de la Coya et de El Teniente. Le site proposé pour inscription couvre 17,2 hectares et est entouré d'une zone tampon de 33 hectares.

La zone proposée pour inscription comprend la ville et une partie de la machinerie industrielle. La vaste mine souterraine, très profonde et toujours en exploitation aujourd'hui, est exclue, ainsi que sa machinerie.

Sewell est une ville minière du XXe siècle bâtie en hauteur dans les Andes pour exploiter à grande échelle les importantes ressources naturelles de cuivre avec de nouvelles technologies de fonderie, à la pointe pour l'époque. Elle reflète l'essor de la production de cuivre rendue possible par l'investissement considérable de capitaux américains qui donnèrent au Chili sa place prépondérante dans la production de cuivre dès les années 1920, un rôle qu'il conserve à ce jour.

Le Chili possède environ 30 % des ressources en cuivre connues dans le monde. L'exploitation du cuivre au Chili représente plus de 35 % de la production mondiale de cuivre, et 40 % de l'économie du pays.

La ville minière de Sewell, avec Chuquicamata et Potrerillos, fut bâtie rapidement au tout début du XXe siècle, par trois grandes sociétés américaines, *Andes Copper*, *Braden Copper Company* et la compagnie d'exploration chilienne de Chuquicamata.

Sewell fut développée par la *Braden Copper Company*. Elle fut baptisée d'après Barton Sewell, premier président de Braden Copper. À son apogée, elle comptait 15 000 habitants.

Sewell est une ville « implantée » qui reflète des conceptions architectoniques et un urbanisme importés d'Amérique. Les bâtiments comprennent à la fois des bâtiments miniers et des logements construits par la *Braden Company*. *Sewell*, contrairement à bien d'autres peuplements miniers, prospéra sans interruption tout au long de ses années de travail, de 1904 jusqu'à son abandon dans les années 1970, époque à laquelle les mineurs furent transférés à Rancagua. Du fait de ce retrait bien organisé, les bâtiments restants ne tombèrent pas en ruines après leur abandon comme ce fut le cas dans quantité de peuplements miniers, et beaucoup demeurent dans un état raisonnable, certains ayant été adaptés pour d'autres fonctions.

L'exploitation minière souterraine des riches gisements de cuivre de la région continue, et le concentrateur de la ville traite encore du minerai, mais ces activités prendront fin en 2006. Les installations minières ne sont pas incluses dans la proposition d'inscription, et aucun accès n'y conduit depuis la ville minière de Sewell.

Dans le détail, la proposition d'inscription se compose des caractéristiques suivantes :

Urbanisme

Bâtiments industriels

Bâtiments non industriels

Logements

Bâtiments sociaux et bâtiments de services

Ces éléments sont considérés les uns après les autres.

Urbanisme

La ville est accrochée à flanc de montagne, dans une zone dénuée de végétation. Le modèle de la ville fut conçu par la compagnie aux Etats-Unis mais elle dut cependant le modifier du fait des conditions géographiques extrêmes.

La ville toute entière est construite autour d'un grand escalier central partant de la gare ferroviaire. Tout le long, des places de formes irrégulières furent édifiées, embellies par la compagnie d'arbres et de plantes d'ornement. Ces espaces de taille relativement réduite étaient les principaux espaces publics et squares de la ville. Des allées partent de l'escalier central pour mener à ces petites places et à des escaliers secondaires reliant entre eux les nombreux niveaux.

Le tracé de la ville a été hiérarchisé, les maisons reflétant les trois catégories de personnel de la compagnie : les maisons de catégorie A, destinées au personnel dirigeant, essentiellement nord-américain, les maisons de catégorie B pour le personnel d'encadrement et celles de catégorie C pour les ouvriers.

Les bâtiments industriels sont en grande partie situés sur le versant sud, plus ombragé, tandis que les quartiers résidentiels couvrent le versant ouest, jugé par expérience comme étant le plus stable, le moins enclin aux avalanches et le plus ensoleillé. Des bâtiments sociaux sont associés aux bâtiments résidentiels.

Bâtiments industriels

Le site proposé pour inscription abrite 63 bâtiments industriels. Sur ceux-ci, cinq sont situés dans la gare ferroviaire Rancagua-Sewell ; il s'agissait d'entrepôts, d'une chaudronnerie et d'une fonderie.

Les autres appartiennent au concentrateur, le complexe où le minerai et les minéraux extraits de la mine étaient broyés (soit par triturage à sec, soit par broyage, un procédé humide) puis concentrés par un processus séparant le cuivre du reste du minerai à l'aide de réactifs chimiques et d'un procédé de flottation, le cuivre adhérant aux bulles d'air et remontant à la surface. Le concentré était ensuite fondu et raffiné.

Le concentrateur actuel, fait de béton et d'acier, fut installé en 1915. Toujours en activité, il traite 25 % du minerai extrait à El Teniente. On prévoit cependant de le fermer en 2006 et d'en faire une pièce de musée. Le minerai sera alors traité dans sa totalité au concentrateur de Colón, à 9 km du site.

Le minerai arrive au concentrateur au point le plus haut du complexe, par un train partant de l'intérieur de la mine. Il y est traité dans les installations, comprenant des broyeurs et des épaississeurs.

Bâtiments non industriels

Il y a au total 24 bâtiments non industriels sur le site.

Ils furent construits sur le modèle de la charpente à plate-forme de bois né au Canada et aux États-Unis au milieu du XIXe siècle. Chaque étage s'appuie sur l'étage inférieur, composé de diaphragmes verticaux et de cadres horizontaux. Aucun bâtiment de Sewell ne dépasse cinq étages. Les toits sont en tôle galvanisée, et les murs extérieurs recouverts d'enduit et peints.

Jusque dans les années 1940, les plans de construction de Sewell étaient préparés aux États-Unis. Au départ, même le bois de construction était importé, jusqu'à ce que la compagnie s'approvisionne auprès de fournisseurs locaux. Le plan en damier standard des autres villes a cependant dû être modifié, pour l'adapter au terrain quasiment à pic.

Logements

La majorité des bâtiments domestiques qui subsistent sont des bâtiments de catégorie B, destinés au personnel d'encadrement. Ils se trouvent dans le centre-ville, à proximité de l'escalier principal. Ils ont pour la plupart deux façades, avec un couloir central. Ils se dressent sur 3, 4 ou 5 étages, et abritaient de nombreuses familles, chacune occupant entre 60 et 82 m².

Les bâtiments de catégorie C étaient situés à la périphérie de la ville. Hauts de 4 ou 5 étages, ils fournissaient des logements collectifs aux ouvriers et à leurs familles. Les ouvriers célibataires étaient logés dans des dortoirs pour six personnes, pourvus de couchettes et de placards.

Il ne reste aucune des maisons familiales destinées au personnel de catégorie A ; le seul logement de cette catégorie qui reste était une pension, proposant des chambres individuelles avec salle de bains. Ce quartier de la ville a été démoli dans les années 1970 (voir ci-après).

Bâtiments sociaux et bâtiments de services

À l'ouest de la ville se trouvent la gare ferroviaire et les entrepôts adjacents, au nord l'ancien hôpital, le plus grand bâtiment non industriel de la ville. Située bien en vue à proximité d'une des places, l'école industrielle construite en 1936, dotée d'une façade incurvée, avec un perron, présente un style moderniste. Plusieurs bâtiments sociaux subsistent, notamment un bowling, un club, le club Teniente, et une salle de théâtre et de cinéma, quoiqu'il ne reste plus qu'une partie de cette dernière. Une église catholique relativement petite, construite en 1927, se trouve au sud des logements.

