NPS Form 10-900
(Rev. 10-90)

OMB No. 1024-0018

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES REGISTRATION FORM

1300

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in How to Complete the National Register of Historic Places Registration Form (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name: Ajo Townsite Historic District

other names/site number: American Townsite

2. Location

street & number: Blocks 1 through 31, Ajo Townsite ☐ not for publication

city or town: Ajo ☐ vicinity

state: Arizona code: AZ county: Pima code: 019 zip code: 85321

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1986, as amended, I hereby certify that this _x_ nomination ___ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property _x_ meets ___ does not meet the National Register Criteria. I recommend that this property be considered significant _x_ nationally ___ statewide ___ locally. (___ See continuation sheet for additional comments.)

James W. Garrison AZSHPO — 5 October 2001
Signature of certifying official — Date

Arizona State Parks
State or Federal agency and bureau

In my opinion, the property ___ meets ___ does not meet the National Register criteria. (___ See continuation sheet for additional comments.)

Signature of commenting or other official — Date

State or Federal agency and bureau

4. National Park Service Certification

Signature of Keeper (for) — Date of Action

I, hereby certify that this property is:

☑ entered in the National Register — Sherrill D. Pope — 11/30/01
☐ See continuation sheet.
☐ determined eligible for the National Register
☐ See continuation sheet.
☐ determined not eligible for the National Register
☐ removed from the National Register
☐ other (explain): _____

4. National Park Service Certification

I, hereby certify that this property is:

____ entered in the National Register _____
___ See continuation sheet.
____ determined eligible for the National Register _____
___ See continuation sheet.
____ determined not eligible for the National Register _____
____ removed from the National Register _____

____ other (explain): _____

_____
Signature of Keeper Date of Action

5. Classification

Ownership of Property (Check as many boxes as apply)

_X_ private
___ public-local
___ public-State
___ public-Federal

Category of Property (Check only one box)

___ building(s)
_X_ district
___ site
___ structure
___ object

Number of Resources within Property

Contributing	Noncontributing	
106	97	buildings
_____	_____	sites
_____	_____	structures
_____	_____	objects
106	97	Total

Number of contributing resources previously listed in the National Register 1

Name of related multiple property listing (Enter "N/A" if property is not part of a multiple property listing.)

N/A

6. Function or Use

Historic Functions (Enter categories from instructions)

Cat: domestic	Sub: single & multiple company dwellings
commerce/trade	company store, commercial buildings & warehouse
education	school
health care	hospital
religion	church
social	meeting hall

Current Functions (Enter categories from instructions)

Cat:	Sub:
domestic	single and multiple dwellings
commerce/trade	commercial buildings/warehouses

7. Description

Architectural Classification (Enter categories from instructions)

Late 19th and Early 20th Century American Movements
Late 19th & 20th Century Revivals
Vernacular Types

Materials (Enter categories from instructions)

foundation concrete, wood posts, stone
roof Spanish tile, composition tile, wood shingles, rolled, metal
walls hollow clay tile, wood frame, mud adobe
other

Narrative Description (Describe the historic and current condition of the property on one or more continuation sheets.)

8. Statement of Significance

Applicable National Register Criteria (Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing)

X A. Property is associated with events that have made a significant contribution to the broad patterns of our history.

___ B. Property is associated with the lives of persons significant in our past.

X C. Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.

___ D. Property has yielded, or is likely to yield information important in prehistory or history.

Criteria Considerations (Mark "X" in all the boxes that apply.)

___ A. owned by a religious institution or used for religious purposes.

___ B. removed from its original location.

___ C. a birthplace or a grave.

___ D. a cemetery.

___ E. a reconstructed building, object,or structure.

___ F. a commemorative property.

___ G. less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance (Enter categories from instructions)

Community Planning and Development

Architecture

Period of Significance 1914-1950

Significant Dates _____

Significant Person (Complete only if Criterion B is marked above)

Cultural Affiliation _____

Architect/Builder William M. Kenyon and Maurice F. Maine
Lescher & Kibbey
George Washington Smith

Narrative Statement of Significance (Explain the significance of the property on one or more continuation sheets.)

9. Major Bibliographical References

Bibliography (Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS)

___ preliminary determination of individual listing (36 CFR 67) has been requested.
___ previously listed in the National Register
___ previously determined eligible by the National Register
___ designated a National Historic Landmark
___ recorded by Historic American Buildings Survey # _____
___ recorded by Historic American Engineering Record # _____

Primary Location of Additional Data:

_X_ State Historic Preservation Office
___ Other State agency
___ Federal agency
___ Local government
___ University
___ Other

Name of repository: _____

10. Geographical Data

Acreage of Property 78.4 acres

UTM References (Place additional UTM references on a continuation sheet)

	Zone	Easting	Northing		Zone	Easting	Northing
1	—	———	———	3	—	———	———
2	—	———	———	4	—	———	———

X See continuation sheet.

Verbal Boundary Description (Describe the boundaries of the property on a continuation sheet.)

Boundary Justification (Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title Janet H. Parkhurst, Architect

organization Produced by (a) Old Pueblo Archaeology Center & (b) Janet H. Strittmatter Inc. date April 10, 2001

street & number (b) 3834 E. Calle Cortez telephone (b) 520-320-9043

city or town Tucson state AZ zip code 85716

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps

A **USGS map** (7.5 or 15 minute series) indicating the property's location.

A **sketch map** for historic districts and properties having large acreage or numerous resources.

Photographs

Representative **black and white photographs** of the property.

Additional Items (Check with the SHPO or FPO for any additional items)

Property Owner

(Complete this item at the request of the SHPO or FPO.)

name _____

street & number _____ telephone _____

city or town _____ state _____ zip code _____

DESCRIPTION

The once thriving copper mining company town of Ajo, Arizona, lies in a valley partially encircled by the small, rugged Little Ajo Mountains, in western Pima County one hundred thirty miles west of Tucson and one hundred eighteen miles southwest of Phoenix. The origin of the name "Ajo" is subject to debate. The local native people, the Tohono O'odham, claim it comes from the ore used for the red paint (au'auho) that their ancestors ceremoniously applied to their bodies. The name, which means garlic in Spanish, may have also originated from Spanish-speaking prospectors who observed a proliferation of wild garlic plants in the area.

There is no doubt that mining built this town, once the nation's third largest producer of copper. There is the inescapable presence of the pit, slag heaps, smelter, tailing ponds and cluster of aluminum-corrugated buildings as a reminder of the mining operation. There is also the inescapable reminder that the support settlement, with its ample streets radiating out from its town center - a verdant, palm-lined plaza surrounded by a colonnaded business block in the Spanish Colonial Revival style - was a deliberately planned community based on strong principles of beautification and social responsibility. With the closure of the New Cornelia mining operation by the Phelps Dodge Corporation in 1984, the drone of trains, smoking of the smelter stacks, rumblings of heavy equipment, and frequent dynamite blasts ceased. At that time, the population of the town of Ajo, which has fluctuated greatly over the years owing to its direct relationship to the copper industry, dropped from 6,000 to less than half that number. No longer significantly in the "business" of copper mining except for recent, minor bursts of activity, Ajo has been jolted into facing a very uncertain future, hoping to survive as a retirement and tourist center.

Ajo was a deliberately planned company town and both its plan and resources are of historic significance. The Ajo Townsite Historic District incorporates the original Ajo Townsite, including blocks 1 through 31, a contiguous zone of associated individual resources located on a ridge between the mine and the townsite, and one discontiguous contributing resource (#20). (see Additional Documentation for Historic Resources Inventory map and inventory lists.) The current, total building count for the Ajo Townsite Historic District comprises 106 individually-numbered, contributing resources.

The most noteworthy architect-designed buildings in the historic district are Spanish

Colonial Revival in style. There are twenty-seven contributing Spanish Colonial Revival resources and one Prairie-influenced Spanish Colonial Revival. There are four Prairie style properties. All other properties in the Ajo Townsite Historic District, whether uniform company housing or not, are vernacular structures of several types. These types include the hall and parlor cottage, the shotgun cottage, the side-gabled massed-plan cottage, the gable-front massed-plan cottage, the pyramidal cottage, the square cottage, the front-gabled bungalow and the cross-gabled bungalow. There are also vernacular compound-plan, cross-wing types such as the gable-front-and-wing cottage. In addition, there is one frame and corrugated-metal sided industrial warehouse.

There are two predominant methods of construction in the district: framing, with wood members supported on concrete or post foundations, and masonry using fire-proof, plastered, hollow clay tile on concrete foundations. There are also examples of masonry construction using mud adobe. In general, physical condition ranges from good to fair with properties in fair condition in need of superficial cosmetic renovations. Integrity is basically good with some filling in of porches which appears to have occurred during the historic era, prior to 1950. Other alterations include re-roofing with composition shingles and some re-sheathing of previously horizontal-wood-sided surfaces with historically acceptable materials (such as stucco and composition siding). A few of the properties have been re-sheathed with aluminum siding but their historic massing and openings remain unaltered.

Architect-Designed and Vernacular Architecture in the Historic District

The Townsite Plan

The layout of the City Beautiful inspired American Townsite (designed by Minnesota architects William M. Kenyon and Maurice F. Maine in 1914) is classically symmetrical and incorporates a spacious landscaped plaza. A strong central axis originates at the railroad station, crosses the plaza, and terminates at the high school building which is situated on a hill to symbolize its community importance. This is a dramatic and typical City Beautiful vista. The symmetrical town center buildings, comprising two commercial blocks and a railroad station connected by an arcade, enclose the plaza on three sides. Symmetrically splayed streets, W. Esperanza Ave. and W. Vananda Ave., radiate from the central hub. The two churches, both very important community buildings, are just west of the plaza, on axis with the splays. From this initial splayed pattern, regular grid-

plan blocks with utility alleys have been laid out for dwellings. The original American Townsite is bounded on the east by the railroad tracks, on the west by Orilla Street (which curves into N. Cuñada Avenue), on the north by Solana Avenue, and on the south by Elota Avenue. The Ajo Townsite Historic District is defined by these same boundaries. In addition, a contiguous zone incorporating the managers' mansions, the hospital, and the doctors' houses is being included because of its undeniable association with the original townsite. Also included is one discontiguous, associated property, the Guest House (#20) (See Additional Documentation for Ajo Townsite and aerial maps.)

Spanish Colonial Revival Style (1915-1930) Buildings in the Historic District

Description: The Spanish Colonial Revival style is unified by the use of arches, courtyards or patios, plain stuccoed wall surfaces, form as mass, and Spanish or mission tiled roofs, all derived from the Mediterranean region (Easton & McCall 1980: 87). Characteristically there is a low-pitched, tiled, gabled or hipped roof, usually with little or no eave overhang. However, the use of parapet walls and a flat roof is also common. Arches are commonly placed above the entry door or main window or along the front porch. Highly carved or multi-paneled doors with elaborated door surrounds are typical. Sometimes spiral columns, carved stonework, or patterned tiles are used. Decorative window grilles, decorated chimney tops, brick or tile vents occurring at gabled ends, and round or square towers are also characteristic.

As mentioned in Section 8, Kenyon and Maine designed the commercial building complex and housing prototypes primarily in the Spanish Colonial Revival style. It was undoubtedly their intention to have the entire community carry out this stylistic theme, with pastel colored, plastered buildings and occasional touches of red mission tile roof. The architects, who were practicing out of Minneapolis, were also very influenced by the Prairie style which originated in the Midwest. Their own version of Spanish Colonial Revival showed Prairie style elements while some of their housing prototypes were clearly of the Prairie style.

High-Style Examples: Kenyon and Maine's Town Center (#1) is symmetrical and includes two identical building blocks plus the railroad station which surround three sides of the spacious plaza. Rectangular in configuration at the east end and rounded at the west, it took many years to complete the town center and its appearance today reflects the architects' original intentions. To the east end, and directly on axis with the plaza (and

the high school beyond) is the ornamental-ceramic-tile-domed Tucson, Cornelia & Gila Bend Railroad Depot (#3). The depot is connected to the two business blocks by a square-posted, mission-tile-roofed arcade. Obscuring the commercial facades behind it, the arcade, which has high-walled, arched gates (portales) at strategic locations, is, in fact, the most visually prominent aspect of the town center structures. The arcade-oriented impression is relieved by the depot dome to the east. The parapet-walled business blocks are constructed of hollow clay tile bearing walls with interior columns most likely of reinforced concrete. The arcade arches are of brick and they spring from cast stone supports. The structures have always been plastered and decorated with niches and touches of ornamental ceramic tile.

The high school, Curley School (#8), on Blocks 13, 20, 27 and 28, was in service in 1919 and designed by Phoenix architects, Lescher & Kibbey. Constructed of plaster-finished, hollow clay tile, the symmetrical, three-story building at one time contained thirty classrooms and a large auditorium. Today the building is being converted into apartments. The mission-tile-clad, hipped roof is capped by an ornamental, arch-supported cupola which gives emphasis to the gabled entry portico. The entry has massive, four-lite, six-panel wood doors. The narrow, six-over-six double-hung windows are in pairs.

The pink plastered New Cornelia Hospital at 1 Hospital Hill Road (#13), now vacant, is located on a hilltop overlooking the city and mine. Built in 1919 by the New Cornelia Copper Company, the building has stylistic features that imitate the plaza buildings and arcade, especially with respect to the ornamental turret caps. Constructed of plastered tile masonry, the basically parapet-walled building is accented by turreted, buttressing piers at regular intervals. Touches of mission tile roofing are found on the shed-roofed, entry wing to the east.

It is interesting to note the four Spanish Colonial Revival style, ridge top residences at 522 (#14), 534 (#15), 546 (#16), and 588 (#17) W. Hospital Hill Drive, located to the west of the hospital. The houses are interconnected by a sidewalk which orients towards the hospital and passes through the individual front gardens. These four residences have spacious floor plans comparable to some of the larger American house models of Kenyon and Maine (see following). Because of their obvious connection with the hospital, they were once ideal doctors' residences.

The Catholic and Protestant churches lie to the west of the plaza on Ajo Townsite blocks 6 and 7. A nationally-famous, Santa Barbara architect, George Washington Smith, designed the Catholic Church, Immaculate Conception (#7), which was built in 1925. This architect was responsible for numerous Spanish, Mediterranean, and Islamic suburban villas for the upper middle class in and around Santa Barbara, Los Angeles, and San Francisco, California. Unlike the hollow clay tile structural material of other early Ajo buildings, this white stuccoed church is built of mud adobe on a concrete foundation. Its principal facade has a curvilinear, sculpted parapet with an octagon-based, segmented-arch-supported dome to cap the intersection of the cruciform floor plan. The simple interior space is spanned by massive beams. Windows at the dome base draw the eye to a light-filled cupola space. The windows and the entry doors are of stained glass. The Federated Church (Methodist Church) (#6), designed by the Phoenix architects, Lescher and Kibbey, in 1926, has a much simpler facade than its neighboring Catholic Church. It is practically devoid of ornament except for a subtle sculpted parapet and a carved surround over the semi-circular arched entry. As was typical, the church is built of hollow clay tile.

Also designed by George Washington Smith was the Spanish Colonial Revival style Greenway Mansion (#19) (currently listed in the National Register) atop a hill on Greenway Drive. A sample of raw copper is embedded above the entry to the mansion; a fitting tribute to John Campbell Greenway, the founder of Ajo. Copies of the architect's original 1923/4 floor plans and revisions are in existence and show a very rectilinear, hacienda-like, parapet-walled residence. All major spaces are contained within the same white-stuccoed-adobe, bearing wall massing and all circulation is external to the building via large mission-tile-roofed front porches or the rear porch. The entire building is roofed with massive wooden beams over which secondary framing creates the slopes for drainage. The front porch which relates to the living room is supported on 1'-6" square columns, while the front porch pertaining to the bedroom wing is of heavy-timber beam framing supported by 10" x 10" posts with ornamental corbels. To the rear, a twenty-three riser exterior staircase allows access to the roof deck. The interior floors are of polished concrete in all rooms except for the living room which is of 10" x 10" "angulo" tile flooring. The major front porch is also of the same tile flooring; the bedroom wing porch, of flagstone. In September 1925 the kitchen wing was redesigned to incorporate stairs to a second story two-bedroom servants' quarters. This same kitchen wing had been designed to incorporate a partial cellar (see Additional Documentation for plans of the Greenway Residence).

It is not known who designed the two-story, Spanish Colonial Revival style Masonic Temple, Ajo Lodge No. 36, at 241 W. La Mina Ave. (#26). Built in 1926, this imposing structure had at one time an open, two-story arched porch. According to a long-time member of the order, in 1949 this porch was filled in and plastered so that the arches and columns are still clearly discernible. The Cornelia Hotel, 300 W. La Mina Ave. (#35), is another two-story Spanish Colonial Revival style building with a two-story arched porch. The first wing of the hotel was begun in 1917 by J. L. Stone of Johnson, Arizona, and an unknown architect. In 1929, a second, similar wing was completed. The architects for this portion were Lescher and Kibbey of Phoenix (Rickard 1996: 61, 197). A recent, stylistically compatible, masonry wall enclosure along the front façade obscures the first but not the second story of this corner building so that its mass and style are clearly readable from the street, especially when viewed from the intersection of Candelaria St. and La Mina Ave. Recently, the red brick walls have been painted white.