Histoire

Le gisement de cuivre de El Teniente semblait déjà connu et exploité à l'époque pré-hispanique. Du XVe au XVIIe siècle, les Espagnols exportèrent des matières premières ; pendant les deux cents années qui suivirent, l'activité décrut. En 1897, le propriétaire des droits d'exploitation minière entama une étude des gisements de cuivre dans la zone. À la découverte de l'immense potentiel du site et des investissements considérables que nécessiterait l'extraction du cuivre, on contacta en 1903 l'ingénieur minier nord-américain William Braden, qui avait pris part à l'Exposition Universelle de Santiago en 1894.

Braden arriva au Chili l'année suivante, en 1904, et se lança dans le rachat de la propriété. Quasi immédiatement, une route menant à la ligne de chemin de fer la plus proche, à Rancagua, fut construite. Braden unit ses forces à celles de E.W. Nash, président de la *American Smelting and Refining Company* et à celles de Barton Sewell, fondateur et vice-président. Ensemble, ils créèrent la *Braden Copper Company*.

En l'espace de deux ans, l'infrastructure fut développée, des exonérations douanières accordées par le gouvernement du Chili pour la multitude de machines à importer depuis les États-Unis et la mine équipée. Dès 1906, le premier broyeur et le premier concentrateur étaient en place, de même qu'un ascenseur et un générateur électrique. Tous ces travaux nécessitaient de faire appel à ce qui était alors une technologie de pointe, et ce dans un environnement des plus isolés et des plus hostiles, ce qui entraîna au début des retards. Enfin, l'extraction minière fut officiellement autorisée et commença en 1905.

En 1909, la récession aux États-Unis entraîna des difficultés financières et des capitaux frais y furent injectés par une compagnie appartenant aux frères Guggenheim, qui en prirent le contrôle total en 1915. La *Braden Copper Company* devint alors une filiale de *Kennecott Copper Corporation*.

La base d'opération de la compagnie se trouvait à Rancagua, ville en plein essor. En 1917, l'ancienne fonderie de Sewell fut remplacée par une autre plus moderne à Caletones, où une nouvelle ville se développait aussi.

En dépit de la prospérité de la compagnie, les conditions de travail des mineurs, en termes de sécurité industrielle, étaient loin d'être bonnes. En 1945, une catastrophe tragique mit en évidence les problèmes : un incendie qui s'était déclaré à l'entrée de la mine envoya de la fumée dans les galeries en deçà, et 355 ouvriers périrent asphyxiés. La « tragédie de la fumée », entraîna une enquête des pouvoirs publics et un vaste débat national sur l'insuffisance de la législation en matière de sécurité et sur le pouvoir exercé par les sociétés étrangères. La compagnie y réagit en créant un important département de sécurité industrielle.

Dans les années 1950, le Chili était devenu le deuxième producteur de cuivre dans le monde. Suite à la « chilénisation » en 1967, le gouvernement du Chili acquit une part de 51 % dans la mine ; en 1971, l'industrie tout entière fut nationalisée et la compagnie devint une division de la compagnie chilienne du cuivre. Des changements survinrent dans le sillage de la nationalisation ; ainsi, le club El Teniente devint la cafétéria des mineurs, et les logements de catégorie A, ainsi que d'autres bâtiments, furent démolis.

La décision fut alors prise de transférer la population de Sewell plus bas, dans la vallée, afin de lui fournir de meilleures installations.

La ville fut abandonnée en tant que peuplement minier en 1980, demeurant partiellement utilisée comme ville dortoir pour le personnel des entrepreneurs, ce qui entraîna la modification de certains des bâtiments et de nouvelles démolitions.

La démolition prit fin à la fin des années 1980 et, en 1998, la ville fut déclarée monument national.

La mine reste cependant en activité et la division El Teniente de la Compagnie du cuivre produit aujourd'hui 3 % de la totalité du cuivre mondial.

Protection et gestion

La ville appartient à la division El Teniente de la Compagnie nationale du cuivre.

Dispositions légales :

En 1998, la ville a été déclarée monument national, dans la catégorie des zones typiques et pittoresques.

Structure de la gestion :

La gestion de la ville est confiée à du personnel de la Compagnie nationale du cuivre, Codelco-Chile, sous la direction de leur division Architecture et Construction. En 1999, le Conseil des monuments nationaux et Codelco-Chile ont signé un accord de coopération. Celui-ci, valable pour trois ans et reconductible, demeure en vigueur. Des priorités ont été établies : préparer un plan de protection contre l'empiètement pour le cadre de la ville, préparer un plan de restauration du patrimoine et parrainer une

proposition d'inscription sur la Liste du patrimoine mondial.

Le plan stratégique de conservation et de diffusion de Sewell a été élaboré en 1999 ; il vise à développer l'axe touristique et culturel de Sewell, avec la participation de la communauté. Il met en place des lignes d'action traitant de la conservation, de la promotion du savoir, de l'établissement d'un musée, de la durabilité économique, des alliances stratégiques et de la création d'une fondation Sewell pour optimiser les ressources de la ville (création approuvée en 2004) et pour assumer la responsabilité de la ville et de sa gestion. Il entrera en action en 2006. La fondation Sewell sera une fondation à but non lucratif et, contrairement à Codelco-Chile, disposera d'un mandat lui permettant de lever des fonds pour la ville. Codelco-Chile siègera au Conseil d'administration, aux côtés des représentants de toutes les autres principales parties prenantes. Codelco-Chile « prêtera » les actifs de la ville de Sewell à la Fondation, et ce pour une période indéterminée.

L'impact positif du plan stratégique a ouvert la voie au développement d'un plan de gestion pour le site, qui a vu le jour en 2004 et a été soumis en janvier 2006. Il est rédigé en espagnol. Il expose un plan d'action détaillé pour la restauration et la préservation des bâtiments domestiques et industriels qui subsistent et les escaliers autour du site, tout en définissant une approche du site axée sur le tourisme culturel.

Actuellement, le Conseil des monuments nationaux surveille le respect de la législation de protection. À partir de 2006, la future fondation Sewell prendra le relais.

Ressources :

La Compagnie du cuivre a financé les premières phases du plan stratégique, à hauteur de 250 000 $ par an. À partir de 2006, la fondation Sewell assumera cette responsabilité, et la compagnie s'est engagée à continuer d'apporter des fonds pendant encore 8 ans.

Justification de la valeur universelle exceptionnelle émanant de l'État partie (résumé)

La ville minière de Sewell est la première de son genre au Chili associée au cuivre et, à ce titre, elle est considérée comme le berceau de l'industrie minière du cuivre. Elle illustra les effets de la mondialisation sur cette industrie et la diffusion d'investissements colossaux venus des nations déjà industrialisées, parallèlement au recours à de la main d'œuvre locale.

Sewell est le seul peuplement minier permanent (au sens où des familles entières y vivent toute l'année durant) de taille considérable établi en montagne au XXe siècle. Sa conception d'édifices standards associés à la mine construits autour d'une série d'escaliers pentus lui confère à la fois un caractère exceptionnel et de normalisation.