Residential Examples: In the January 1919 issue of Architecture, William M. Kenyon's article, "The Town Site of the New Cornelia Copper Company," included examples of floor plans with photographs for three (No.s 3, 9, and 13) of what may have been over a dozen model "American Houses" in the Spanish Colonial Revival style (Kenyon 1919:9 and Additional Documentation). [American Houses were designed for Ajo's American Townsite (see Section 8)]. American House No. 9, which is the prototype for 200 W. Esperanza Ave. (#53), was a plastered structural tile, parapet-walled dwelling noteworthy for its arched screen porches and ornamental turrets at the four major corners. The interior featured generous sized spaces including a 20' x 19' living room with fireplace, two bedrooms and bath served by a hall, an 11' x 11.5' kitchen, and three screened porches. One elongated screened porch served as a sleeping porch accessible from both bedrooms. American House No. 13, the prototype for 200 W. La Mina Ave. (#32), was another two-bedroom, one-bath model with an additional "dressing room" located off of the living room. The central living room had a fireplace and beamed ceiling. There were three screened porches serving three exterior corners of the house. The massing of the living room was higher than the two side wings, and had a simple, gently curved, sculpted parapet. The four corner spaces were roof decked (though there was no stair access to them) and enclosed with ornamental iron railing. Many of these Kenyon and Maine designed houses have had their screened porches filled in, apparently during the historic era and in such a fashion that the original design intentions have not been compromised. The arched or rectangular openings are still clearly discernible, simply no longer screened. Kenyon and Maine-designed, Spanish Colonial Revival style residences

in the Historic District include property site #s 28, 29, 31, 32, 39, 42, 53, 54, 76, 78, 79, 81, and 82.

Prairie Style (1900-1920) Dwellings in the Historic District

Description: The Prairie style is characterized by a low pitched roof, usually hipped, with widely overhanging eaves. Arizona has a number of flat roofed examples of this style with parapets accented by reveals. Eaves and façade detailing, such as bands of windows and brackets beneath cornice lines and shade pents, emphasize the horizontal.

A very interesting deviation from the Spanish Colonial Revival style is observable in Kenyon and Maine's American House No. 3, 220 W. Esperanza Ave. (#52), which features strong influences of the Prairie style, a very common style in the Midwest and one with which the two Minnesota architects were undoubtedly very familiar. American House No. 3 has a flat parapet with a strong, horizontal, pop-out reveal and a horizontal projecting cornice over the front porch. A band of five closely-spaced, wood casement windows on the principal facade also gives a strong horizontal emphasis. According to Architecture (1919), the floor plan of this model was smaller than that of other models, with a living room, kitchen, bedroom plus bath, and two screened porches. The spaces were accessible by passing through the living room, the floor plan being too small to accommodate a hall. This model was originally intended for use in Mexican Townsite as well (see Section 8). Other Prairie style residences designed by Kenyon and Maine are located at 221 W. Vananda Ave. (#40), 240 W. Esperanza Ave. (#51), and 200 W. Morondo Ave (#75). The property at 200 W. Esperanza Ave. (#53) appears to combine Prairie and Spanish Colonial Revival style elements. Some of these properties have also undergone sensitive filling in of the porch during the historic era.

Vernacular Domestic Dwellings in the Historic District

The following vernacular dwelling types are found in Ajo's Townsite Historic District. Of those introduced into the Arizona region by Anglos, vernacular dwellings are identified by commonly agreed upon designations, such as "shotgun," or by designations which describe their form. Dwelling form, meaning shape or morphology, is the strongest identifying characteristic of vernacular dwellings. Form is the product of the structure's footprint, its ground plan or the outline of its perimeter walls, plus its walls and roof form. Vernacular dwellings have either linear, massed, or compound ground

plans. Linear footprints are one unit in width or depth. "Single-pile" is the term commonly used to describe those which are one-room deep. Massed plans have a width and depth of more than one unit. Massed plan examples which are two-rooms deep are called "double-pile." Compound plans combine linear and massed plans into right angle-based shapes which frequently resemble the letters **L**, **T**, or **U**. One- or one-and-one-half story dwellings are "cottages" while two- or two-and-one-half-story dwellings are "houses." Dates assigned for the following types were determined through a representative sampling of Arizona's vernacular dwellings undertaken by the author from 1996-1998.

Hall and Parlor Cottage (in Arizona, 1882-1931):

Description: The footprint of this one- or one-and-one-half-story, single-pile dwelling is rectangular and oriented so that the wide side is frontal. The roof is most commonly side-gabled, although it can be hipped in form with the ridge parallel to the street. The hall and parlor is a two-room dwelling composed of a single square room, the hall, and a smaller room serving as the best room, or parlor, attached to the side. This dwelling type contains no separating, central hallway. Although the plan is asymmetrical and this asymmetry can be reflected on the façade, frequently the imbalance is disguised by a three-bay, symmetrical façade.

In the historic district there is one example of this single-pile, vernacular type and ut appears to have a shed addition to the rear. This side-gabled property is located at 200 N. Cuñada St. (#67). The three-bay façade is symmetrical and the central entry is emphasized by a small, projecting, louvered entry porch. The horizontal-wood-siding-clad dwelling is constructed of wood frame on posts. Windows are one-over-one, wood double-hung.

Shotgun Cottage (in Arizona, 1882-1939):

Description: The footprint of this linear-plan, one-story dwelling is rectangular and oriented perpendicular to the street with the entry in its narrow end. In Ajo, walls of the shotgun cottage are one-story high and the roof form is front-gabled but front-hipped examples have been found elsewhere in Arizona. The shotgun is two or more rooms deep and, lacking internal hallways, has interconnected rooms. The façade commonly has an off-centered entry with a single window although the entry can be centered with

two flanking windows. Owing to their small size, shotgun cottages are frequently enlarged by shed additions to the rear and to the side. Some shotgun cottages are without porches but most feature one of several porch variants including the full-width drop-shed porch, the full-width hipped porch, the central gabled pent, the offset shed pent, and the recessed porch. (Carter & Goss 1988: 52, Jakle et. al. 1989: 221, McAlester & McAlester 1989: 90).

The shotgun is a common vernacular type elsewhere in Ajo, however only two contributors are located in the Ajo Townsite Historic District. One shotgun cottage is found at 310 N. Cuñada St. (#102). Built of frame on a concrete foundation, the property has an off-centered entry and early, cement asbestos wall cladding. The shotgun cottage at 101 N. Telera St. (#48b) is a vertical-wood-siding-clad, frame example on a post foundation. Typical of the type, owing to its small, single-room, linear plan, this shotgun has been enlarged by a shed-roofed, lateral addition.

Side-gabled Massed-Plan Cottage (in Arizona, 1876-1925):

Description: This one- or one-and-one-half-story, double-pile dwelling type has a rectangular footprint oriented so that one wide side is frontal. It features either a side-gabled or side-hipped roof, the ridge line of which is parallel to the façade. One roof variant includes a cross-gabled dormer at the entry. Though often associated with a Georgian-influenced central hall, the plan can also be generated by extending two (or more) unequal or equal sized rooms one unit to the rear. Side-gabled massed-plan cottages vary principally in roof pitch and the size and placement of porches. Porch variants include recessed, full-width drop shed, and the gabled entry types.

In the historic district there are three early examples of this type which are redwood frame, company houses with recessed, wrap-around screen porches. These three, 301 W. La Mina Ave. (#25), 301 W. Morondo Ave. (#57), and 140 W. Rocalla Ave. (#98), are very similar to eleven square cottages built around 1919 except the plans are rectangular and not square (see following). [Although not a true example, one multiple property dwelling, 141 and 143 W. Estrella Ave. (#10), also has the same side-gabled, massed-plan form].

In 1948, in response to the housing demand generated by the construction of the new smelter, the side-gabled massed-plan was one of several types utilized by Phelps Dodge

for uniform, company housing. Classified as "Type 2C" or "Type 2CR" on assessor's building record cards, examples can be found at 301 W. Estrella Ave. (#A7), 210 W. Estrella Ave. (#A9), 330 W. Estrella Ave. (#A16), 410 W. Estrella Ave. (#A19), 321 W. Vananda Ave. (#A27), and 410 W. Vananda Ave. (#A37). Types 2C and 2CR are identical-appearing, two-bedroom residences with four rooms in total (the difference between the two types has not been determined). The floor plan is squared (approximately 30 feet by 25.5 feet). The foundation is concrete and walls are frame with plaster sheathing. The windows are multi-pane, steel casement. A composition-shingle-clad, side-gabled roof caps the dwelling and there is a partial wrap-around porch either to the left or right side of the entry. [See Ajo Townsite Historic District Inventory List (1948 Properties).]

Gable-front Massed-Plan Cottage (in Arizona, 1883-1939):

Description: This one- or one-and-one-half-story dwelling has a rectangular footprint with the narrow side, which contains the entrance, being frontal. The axis of the front-gable- or front-hip-roofed dwelling is perpendicular to the street. The type is two rooms wide and two or more rooms deep. Different floor plans may be employed, one of which features two equal-sized rooms extended rearward. A common nineteenth–century variant known as the "side passage" has an off-centered entry leading into a small entry room which is flanked by a principal room. Two more or less equal-sized rooms may form the second (and third) pile(s) to the rear. Twentieth century versions are likely to have a centrally located door but no hallway. Regardless of the plan, the façade, which is commonly three bays wide, may feature either a central or off-centered entry. Porches on Arizona examples are most commonly of the projecting drop shed or drop hipped variety although there are porchless and recessed examples. Some examples of this type, especially those with full-width recessed porches or projecting gabled entry porches resemble bungalows and a gray area exists in how to identify them appropriately.

Although there are ten property sites in the Ajo inventory area which feature the popular gable-front massed-plan cottage, most are located outside the historic district in Ajo First and Second Additions. There are three examples in the historic district at 130 W. Morondo Ave. (#77), 430 W. Morondo Ave. (#68), and 340 W. Rocalla Ave. (#97). Property #77 is built of wood frame on a foundation of concrete piers. This medium-pitch, front gable residence has the characteristic, massed, rectangular plan extending two or more units to the rear. Formerly clad with wood siding, the dwelling has been re-

sheathed with stucco & has altered doors/windows. This property is the only gable-front massed-plan cottage among those inventoried with a recessed corner porch. Resource #97, which has been re-sheathed with aluminum siding, features its original massing including its full-width, drop-hip-roofed screen porch. Resource #68, located on a low-lying lot, is elevated on wood piers and connects to the street by means of a wooden bridge. It has a low-pitched gable roof and a full-width, drop-shed, open porch.

Pyramidal Cottage (in Arizona, 1878-1940s):

Description: The typical footprint of this type is square or nearly square and oriented so that one of the sides is frontal. Above the one- or one-and-one-half-story walls, a prominent pyramid shaped (equilaterally hipped) roof is the distinguishing feature. The roof may be a perfect pyramid on a dwelling with a perfectly square footprint, or there may be a slight ridge, either perpendicular or parallel to the façade, associated with a slightly rectangular footprint. Sometimes, there are one or more roof dormers. Floor plans vary and the foursquare plan with four rooms of unequal size, is common. Pyramidals may also have a central hall plan. Porches may be lacking, or of the recessed or projecting varieties. (Jakle et. al. 1988: 138). The pyramidal is a vernacular type which is frequently unadorned but may have stylistic details most commonly associated with the Colonial Revival style.

Sixteen contributing, pyramidal cottages in the Ajo Townsite feature among those dwellings built by Phelps Dodge in 1948 to accommodate growth resulting from the construction of the new smelter [See Ajo Townsite Historic District Inventory List (1948 Properties).] These uniform company houses, while planned, are clearly not architect-designed and are late examples of this very popular vernacular type. On the building record cards they are classified "Type 2A," "Type 2B," "Type 2D," and "Type 3A." Although very similar in appearance, one difference between them is that "Type 2s" have two bedrooms (four rooms in total) and "Type 3s" have three bedrooms (five rooms in total). Types differ also with respect to porch variant and placement, roof features, and wall sheathing variety and application method. The types have in common the fact that they are frame structures on concrete foundations and that initially they had wood siding, multi-pane steel casement windows, and asbestos shingles for roofing. Type 2s have the same, squared 30-foot by 25.5-foot plan as that employed in the side-gabled massed-plan dwellings also built by Phelps Dodge in 1948. Type 2A pyramidal cottages can be found at 110 W. Elota Ave. (#A2), 311 W. Estrella Ave. (#A6), 220 W. Estrella Ave. (#A10),

411 W. Vananda Ave. (#A30), 330 W. Esperanza Ave. (#A40), 311 W. Rocalla Ave. (#A43), and 410 W. Rocalla Ave. (#A45). The primary identifying feature of this type is the hip-roofed, projecting entry porch on posts to the right or left side of the front façade. The majority still have their original wood sheathing which comprises a horizontal, tongue and groove band to the sill level with vertical board and batten above. The walls of 410 W. Rocalla have been re-sheathed with stucco, an historically appropriate material (also one used originally on some of the 1948 types). The dwelling at 311 W. Estrella Ave. also has non-original siding. Both properties are contributors since they have no further alterations.

Type 2B pyramidal cottages are located at 210 W. Elota Ave (#A4), 431 W. Vananda Ave. (#A32), and 420 W. Vanada Ave. (#A36). This type features a pyramidal roof with a roof dormer on the right or left side of the front façade plus a small, central, shed-roofed entry porch on posts. The original wood siding, horizontal tongue and grove, is found on the dwellings at 210 W. Elota Ave. and 420 W. Vanada Ave. The dwelling at 431 W. Vanada Ave. has non-original, stucco sheathing.

Type 2D pyramidal cottages include 230 W. Estrella Ave. (#A11), 451 W. La Mina (#A22), and 421 W. Vananda Ave. (#A31). The most pronounced variant which characterizes this type is a gable-roofed, projecting entry porch on posts, either to the left or right side of the front façade. All three Type 2D dwellings retain their original, vertical board and batten siding. There is a louvered vent and some horizontal siding on the porch gable.

Type 3A pyramidal cottages are found at 320 W. Estrella Ave. (#A15), 441 W. Vananda Ave. (#A33), and 210 W. Esperanza Ave. (#A38). These three-bedroom residences feature a squared plan with a corner recessed porch, which also projects frontally and is capped with a gable roof. The three dwellings retain their original, vertical board and batten siding.

Square Cottage (in Arizona, 1889-1920):

Description: The square cottage is a double-pile type with a distinctive box-like form. The footprint is square, the walls are one- to one-and-one-half stories, and the roof is either front-gabled or side-gabled. One roof variant features a central, cross-gabled dormer. Square cottages frequently have four unequal sized rooms and central halls are

usually absent. The type is much less common than the pyramidal roofed square plan cottage and it can be assumed that hip framing, rather than gable framing, is the more logical manner of roofing a square plan. (Jakle et. al. 1988: 138). Rare Arizona examples studied are without porches or have partial wrap-around, screened porches.

In the Ajo Townsite Historic District, eleven redwood frame structures with a very similar, nearly square floor plan, similar side-gabled roof forms, and screened-porch-dominated elevations were constructed around 1919, often on the lots between Kenyon and Maine's hollow tile, Spanish Colonial Revival style models. All but one of these square cottages are contributors, including site #s 21, 23, 36, 37, 38, 49, 50, 58, 86, and 99. This uniformity is to be expected in a company town. These structures were possibly pre-cut catalogue orders shipped by rail to Ajo or at least built by the same contractor. Although their uniformity indicates company planning, they are nonetheless based upon simple, vernacular plans and do not appear to be the work of trained architects. These dwellings have in common a solid, central "core" which screened porches theoretically can surround on all four sides. Interesting variations in the use of screened porches can be observed by studying archival building record cards of these houses; some showing a much greater solid core to porch ratio. The screened porches, especially when used as sleeping porches, were obviously a response to the desert climate with its inhospitable summer heat. The most typical of these uniform houses have medium pitch, side gabled roofs with a large, central intersecting front gable, covering approximately the central third of the entry porch. They are located at 320 W. La Mina Ave. (#36), 341 W. La Mina Ave. (#21), 301 W. Vananda Ave.(#38), 341 W. Morondo Ave. (#58), 130 W. Rocalla Ave. (#99), and 241 W. Rocalla Ave. (#86). Their historic integrity is good. Another variation of this type has a medium pitch side gable without the central intersecting entry porch gable. This variation can be found at 301 W. La Mina Ave.(#25) and 340 W. La Mina Ave. (#37). A third variation can be found at 321 W. La Mina Ave. (#23). In this case, the front gable over the entry spans the entire width of the structure, springing from an intersection point at the eave corners of the side gable.

According to building record cards, the majority of these structures are approximately 38 feet wide by 39 feet deep. The residences at 341 W. La Mina Ave. (#21) and 241 W. Rocalla Ave. (#86) are approximately 40 feet wide by 37 feet deep. All examples of this type have redwood post and beam construction and walls clad with wood sheathing. Windows tend to be wood, of the double-hung variety. The central entries are obscured by the centrally accessed, screened porch. Various degrees of wood-siding-clad porch

infill can be observed in most of the houses. This alteration apparently occurred during the historic era as windows in filled areas tend to be wood, double-hung or fixed multi-pane, characteristic of the 1920s. Excellent examples of this type are located at 340 W. La Mina Ave.(#37) and 301 W. Vananda Ave.(#38).

Bungalow (in Arizona, 1898-1946):

Description: The typical bungalow is a one- or one-and-one-half-story dwelling with a low-pitched, gabled (occasionally hipped) roof with a wide, unenclosed eave overhangs and exposed rafters. A deep full- or partial-width front porch, either covered with a lower gabled roof, or incorporated under the principle front- or side- gabled roof is a strong identifying characteristic of a bungalow. Craftsman-inspired decorative beams or braces are often added under gables. Porch roofs are usually supported by tapered, square columns which often extend to the ground level. The two principle subtypes found in Ajo include the (1) front-gabled bungalow and the (2) cross-gabled bungalow.

Front-Gabled Bungalow: In Arizona this one- or one-and-one-half-story bungalow variant is commonly generated from a simple rectangular, massed-plan footprint with the narrow side frontal. Room layouts observed include five- and seven-room plans. A half-story loft may include bedrooms. Projections, which are less than room-sized protrusions, can also occur along the plan perimeter. The roof form is front-gabled or occasionally front-hipped. This bungalow variant is identified by typical bungalow details including a recessed or projecting gabled porch which is frequently supported on blocky or tapered columns.

The front-gabled bungalow is found at property site #s 27, 30, 34, 41, 55, 71, 74, and 84. A typical example can be found at 310 W. Morondo Ave. (#71). This simple, front-gable version has a partial-width, gabled porch which is lower than the principal roof and which is supported on battered stone piers by heavy timber, Craftsman-influenced posts. There is a characteristic louvered vent at the gable. A simple, wood frame, high-pitched front-gabled bungalow, with its porch extending the full width of the house and incorporated under the principal gable, can be found at 231 W. Morondo Ave.(#55). This bungalow is one-and-one-half stories in height, set well above grade on concrete piers to accommodate a basement, and features a loft illuminated by a characteristic shed dormer.

Cross-Gabled Bungalow: Virginia and Lee McAlester have identified this bungalow variant as cross-gabled because its partial-width, front-gabled porch forms a cross gable with the side-gabled principal roof. Similar to the side-gabled bungalow, typical, basically rectangular footprints may be oriented with the narrow side either to the front or to the side. The porch of the cross-gabled bungalow is commonly centered.

In the Ajo Townsite Historic District, the cross-gabled bungalow variant occurs at site #s 9, 18, 33, 70, 72, 83, and 85. The most elaborate bungalow in the inventory area is located at 300 W. Morondo Ave. (#72). Most likely a manager's residence at one time, the property is noteworthy for its high-pitched, cross-gabled roofs which meet at the ridge and spring from the eaves at the corner. The wrap-around screen porch is supported on piers of stone. Unusual for Ajo, the foundation of this property is also of stone. Openings consist of a series of large, wood, fixed-pane six-over-one windows flanked on both sides by one-over-one double-hung windows. A good example of the cross-gabled bungalow is property site #83, 141 W. Rocalla Ave. Built of structural clay tile on a concrete foundation, this dwelling has a rectangular floor plan capped by a side gabled roof with a nearly full-width, front gabled porch. The large, elaborate bungalow at 1 Greenway Drive (#18), the former residence of Michael Curley, first general superintendent and later manager of the New Cornelia Copper Co., was in recent years converted into a bed and breakfast establishment at which time there were major interior alterations and enclosure of the front porch with glazing.. Again a private residence (in September 2000), the property remains a significant contributor for its association with Michael Curley.

Side-Gabled Bungalow: This side-gabled variant of the bungalow typically has a rectangular footprint sometimes including small projections. The most common roof form is side gabled but some examples have side jerkinhead gables. This variant typically has a prominent porch, frequently a full-façade recessed feature incorporated beneath the eaves of the gabled roof. Although never a single-family residence, the Guest House Bed and Breakfast (#20), 700 W. Guest House Road, is both side-gabled bungalow-influenced and architect designed (see Section 8). It was built in 1926 as a guest house for the Board of Directors of the New Cornelia Copper Company. It features a deep porch on four heavy posts. When converted to a bed and breakfast, its side porches were enclosed by glazing.

Compound-Plan (or Cross Wing) Cottages:

Compound-plan dwellings juxtapose linear and/or massed elements at right angles to create "bent" or "cross-wing" forms. The L-shaped plan is the most common in Arizona and generally produces an irregularly massed, asymmetrical plan. With the projecting wing frontally oriented, this common type is called the gable-front-and-wing among other designations. Other less common plans are T- or U-shaped.

Gabled T-Plan Cottage: (in Arizona, 1881-1925):

Description: The gabled T-plan cottage is a compound-plan one- or one-and-one-half-story type, found in Arizona and allegedly popular among the Mormons, which generates from a T-configured footprint usually created by the juxtaposition of linear-plan units although some examples appear to combine linear- with massed-plan wings. The footprint orientation may vary with the T-stem either to the rear, front, or side and the gabled T-plan cottage may be mistaken for other types when viewed from the front. The roof form is generally cross gabled, but there may be examples combining gabled and hipped wings.

There is one gabled T-plan cottage in the Ajo Townsite Historic District. This property is found at 331 W. La Mina Ave. (#22). In this case, the T-stem is oriented to the side so that from the front, the dwelling appears to have a L-shaped plan. Of horizontal-siding-clad, wood frame construction on a concrete foundation, the dwelling features the characteristic cross-gabled roof.

Gable-Front-and-Wing Cottage (in Arizona, 1875-1937):

Description: The gable-front-and-wing cottage is a one- or one-and-one-half-story dwelling which generates from an L-shaped footprint, generally oriented so that the projecting wing is frontal. Wing plans are linear, massed, or combinations thereof. Typical plans tend to be integrated, not preserving the integrity of each wing and often including a hall. The most common roof form is cross-gabled but there are cross-hipped variants and gable-hip combinations. A porch is frequently placed within the L created by the two wings.

The gable-front-and-wing is employed in Type 3D, one of the types used for Phelps

Dodge-supplied, company housing in 1948. (A hip-roofed, cross-wing variant of the 1948 group of houses is classified Type 3B and Type 3C.) Four contributing Type 3D dwellings include 200 W. Estrella Ave. (#A8), 340 W. Estrella Ave. (#A17), 401 W. Vanada Ave. (#A29), and 301 W. Rocalla Ave. (#A42). These three-bedroom residences have in common a cross-gabled roof, a gabled projecting wing either to the left or right side, and a shed extension porch within the L. The dwellings at 401 W. Vananda Ave. and 301 W. Rocalla Ave. have their original, horizontal wood siding and scallop-edged, vertical siding on the gable. The dwellings at 200 and 340 W. Estrella Ave. have non-original aluminum or stucco siding, but their integrity is otherwise intact. Three-bedroom Type 3B houses can be found at 240 W. Estrella Ave (#A12), 240 W. La Mina Ave. (#A25), and 311 W. Vananda Ave. (#A26). These properties have in common an L-shaped plan with a right, frontal projection, a cross-hipped roof, and a small, gabled entry porch on posts on the left side of the projection. All residences are plaster-sheathed, the original finish for this type. Type 3C, found at 331 W. Vananda Ave. (#28), has a similar L-shaped plan. Type 3C differs from Type 3B in that it features a small shed-extension porch centered on the projection. The original sheathing for this type was horizontal wood siding and windows were the typical steel casements used elsewhere. Today, the residence at 331 W. Vananda Ave. has non-original, aluminum sliding windows, an alteration which does not seriously compromise its integrity. Another dwelling with a slightly cross-wing plan and cross-gable and hip roof is located at 427 W. La Mina Ave. (#A24). Built in 1948 for a superintendent, this house is unique and larger than the uniform housing types provided by Phelps Dodge. It is of plastered frame construction and the original steel casement windows have been replaced with aluminum sliders. [See Ajo Townsite Historic District Inventory List (1948 Properties).]

AJO TOWNSITE HISTORIC DISTRICT INVENTORY LIST

No.	Address	Date	Historic Style/Vernacular Type
1	Ajo Town Center Business Blocks	1916 thru 1954	Spanish Colonial Revival
2	1 Pajaro	1917	Spanish Colonial Revival
3	Railroad Station	Approx. 1917	Spanish Colonial Revival
4	Phelps Dodge Mercantile	Approx. 1916	Spanish Colonial Revival
5	Phelps Dodge Warehouse	1920s	industrial vernacular
6	Methodist Church	1926	Spanish Colonial Revival
7	Catholic Church	1925	Spanish Colonial Revival
8	Curley School	1919	Spanish Colonial Revival
9	121 W. Estrella Ave.	1918	cross-gabled bungalow
10	141 & 143 W. Estrella Ave.	1939	side-gabled massed-plan multi-dw.
11	231 W. Estrella Ave.	1919	gable-front multi-dwelling
13	New Cornelia Hospital	1919	Spanish Colonial Revival
14	522 W. Hospital Hill Drive	1919	Spanish Colonial Revival
15	534 W. Hospital Hill Drive	1919	Spanish Colonial Revival
16	546 W. Hospital Hill Drive	1919	Spanish Colonial Revival
17	588 W. Hospital Hill Drive	1919	Spanish Colonial Revival
18	Manager's House	1918	cross-gabled bungalow
19	Greenway Mansion*	1923/4	Spanish Colonial Revival
20	Guest House B & B	1927	side-gabled bungalow
21	341 W. La. Mina Ave.	1916	square cottage
22	331 W. La Mina Ave.	1935	gabled T-plan cottage
23	321 W. La Mina Ave.	1919	square cottage
24	311-319 W. La Mina Ave.	1928	gable-front multi-dwelling
25	301 W. La Mina Ave.	1916	side-gabled massed-plan cottage
26	241 W. La Mina Ave.	1926	Spanish Colonial Revival
27	211 W. La Mina Ave.	1918 or 1924	front-gabled bungalow
28	201 W. La Mina Ave.	1916	Spanish Colonial Revival
29	141 W. La Mina Ave.	1916	Spanish Colonial Revival
30	131 W. La Mina Ave.	1916	front-gabled bungalow
31	121 W. La Mina Ave.	1916	Spanish Colonial Revival
32	200 W. La Mina Ave.	1916	Spanish Colonial Revival
33	220 W. La Mina Ave.	1916	cross-gabled bungalow
34	230 & 232 W. La Mina Ave.	1925	front-gabled bungalow
35	300 W. La Mina Ave.	1917/1929	Spanish Colonial Revival
36	320 W. La Mina Ave.	1919	square cottage
37	340 W. La Mina Ave.	1918	square cottage
38	301 W. Vananda Ave.	1919	square cottage
39	241 W. Vananda Ave.	1916	Spanish Colonial Revival
40	221 W. Vananda Ave.	1916	Prairie
41	211 W. Vananda Ave.	1929	front-gabled bungalow
42	201 W. Vananda Ave.	1916	Spanish Colonial Revival
48a	400 W. Esperanza Ave.	1916	gable-front massed-plan cottage
48b	101 N. Telera St.	1920s	shotgun cottage
49	340 W. Esperanza Ave.	1919	square cottage
50	320 W. Esperanza Ave.	1920	square cottage
51	240 W. Esperanza Ave.	1916	Prairie
52	220 W. Esperanza Ave.	1916	Prairie
	*in National Register		

No.	Address	Date	Historic Style/Vernacular Type
53	200 W. Esperanza Ave.	1916	Prairie infl. Spanish Colonial Rev.
54	221 W. Morondo Ave.	1916	Spanish Colonial Revival
55	231 W. Morondo Ave.	1929	front-gabled bungalow
57	301 W. Morondo Ave.	1920	side-gabled massed-plan cottage
58	341 W. Morondo Ave.	1920s	square cottage
67	200 N. Cunada St.	1920s	hall and parlor cottage
68	430 W. Morondo Ave.	1918	gable-front massed-plan cottage
69	340 W. Morondo Ave.	1916, 1930s	vernacular (not typed)
70	330 W. Morondo Ave.	1918	cross-gabled bungalow
71	310 W. Morondo Ave.	1919	front-gabled bungalow
72	300 W. Morondo Ave.	1918	cross-gabled bungalow
73	240 W. Morondo Ave.	1931	vernacular (not typed)
74	210 W. Morondo Ave.	1928	front-gabled bungalow
75	200 W. Morondo Ave.	1916	Prairie
76	140 W. Morondo Ave.	1916	Spanish Colonial Revival
78	120 W. Morondo Ave.	1916	Spanish Colonial Revival
79	100 W. Morondo Ave.	1916	Spanish Colonial Revival
80	119 W. Rocalla Ave.	1937	gable-front multi-dwelling
81	121 W. Rocalla Ave.	1916-17	Spanish Colonial Revival
82	131 W. Rocalla Ave.	1916	Spanish Colonial Revival
83	141 W. Rocalla Ave.	1916	cross-gabled bungalow
84	211 W. Rocalla Ave.	1919	front-gabled bungalow
85	231 W. Rocalla Ave.	1916	cross-gabled bungalow
86	241 W. Rocalla Ave.	1919	square cottage
97	340 W. Rocalla Ave.	1915	gable-front massed-plan cottage
98	140 W. Rocalla Ave.	1920	side-gabled massed-plan cottage
99	130 W. Rocalla Ave.	1920	square cottage
102	310 N. Cunada St.	1930s	shotgun cottage

SIGNIFICANCE

The Ajo Townsite Historic District is significant under Criteria A and C. Under Criterion A this district represents enlightened and socially responsible company town planning. Criterion C includes the City Beautiful-inspired townsite plan as well as architect-designed and vernacular buildings formerly owned by the company. The significance period is 1914, when Ajo was founded, to 1950, the date contributors became at least fifty years old.

INTRODUCTION

Ajo: a Model Company Town

Ajo, Arizona, is a copper mining community and one of many early twentieth-century, single-industry, Western company towns founded upon the extractive and processing industries in the United States. Named after the Spanish word for garlic or the Tohono O'odham word, au'auho, for red paint, Ajo is located in a very arid, copper-rich portion of the Sonoran Desert. Ajo is a "model company town," a certain type of widely-publicized industrial community which developed through enlightened planning and socially responsible town management, serving as a model by example. A progressive company would create a planned community to attract, satisfy, and retain its labor force. Ajo developed under the paternalistic policies of the Calumet and Arizona Mining Company (Bisbee, Arizona) and its subsidiary, the New Cornelia Copper Company. John Campbell Greenway was general manager of both companies and a Progressive-Era thinker who saw the possibilities for open-pit mining at Ajo, perfected the technology required to extract its low-grade copper ore, and developed the mine and support community. Beautification of the community, in the form of a town plan and buildings inspired by the City Beautiful movement, was an integral part of this productive environment. In 1914, under the direction of John C. Greenway, Minnesota architects William M. Kenyon and Maurice F. Maine planned the community. Ajo had a comprehensive design incorporating landscaping, attractive public facilities, and high quality housing. The company implemented maintenance programs and fostered social improvement. In an isolated and hostile desert environment, the need to show concern for the welfare of labor was definitely good business. Several early twentieth-century journals featured Ajo as a model company town.

I. HISTORIC THEME: COMPANY TOWN PLANNING

Introduction

In the United States the company town was a type of isolated community, generally established between the years 1830 to 1930, developed, owned, and administered by a single enterprise, and based upon either manufacture or an extractive industry. Its history was tied to the industrial revolution and the rise of the factory system and specialization. In the Western world, the industrial revolution was responsible for both unprecedented economic expansion and deplorable labor conditions. The planned company town attempted to solve some of the problems caused by the industrial revolution by providing labor with adequate housing in a socially responsible environment. The model company town, such as Ajo, Arizona, was the epitome of company town planning.

The Industrial Revolution and Labor Conditions

Historians regard the industrial revolution as a process, not a time period, with more or less global implications which became one of the chief determinants of the modern Western way of life. This deep-seated process by which an agrarian society was transformed into a modern industrial society was characterized by a series of technological, social, and cultural phenomena. Various circumstances, favorable to economic expansion, have been put forward to explain the industrial revolution. In England, for example, the availability of vast sums of capital (due to the unequal distribution of income), low interest rates, a growing, vertically mobile population and labor force, and laissez faire, government economic policies were involved.