Ce peuplement témoigne des conditions incroyablement difficiles dans lesquelles travaillent les mineurs, à haute altitude et dans un climat rigoureux, et a pris à ce titre une signification profonde.

Le mélange des cultures de la compagnie américaine et des ouvriers chiliens a engendré dialogue et compréhension, mais aussi des conflits qui ont donné au site un caractère emblématique.

4. ÉVALUATION

Conservation

Historique de la conservation :

Sewell a été déclarée monument national en 1999. Un an après, Codelco-Chile a mandaté la fondation du Chili pour préparer un plan d'action stratégique pour la conservation de Sewell. Il s'agissait de donner naissance à une proposition réaliste de conservation de la ville en tant que destination touristique. Ce plan a guidé la restauration de la ville entre 1998 et 2004. Pour y parvenir, Codelco-Chile a signé un accord de coopération avec le Conseil des monuments nationaux, visant la conservation du patrimoine minier du cuivre en général et les travaux à Sewell en particulier. Sur ces 6 années, les façades de 18 édifices et certains espaces en plein air ont été restaurés, tandis que l'intérieur de certains bâtiments comme le Teniente Club, la Cafétéria et l'École industrielle, qui sert aujourd'hui de musée, était également restauré. Les travaux ont coûté au total 1,8 million de dollars.

État de conservation :

Toutes les machines d'exploitation minière incluses dans la zone proposée pour inscription sont toujours en état de marche, et donc dans une condition optimale.

La proposition d'inscription comprend une analyse détaillée de l'état de conservation des bâtiments et des structures restantes. Elle montre que 70 % des bâtiments industriels sont en bon état, 25 % dans un état médiocre et 5 % seulement en mauvais état.

En ce qui concerne les bâtiments à usage non industriel, 88 % sont en bon état, 12 % dans un état médiocre et aucun en mauvais état.

Il est indiqué que l'état de conservation des espaces publics est entre médiocre et bon.

Protection et gestion :

Le plan stratégique de conservation et de diffusion de Sewell, préparé en 1999, est un plan très détaillé et complet impliquant une forte participation publique, particulièrement de la part des personnes associées à Sewell en tant que ville minière.

Le plan a réussi à susciter l'engagement de la communauté locale et des municipalités dans le travail de restauration, et à inciter les tours opérateurs à considérer le patrimoine industriel d'une région très isolée, d'où l'élaboration, en 2000, d'une stratégie touristique régionale.

Le plan de gestion élaboré suite à ce plan stratégique est exhaustif et axé sur la préservation durable et la réhabilitation du patrimoine bâti de Sewell, par sa réutilisation et son adaptation. Cette politique est clairement réaliste, et le plan définit des paramètres

d'orientation des décisions sur les divers types de réutilisation.

Pour qu'il reste cependant des témoignages de l'usage d'origine des bâtiments, l'ICOMOS suggère qu'un nombre minimum d'unités domestiques d'origine soient restaurées et présentées dans leur fonction d'origine, en témoignage des conditions de vie des mineurs.

Analyse des risques :

- Abandon du peuplement

Sewell n'est plus une ville en activité – personne n'y a vécu de façon permanente depuis la fin des années 1990. Il a donc été délibérément décidé d'en faire une ville musée. L'importance du changement apporté par les nouveaux usages est une menace potentielle à prendre en compte. Les paramètres définis dans le plan de gestion devraient assurer le maintien d'un équilibre approprié. Sewell était un lieu où il ne faisait pas particulièrement bon vivre : tout le défi sera d'illustrer cette réalité dans les modes d'adaptation des bâtiments.

- Diminution des activités minières

Le concentrateur de Sewell doit fermer en 2006, ce qui mettra un terme à toute activité minière sur le site proposé pour inscription. L'exploitation minière sera cependant entreprise dans la mine souterraine à proximité, et la route menant à la ville servira à la compagnie minière, restant de ce fait ouverte. Bien que la disparition de l'activité minière permettra de contrôler le développement, elle emporte avec elle le dernier vestige d'activité traditionnelle dans la ville, qui deviendra tout entière un musée. Le plan de gestion devra cibler ses efforts sur la réutilisation des bâtiments, afin d'assurer que les visiteurs puissent bien comprendre les usages traditionnels.

- Pressions liées au développement et au tourisme

Les pressions liées au développement sont actuellement inexistantes, la ville étant désaffectée. Le tourisme pourrait susciter une demande en nouvelles constructions, mais le plan stratégique traite de la nécessité de protéger les alentours du site. Le nombre de visiteurs est actuellement gérable, et la plupart s'y rendent dans le cadre d'excursions organisées par des tour opérateurs. Toute la ville s'inscrit dans une région minière et industrielle, que les touristes ne peuvent visiter sans permis – les tours opérateurs se chargeant de les leur obtenir.

- Pressions environnementales

La question de la pollution de l'air provoquée par la fonderie de cuivre de Caletones, à 6 km à l'ouest de Sewell, a été résolue en 1998 par un décret gouvernemental : la Compagnie du cuivre a dû instaurer un plan de décontamination et la construction de deux sites d'épuration du gaz. La contamination du site de Sewell par cette pollution aérienne a entraîné son abandon pour toute forme d'habitation permanente à la fin des années 1990. Cette situation pourrait changer dans un futur proche.

Le climat hostile - neige et avalanches, en particulier - peut créer des difficultés. Des pylônes métalliques ont été installés dans les montagnes alentours pour essayer de briser les avalanches.

Bien que Sewell se trouve dans une zone d'activité sismique, comme toute la région centrale du Chili, il n'existe aucun précédent d'activité à Sewell.

Authenticité et intégrité

Authenticité :

Les vestiges de la ville ont fait l'objet de quelques altérations internes dans les années 1980, après le départ de la communauté minière, pour les besoins des entrepreneurs, mais elles sont pour la plupart réversibles. Les bâtiments qui ont survécu, grâce à de récents travaux de restauration conduits avec précaution, ont conservé suffisamment de leur construction, de leur disposition et leurs caractéristiques pour conserver leur authenticité en tant que composantes de la ville minière. Il conviendra de veiller à conserver, dans le cadre de cette adaptation et réutilisation, des traces des anciens usages.

Intégrité :

La ville minière de Sewell a connu son apogée dans les années 1960. Dans les deux décennies qui suivirent, elle fut en grande partie détruite, et il n'en reste plus que le noyau. Il est clair que la ville dans son ensemble n'a pas survécu en tant qu'entité, des quartiers entiers, comme les logements de catégorie A, ayant été démolis. Ce qui reste reflète le schéma hiérarchique de la ville minière, avec ses escaliers et ses bâtiments regroupés par zone, selon un modèle de construction standard. Une bonne partie des bâtiments de service subsistent également. Les structures en sont raisonnablement intactes, certaines ayant été restaurées. Les visiteurs de la ville peuvent comprendre la structure de la ville de jadis et la relation entre ce qui susbiste et que l'on a perdu.

Évaluation comparative

Sewell est une ville minière isolée du XXe siècle, née grâce à des capitaux étrangers et utilisant des ouvriers locaux. Dotée de caractéristiques spatiales particulières, elle reflète la hiérarchie sociale et la nature montagneuse du terrain sur lequel elle a été édifiée.

La proposition d'inscription attire l'attention sur le fait qu'elle n'a pas été soutenue par un philanthrope, ni conçue par des architectes individuels. Son développement est plutôt le fruit de l'adaptation de plans formels au terrain et au climat difficile des Andes. En cela, elle reflète les solutions pragmatiques choisies par une compagnie pour fournir à ses ouvriers un complexe urbain fonctionnel dans un environnement hostile.