Technological changes included (1) the use of iron and steel; (2) new energy sources, including fuels and motive power, such as coal, the steam engine, electricity, and the internal combustion engine; (3) invention of machines such as the spinning jenny and power loom; (4) the factory system, increasing division of labor and specialization of function; (5) developments in transportation, communication such as steam locomotive, automobile, airplane, telegraph and radio; and (6) the increasing application of science to industry. Non-industrial developments included (1) agricultural improvements; (2) economic changes that resulted in a wider distribution of wealth; (3) political changes reflecting a shift in economic power; (4) sweeping social changes, including growth of cities, development of working-class movements, and emergence of new patterns of

authority; and (5) broad cultural transformation. (Kranzberg 1969: 210, 211.)

The same spirit of enterprise that allowed for rapid economic expansion had serious social consequences. Free enterprise allowed for private, unrestricted land development resulting in socially disruptive, urban environments (Garner 1984: 1). Conditions of labor in 1830-1850 in North America and Northern Europe were unquestionably poor, especially in larger, overcrowded cities. An increase in the mortality rate, child labor, and workdays extending well beyond ten hours were among the more odious conditions that prevailed (Garner 1984: 6). The main cause of the problem was the lack of coordination between scientific and technical progress and the general organization of society. There were no suitable administrative provisions for controlling consequences of economic changes (Benevolo 1985: xxi). The dominant political theories of the time were responsible for the failure of timing. The conservatives failed to realize they lived in a time of rapid change and liberals espoused practices based upon the theories of Adam Smith advocating that the State not interfere in economic policies (Benevolo 1985: xxi).

After 1830, social reformers began to analyze the industrial revolution. The gloomy, depressing image of the new industrial city was largely shaped by exposes of social reformers such as Friedrich Engels, Charles Dickens, Benjamin Disraeli, Elizabeth Gaskell, Octavia Hill, Harriet Martineau, Florence Nightingale, Victor Hugo, Honore Balzac, Louis Blanc, and Emile Zola. In Charles Dickens' Hard Times, Coketown is characterized as a whole town which seemed to be "frying in oil" with an endless repetition of identical houses and confusion between types of buildings; a town which both stripped the environment and morally debased the people who built and worked there.

19th - and Early 20th - Century Company Towns in the United States

The impact of the industrial revolution in the United States resulted in the establishment of approximately 2,500 single-enterprise towns across the country by the mid-nineteenth century. More than other countries, the United States lent itself to building industrial towns, a number of which could be classified as "company towns," as shall be explained. Vast expanses of unsettled, resource-rich land, a government with laissez-faire economic policies, and the mass migration of skilled and unskilled labor (domestic and foreign) contributed to this practice. The century between 1830-1930 witnessed the greatest

developmental activity, at first along river valleys in the Northeast and later in the South's Piedmont and across the mineral plains, mountains, and forests in the West. Though some of the earliest ones produced textiles or fabricated machinery, the majority of the single-enterprise towns engaged in the extractive and raw processing industries. Between 1814-1914, the United States became the largest producer and processor of raw materials in the world (Garner 1984: 1).

As previously defined, company towns were isolated, single-enterprise communities, based upon either manufacture or extractive and raw processing industries. Company towns were one of several types of industrial settlement including mill villages, industrial communitarian settlements, corporate towns, garden cities, satellite towns, and new towns found in the United States and elsewhere. Mill villages, consisting of several cottages about a mill building, and industrial communitarian settlements, small utopian experiments flourishing from 1840 to 1860, rarely attained the size to qualify as towns nor did they require comprehensive site planning and maintenance measures. Corporate towns, such as Holyoke, Massachusetts, were large, multi-enterprise towns established between 1820 and 1850 which grew to populations in excess of ten thousand, usually with no comprehensive planning. Garden cities, in Britain and other European countries, combined communitarian principles with industry to create an alternative to the industrial city. Site planning and housing were emphasized over industry in these cities. Ebenezer Howard set forth the principles in his book Garden Cities of Tomorrow and his first experiment was Letchworth, England. In its attempt to alleviate city slums by bringing industry to the countryside, Howard's garden city provided a regional planning framework. For this reason, Howard is considered the founder of new-town planning. Howard's garden cities never successfully materialized in America (Garner 1984: 8).

Satellite towns, many of which were single-industry company towns, were not based on regional planning principles but instead cropped up indiscriminately in close proximity to cities. Some were financed by industry, like Indian Hill near Worcester, Massachusetts, and others, such as Forest Hills Gardens, Long Island, New York, were financed by realty or philanthropic organizations. These were dormitory communities totally dependent upon the city. Private enterprise built these in the decade before World War I, but the federal government began erecting war housing communities after the war. Later, the government also sponsored Tennessee Valley Authority and Greenbelt towns, begun in the 1930s. New towns, like company towns, stemmed from a single enterprise. They were constructed since World War II largely for middle-income Americans who wished

to leave the city. New towns, like Reston, Virginia, and Columbia, Maryland, were intended to be better suburbs, free of the city's congestion and crime. New towns in Great Britain and Northern Europe were constructed largely to relieve chronic housing shortages (Garner 1984: 9).

In America, company towns appeared first in the 1830s in the Northeast. The Northeast's bountiful supply of water from inland rivers and streams provided the power to operate the factories. These single-enterprise towns were based largely on manufacture with the production of clothing goods being by far the most widespread industry. In the West, two major industries, lumbering in the coastal mountains and coal and copper mining in the Rocky Mountains and desert Southwest, generated the company town. Hundreds of these communities were established in the western United States after the turn of the century. Nearly all western company towns were isolated and based on an extractive industry. When raw materials were depleted, economic factors caused abandonment of even the most carefully planned sites. In fact, nearly all were closed, dismantled, or obliterated after little more than fifty years existence. The company town was limited critically by its total dependence upon a single enterprise and lacked the flexibility of mixed-economy towns with respect to attracting new business and employment when the business declined. The environmental commitment of the developer lasted as long as the company exercised control over the site. The decline in business was followed by the typical divestment of property. The result was often the deterioration of a once appealing community and at times its total demise. Company towns established in the eastern United States were less isolated and more likely to survive since they could be absorbed into the general organization of the Eastern Seaboard (Garner 1992: 176).

The copper industry provided the basis for some of the West's largest and most permanent company towns. Copper towns survived longer because the nature of copper production changed. In Arizona, towns like Morenci, Ajo, Bisbee, and Ray all owed their longevity to this. In the early years of the copper industry, only high-grade ore, usually mined by tunnel, was profitable, but with the development of the open-pit method by the turn of the century, mining of low-grade copper ores became practical. In Arizona, most of the copper produced came from large, low-grade mines. One of the nation's largest copper producers has been the Kennecott Copper Corporation, which has owned at least eight towns in Arizona, Nevada, New Mexico, and Utah. Phelps Dodge Corporation, another major copper producer, has been responsible for mining in such towns as Ajo, Bisbee, and Morenci, Arizona. Since the mid-1980s, however, due to very

unfavorable economic factors relating to the decline in the value of copper as well as a serious strike, copper towns, such as Ajo, have all but ceased producing copper and face a very uncertain future (see History of Ajo).

Model Company Towns

Although generally characterized negatively as being symbolic of exploitation and repression, some company towns also embodied positive advances in planning, architecture, and management. In the nineteenth century large-scale manufacturing, brought to undeveloped sites, precipitated the need for long-range planning, social organization, and environmental maintenance. Industrialists were the first to be in a position to undertake comprehensive measures and company towns represent the earliest attempts to carry out these measures (Garner 1984: 19). Model company towns were those with a comprehensive design, landscaping, community facilities, safe and sanitary factories, good houses, and programs for maintenance. The paternalism of the owners, who were resident industrialists, extended beyond the bare-bones requirements of factories or mines. These industrialists undertook measures to recruit and retain skilled labor and maintain the financial investment in the buildings and grounds; the underlying principle being that concern for the welfare of labor was good for business. The model company town tended to be an isolated community with a population averaging twenty-five hundred to five thousand. The term "model company town" was used consistently after 1850 for such settlements which became models by example. They were frequently the subject of studies and widely publicized in their day. Several model company towns studied by John S. Garner in The Model Company Town (1984) include Hopedale and Ludlow, Massachusetts, South Manchester, Connecticut, Peace Dale, Rhode Island, and Fairbanks Village at Saint Johnsbury, Vermont. These towns were mentioned in architectural and engineering journals, popular magazines and newspapers, and in two important government studies, Carroll D. Wright's Report on the Factory System of the United States (1883) and Albert Clark's Report of the Industrial Commission (1901). The model company town was the forerunner of the garden city and the new town in that it imposed long-range planning goals for controlling growth and avoiding decline to provide and maintain a productive environment (Garner 1984: 1-3).

An excellent example of a model company town, established in the nineteenth century and fostered by paternalism, is Hopedale, Massacusetts, located near Boston. Hopedale represents the best of its type, managing to achieve success in industrial organization,

housing, and site management throughout the nineteenth century. Common to model company towns, Hopedale shared the following conditions: (1) planning and construction directed by a central authority; (2) a standard house type; and (3) community programs and facilities to educate while providing social diversion. Hopedale, Massachusetts, has been unique among American towns as the site of two distinct attempts to create an ideal society. In its first form, it was one of nineteenth century America's most successful communitarian experiments in pre-Marxian socialism. Hopedale began in 1842 as a struggling religious commune, under the leadership of Adin Ballou, on a run-down farm which slowly developed into a thriving village. The Hopedale Community was founded by idealistic, discontented inhabitants of the region including craftsmen, small businessmen and other members of the small-town middle class who sought a new social order for themselves. Calling themselves Practical Christians, this brotherly society was based on the tenet of nonresistance without sectarian isolation from society. The community suffered from dissenting factions as well as financial difficulties throughout its existence (Spann 1992: xi-xiii).

George Draper, an ambitious entrepreneur affiliated with the village during its socialistic phase, recognized Hopedale's potential as an industrial site. In 1856 Draper gained control of it, began to expand its industrial base until he and his sons had created the nation's dominant firm in the production of looms for the cotton textile industry. Hopedale became a model company town, based upon welfare capitalism (Spann 1992: xi-xii). The Drapers expanded the existing settlement with a town of their own design, controlling every aspect of the business and town, including planning and architectural decisions in the true paternalistic spirit of the day. They felt attractive surroundings drew the best workers and employed two landscape architects, Warren H. Manning and Arthur A. Shurcliff, to lay out subdivisions and the park from 1886-1916 based on the ideals of (1) the City Beautiful (see The City Beautiful Movement), (2) the satellite industrial village, and (3) the new science of environmental design. The architects Fred Swassey and Robert Allen Cook designed the buildings. Draper Company dwellings received awards from international housing congresses held at trade fairs in France, Belgium, Italy, and the United States.

Mining Company Towns and Planning

Coal towns, in the Four-Corners area, and copper mining towns, largely in the southern quarters of New Mexico and Arizona, comprised the largest number of company towns

based upon the mining industry. The number of planned mining towns, such as Tyrone, New Mexico, and Warren and Ajo, Arizona, was far surpassed by countless thrown-together work camps, temporary villages, and even permanent settlements that grew of their own accord (Garner 1992: 175). Of these, with respect to the level of attention paid by companies to planning and building design, copper towns usually had the greatest degree of forethought and most amenities. Conditions in some coal mining towns were very poor and the cause of considerable labor unrest. In fact, general labor unrest periodically swept through the Western states in the lumbering and mining industries, culminating with the Ludlow Massacre in the coal town of Ludlow, Colorado, in 1914. The greater attention given to carefully planned street layouts and building design in the copper mining towns can be interpreted as an effort of Eastern-based management to obviate some of the conditions that gave rise to labor unrest (Garner 1992: 175). As was the case with earlier model company towns, it was felt that social responsibility would result in a better kind of employee who would stay with the company longer and be instilled with a greater sense of pride in work and home.

Copper mining appeared early in the Southwest, the earliest settlements being ragged mining camps. Others, which became boom towns, such as Jerome, Clifton, Morenci, and Bisbee, Arizona, also had no planning or organized building. Generally there was a proliferation of hillside shanties, saloons, dance halls, and other buildings giving the image of the archetypal Western mining town. These basically unplanned, early, Western copper mining communities contrasted sharply with planned ones that some mining companies were beginning to design early in the twentieth century. In some cases, the company employed design engineers to create the street layouts and local contractors, or speculative contractors to construct housing and other buildings based on prevailing vernacular housing styles. Most noteworthy, however, were those model mining communities in which beautification was an issue and which were designed by professional planners, namely Ajo and Warren, Arizona, and Tyrone, New Mexico (see the City Beautiful Movement).

Company Town Characteristics: Paternalism and Social Issues

The complete saturation of the company town by the company was a highly controversial practice called paternalism. As defined by Webster, paternalism is simply "a relation between the governed and the government, the employed and the employer, etc., involving care and control suggestive of those followed by a father; also the principles or

practices so involved" (Allen 1966: 122). Prior to a time when laws imposed safety and health standards on companies, paternalism was used to attract workers, offering protection while away from home. In fact, during the early years of the industrial revolution in America, it was difficult to find skilled labor and some industrialists found it advantageous to entreat workers by offering good wages and decent housing. As villages grew more businesslike, paternalism shifted from procurement to management. Despite the resentment it may have fostered among workers, paternalism was considered by many nineteenth-century businessmen to be a moral responsibility, both protecting society and furthering business. To some industrialists, paternalism was a Christian ideal; industrialism characterized by evangelism, a Protestant work ethic, and the principle of noblesse oblige (Garner 1984: 53-55).

Isolation fostered paternalism. The isolation of most company towns made it easier for management to experiment in the improvement of factory and housing environments and regulate other activities as well. There was a restriction of activities between the company town and neighboring settlements. Isolation made elections easier to control. As the only political boss in the company town was the industrialist, employees formed a type of pocket-borough constituency and therefore many industrialists held public office. Isolation also inhibited socially disruptive forces like organized labor. There were no strikes during the nineteenth century in company towns such as South Manchester, Ludlow, Fairbanks Village, Peace Dale, and Hopedale.

Opinions varied as to the worth of paternalism. There was obviously a period when industrialists had the need to exercise greater responsibility in the treatment of labor. At a time when government exercised little responsibility, paternalism may have been justified as a means of carrying out planning objectives and implementing social programs. Critics such as Upton Sinclair and Ida M. Tarbell felt that paternalism impinged on personal liberties. To Carroll D. Wright, political economist and chief of the Massachusetts Bureau of Labor between 1875 and 1883, capitalists, guided solely by the profit motive, neglected the laboring population and destroyed its work ethic. John Gibbons in his book Tenure and Toil (1888) strongly criticized paternalism as the evil over industrial relations (Garner 1984: 58, 59).

Labor Relations: Although there were few strikes in the United States between 1800-1880, the situation changed radically between 1880-1890. By the end of the 1880s, European immigrants had expanded the labor force, saturating industries such as textile

manufacture. Those workers forced to leave Europe or driven off impoverished farms in the Northeast faced exploitation through wage reduction. In time, the threat of organized labor affected paternal practices. As organized labor achieved some success in raising wages and limiting working hours paternalistic policies became less benign. While paternalism was at first a means of labor recruitment, it often became a means of coercion. However, paternalistic policies were accepted or at least tolerated in model company towns such as Hopedale. These policies had been administered over a longer period of time in isolated communities which were removed from the centers of the labor movement (Garner 1984: 53-57).

Town Management: In the typical company town, company management had a role as both landlord and substitute for city government. A local plant superintendent or manager was in complete charge of all aspects of management. In small towns this individual handled all community administrative matters. In larger towns there might be a resident manager and a townsite manager. Company town management dealt with a multitude of problems not normally associated with regular plant management and employee relationships. As landlord, the company had the duties of home maintenance, settling quarrels, collecting rents, and dealing with grievances. The company also assumed the full responsibility of government needing to furnish all services ordinarily provided by elected officials. The company maintained the streets, community recreational facilities, and public utilities as well as provided for fire protection and law and order (Allen 1966: 108-109).

The Company Store: The controversial company store was once a very typical feature of the company town. Usually located near the center of population, the store served many functions. First as community shopping center it provided everything from workingmen's tools to essentials for the home. The company store in the West generally stocked the highest quality of goods, usually at a higher price, since the store often had no competition and it cost more to ship to remote areas. Company stores also extended credit which was felt warranted an increase in price. Company stores had advantages over any potential competitors, having the privilege of collecting accounts through payroll deductions. This gave the stores an unfair and monopolistic advantage over independent stores. Another controversial feature of the company store was the use of scrip, which was used primarily as a means of credit, sometimes on the basis of money earned but not yet received, but frequently extended to future earnings. The store also served as a town gathering place, a pay office, post office, and bill collection office. The

company store was in a unique position to take care of many transactions for the community. It sometimes became a tool for company domination and control as employees found their very jobs at stake if they were to consider trading elsewhere (Allen 1966: 128-130). In socially responsible company towns, however, the company store did not serve as an instrument for company domination but might be set up as a cooperative, with employees as shareholders.

Social Issues: A great mixture of races and nationalities could be found in many company-owned towns and camps. Racial segregation as well as separation according to national origin appears to have been common in company towns, even as late as the 1960s. In the copper towns of Arizona and New Mexico a significant portion of the unskilled labor population was Mexican and Native American. Anglos filled more skilled jobs. As Mexican nationals (mineros) and Native Americans were paid less than Anglo workers, this laid the seeds for many strike attempts. Segregation was evident in all aspects of community life, even regarding the assignment of swimming pool use.