Au Chili, on peut comparer Sewell à d'autres villes minières du cuivre, telles que Chuquicamata et Potrerillos, dans le désert d'Atacama. Toutes deux sont plus grandes que Sewell. Du fait du terrain différent, beaucoup plus plat, ces villes se sont développées autour d'une place centrale, sur un plan en damier rectangulaire. Toutes les trois présentaient cependant un même schéma hiérarchique en termes de disposition des quartiers résidentiels.

Chuquicamata et Potrerillos ont été abandonnées dans les années 1990 et, dans les deux cas, les édifices ont pâti de leur désuétude. Sewell reste aujourd'hui la mieux préservée des trois.

La proposition d'inscription fait également référence aux usines de salpêtre de Humberstone et de Santa Laura, au Chili, déjà inscrites sur la Liste du patrimoine mondial. En ce qui concerne les seules structures, la comparaison est limitée : la valeur de Humberstone et de Santa Laura réside dans la survie d'une grande partie des machines, mais aussi parce que le Chili fut le seul pays à exploiter le salpêtre, qui contribua à une révolution agricole dans le monde. Dans ces villes aussi, les mineurs ont contribué à des changements majeurs des conditions de travail. Par ailleurs, la ville de Sewell n'est qu'une ville minière du cuivre parmi de nombreuses autres villes dans le monde, et ne s'est pas particulièrement distinguée par sa lutte pour l'amélioration des conditions de travail.

En dehors du Chili, on peut établir la comparaison avec d'autres villes minières fondées par la Sewell Company, par exemple Kennecott en Alaska, autre ville minière du cuivre. Elle présente de nombreuses similitudes, comme son isolement et ses bâtiments en bois, mais elle est de plus petite envergure que Sewell et moins bien préservée.

On dénombre dans le monde beaucoup d'autres villes minières isolées présentant un degré d'intégrité considérable. Les villes minières du Queensland, en Australie, qui ont récemment cessé l'extraction de métaux précieux, présentent une taille, une complexité sociale et une ancienneté similaires à Sewell, et sont en meilleur état. Dans le district minéral du Lac Supérieur, dans le Michigan, un grand et complexe peuplement s'est développé dans une zone isolée sujette à de fortes chutes de neige. D'autres communautés minières telles que Butte et Anaconda dans le Montana ou Douglas et Bisbee en Arizona possèdent elles aussi des traits communs avec Sewell, la hiérarchisation sociale par exemple. Ces exemples soulignent le caractère mondial d'un phénomène, l'établissement de complexes miniers dans un environnement hostile et isolé, et leur illustration de l'esprit de la compagnie.

Sewell s'inscrit dans un phénomène mondial. Sa particularité réside dans une combinaison de facteurs dont aucun n'est pourtant unique : son emplacement et le témoignage qu'elle apporte sur l'adaptation d'une ville minière conventionnelle à un environnement hostile, son établissement grâce à des capitaux étrangers et à des technologies étrangères, le recours à une main d'œuvre locale et le fait qu'elle a en grande partie survécu. De par sa prospérité, elle a aussi contribué à la diffusion mondiale d'une technologie minière à grande échelle et au succès de l'industrie du cuivre en Amérique du Sud. À ce titre, elle est considérée comme un modèle des villes minières du XXe siècle.

Valeur universelle exceptionnelle

Déclaration générale :

Sewell présente une valeur universelle exceptionnelle en tant que modèle des villes minières du début du XXe siècle, fondé grâce à des capitaux étrangers et à des technologies étrangères, mais adapté au terrain de la région et employant une main d'œuvre locale. Elle illustre la diffusion précoce à l'échelon mondial d'une technologie minière à grande échelle, et la prospérité de l'exploitation du cuivre en Amérique du Sud.

Évaluation des critères :

La ville minière de Sewell est proposée pour inscription sur la base des critères ii, iii et v :

Critère ii : La ville minière de Sewell se développa grâce à des technologies, des capitaux et des matériaux de construction d'importation. Il est cependant difficile de soutenir en quoi l'établissement de Sewell a eu une influence considérable sur les pratiques dans d'autres régions, que ce soit en matière d'urbanisme, de technologie ou de bénéfices économiques indirects. La technologie était largement utilisée, le plan de la ville semble une réponse unique et pratique à l'environnement, et Sewell n'était qu'une composante d'une industrie du cuivre de bien plus grande envergure dans le monde. Sewell n'a contribué à aucun échange économique, social ou culturel avec d'autres régions du monde.

Sewell illustre cependant l'influence de capitaux étrangers, d'équipements étrangers et de bâtiments importés d'Amérique du Nord. On peut la considérer comme un modèle d'un phénomène mondial, les villes minières fondées grâce à l'alliance d'une main d'œuvre locale et des ressources de nations déjà industrialisées, qui contribuèrent à la diffusion mondiale d'une technologie minière à grande échelle. En ce sens, l'ICOMOS considère que le bien répond à ce critère.

Critère iii : Pour justifier ce critère, Sewell devrait apporter un témoignage unique sur une tradition culturelle ou une civilisation, que ce soit du point de vue de la technologie, des structures sociales ou du développement économique. Or, bien que la conception spatiale de la ville soit peut-être unique, elle représentait une réponse à l'environnement plutôt qu'une composante d'une tradition culturelle plus vaste ou le reflet de traditions culturelles uniques. L'ICOMOS considère que le bien ne répond pas à ce critère.

Critère v : Si Sewell est peut-être unique en termes de conception spatiale, et si elle est certainement devenue vulnérable du fait d'un changement irréversible, on peut en dire autant pour quantité de peuplements miniers de par le monde. Même pour la seule exploitation du cuivre, on trouve d'autres exemples comparables, qui reflète l'organisation de cette activité minière au XXe siècle, par exemple en Amérique du Nord et en Australie. L'ICOMOS considère que le bien ne répond pas à ce critère.

Critère iv : Ce critère n'a pas été proposé, mais il devrait néanmoins être pris en compte. Sewell est une ville minière typique, qui a été développée en fonction d'un environnement montagneux et hostile à haute altitude. Son architecture suit donc un schéma standard, mais une disposition unique. On ne peut la considérer comme un exemple exceptionnel autrement qu'en termes d'emplacement ; c'est plutôt un exemple bien préservé de ville minière s'inscrivant dans un phénomène plus vaste, à l'échelle mondiale. L'ICOMOS considère que le bien ne répond pas à ce critère.