A company which owned an entire town and was perhaps the largest taxpayer in the county had a vested interest in the public schools. As a general rule, companies valued education and took pride in their schools. Schools were important, not only as educational institutions but as centers of community life as well. Companies had various ways of promoting and supporting education. In early days, some companies built the school and hired teachers. Usually, however, the company would work with the county school board. A company representative usually served on the board, to secure company interests. To attract teachers to isolated communities, some companies provided living quarters (Allen 1966: 104).

Among the most pressing problems arising from isolation was the need for medical and hospital care in Western company towns. In company towns, health care was largely subsidized by the company with small monthly deductions taken from employees' wages.

Owners of company towns generally fostered religious activity. Companies also had recreation halls for dances and private parties, swimming pools, playgrounds, tennis courts, and baseball diamonds. Companies encouraged fraternal and social organizations, sponsoring such groups as Boy Scouts. Baseball was a grand pastime in the company town. Nearly every community had its diamond and competition with other towns in the vicinity was high.

Company Town Characteristics: Paternalism and Town Planning

Comprehensive Planning: Comprehensive design entailing maintenance after construction evolved with company towns like Hopedale. A single enterprise controlled construction from beginning to end and was able to coordinate physical expansion with business and employment demand. Factories, houses, community buildings, and parks existed in a manageable number and adequate ratio to provide jobs, shelter, and recreation for workers (Garner 1984: 227). What distinguished model company towns from other industrial towns was discernible differences in operational scale, planning, ownership, and management. These towns were exemplary with respect to their housing, parks, and community facilities and the relative merit of their urban design. Garner describes a typical model company town as if it were from a Currier and Ives lithograph; the river with its dam, the small factories, frame buildings shaded by oak, elm, hickory, and maple trees, clusters of small uniform houses, parks, and a cemetery all giving the impression of order, routine, prosperity, and propriety. Buildings were placed within walking range. Site supervision continued after construction which ensured the maintenance of houses, factories, and grounds. These model company towns grew in an orderly and economical fashion and were for years assets to their owners. They were remarkable examples of achievement in urban design and environmental planning.

These earlier model company towns did not follow formulas or set patterns in their initial town layout. However as the years passed and the towns grew, the practice of hiring outside experts such as landscape architects became widespread. Years after the initial founding of the town, between 1887 and 1913, the industrialists of Hopedale employed Warren Henry Manning, noteworthy landscape architect and planner. Manning, who also designed the town of Warren, Arizona, for the Calumet and Arizona Mining Co., was one of several specialists, such as Earle S. Draper, Tracy B. Augur, Frederick Law Olmsted Jr., and John Nolen, who were responsible for the plans of a number of single-enterprise towns extending from New England and the South to points west (Garner 1984: 51).

Village Improvement and the Landscape: Village improvement programs, whereby workers and their families were encouraged to participate in home maintenance and gardening, with companies offering awards for the best premises, were initiated to enhance the town image. It was felt that a good image brought attention to both the town and its product. Village improvement gave the employee the opportunity to share in the responsibility of town maintenance. This in turn encouraged pride in the company and

town.

Philanthropic Architecture: Community facilities in the form of public buildings were prominent additions to model company towns, which together with factories and houses established the overall character or urban design of the community. Given to the town by the industrialist and his family, as in the case of Hopedale, Massachusetts, or by the company elsewhere, public buildings were the most conspicuous evidence of paternalism. Aside from landscaped parks and grounds, buildings such as schools, libraries, town halls, and churches gave the town distinction. These buildings served social, cultural, and educational purposes. Often, they were designed by prominent architects.

Housing: The overall impact of the industrial revolution on workers' housing was dramatic. Few towns or cities could match the pace of the population increase with a sufficient supply of houses. The neglect of workers had caught the attention of authors like Charles Dickens in Hard Times and Herman Melville in Redburn. In Europe, popular uprisings from 1848 on led directly to housing reforms. Reformers, including industrialists, politicians, doctors, and architects seized on the housing issue and brought it to the public's attention. As a result, there was an increasing interest in designing improved housing for the working class and poor starting in the mid-nineteenth century. By 1850, model English villages began appearing as satellites to large industrial cities, such as Copely near Halifax, where self-administered company towns were offering an improved type of housing. Similar reforms in America led to laws such as Boston's "tenement house law" of 1868 where minimum standards of ventilation, sanitation, and maintenance could be enforced. Improved, award-winning housing became the standard of model company towns such as Hopedale, Massachusetts, where decent accommodation was the result of the paternal interest of the company (Garner 1984: 85-93).

Typically, the company town owned all land and buildings and rented housing to its employees. Since independent ownership of single-family houses has always been a cause celebre in American history, nineteenth-century reformers considered company housing to be alien and undemocratic, denying the heads of families their right to own a home. Like company towns in general, company housing also acquired a negative image; that of depressing rows of buildings or barracks. However, company housing, like any rental housing, had certain advantages. Rents were usually adjusted to the availability to pay, tending to be low in company towns, and company house crews made

regular maintenance inspections. In model company towns, such as Hopedale and Ludlow, Massachusetts, employees lived in housing of a very high standard.

Model company town housing obtained architectural distinction in terms of spatial and mechanical improvements and low-cost construction. In these cases, the company connected the houses with services such as water, electricity, gas, sewers, and indoor plumbing. Especially with regard to waste disposal and sewerage, these superior workers' dwellings were far ahead of their time. Both South Manchester, Connecticut, and Ludlow, Massachusetts, had interesting examples of model cottages cited for distinction by journalists, government investigations, and foreign observers. Ludlow Associates of Ludlow rented both single- and double-family cottages to its workers. In 1878 thirty units were erected which number among the best houses constructed in the nineteenth century for factory labor. Of a simple form, with a cross-gabled roof, these frame two-story structures were clad in subtle tones of brown or gray wood siding. They had three bedrooms upstairs and at least two and sometimes three rooms below (Garner 1984: 84-101).

Attempts to improve workers' housing during the second half of the nineteenth century brought together representatives from different industrial nations. These were generally government appointees to labor commissions but included industrialists as well. The purpose of these gatherings was to share ideas at an international forum on how best to improve housing. The first forum was held at the Paris Exposition of 1889 where the life of the worker was a central theme. Returning to Paris in 1900, American exhibitors of model houses made a sweep of prizes with Ludlow Associates Manufacturing Company of Ludlow, Massachusetts, winning the gold prize and Draper Company of Hopedale, Massachusetts, the silver. Though America did not host an international housing congress, it encouraged the display of model housing at the World's Columbian Exposition in Chicago, 1893 (Garner 1984: 110-114).

II. HISTORIC THEME: THE CITY BEAUTIFUL MOVEMENT

Introduction

The town of Ajo, planned in 1914 by Minnesota architects William M. Kenyon and Maurice F. Maine, under the direction of John C. Greenway, is an example of comprehensive town planning based on the principles of the City Beautiful movement.

Though short-lived, this movement had a very strong influence on the direction of urban planning in the United States, evident not only in large urban centers but smaller towns, such as company towns. In particular, very noteworthy examples of City Beautiful planning principles could be found in copper mining towns. Ajo is significant as a rare nationwide example of City Beautiful comprehensive planning in a western mining town. Beautification was one of the paternalistic policies applied to ensure a productive environment based upon concern for the workers' welfare.

The City Beautiful Movement- General Characteristics

The City Beautiful movement was the beginning of comprehensive city planning in the United States. Its advent, at the turn of the century, had a resounding influence on the direction of urban planning and the meaning of community. The movement's manifestations were seen in the re-design or planning of a number of American cities, such as Washington D.C., Denver, Colorado, and Harrisburg, Pennsylvania. The City Beautiful evolved from two basic concepts, civic improvement and urban park development, which merged into a form of civic idealism that swept the nation from 1899-1920 and culminated in the structure of a national organization, the American Civic Association. The City Beautiful movement combined a romantic aesthetic with the underlying comprehensive qualities of utilitarianism, social responsibility, and unity. During this era, the idea of involving outside experts or consultants, such as landscape architects, architects, civil and sanitary engineers, and sculptors, in the city planning process became widespread. Also, the idea of "civic democracy" or "participatory planning," in which citizens played an active role in city planning, found its origins in the City Beautiful.

Generally speaking, the City Beautiful movement was a political, cultural, aesthetic, and environmental movement with its roots in the mid-nineteenth century and its influence extending into the twentieth century. In the political sense, it demanded a reorientation of public thought and action toward urban beauty. This required an altered political structure including legislation, new public institutions such as park boards, and grants of power to private entities for semipublic buildings. The reorganized urban politics encompassed administrative agencies and expanded popular participation. City Beautiful type improvements often required voter approval, evidence of citizen activism on behalf of beautification. The City Beautiful movement espoused the idea of comprehensive planning which was introduced to cities by Olmstedian landscape architecture, an

antecedent to the City Beautiful movement. Comprehensive planning considered the city as a whole, attempting to direct urban growth and deal with its problems from an activist, middle class point of view (Wilson 1989: 1).

The heyday of the City Beautiful movement was brief, lasting from about 1900 to 1910. Afterwards architects, engineers, housing experts, and city planners with a "city practical" agenda successfully discredited its ideals as being costly and superficially concerned with aesthetics. The City Beautiful movement did indeed fail to realize its aspirations to control and direct urban growth and to beautify many squalid sections of American cities. However, there were noteworthy successes in the form of beautiful parks, parkways, stately public buildings, and even civic centers, not to mention entire new towns such as Warren and Ajo, Arizona (Wilson 1989: 2). The movement's concerns for comprehensive planning, for converting ugliness to beauty, and for controlling and enhancing economic and physical growth were compelling.

Origins and Ideology

Frederick Law Olmsted: According to William H. Wilson in The City Beautiful Movement, "(t)he taproot of the City Beautiful movement lies in nineteenth-century landscape architecture, personified by Frederick Law Olmsted" (Wilson 1989: 9). The great landscape architect was actually not a proponent of the City Beautiful, though he made three very important contributions to the ideology and aesthetic of the movement and therefore to the future of city planning. First, by designing comprehensive parks and boulevard systems, Olmsted provided examples of what was to become the principal idea of the City Beautiful aesthetic: the natural beauty of parks combined with the vistas and formality of boulevards. Second, Olmsted argued that parks and other aesthetic improvements were economically beneficial, raising property values, contributing to private enterprise, increasing taxes, and generally benefiting the public. Olmsted's third contribution to the City Beautiful was the consulting practice he developed and passed on to his son and stepson. Although the idea of hiring outside consultants to solve urban problems preceded Olmsted, later consulting landscape architects depended upon the tradition he had established for their profession.

According to Wilson, Olmsted's contribution to the City Beautiful movement derives from his creative assimilation of secularization, urbanization, landscape despoliation, landscape appreciation, the social and urban role of parks, and park design. Olmsted had

a prejudice against the city which he felt could be improved but was nonetheless intractable. The city was crowded, dirty, inhospitable, and unyielding; a place which forged unnatural people. Fundamentally, Olmsted did not believe the city was beautiful nor did he try to understand the City Beautiful movement's origins. He was openly critical of the neoclassical formalism that was the hallmark of the movement, even though he often applied the same formal, axial, and monumental effects in his own park design. While Olmsted did not adopt the City Beautiful, the City Beautiful did adopt him (Wilson 1989: 18-21).

To Olmsted, parks served as a wonderful contrast to the urban environment, offering a multifaceted means to shape the city. Parks introduced rural tranquillity to the city-bound masses and were intended to enhance human enjoyment. The park with its open, green spaces, pastoral charm, drives and paths for riding and strolling, and perimeter trees to screen out the built environment, was the antithesis of the city. Olmsted also viewed the park as a means to reconcile class distinctions by providing a pleasurable setting where the elite and the ordinary citizens could co-exist. Since Olmsted recognized the inevitability of rapid urban growth and expansion, he developed the concept of a parks and boulevard system to control and disperse the growth. His plans for park systems in San Francisco, Chicago, Buffalo, Boston, and New York exemplified his vision.

Olmsted's parks were massive, public works projects designed to reshape the land by creating ideal scenery. These works were not natural but were products of "naturalistic constructivism" involving a great degree of expensive earth moving and employing existing natural features only when they could be subordinated to the plan. Olmsted's finished works were romantic or pastoral artifices. Noteworthy examples included Central Park in New York, Franklin Park in Boston, Buffalo's South Park along Lake Erie, and the park for the World's Colombian Exposition on the shore of Lake Michigan. The City Beautiful's reorganization of urban scenes for the sake of civic art had a precedent in these radical disruptions of the landscape (Wilson 1989: 22, 23).

The collaboration of architects, sculptors, muralists, and landscape architects, which characterized the City Beautiful, also found precedent in Olmsted's activities. For example, the design of Central Park involved a collaboration with Calvert Vaux (his partner), a sculptor, two horticulturists, a sanitary engineer, and others. Through his collaboration with the engineer, George E. Waring, Jr., Olmsted began to be aware of the public health significance of parks such as the role of trees in soil drainage and air

purification (Wilson 1989: 24).

Civic Improvement: In America, local improvement organizations first developed at the village level to counteract the deterioration which occurred when population declined in rural areas. These early village improvement associations focused on identifying and working toward some mutually beneficial activity by undertaking single projects such as beautification of homes and yards, trash collection, and improving streets and plazas. As has been noted, this same idea of village improvement was employed in model company towns as a means of promoting the company's image and thereby its product. By the 1880s this improvement movement had spread throughout the East and Midwest, embracing larger towns and cities and dealing with more complex urban issues. By the 1890s, the town improvement idea merged with a more comprehensive approach to beautification known as civic improvement (Woodward 1989: 10).

The value of localized movements aimed at civic improvement had a four-fold influence on the City Beautiful movement. First, civic improvement involved an integrated approach stressing beauty in the whole community, beneficial to all inhabitants. Second, municipal improvement associations dealt with improvement broadly, combining both utilitarian and aesthetic concerns by stressing that modern sanitation systems could be just as vital as parks improvements. Third, these associations had a demonstrated history of organizing community support, especially in fund raising, for civic undertakings. Finally, the civic improvement movement contributed to the wide publicity and broad acceptance of the City Beautiful ideals through its national organization. Between 1897 and 1904, a succession of professional and civic associations evolved and eventually combined to form the American Civic Association (Woodward 1989: 11).

The American Civic Association had in its membership a broad cross section of citizen activists and experts in planning and landscape architecture. Charles Mulford Robinson, a gifted writer who in 1899 first coined the phrase "City Beautiful" in his publication of "The Improvement of City Life" for Harpers Magazine, was among the most prominent. Robinson's subsequent book, The Improvement of Towns and Cities, became the City Beautiful "bible." Another important figure was J. Horace McFarland, a civic activist and successful businessman from Harrisburg, Pennsylvania, who served as president of the American Civic Association from 1904 to 1924, becoming the leading national spokesman for the City Beautiful movement (Woodward 1989: 11).

City Beautiful Advocates: The City Beautiful movement worked through politics to achieve socioeconomic reforms related to urban design. By 1903-4 a supporting ideology emerged which included nineteenth-century sociology, psychology, and biology, plus concepts from several planning reports. City Beautiful advocates were members of the middle or upper middle class and included influential business managers such as newspaper editors or manufacturers, professionals such as attorneys, bankers, real estate professionals, and investors, plus the design experts themselves. This elite, through intensive publicity campaigns, worked to achieve citywide, unifying plans. In fact, the active leadership for and against urban beautification came from roughly the same elite class (Wilson 1989: 75-77).

City Beautiful Ideology: The City Beautiful solution to urban problems, which involved transforming the city into a beautiful, rationalized entity, was to occur within the existing political, social, and economic framework. This movement was reformist and ameliorative, not radical or revolutionary, and focused upon the city rather than the rural village. Advocates believed the city was like a living organism which was susceptible to change. Thoughtful citizens could direct and control its growth. City Beautiful reformers also recognized the functional and aesthetic shortcomings of cities. They sought to preserve the attractiveness that remained in nineteenth-century urban settings and to supplant what was ugly and unkempt. The beauty City Beautiful advocates sought was rarely specifically defined except in terms of proportion, harmony, symmetry, and scale. Those who endorsed the City Beautiful were also environmentalists believing in a Darwinian sense that beauty was a shaping influence and that secular salvation for humans could be found in a flexible, organic city. City Beautiful environmentalism involved social control of a behavioral rather than coercive type, seeking to inculcate society with a civic ideal. City Beautiful advocates attempted to assert control over the definition of beauty and the manipulation of civic symbols (Wilson 1989: 78, 81). City Beautiful leadership also insisted in synthesizing beauty and utility, to combine the beautiful, which was beyond value, with the functional, which paid off materially. Another ideal, related to beauty and utility, was efficiency. For example, the idea of the civic center was promoted because clustering such buildings was efficient. Another City Beautiful ideal was the need to hire experts to solve urban problems. City beautiful ideologues were also class conscious in that they felt the upper classes were those who should assume the obligations of leadership. Fervently optimistic, advocates believed that urban transformation would depend upon the dynamics of charismatic leaders. Finally, the City Beautiful shared in the American discovery of Europe with the belief

that European cities were clean, well-administered, attractive, beautiful entities, whose growth and development were controlled (Wilson1989: 78, 86).