5. RECOMMANDATIONS

Recommandations

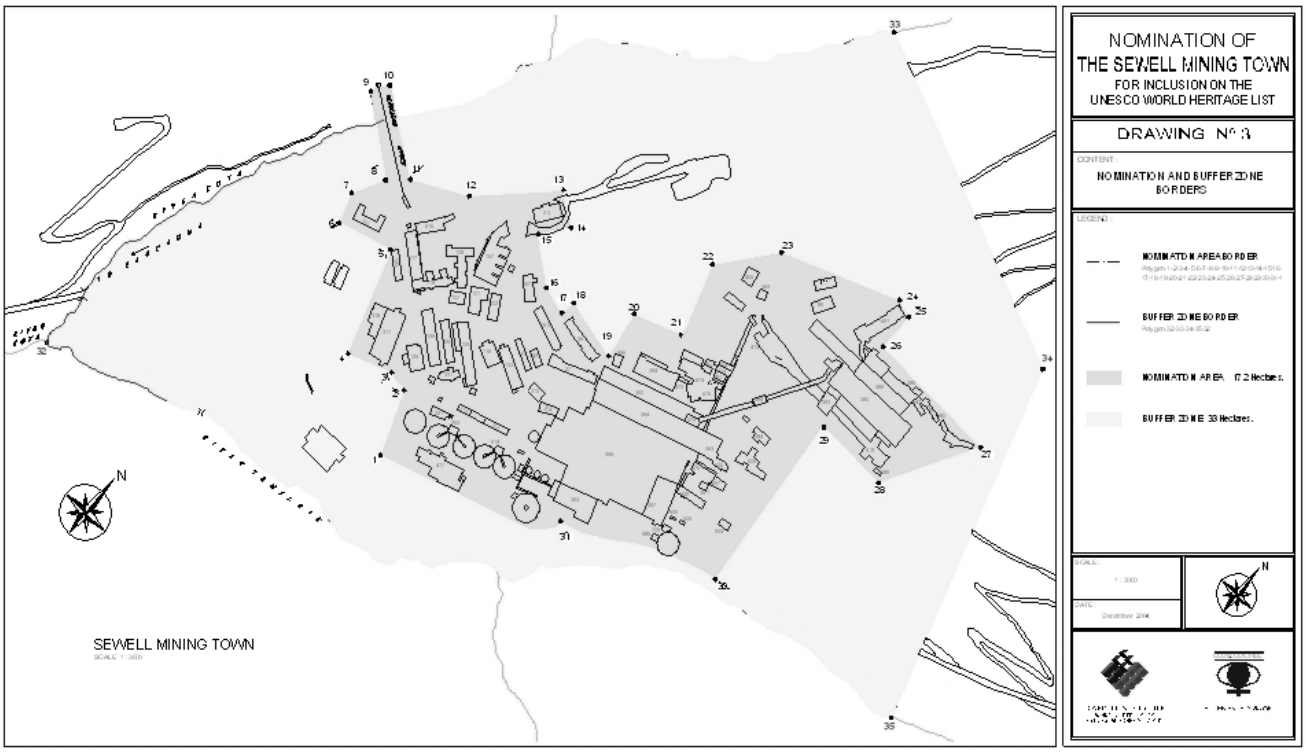
L'ICOMOS félicite l'État partie pour le dossier d'inscription détaillé. Pour la poursuite de la restauration des édifices de Sewell, il soutient le principe d'une réutilisation adaptée, mais recommande qu'un minimum d'habitations soient restaurées plutôt qu'adaptées, afin de présenter les réalités de la vie des mineurs dans la ville et de conserver suffisamment de l'agencement intérieur des bâtiments pour rendre possible l'identification de leurs fonctions d'origine.

Recommandation concernant l'inscription

L'ICOMOS recommande que la ville minière de Sewell, Chili, soit inscrite sur la Liste du patrimoine mondial sur la base du ***critère ii*** :

Critère ii *:* Sewell, ville nichée dans un environnement hostile, est un modèle exceptionnel du phénomène mondial des villes minières établies dans des contrées isolées grâce à l'alliance d'une main d'œuvre locale et de ressources des nations déjà industrialisées pour extraire et traiter un métal d'une grande valeur, le cuivre. La ville a contribué à la diffusion mondiale d'une technologie minière à grande échelle.

ICOMOS, avril 2006



Plan indiquant les délimitations du bien

Vue de la ville

Concentrateur

Habitations de catégorie C

United Nations
Educational, Scientific and
Cultural Organization

Organisation
des Nations Unies
pour l'éducation,
la science et la culture

Organización
de las Naciones Unidas
para la Educación,
la Ciencia y la Cultura

Организация
Объединенных Наций по
вопросам образования,
науки и культуры

منظمة الأمم المتحدة
للتربية والعلم والثقافة

联合国教育、
科学及文化组织

WORLD HERITAGE CENTRE / CENTRE DU PATRIMOINE MONDIAL

H. Exc. Mrs. María Pilar ARMANET
Ambassadeur extraordinary and
plenipotentiary
Permanent Delegate of Chile to
UNESCO
UNESCO House

WHC/74/207.2/MP/AB/mgl/424 23 August 2006

Subject : Nomination of properties for inscription on the World Heritage List

Sewell Mining Town (C 1214), Chile

Madam,

I have the pleasure to inform you that the World Heritage Committee, at its 30th session (Vilnius, Lithuania, 8 - 16 July 2006), examined the nomination of *Sewell Mining Town* and decided to **inscribe** the property on the World Heritage List. Please find enclosed the decision **30 COM 8B.57** of the Committee concerning the inscription.

I am confident that your government will continue to take the necessary measures for the proper conservation of this new World Heritage property. The World Heritage Committee and its Secretariat, the World Heritage Centre, will do everything possible to collaborate with you in these efforts.

The *Operational Guidelines for the Implementation of the World Heritage Convention (paragraph 168)*, requests the Secretariat to send to each State Party with a newly inscribed property a map of the area(s) inscribed. Please examine the attached map, as well as the notification of the characteristics of the property, and inform us of any discrepancies in the information by **15 October 2006**.

The inscription of the property on the World Heritage List is an excellent opportunity to draw the attention of visitors to, and remind local residents of, the *World Heritage Convention* and the outstanding universal value of the property. To this effect, you may wish to place a plaque displaying the World heritage and the UNESCO emblems at the property. You will find suggestions on this subject in paragraphs 127-128 of the *Operational Guidelines for the Implementation of the World Heritage Convention*.

In many cases States Parties decide to hold a ceremony to commemorate the inscription of a property on the World Heritage List. Upon request to the World

Heritage Centre by the State Party, World Heritage Certificate can be prepared for such an occasion.

I would be grateful if you could provide us with the name, address, telephone and fax numbers and e-mail address of the person or institution responsible for the management of the property so that we may send them World Heritage publications.

Please find attached the brief descriptions of your site, prepared by ICOMOS and the World Heritage Centre, in both English and French. As these brief descriptions will be used in later publications, as well as on the World Heritage web site, we would like to have your full concurrence with their wording. Please examine these descriptions and inform us, by **15 October 2006** at the latest, if there are changes that should be made. If we do not hear from you by this date, we will assume that you are in agreement with the text as prepared.

Furthermore, as you may know, the World Heritage Centre maintains a web site at http://whc.unesco.org/, where standard information about each property on the World Heritage List can be found. Since we can only provide a limited amount of information about each property, we try to link our pages to those maintained by your World Heritage property or office, so as to provide the public with the most reliable and up-to-date information. If there is a web site for the newly inscribed property, please send us its web address.

A copy of the *Decisions of the World Heritage Committee* will be sent to you shortly.

Please accept, Madam, the assurances of my highest consideration.

Francesco Bandarin
Director

cc: National Commission
ICOMOS
UNESCO Office

Extract of the Decisions adopted by the 30th session of the World heritage Committee (July 2006)

Decision 30 COM 8B.57

The World Heritage Committee,

1. Having examined Documents *WHC-06/30.COM/8B* and *WHC-06/30.COM/INF.8B.1*,

2. Inscribes the **Sewell Mining Town, Chile**, on the World Heritage List on the basis of criterion (ii):

   Criterion (ii): Sewell town in its hostile environment is an outstanding example of the global phenomena of company towns, established in remote parts of the world through a fusion of local labour with resources from already industrialised nations, to mine and process high value copper. The town contributed to the global spread of large-scale mining technology.

3. Recommends that, while supporting the principle of adaptive re-use, a minimum number of dwelling units be restored rather than adapted to display the realities of mining life in the town and to keep sufficient of the internal layout of the buildings to ensure that their original functions can be discerned.

Surface and coordinates of the property inscribed on the World Heritage List by the 30th session of the World Heritage Committee (Vilnius, Lithuania, 2006) in accordance with the *Operational Guidelines*.[1]

	Chile			
ID No.	**Name**	**Area**	**Buffer zone**	**Centre point coordinates**
C 1214	Sewell Mining Town	17.2 ha	33 ha	S34 05 04 W70 22 58

The following map (see next page) submitted by the authorities represents the site as inscribed by the 30th session of the World Heritage Committee.

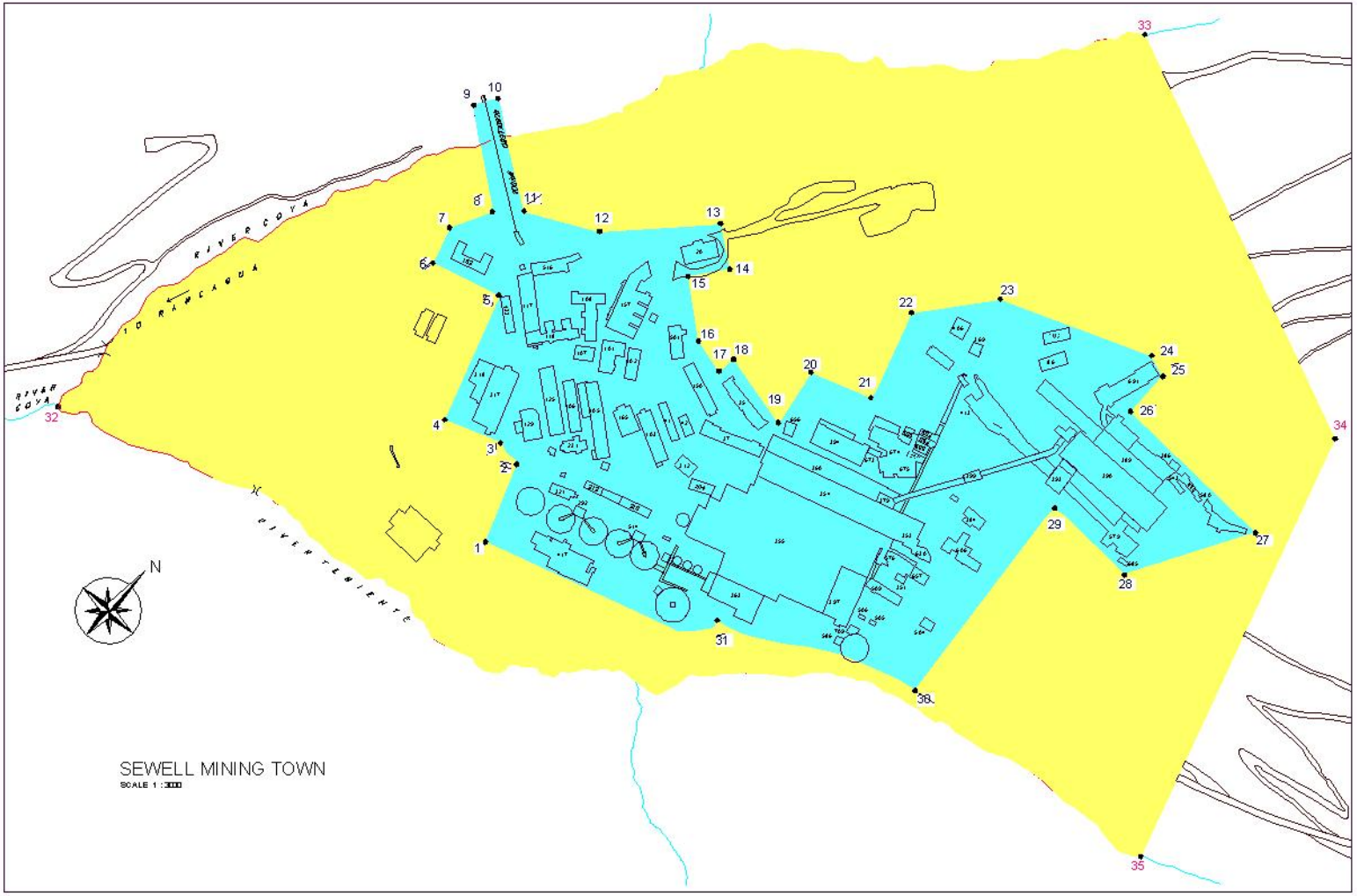
[1] Information abstracted from document WHC-06/30.COM/8B presented to the 30th session of the World Heritage Committee (Vilnius, Lithuania, 2006).

Brief Description

Situated 85 km south of the capital, Santiago in an environment marked by extreme climate more than 2,000 m up the Andes, Sewell Mining Town was built by the Braden Copper company in the early 20th century to house workers at what was the world's largest underground copper mine, El Teniente. It is an outstanding example of the company towns that were born in many remote parts of the world from the fusion of local labour and resources from an industrialized nation, to mine and process high-value natural resources. At its peak Sewell numbered 15,000 inhabitants, but was largely abandoned in the 1970s. The town was built on a terrain too steep for wheeled vehicles around a large central staircase rising from the railway station. Along its route formal squares of irregular shape with ornamental trees and plants constituted the main public spaces or squares of the town. Off the central staircase, paths ran along the contours leading to smaller squares and secondary staircases linking the town's different levels. The buildings lining the streets are timber, often painted in vivid green, yellow, red and blue. Designed in the U.S.A., most of them were built on a 19th century American model, but the design of the Industrial School (1936), for example, is of modernist inspiration. Sewell is the only mountain industrial mining settlement of considerable size of the 20th century to have been built for year-round use.

Brief Description in French

Située à 85 km au sud de la capitale, Santiago, dans un environnement marqué par un climat extrême à plus de 2 000 m d'altitude dans les Andes, la ville minière de Sewell a été construite par la société Bradden Copper au début du XXe siècle pour héberger les mineurs travaillant dans ce qui était la plus grande mine souterraine de cuivre du monde, El Teniente. C'est un exemple exceptionnel de ces villes qui ont été « implantées » dans de nombreuses parties reculées du monde pour exploiter une mine et transformer des ressources naturelles de grande valeur, en utilisant à la fois une main d'œuvre locale et les moyens financiers et techniques d'un pays industrialisé. A son apogée, Sewell a compté jusqu'à 15 000 habitants mais elle a été largement abandonnée dans les années 1970. Installée sur un terrain trop abrupt pour les véhicules à roues, la ville a été construite autour d'un grand escalier central partant de la gare. Le long de la pente, des places de forme irrégulière, embellies par des arbres et des plantes, constituaient les principaux espaces publics de la ville. Partant de l'escalier central, des allées couraient le long du relief vers ces places et des escaliers secondaires reliant les différents niveaux de la ville. Les immeubles construits le long des rues sont en bois, souvent peints dans des tons vifs de vert, jaune, rouge et bleu. Conçus aux Etats-Unis, la plupart d'entre eux ont été construits sur un modèle américain du XIXe siècle, mais le plan de l'Ecole industrielle (1936), par exemple, est d'inspiration moderniste. Sewell est la seule installation minière industrielle de montagne de taille importante du XXe siècle à avoir été construite pour une utilisation permanente.