City Beautiful Aesthetics: City Beautiful aesthetics linked natural beauty, naturalistic constructivism, and classicism. Most important was the reverence for natural beauty and its urban counterpart, naturalistic constructivism, which civic designers incorporated into their urban improvement schemes. Daniel H. Burnham's plans suggested boulevards linking civic centers with waterscapes and parks. Similar recommendations were offered in Charles Mulford Robinson's plans for Denver (1906) and Honolulu (1906) and John Nolen's designs for San Diego (1909) and Reading, Pennsylvania (1910). Acknowledging their interest in naturalistic themes, City Beautiful designers chose neoclassic architecture which to them represented an effective, expressive building style. This stemmed in part from the fact that nineteenth-century architects were faced with a new class of projects with the advent of the office building, railroad station, and enlarged government building. Neoclassic architecture was chosen because it offered basic conceptions of proportion and arrangement and had the virtues of both flexibility and precedent. Evocative of American history, it appealed to the late-nineteenth-century urban elite. Neoclassic site layouts were axial and formal, with radiating and diagonal boulevards providing distant views or terminating with architectural focal points.

The City Beautiful Movement and Copper Mining Towns

Variations of the City Beautiful ideal were adopted for three noteworthy copper mining communities established during the first decade of the twentieth century: Warren, Arizona; Tyrone, New Mexico; and Ajo, Arizona.

Warren, Arizona: Warren, Arizona, is considered to be a most literal interpretation of the movement's ideals. The Calumet and Arizona Mining Company was a major employer in the Warren Mining District, near the overcrowded and unsanitary community of Bisbee. By 1905, the company had concluded that a new townsite was necessary for the continued success of the district and mining interests. In January of 1906, the Warren Realty and Development Co. retained Warren H. Manning, one of the nation's foremost landscape architects and city planners, plus Huger G. Elliott and R. A. Applegarth, well-known architects, to design the townsite plan, buildings and houses. The plan created by Warren Manning was axial and formal, with radiating and diagonal boulevards providing distant views or closed by an architectural focal point (Woodward 1993: 27). The

architects planned for uniformity of building type and color scheme in the buildings (which was, however, largely ignored by the first builders) (Garner 1992: 181). An electric, urban street railway system was built to connect the new town with the major mines and Bisbee. Warren was developed as a model plan where miners built their own homes. Employee home ownership was an ideal John C. Greenway hoped to establish in Ajo as well.

Tyrone, New Mexico: The most architecturally elaborate of all the new copper towns was Tyrone, New Mexico, a Phelps Dodge company town. In 1914, the New York-based company engaged prominent New York architect Bertram Goodhue to design the town and its major buildings. Goodhue became nationally known for his elaborate Spanish Colonial Revival buildings built for the Panama-California Exposition (San Diego 1915). The architect designed a formal plan, his conception of an ideal Mexican village, with a 140-by-250-foot open plaza, punctuated by a bandstand and fountain and aligned with the arroyo (drainage channel). Arranged around the plaza were an open-air train station, shops, a heating plant, a company department store, a workers' club, a theater, offices, and a hotel. The community was racially segregated, and housed in stuccoed, hollow clay tile structures. The planned community of Tyrone, New Mexico, suffered greatly from the drastic fluctuations in the copper market. After 1966, the open pit method of mining was employed, the expansion of which destroyed Goodhue's noble experiment (Garner 1992: 187).

Ajo, Arizona: The Calumet and Arizona Mining Co., under the supervision of John C. Greenway, also developed the town of Ajo. Around 1914 the company hired outside consultants, Minnesota architects William M. Kenyon and Maurice F. Maine, to design a community zoned into discrete sections including the mine, "American Townsite," "Mexican Townsite," and "Indian Townsite." In this collaborative effort, the design team employed the latest town planning principles by incorporating the comprehensive functional and aesthetic ideology of the City Beautiful. For this mining company the consultants designed not only the street layout but, with a Spanish Colonial Revival theme, major buildings and housing types as well. Like the above-mentioned company towns, Warren and Tyrone, in one important sense Ajo was not a typical City Beautiful project because there was no citizen involvement. The company officials and designers directed the scope of the project in its entirety. As the democratic ideals of the City Beautiful were demonstrably elitist, the racially segregated Mexican and Indian Townsites located nearer the mine had fewer amenities than American Townsite.

Typical of City Beautiful ideology, the street layout of Ajo, especially American Townsite, was formal and axial with fan-shaped, radiating streets. The central axis was composed of an elongated plaza which terminated visually at the railroad station to the east and the school to the west. The tree-lined plaza with its grass lawn and gazebo provided a cool respite from the desert heat and a meeting place where Ajo's citizens, regardless of social class, could meet. Ajo, like Tyrone, New Mexico, was atypical of the City Beautiful in the use of the Spanish Colonial Revival style instead of neoclassic architecture. This was undoubtedly due to the influence of the 1915 Panama-California Exposition for which Bertram Goodhue, Tyrone's designer, designed elaborate Spanish Colonial Revival buildings. The Spanish Colonial Revival style, especially when combined with a Mexican or Spanish Colonial style plaza, was deemed very suitable for the Southwest.

III. THE HISTORY OF AJO

Introduction

Throughout history, numerous attempts to extract and market copper from the Ajo area were doomed to failure by isolation, transportation difficulties, lack of water and the low-grade quality of the ore. These problems needed to be solved before any serious attempt to produce copper could be undertaken. In 1911, the newly appointed manager of the Calumet and Arizona Mining Company, John C. Greenway, knowledgeable about the open-pit method of mining low-grade ores, had the vision to see that this method could be successful in Ajo. He also had the vision to develop a profitable means of extracting copper from this low-grade ore, and the managerial skills and sense of social responsibility to set up a plant and town that ensured the successful production of the ore. Greenway, unlike his predecessors, did find a way to make the Ajo mines work.

Ancient, Spanish Colonial and Mexican Eras

In the area around present-day Ajo, it is known that local Native Americans, Spaniards, and Mexicans in their turn all made efforts to utilize ore deposits. One particular Native American legend tells of early gold placer mining attempts by the Tohono O'odham in what is now the Ajo area (Stephens 1984: 2). Father Kino, on an expedition in 1699, made no mention of mining activities in his accounts of the journey. However, it is known that the Spaniards did work the area by the discovery of some rotting, much worn

rawhide ore buckets and a few manmade gouges in the hillside where Spanish silver miners had abandoned one of the world's largest deposits of copper ore (Sowell 1968: 32).

1854: The Arizona Mining and Trading Company

After the Gadsden Purchase of 1853, American prospectors stormed into the newly acquired land. In 1854, Peter R. Brady was sent by Colonel A. B. Gray of the proposed Texas and Pacific Railroad to secure ore samples. Brady returned later that year with twenty venturesome, inexperienced "miners," the first Anglos to mine for copper in Arizona. Brady's men's plans were to relocate old mines and also search to the southeast for the fabulous Planchas de La Plata mines, in Sonora, Mexico. The Arizona Mining and Trading Company limited its mining to small bodies of cuprite ores and native copper which was then transported by teams of oxen to Fort Yuma, then shipped to the nearest smelter, Swansea, Wales. The prohibitive cost of this venture, the scarcity of water and the isolation of the mines doomed the Arizona Mining and Trading Company to failure.

1860-1890

Periodic attempts to exploit the deposits followed, but the lack of water and the difficulties of transportation prevented success. Many prospectors had acquired claims in the area but by 1890, only two men, Tom Childs and Reuben Daniels, had acquired claim to most of the land (Rose 1936: 43-44). In the meantime, the Civil War was fought and the Southern Pacific Railroad was built across southern Arizona, bringing a railroad within forty-four miles of the Ajo area.

1890-1907

These years have been characterized as the era of folly and fraud. A. J. Shotwell, a mine promoter of doubtful character, acquired leases on some of the mineral lands and interested a gullible St. Louis investor, John R. Boddie and others to form the St. Louis Copper Company. Based on Shotwell's claims of very high grade ore from his spurious, promotional test runs, the company invested $45,000 in the venture and received a return of only $35,000. As that company quickly withdrew from Shotwell's unprofitable venture, he found financial backers for an equally unsuccessful concern, the Rescue

Mining Company. Still another organization was formed, this one called the Cornelia Copper Company after Boddie's deceased wife. Stock issued by the Cornelia Company was offered to many groups of prospective purchasers. Although impressive demonstrations could be made, at that time there was no practical method of processing Ajo's low-grade, carbonate ores. There were also formidable transportation difficulties plus a total lack of water in the vicinity; problems which needed to be solved before it would be possible to engage in large-scale mining (Rose 1936: 189).

As months passed with no copper from Ajo entering the market, the investors pinned their hopes on exorbitant claims made by charlatans who, by means of pseudo-scientific methods, developed machines said to be able to extract pure metal from the ore. Investors lost thousands of dollars to these abortive experiments. Further financial machinations and a new stock issue resulted in the formation of the New Cornelia Copper Company under the laws of the state of Delaware with John Boddie the principal stock holder. It wasn't until 1911 that Boddie's remarkable perseverance brought him the wealth he had sought for so long.

1911-1917: John Campbell Greenway and the Calumet and Arizona Mining Company

When the Calumet and Arizona Mining Company wanted a skilled man to run its Bisbee mines, Yale graduate and former Rough Rider John Campbell Greenway (see biography, Additional Documentation) was lured away from the Oliver Mining Company in Minnesota, where he was known for his considerable success with steam-shovel mining of low grade iron ore from the Mesabi Range. At this time, more than one thousand miles away in Utah, Daniel C. Jackling was proving that the open pit method of mining could also be applied to copper ores, thus making economic the lower grade deposits. Because of Jackling's success, leading mining engineers were engaged in a race to find large bodies of copper-containing ore. At the time of Greenway's arrival in Arizona, in the Ajo area alone three companies were attempting this search. Greenway's first move as manager of the Calumet and Arizona was to seek new copper deposits in the same area.

Greenway sent Ira B. Joralemon, a young Calumet geologist, to conduct sample studies. Joralemon studied what was under the three Ajo hills, which most previous prospectors had neglected. Based on his evaluations of Joralemon's findings, Greenway optioned

70% of the New Cornelia Copper Company's stock from the beleaguered John Boddie. Then Mesabi drillman, E. J. Longyear, was contracted to undertake systematic exploratory work. The results of the exploration provided indications that some 40,000,000 tons of two different kinds of copper were available, almost all of which was very low grade. Though the situation appeared ideal for open-pit, steam-shovel mining, Greenway still faced major obstacles, namely the lack of water and the need to develop a commercially-viable method of processing low-grade copper ores (Rose 1936: 191).

Undeterred by numerous prophets of doom, Greenway decided to proceed. To find water, he searched just north of Ajo where there was a thick, ancient lava flow. A huge oil drilling rig, which had been dragged across the desert by mule teams, was set up to penetrate slowly through the lava. After several test holes were drilled, one of the holes, after a depth of 650 feet, yielded what seemed to be an inexhaustible source of warm water. By the time subterranean chambers had been hewn out of the rock to house the pumps and a pipe line had been laid to Ajo, the cost of the well surpassed one million dollars in early 1900 terms (Rose 1936: 192).

Greenway never doubted the ultimate achievement of finding a method to obtain the copper from the Ajo ores and he acquired the assistance of a brilliant mining engineer and trouble shooter, Dr. L. D. Ricketts. For four years, they patiently carried out one experiment after another; finally able to get high extraction of copper from a small quantity of ore in a test tube by a leaching process. As soon as the experiments had outgrown the laboratory, the two erected a one-ton test plant, careful to avoid premature expansion until this operated profitably. Another forty-ton pilot plant was constructed to verify the earlier results, and after a successful six months of operation, the decision was made to begin large-scale production in Ajo. In early 1916, Greenway appeared before Calumet and Arizona's Board of Directors with plans for a five-thousand-ton leaching plant. Completed in April 1917, the new plant was ready to begin production.

The 1916 patent on the new process was issued in Greenway's name. The Greenway method required leaching of the copper oxide ore in a sulfuric acid bath which was followed by an electrolytic process that claimed the freed copper. The process was as follows: Steam shovels loaded large chunks of hard ore into railroad dump cars. This ore then traveled to two crushers, where it was reduced first into a coarser, then a finer size. Conveyor belts then carried the ore to lead-lined concrete vats. Sulfuric acid was introduced and the leaching process started. The copper-bearing acid solution was then

fed into smaller vats into which cathodes and anodes were inserted, thus beginning the process of electrolytic deposition of copper. When completed, traveling cranes lifted sheets of copper ready for shipment (Rose 1936: 194).

During the last stages of experimental work, another major accomplishment was underway. Under Greenway's direction, work began on building a railroad line to Ajo. It had been debated for some time whether to connect Ajo directly to Tucson by 132 miles of track or to a Southern Pacific Station at Gila Bend, forty-two miles away. The route through Gila Bend won. Under Greenway's direction, work began on building the line to Ajo and in January 1916, the Tucson, Cornelia & Gila Bend Railroad reached the town.

Planning the Town of Ajo

With the problems of mining copper ore, water, and a rail connection to Ajo solved, the incipient company town could grow. The usual southwestern procedure was to open the mine and gain profit before considering workers' needs. This was not the case with Ajo. John Campbell Greenway was noteworthy not only for his vision in the field of mining, but also for his enlightened town planning experience and his strong sense of social responsibility. As general superintendent for the Oliver Iron Mining Company in Minnesota, Greenway built three towns; Coleraine, Taconite, and Marble. Wishing to duplicate the Minnesota success, Greenway included the cost of an attractive model town to be constructed at Ajo as part of the original investment. In the hostile environment of the desert, the ability to secure and hold good employees became a primary concern of his. Greenway knew that to build a successful mine, the workers' needs must be met. (In fact, among Greenway's initial concerns when he first arrived in Arizona were efforts to improve relations between employees and management. He immediately instituted several labor reforms by eliminating paycheck deductions to the company store and by abolishing Sunday work.) It was Greenway's aim to provide a high standard of living along with all necessary material, educational, and medical benefits.

Soon after reaching Arizona, Greenway had written to his former Minnesota chief clerk and then mine superintendent, Michael J. Curley (see biography, Additional Documentation),

> "I hope someday, Mike, to call on your services, and when I do, I hope that you will come. I do not know when this will be, but time will determine that." (Rose 1936: 193).

Curley knew all about the open-pit mining method, and he accepted the position as general superintendent of the New Cornelia Copper Co. Under him, the great permanent processing plant was built, the huge mine at Ajo was opened, and the town was planned and developed. Mike Curley shared John Greenway's sense of social responsibility especially with respect to education and social welfare.

Apparently the early planning stages for Ajo were underway as far back as 1914 when Greenway commissioned two architects he knew from Minneapolis, Minnesota, William M. Kenyon and Maurice F. Maine, for the job (see biographies, Additional Documentation). A relatively flat site was chosen which was intended to be convenient to the mine site yet far enough away to avoid noise and odors. It is believed that John Greenway planned the original townsite for Ajo but that Michael J. Curley, who was in constant contact with Kenyon and Maine via letters, was responsible for making it work. Though it is difficult to know who was in charge of the plans, apparently all correspondence and all decisions were formalized by Greenway (Stephens 1984: 12-14).

Using zoning, Kenyon and Maine designed a plan for a settlement that would be divided into four discrete sections which would segregate not only the mining operation from the residential zones but the employee ethnic groups from each other (Garner 1992: 183) (see Additional Documentation). The Anglo section, labeled "American Townsite" and intended for the skilled mechanics and people of trade as well as the clerical, executive, and administrative employees, contained the town center with shops and public buildings (Kenyon 1919: 10). There was also a section for Mexican miners labeled "Mexican Townsite" and another, "Indian Townsite" for Tohono O'odham (formerly called Papago) workers. The Anglo section was to focus on a town center with buildings enclosing a plaza complete with bandstand. Incorporating the city park philosophy of the City Beautiful movement, the spacious plaza was intended to serve as "everyone's front yard," an oasis-like place for ample planting where the population could gather. The extended business blocks on either side of the plaza were to include space for the company store, other stores, a moving picture theater, a vaudeville theater, a restaurant, a bank, and a post office; these all to be connected by arcades opening out into the plaza (Kenyon 1919:8) (see Additional Documentation). Based upon the classical, aesthetic ideals of the

City Beautiful, the street layout of the American Townsite was symmetrical and included a strong central axis from the railroad depot to the site of the future school. Two symmetrically splayed street grids radiated out from the central hub. The Mexican and Indian Townsites were also basically grid in pattern. In addition to the business block and related structures, Kenyon and Maine designed model houses for the town; their own version of the Spanish Colonial Revival style or Prairie style. The floor plan for "American House #3" was also chosen for houses in the Mexican Townsite (Kenyon 1919:9) (see Additional Documentation). The Spanish Colonial Revival style hospital was built in 1919 on a ridge between the American Townsite and the Mexican Townsite (Rickard 1996: 86).