NOMINATION OF THE SEWELL MINING TOWN

FOR INCLUSION ON THE UNESCO WORLD HERITAGE LIST

DRAWING Nº 3

CONTENT :

NOMINATION AND BUFFER ZONE BORDERS

LEGEND :

NOMINATION AREA BORDER
Polygon 1-2-3-4-5-6-7-8-9-10-11-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30-31-1

BUFFER ZONE BORDER
Polygon 32-33-34-35-32

NOMINATION AREA 17.2 Hectares.

BUFFER ZONE 33 Hectares.

SCALE : 1 : 3000

DATE : December 2004

N

GOVERNMENT OF CHILE

CODELCO CHILE
EL TENIENTE DIVISION

MISION PERMANENTE DE CHILE
ANTE LA UNESCO
1, RUE MIOLLIS
75015 PARIS
TEL. (33-1) 45 68 29 51
FAX (33-1) 47 34 16 51

París, 25 de octubre de 2006

N° U 039/2006

3103
Dir WHC
rec d 30/10
JW

Sr. Francesco Bandarin
Director
Centro del Patrimonio Mundial
UNESCO

cc : AB

Estimado Sr. Bandarin,

En relación con su carta WHC/74/207.2/MP/AB/mgl/424, de fecha 23 de agosto pasado, le hago llegar los antecedentes enviados por el Consejo de Monumentos Nacionales de mi país, que dan respuestas a las inquietudes planteadas relativas al "Campamento Sewell".

Saluda atentamente a Ud.,

Cristián Streeter
Delegado Permanente Adjunto de Chile
ante la UNESCO

MINISTERIO DE EDUCACIÓN
CONSEJO DE MONUMENTOS NACIONALES

ORD. N°: **3541**

ANT.: Correo electrónico del 05.09.2006 de DIMULTI (Ingreso CMN Nº 4428, del 05.09.2006) que adjunta Minuta Nº 93, dirigida por Misión de Chile en UNESCO a DIMULTI AGENES, con Carta WHC/74/207.2/MP/AB/mgl/424, del 23.08.2006, dirigida a Embajadora de Chile ante UNESCO por Director de Centro del Patrimonio Mundial.
Oficio N 09/740, del 12.09.2006, dirigido a CMN por Secretaria Ejecutiva Comisión Nacional Chilena de Cooperación con la UNESCO.

MAT.: Informaciones sobre el Campamento Sewell, Sitio del Patrimonio Mundial.

A : SRA. PILAR ARMANET
EMBAJADORA DE CHILE ANTE UNESCO

DE : SR. OSCAR ACUÑA POBLETE
SECRETARIO EJECUTIVO
CONSEJO DE MONUMENTOS NACIONALES

Santiago, 23 de octubre 2006

Me dirijo a usted en respuesta al documento indicado en el antecedente, para aportar la información requerida por el Centro del Patrimonio Mundial de la UNESCO en relación al Campamento Sewell, recientemente inscrito en la Lista del Patrimonio Mundial.

1. En cuanto al plano adjunto, es muy importante informar que en el marco de la elaboración del Plan de Manejo, -que se terminó de elaborar después de presentada la postulación-, acogiendo una recomendación de la evaluadora de ICOMOS, se resolvió ampliar la zona de amortiguación del bien. Originalmente ésta contemplaba sólo las 33 hectáreas de las que da cuenta el plano que obra en poder del Centro del Patrimonio Mundial.

2. Esta área se denominó "zona de amortiguación operativa" (33 hectáreas) y se complementó con la denominada "zona de amortiguación paisajística", que contiene otras 220 hectáreas, que cubren todo el cono visual perceptible desde Sewell, que recordemos se inserta entre cerros. Es así como, en suma, la zona de amortiguación actual del Campamento Sewell cubre 253 hectáreas. Adjuntamos el plano correspondiente, que distingue entre el sitio propiamente tal, la zona de amortiguación operativa y la paisajística.

3. Efectivamente se ha instalado en el sitio una placa conmemorativa de la inscripción en la Lista, la cual se ajusta a lo indicado en las *Directrices Operativas para la implementación de la Convención*, y cuyo texto y diseño fue remitido hace un tiempo al Centro.

4. Nos encantaría contar con el Certificado que acredita la condición del Campamento Sewell como Sitio del Patrimonio Mundial; ruego a usted si lo tiene a bien solicitarlo. Por cierto, en su oportunidad nosotros también pedimos el concerniente a las Iglesias de Chiloé (inscritas el año 2000) y a Valparaíso (2003), pero no los recibimos; si fuera posible contar con los certificados de todos los sitios chilenos (agregando las Oficinas Salitreras Humberstone y Santa Laura y del Parque Nacional Rapa Nui) sería ideal.

DM, 31/10/06

5. En cuanto a los datos de contacto de la persona o entidad responsable del manejo del sitio, aportamos los del Gerente General de la División El Teniente de Codelco Chile así como del Jefe del Proyecto Sewell, quien oficia como administrador del sitio.

Nombre	Ricardo Alvarez	Felipe Ravinet
Cargo	Gerente General División El Teniente de Codelco Chile	Arquitecto Jefe del Proyecto Sewell / División El Teniente de Codelco Chile
Dirección	Millán 1020, Rancagua	Millán 1020, Rancagua
Teléfono	56 / 72 / 292670	56 / 72 / 292519
Fax	56 / 72 / 292049	56 / 72 / 292940
Correo electrónico	ralvarez@codelco.cl	fravinet@codelco.cl

6. En cuanto a si existe una página web enteramente consagrada al sitio, efectivamente se dispone de ella; es www.sewell.cl. El texto de la postulación y del Plan de Manejo del Campamento Sewell aparentemente no han sido incluidas en ella; las incluiremos próximamente, junto con otro material sobre Sewell, en www.monumentos.cl.

7. Por último, en relación a la breve reseña, esperamos que aún sea tiempo de introducir un par de correcciones; lamentamos no haber podido enviarlas antes del 15 de octubre como se pedía. Remitimos adjunto versión en inglés de la *Breve Descripción,* original y propuesta, resaltando los aspectos que cambian. Al comienzo hay un pequeño error: se dice que Sewell queda a 85 km. de Santiago; lo que ocurre es que Rancagua queda a 85 km. de la capital, y de ahí hay otros 60 km. en dirección al este hasta llegar a Sewell.

8. Por otra parte, el Campamento Sewell originalmente no fue un asentamiento sino el lugar donde se instaló el primer molino; luego se desarrolló como Campamento, llegando a ser el principal de la empresa. Nos parece además importante señalar que hoy el sitio mantiene la función que determinó su origen; el Concentrador es muy significativo dentro del sitio tanto por este hecho como por la gran superficie que ocupa.

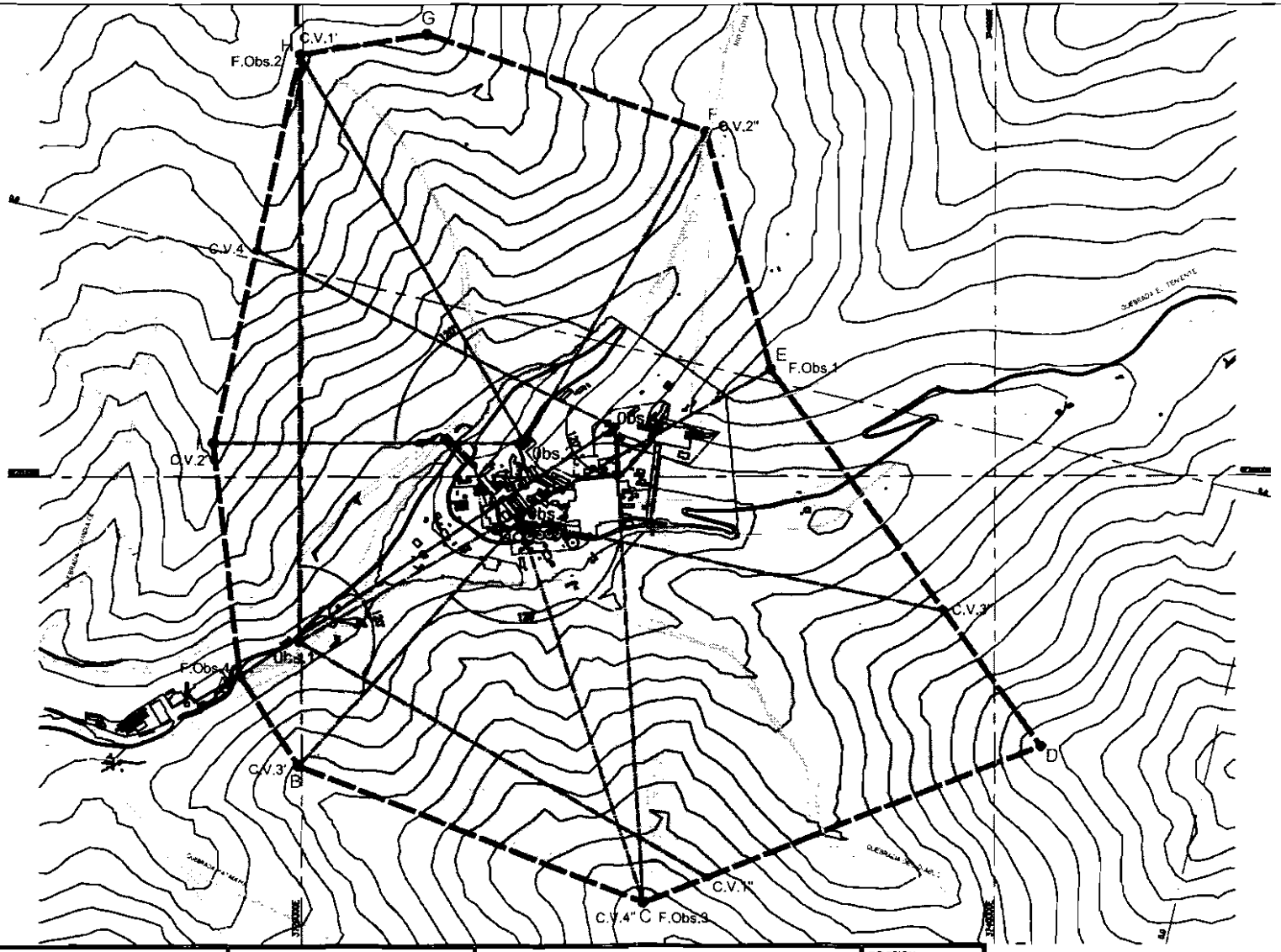
Sin otro particular, saluda atentamente a usted y agradece su gestión,

OSCAR ACUÑA POBLETE
SECRETARIO EJECUTIVO
CONSEJO DE MONUMENTOS NACIONALES

OAP/SSDG

Incluye:
Plano del sitio con la zona de amortiguación operativa y paisajística.
Brief Description original y propuesta.

cc. Sr. José Miguel Concha, 2º Secretario, Dirección de Política Multilateral, Ministerio de Relaciones Exteriores.
Sr. Felipe Ravinet, Arquitecto Jefe Proyecto Sewell, División El Teniente de Codelco Chile
Archivo CMN



PLAN DE MANEJO CAMPAMENTO SEWELL

LAMINA N° 08

CONTENIDO :
ZONAS DE POSTULACION Y AMORTIGUACION

SIMBOLOGIA :

- LIMITE Y ZONA AMORTIGUACION PAISAJISTA — 220 Ha.
- LIMITE Y ZONA AMORTIGUACION OPERATIVA — 33 Ha.
- LIMITE Y ZONA DE POSTULACION — 17.2 Ha.
- Obs. = OBSERVADOR
- F. Obs. = FOCO DEL OBSERVADOR
- C.V. = CAMPO VISUAL OBSERVADOR (120°)

REVISION : 0
ESCALA : S/ESC
FECHA : Octubre 2005

SEWELL MINING TOWN – BRIEF DESCRIPTION

Original

Situated 85 km south of the capital, Santiago in an environment marked by extreme climate more than 2,000 m up the Andes, Sewell Mining Town was built by the Braden Copper company in the early 20th century to house workers at what was the world's largest underground copper mine, El Teniente. It is an outstanding example of the company towns that were born in many remote parts of the world from the fusion of local labour and resources from an industrialized nation, to mine and process high-value natural resources. At its peak Sewell numbered 15,000 inhabitants, but was largely abandoned in the 1970s. The town was built on a terrain too steep for wheeled vehicles around a large central staircase rising from the railway station. Along its route formal squares of irregular shape with ornamental trees and plants constituted the main public spaces or squares of the town. Off the central staircase, paths ran along the contours leading to smaller squares and secondary staircases linking the town's different levels. The buildings lining the streets are timber, often painted in vivid green, yellow, red and blue. Designed in the U.S.A., most of them were built on a 19th century American model, but the design of the Industrial School (1936), for example, is of modernist inspiration. Sewell is the only mountain industrial mining settlement of considerable size of the 20th century to have been built for year-round use.

Proposed

Located 60 kilometers to the East of Rancagua, in an environment marked by extreme climate more than 2,000 m up the Andes, Sewell Mining Town was built by the Braden Copper company in 1905 alongside what is nowadays the world's

largest underground copper mine, El Teniente. Originally it was the site of the mill but it gradually evolved into the company's main settlement with services and housing for the workers and their families. It is an outstanding example of the company towns that were born in many remote parts of the world from the fusion of local labour and resources from an industrialized nation, to mine and process high-value natural resources. At its peak Sewell numbered 15,000 inhabitants, but was largely abandoned in the 1970s. Today, the Concentrator – where the ore was ground and crushed – is the sole remaining witness to its early origins.

The town was built on a terrain too steep for wheeled vehicles around a large central staircase rising from the railway station. Along its route formal squares of irregular shape with ornamental trees and plants constituted the main public spaces or squares of the town. Off the central staircase, paths ran along the contours leading to smaller squares and secondary staircases linking the town's different levels. The buildings lining the streets are timber, often painted in vivid green, yellow, red and blue. Designed in the U.S.A., most of them were built on a 19th century American model, but the design of the Industrial School (1936), for example, is of modernist inspiration. Sewell is the only mountain industrial mining settlement of considerable size of the 20th century to have been built for year-round use.