Although the Map of the Ajo Townsite (see Additional Documentation) was not officially recorded until February 12, 1917, apparently construction had already begun before that time. A complete water, light, and sewer system was being installed before the townsite was occupied. A letter referring to "Municipal Matters - Ajo", from John Greenway to Michael Curley of November 22, 1916, details John Greenway's original intentions for the new community. In his opening paragraph he instructs Curley as follows:

> "I think you should employ a Town Manager, install him in suitable quarters and instruct him in matters relative to rents, leases, water rates, light rates etc...."

He proceeded to produce a schedule of rents for company-owned dwellings which ranged from $1.00 per month for houses costing $100-$250 up to $30.00 per month for houses costing $5,000-$5,500. It is interesting to note that at this time John Greenway advocated employee home ownership, as was the practice in Warren, Arizona. In this regard, he informed Michael Curley:

> "I believe it is of great importance to have employees of the New Cornelia Copper Company actually own their own homes, and I think that all things equal, preference should be given to men who are willing to purchase and own their own homes" (Greenway 1916: 6).

An exception to this was that the company would "sell no ground in Mexican Town" but instead would lease lots and rent buildings to desirable applicants (Greenway 1916: 7). This may have related to the company's need for possible future expansion of the mine.

Information has not been found as to what actually transpired in regard to employee home ownership. It is known that after Phelps Dodge acquired the Ajo plant, in traditional fashion, the company owned most of the town until the 1980s when it began a large scale sale of properties.

For the business block, Greenway instructed Curley to charge $4.00 per front foot per month on the ground floor. At this time, the company was in the process of completing construction of one complete business block on the northwest side of Block 1, consisting of eleven 25' store fronts. Lots 17, 18 and 19 were to be assigned to the "cooperative store of the men" and lot 10 had been leased to the Valley Bank. In the other seven intervening stores, Greenway preferred five-year, unassignable leases for a moving picture show, billiard hall, bowling alley with cigar shop, barber shop, post office, restaurant, drug and confectionery stores. After filling this first building block, plans called for a duplicate building block on the other side of the plaza (which was built gradually and not actually completed until the 1950s).

At that time warehouse leases were designated for the area lying southwest and northeast of the main-line tracks between Block 3 of the townsite and the railroad bridge to the northwest. Warehouses were to be of a uniform color, with the "color of galvanized corrugated iron as a standard" (Greenway 1916: 2). He also stated that the town would require a blacksmith shop, garages, and businesses of that character which were necessary but not to be located on the plaza. Unoccupied lots 15-18 in Block 3 were assigned for such uses.

In American Town, all residential lots in Blocks 4 through 20 were reserved for lease, sale, and rent to desirable applicants, on easy terms, preference always given to employees (Greenway 1916: 5). Of these lots, Blocks 5, 6, 12, and 17 were reserved. There were to be no businesses on residential lots. An interesting pattern of housing evolved from Greenway's following statement:

> "I think our plan should be to build on alternate lots within the area covered by water and sewer, and after this is done, then to build on the intermediate lots within the same area."

This practice was carried out in the early years with the original clay tile, Spanish Colonial Revival models designed by Kenyon and Maine the first to be constructed. The

result of these instructions obliterated the City Beautiful ideal of unity that was undoubtedly the architects' original intention. The infill on the intermediate lots was not of the Spanish Colonial Revival style.

Growth and Prosperity: 1917-1931

As mentioned, the map of the Ajo Townsite was recorded February 12, 1917. Therein was stated that the New Cornelia Copper Company, a Delaware Corporation, dedicated to the public for its general use all of its right, title and interest, to the depth of twenty five feet below the surface in the avenues, streets, plazas, alleys, parks and public grounds of the Ajo Townsite. With reference to mineral rights, the dedication

> "should not convey...(any right, title, and interest) to a greater depth than twenty five (25) feet immediately beneath the surface, nor any of the ores, minerals, or metals contained therein."

The dedication also conveyed no right, title, or interest in Blocks 2, (the Plaza), 6 and 7 (the churches), and 13 and 20 (the school). The boundaries of the Ajo Townsite (see Additional Documentation for map) were defined by the Tucson, Cornelia and Gila Bend Railroad tracks to the east, Solana Avenue to the north, Elota Avenue to the south, and Colado, Orilla, and Cuñada Streets forming the arc from the northwest to the southwest. Block numbers originated from the business district in a fan-like pattern from 1 to 31. Individual residential lots in Ajo Townsite were basically 125 feet by 54 feet, varying from this regularity to conform to the curved pattern in Blocks 26, 27, and 28. The pattern in Block 25 was also irregular. The business leased spaces appeared to be 125 feet by 25 feet. On May 26, 1917, the First Addition to the Ajo Townsite was recorded. This essentially extended the town towards the west from Cuñada Street to Montecito Street, bounded by Solana Avenue to the north and half Blocks 35, 36, and 43 to the south of Esperanza Avenue.

The southeast business block was erected immediately, most likely in 1916. Shops had high ceilings with thick clay tile walls. [Starting in 1917 some of the early tenants included the Valley Bank, a post office, the Fruit Stand, the Cornelia Billiard Parlor, the Chocolate Shop, the Cornelia Club Café, the Ajo Drug Store, the Oasis Theater, the Ajo Barber and Beauty Parlor and the New Cornelia Cooperative Mercantile Company (Rickard 1996: 59)]. At the west end of the plaza, an ornamental bandstand was

constructed with a promenade for dancing. The park was surrounded by a reinforced concrete and iron fence of which every other post was an ornamental light. Canary Island palms and fan palms were planted for shade and definition of the plaza. [The northwest business block was not completed until after World War II. This block provided for a theater, a library, a recreation hall, a "post office newsstand" and a post office (Rickard 1996: 293)]. At one time the "necessary businesses" not located on the plaza but on Block 3 on Pajaro Street included an auto parts with garage establishment, a bottling works, an undertaker, and a justice court with jail. Along Pizal Street various shops, a printer, and a bakery were located.

Additional high-style buildings, designed by other well-known (and unidentified) architects, were added in quick succession. The school was designed in 1918 by a Phoenix firm, Lescher and Kibbey (later Lescher and Mahoney) (see Additional Documentation). According to the Tombstone Prospector, August 6, 1918, the school trustees, a body which included W. F. Nash, New Cornelia Copper Company Chief Clerk of Mines, and F. A. Nathan, manager of the New Cornelia Cooperative Store, voted to spend $135,000 on this school.. The new school was in service on September 15, 1919 (Rickard 1996: 101). For use of the General Superintendent, a fine, large bungalow-type house was built in 1918. When Mr. Curley became Manager in 1926 (see following) this house became known as the "Manager's House" (Rickard 1996: 75). In 1919, the New Cornelia Copper Company erected the hospital (Rickard 1996: 86). The building was obviously the work of some trained architect. In 1926 Lescher and Kibbey designed the Ajo Federated church built in the Spanish Colonial Revival style. The same Phoenix firm designed a vernacular, side-gabled house with a deep porch on heavy posts for the convenience of members of the Board of Directors of the New Cornelia Copper Company. Completed in 1927, this house was known as the "Directors' House," a guest house (Rickard 1996: 148, 152). (It is known today as the Guest House Inn, a bed and breakfast establishment.) The Catholic Church, Immaculate Conception, completed in 1925, was designed by famous Santa Barbara architect, George Washington Smith. This was due to the influence of John Greenway's new wife, Isabella, who had previously commissioned Smith to design her own house in Santa Barbara, California. The church was constructed of adobe. George Washington Smith also designed John and Isabella Greenway's Spanish Colonial Revival style mansion, situated on a hill overlooking both the town and the mine.

The period from 1917 to 1926 was an era of operation and growth for Ajo. At this time,

the leaching plant developed by John C. Greenway was in full operation. In 1922, construction of a 5,000-ton flotation concentrator was begun, and ore dressing operations started in January of 1924. In May of 1925 John Greenway resigned from his position of General Manager of the Calumet and Arizona and New Cornelia Copper Mining Company. Although the resignation came as a surprise, Greenway had been considering the move for several years as he felt he had completed his challenging assignment by bringing a large organization to a profitable and routinely operating basis. Tributes for his accomplishments poured in from all over the country. Greenway had no intention of leaving Arizona and planned to continue living in Ajo in the beautiful home he had recently built for himself, his wife, and baby son. Very suddenly, after gall bladder surgery in New York, John C. Greenway developed a blood clot and died on January 19, 1926. Over 3,000 mourners from all over the United States attended his funeral on January 26, 1926, held on the porch of the Greenway's home (Rose 1936:212-214). He was buried on the hilltop just south of his mansion.

During this period, the plant and town of Ajo continued to grow. After Greenway's resignation, in 1926 Michael Curley became the Manager of the New Cornelia Copper Company. The Calumet and Arizona was a pioneer in using the leaching process for copper ore reduction in Arizona. (Mostly oxide ores had been processed until 1924 when sulfide ores were also processed.) By 1929 the daily production was increased to 8,000 tons by the addition of three treatment units. By 1930, the leaching plant ceased operations after all oxide ores had been exhausted and emphasis now shifted to the treatment of sulfide ores. The sulfide ore concentrator had been enlarged in 1928-29. Also in 1929, the New Cornelia Copper Company was merged with and became a branch of the Calumet and Arizona Mining Company.

Acquisition by Phelps Dodge (1931 to present)

The development of Ajo, a company town based upon an extractive industry, has been married since its founding to the copper market. The copper industry, along with nearly every other industry in the country, was hard hit by the Great Depression of the 1930s. Prices stood at a low level, stockpiles mounted rapidly, and extremely low cost copper could be imported from Africa and Chile. Mining companies which had permitted working capital to dwindle found themselves in an embarrassing position. The Calumet and Arizona Mining Company, and its subsidiary, the New Cornelia Copper Company, primarily as a result of over-generous dividends, found itself with huge copper reserves,

but without the necessary monetary reserves to develop and to operate these holdings. On the other hand, the Phelps Dodge Corporation was in excellent shape financially, but was in need of adding new mining properties to its rapidly shrinking copper reserves. The relative positions of the two companies created a merger. The two companies became one in 1931, with the New Cornelia Copper Company to be known from that date as the New Cornelia Branch of Phelps Dodge. Michael Curley continued to serve as mine manager until his retirement in 1939.

The Phelps Dodge Corporation: The New York based Phelps Dodge Corporation, a company started by an orphan, Anson Greene Phelps, became Arizona's leading copper producer and the second largest in the United States. In 1881 Phelps Dodge began to acquire mines in Arizona including those at Bisbee, Morenci, Christmas, Globe, Jerome, Prescott, Safford, Tombstone, and Ajo. Tyrone, New Mexico, and Nacozari, Mexico, were also added to its copper mining acquisitions.

Copper Fluctuations and Effects on Ajo: Until 1984, copper mining has been the only motivating force for the economy of Ajo. Naturally, prosperity or depression within the industry has been picked up by the New Cornelia Branch and relayed to the dependent community. The copper industry has been an important basic factor within the national economy, which has in its turn been affected by fluctuations of the national economy. Basically, copper has played a very important role in electrical and allied industries as well as the automotive and building industries. Copper production was greatly curtailed by the economic slump from 1930-32, increasing to peak in 1937, sliding and then peaking again in 1943 as a result of World War II. Copper production dipped in 1944, as a result of labor shortages, cut-backs in military requirements and widespread strikes. Copper production increased again as a response to the Korean War (Leonard 1954: 19-25). The same fluctuations occurred from the 1950s until the 1980s.

During periods of expansion, changes occurred to both the plant and the town of Ajo. The capacity of the concentrator was increased several times, electric shovels replaced steam shovels, and electric locomotives replaced steam locomotives. Owing to increasing technical improvements, it became possible to profit from even lower grade ore. In 1937 an acute housing shortage for employees prompted the need to plat the Second Addition to the Ajo Townsite. By 1948 reserves had increased to the extent that the New Cornelia could justify the expenditure of $8,000,000 for its own smelter, completed in 1950. Prior to that time, smelting of Ajo's railroad-shipped ore had been

handled in Douglas, Arizona (Dunning 1966: 252). The introduction of the smelter created the need for new housing, prompting a construction boom adding many new dwellings to the community, forty-five of which were built in American Townsite. In time, the New Cornelia Branch of the Phelps Dodge Corporation rose to be the third in copper production in the United States. In 1979, in response to a downward trend in the market, Phelps Dodge felt it should react by expanding its operations in Ajo at a cost of $2.5 million. A number of acres of housing, formerly known as Mexican Townsite and Indian Townsite, were demolished to accommodate a new mine-office building, garage and shops. The Phelps Dodge Corporation sent out notices to vacate properties. Some of the homes were stripped for salvage while others were hauled away. Relocated residents purchased company-owned housing or non-company owned housing elsewhere in town, found apartments or moved back in with families. Between twenty-five to thirty homes were moved by their owners to other sites (Svejcara 1980).

The End of a Company Town -Early 1980s to Present: Fluctuations of the above nature continued until the early 1980s when, owing to a drastic reduction in the market value of copper, copper production in general, and in Ajo in particular, virtually ceased. The last normal year for copper production was 1981, after which, owing to an international glut in copper which could be produced cheaper overseas, copper prices reached levels near the lowest in real terms in this century (Wilbur 1984). In 1984, the New York Commodity Exchange (COMEX) valued copper at 59 cents a pound; the break-even value being from 80 cents to 95 cents a pound. In August of 1984, Phelps Dodge decided to shut down the mine and mill. Copper mining industry officials declared the copper industry to be in grave jeopardy, unless drastic steps were taken to boost the price of the metal.

Also, in 1983 a bitter strike began when Phelps Dodge Chairman, George B. Munroe, citing foreign competition and a $74 million loss in 1982, wanted to purge his labor contract of its expensive cost-of-living adjustment provision (Business Week 1983). Even though they had taken five strikes since 1968, copper producers had previously been unable to resist union demands. However, after a July 1 walkout of 2,600 mine and smelter workers and threats of violence (in August the Morenci mine was shut down for ten days until the Arizona National Guard ended picket line threats), Phelps Dodge chose to hire non-union workers and operate at a nearly normal level (Business Week 1983).

Unable either to resolve the labor strike or to recover economically, Phelps Dodge closed

its New Cornelia Branch in 1984. It was said that about 209 million tons of ore containing 800,000 tons of recoverable copper (from fifteen to eighteen years' supply) still remained to be mined at Ajo. Laid-off workers left town in droves, businesses failed and the population plummeted from around 6,000 inhabitants to less than 2,850. Many residents were forced to receive an allotment of free food, lining up at the Old Cătholic School (today's Historical Society Museum) for cheese, butter, honey, rice, powdered milk and flour (Rotstein 1984).

In 1984 Phelps Dodge decided to undertake a land-sale policy which was considered a radical break from company tradition and which its officials proclaimed was the end of the era of company-owned towns. Local sources estimated that at that time, Phelps Dodge owned 80-90% of the property in Ajo. Phelps Dodge began to sell six hundred company owned homes it had provided for its workers, concentrating in the old section of town on Ocotillo, Rocallo, Morondo, Cholla, Esperanza, Palo Verde and Solana Avenues. It also decided to get out of the hospital business, reducing the company medical facility to the level of a clinic. It also placed company-owned commercial properties on the market, such as Moose Lodge 1593, giving members the option to purchase it. Phelps Dodge has continued to retain the mineral rights below the twenty five foot level of the properties. Local residents and, increasingly, retirees from the Midwest who have chosen Ajo as a winter haven, have been purchasing the residences (Rotstein 1984).

Ajo's Future

Ajo is in the process of developing a new reason for existence, no longer as a company town but one which must survive as an independent entity. Many local residents feel that the key to Ajo's survival lies in converting it to a retirement community and tourist center. Integrating historic preservation into community planning could play a significant role in maintaining Ajo's attractiveness. The identification of Ajo's historic resources can contribute to the public's awareness that these resources have value and should be preserved because they give Ajo its special character and cultural depth.

Ajo: Company Town Characteristics

Nineteenth-and early twentieth-century company towns were communities devoted to a single industry, with all land and buildings owned by the company and housing rented to

employees. As company towns grew and changed, they often developed into communities with one or more industries which may have owned all the land at one time but gradually sold this land to other businesses and homeowner-employees (Garner 1992:176). For many years, Ajo has been a company town in which the company owned part, but not all, of the land upon which residences and other buildings were located. This was certainly the case when, after a merger in 1931, the New Cornelia Copper Company became a branch of the Phelps Dodge Corporation. Phelps Dodge owned the plaza and all housing in the company section but homes not on company property were privately owned. There have also been a number of privately-owned motels, restaurants, and other business facilities. (Owning from eighty to ninety percent of the property in Ajo, in 1984 Phelps Dodge undertook a radical break from company tradition and began to sell off its land to local residents and out-of-state visitors.)

Paternalism in Ajo: Typical of the model company town, the Calumet and Arizona Mining Company and Phelps Dodge Corporation practiced paternalistic policies with respect to the workers' welfare to ensure a productive environment. While in many Western towns serious abuses of power did occur, especially through company store exploitation, Ajo has been an example of sincere and commendable efforts at company-employee relations during most of its existence. In later years, however, Ajo witnessed several industry-wide strikes and one crippling strike of 1984 (Allen 1966:xi).

Town Management: In the typical company town, company management had a role as both landlord and substitute for city government. In larger towns there might be both a regular plant manager and a townsite manager. Although John C. Greenway in 1916 instructed Michael Curley, general superintendent of the New Cornelia Copper Company, to hire a town manager, to date no information has been found regarding the appointment of someone to fill this position during the founding years of the community.

The Company Store: Often a controversial, monopolistic, and exploitative feature of a typical company town which prevented competition and locked employees into a mire of credit debt through the issuance of scrip, the Ajo company store under the Calumet and Arizona Mining Company and later Phelps Dodge Corporation was actually a benefit to the workers. Originally set up as a cooperative with employees as shareholders, this profit-sharing practice continued after 1931 when Phelps Dodge became the landlord. Phelps Dodge also allowed independent stores to compete. Phelps Dodge Mercantile Company is a subsidiary of Phelps Dodge Corporation. Originating in Bisbee, Arizona,

in the 1880s, Phelps Dodge established company stores in every town it owned or in which it conducted serious operations (Allen 1966: 128-130).

Philanthropic Architecture: In keeping with the tradition of nineteenth-and early twentieth-century model company towns, the Calumet and Arizona Mining Company provided several, architect-designed, high style buildings as well as the downtown plaza to serve as community facilities. The centerpiece of Ajo was the railroad station with its adjoining commercial buildings connected visually by an arcade. Here were housed all the basic business needs of the community as well as some recreational facilities. The original site plan called for a community house and swimming pool which, for unknown reasons, did not materialize. Substituting for the community house and pool was the Protestant Church balanced by the Catholic Church to its north (Gebhard: 37). The architectural gem of the community was the high school, named after mining superintendent, Michael Curley. The company also supplied the New Cornelia hospital building.

Housing: True to the paternalistic and segregated nature of company towns, there also existed a hierarchy in housing types. Typically, this range included a few substantial, well-built houses, equipped with modern conveniences throughout, for the superintendent, town manager, clerics, doctors, company store manager, etc. In Ajo, for example, John Campbell Greenway and Michael Curley lived in the largest homes, situated on hilltops symbolically overlooking the mine and the town. Four comfortable, Spanish Colonial Revival style, hilltop residences located west of the hospital housed the doctors. Local residents claim that at different times these same residences also housed various mining administrators. Next, in a typical company town, a larger group of similar but less pretentious houses for foremen, sub-foremen, electricians, and master mechanics was constructed. The balance of the houses, which made up the bulk of the camp, were designed for the "more permanent miners" as well as "improvident miners," the former being of a higher standard than the latter (Allen 1966:86). There were also a variety of multiple dwellings such as apartments and dormitories. In Ajo houses ranged from the architect-designed mansion of John C. Greenway to very modest miners' cabins. Uniform company housing included the attractive, plastered hollow clay tile models designed by the town planners, the early redwood frame, square and side-gabled massed-planned cottages, and the uniform types of 1948. There were also some dormitories erected by the Phelps Dodge Corporation.

Social Issues:

Racial Segregation: During the early years, the common practice of racial segregation was practiced in Ajo as well. The community was laid out from its inception with an "American Townsite" for Anglos as well as a "Mexican Townsite" and an "Indian Townsite" for these two ethnic populations. The townsites for the minority workers, no longer in existence, were located next to the mine on land Phelps Dodge appropriated for expansion of the plant.

Education: A company which owned an entire town had a vested interest in the public schools. Companies generally valued education and took pride in their schools which served the community as educational institutions and centers of community life. The Calumet and Arizona Mining Company was no exception. In 1919 the beautiful Spanish Colonial Revival style school, designed by Phoenix architects, Lescher and Kibbey, was put into service.

Health Care: The need for medical and hospital care in isolated, Western company towns was a pressing problem. However, the community of Ajo had very adequate medical facilities in its thirty-five-bed New Cornelia Hospital, staffed by three physicians and four nurses. Built in 1919, the $75,000 building had a magnificent operating room equipped with the latest scientific devices plus an x-ray room. This hospital was operated at a monetary loss to the New Cornelia Copper Company. A small monthly fee deducted from the salary entitled the employee and his family to all benefits available at the hospital. (Rickard 1996: 86).

Religion: Company town owners generally fostered religious activity. Early in Ajo's development, a Catholic Church (Immaculate Conception) and a Protestant Church (Ajo Federated Church) were planned for American Townsite. According to a former resident whose father served as minister for several years, Mexican Townsite also had a Protestant Church. Hispanic and Native American Catholics probably attended the Catholic Church in American Townsite (Ward).

IV. AJO'S HISTORIC ARCHITECTURE

Architect-Designed and Vernacular Architecture in Ajo, Arizona

The original Ajo townsite plan, the administrative, commercial, and most of the institutional buildings as well as the earliest company housing were designed by Minnesota architects, Kenyon and Maine. The townsite plan and buildings were thus designed by trained experts. However, most of the housing stock in the historic district, whether representing company housing or not, was ordinary, and undoubtedly not designed by architects. Ajo's architect-designed buildings were mostly of the Spanish Colonial Revival style while Ajo's ordinary dwellings were vernacular or commonplace properties.

Architectural production can be viewed as a spectrum or continuum, a continuous whole whose parts cannot be separated. Influential folklorist, Henry Glassie, identifies artifacts (such as buildings) as either "folk," "popular," or "elite/academic." Folk and popular material is considered to be vernacular and elite/academic is non-vernacular. Seen in terms of a continuum, there may be a mixture of these three in any single building. Folk culture, at one end of the spectrum, is based on the tradition of a local group (like the Hopi in northeastern Arizona) which is transmitted through collective memory. Folk material is regional and varies greatly over space. Being traditional, it changes very little over time. At the opposite end of the spectrum, elite/academic culture (which produces high-style architecture) is that of professionals following quickly changing, national or international standards of design. Academic material exhibits minor variations over space, being widespread in its occurrence, and major variations through time. Popular culture, mass or normative culture, is between the two and is based on ideals imported from beyond the local setting which are transmitted through the media (such as published plans). Popular culture embodies the collective ideals of a group (ie. the "middle class") and similar to elite/academic, is widespread in its occurrence and varies greatly through time (Sizemore 1994: 4, 5).

Cultural Traditions

Ajo's historic architecture, whether elite or vernacular, reflects two distinctive cultural traditions: to a lesser extent, the Hispanic which refers to the Spanish/Mexican (and Native American) tradition from 1776 to the 1840s, and to a greater extent, the

Euroamerican which refers to Anglo/European traditions imported primarily after the arrival of the railroad in the early 1880s to Arizona. The Hispanic influence in Ajo was the use of adobe, dried mud masonry, as a building material plus the inspiration for traits evident in the Spanish Colonial Revival style. The Euroamerican or Anglo influence in Ajo was the use of imported, non-regional forms characteristic of either the elite/academic or popular cultures.

Prior to 1911, when the Calumet and Arizona Mining Company seriously began to consider large scale copper mining in the Ajo area, the few structures that were built pertained to the Hispanic tradition and were of adobe. Hispanics were the Spanish-speaking cultures of the Spaniards, early Mexicans, Mexican Americans, and New Mexico Hispanos who entered the region from the 1500s+ and who form a significant population group in Arizona today. The Hispanic mode of building was indigenous to the Spanish Colonial and later Mexican frontier. Hispanic buildings represent an adobe tradition, derived from the architecture of Spain and the Classical Mediterranean basin but also influenced by the vernacular Native American building techniques the Spaniards encountered in the southwestern region of the New World. In general, Spanish colonists lived in thick walled, flat roofed structures with minimal openings to the outside. The buildings were roofed with bulky, rough hewn beams known as vigas. The heavy bearing walls and relatively short spans of the vigas dictated a rectangular form.

The major contribution to the art of building which the Spaniards brought with them as they moved north into what is today the American southwest was the technique and craft of building with adobes or form-cast dried bricks. This method was well-established in the Old World from Neolithic times (about 7000 B.C.) and entered Spain with the Moors. Though the method was also known in parts of the New World (as early as 3000 B.C. in Peru), it was unknown in the Southwest until the arrival of the Spaniards in the seventeenth century.

Euroamericans or Anglos were the non-Hispanic, immigrant Europeans and mainstream "Americans" whose ancestors, largely from Britain, North and Central Europe first settled the eastern United States and now form the majority population of the state of Arizona. After the arrival of the Southern Pacific Railroad, there was a profound change in architectural development in Arizona. A shift from Hispanic and Native American forms utilizing regional materials to American mainstream, popular culture traditions utilizing imported materials (such as fired brick, clay tile, and dimensioned lumber)

occurred. Especially important was the Anglo development of the balloon frame, (industrialized light timber framing) which allowed for wide-span roofs. The Anglo tradition is very apparent in Ajo's buildings, with two exceptions (the Hispanic-influenced, adobe structures, Immaculate Conception Catholic Church and the Greenway Mansion) and is evident in both vernacular and styled buildings.

Historic Styles and Vernacular Types in Ajo

Traditionally, the cornerstone of architectural classification has been "style," a particular design tradition described in terms of historic origins, basic design principles, and years of peak popularity. Styles are ornamental fashions based upon architectural traditions such as Classical or Medieval. Styled architecture may range from consciously-correct, architect-designed buildings to the work of untrained builders incorporating a few stylistic details on very ordinary buildings. Simple, non-architect designed buildings without style are frequently lumped under the generic term "vernacular," as if vernacular were yet another historic style. However, the term vernacular is incomplete since buildings so defined vary greatly in appearance and frequently belong to types which are kinds or classes of structures with distinguishing characteristics in common. Perceived three dimensionally in space, vernacular buildings are objects that can be described most simply by their form or morphology. This form is frequently unadorned, although vernacular builders can borrow details from styled architecture.

The Townsite Plan

Significance: At the elite end of the spectrum of architectural production, the 1914 townsite plan designed by William M. Kenyon and Maurice F. Maine for the Calumet and Arizona Mining Company was an example of City Beautiful planning and aesthetics. Community beautification was an integral part of socially responsible and enlightened company town planning. Noteworthy examples of City Beautiful principles could be found in copper mining towns. The principal, aesthetic idea of the City Beautiful was to combine the natural beauty of parks with the classical vistas and formality of boulevards, the design of which was to be undertaken by specialist consultants such as landscape architects and architects. The highest density of Ajo's historic resources is concentrated within the boundaries of the original "American Townsite," the Anglo section of a community which was ethnically segregated, as was customary at that time.

Spanish Colonial Revival Style

Significance: Contrary to its Hispanic name, the Spanish Colonial Revival style pertained to the Anglo tradition. It was one of the late nineteenth and early twentieth century Revivals, including the Mission Revival, Pueblo Revival, and Sonoran Revival, which were very much in vogue during the first decades of this century. Southwestern Revivals reflected a trend towards regional consciousness among professional architects as well as a growing desire to promote the Southwest, especially for tourism, as an exotic region with strong Hispanic and Native American cultural roots. The Spanish Colonial Revival style was most popular in the regions of America where a significant Hispanic tradition already existed: California, New Mexico, southern Arizona, Florida, and Texas. After the 1915 Panama-California Exposition, which publicized elaborate Spanish Colonial prototypes found throughout Latin America, the Spanish Colonial Revival style became important. It reached its apex during the 1920s and 1930s. The Spanish Colonial revival style was found in the entire continuum of architectural production which ranged from the academic/elite designs of architects to the popular vernacular creations of non-specialist contractor/builders.

Spanish Colonial Revival designers were inspired by a number of sources including Spanish Colonial buildings of adobe (especially those found in California and the Southwest), late forms of Moorish architecture, medieval Spanish and Italian religious architecture, Spanish and Portuguese Baroque, rural Andalusian forms, Italian Romanesque, and Renaissance Revival architecture (Easton & McCall 1980: 87). Molded by this variety of sources, Spanish Colonial Revival was considered to be an appropriate representation of a region's Hispanic past.

Prairie Style

Significance: The Prairie style was one of the few indigenous American styles, developed by a group of Chicago architects known as the Prairie School. Frank Lloyd Wright was the recognized master of this style. Many Prairie architects worked with Wright or his former employer and teacher Louis Sullivan. The Prairie was largely a residential style which, in its vernacular form, spread throughout the country by pattern books. This style was intended to be a response to the natural, level beauty of the prairie and stressed low proportions, gently sloping roofs, and horizontal lines. The Prairie style was also influenced by Japanese architecture.

Hall and Parlor Cottage

Significance: Also called the "hall-parlor" or the "double-pen cabin," the hall and parlor is the most common of the single-pile dwelling types and appears throughout the United States. A traditional British folk type, the early hall and parlor was executed with heavy timber framing in New England, with lightly framed, post construction and later brick in the Tidewater South, and with hewn log walls in the vast Middle Atlantic cultural hearth. The hall and parlor has been a persistent vernacular type with relatively little change since colonial times. When expanded by a front porch and rearward addition, it became the dominant pre-railroad type across much of the southeastern United States. After the expansion of the railroad, the hall and parlor was commonly constructed of light timber framed walls and still dominated much of the rural Southeast. Principal variations included differing chimney placements, porch sizes, porch roof shapes, and different patterns of rearward extensions for enlarging the interior space (Carter & Goss 1988: 14, Jakle et. al. 1989: 114, McAlester & McAlester 1989: 94).

Shotgun Cottage

Significance: The narrow, linear-plan, gable-front shotgun was a common dwelling type in Arizona and elsewhere in the United States, especially in the southeastern states. This type is believed to have a southern origin; a material example of the cultural heritage of African Americans. The type is linked to West Africa and the West Indies. Imported to New Orleans in the early years of the nineteenth century by free blacks from the West Indies who were economically secure and technically skilled enough to build their own houses, the shotgun radiated out across the countryside from New Orleans (Vlach in Upton & Vlach ed: 1986: 58-61).

Side-gabled Massed-Plan Cottage

Significance: Also called "Georgian plan cottage," "double-pile cottage," "massed-plan," or "side-gabled cottage," this type was very common in Arizona. At first this type was found in pre-railroad America only in parts of the Northeast where roof framing techniques allowed for spanning two-room depths. A double-pile, side-gabled type of structure with two rooms on either side of a central hallway and frequently paired chimneys placed in an interior position, is also thought to have appeared at an early date along the Carolina-Georgia coast. This type was built in New England and Pennsylvania

as well as in the South. After the railroad and with the adoption of industrialized vernacular building technology (ie. the balloon frame), the side-gabled double-pile cottage, as well as other massed plan types, could be constructed easily. This type with its larger and more flexible interior plan spread and replaced traditional one-room-deep types (Jakle et. al. 1988: 131, McAlester & McAlester 1989: 98).

Gable-front Massed-Plan Cottage

Significance: The gable-front massed plan dwelling, also called the "gable-front" or the "small temple-house," was a very common vernacular dwelling type throughout the United States as well as in Arizona. Both one- and two-story versions of this dwelling type were associated with nuclear New England and its extensions to the north and west. Affiliated with the Greek Revival movement, which dominated styled dwellings from 1825-1850, the front-gabled shape was similar to the pedimented façade of typical Greek temples. This trend led to simple, gable-front, vernacular dwellings which proliferated after 1825. The form became very common in the East and was especially suited for narrow, urban lots in rapidly expanding northeastern cities. The modest, linear-plan relative, the shotgun, proliferated in the South. Later many examples of the gable-front massed-plan type were contractor-built in subdivisions. Characteristic of popular culture, from the 1890s to the 1930s this type was among those that could be built from published plans and was also available ready-cut through mail order. Gable-front massed-plan dwellings were the forerunners of the popular vernacular gable-front bungalow (Jackle et. al 1989: 14, McAlester & McAlester 1989: 90).

Pyramidal Cottage

Significance: Also called the "foursquare cottage," this square-plan pyramidal-roofed cottage found in Arizona may have multiple origins but authorities associate its type in the United States with the Southeast. It may have been influenced by a steeply pitched, pyramidal roofed, galleried cottage which was common in rural areas settled by French colonists in the South (McAlester & McAlester 1989: 124-127). Geographer Pierce Lewis indicates it may have been British or British colonial dating back to the Georgian era (the eighteenth century) and introduced into the Southeast. Though commonly called the "southern pyramidal," the type was also present in Australia and was therefore British colonial (Lewis 1975: 20-22). High style, pyramidal, galleried, plantation mansions as well as modest, pyramidal planter's cottages certainly appeared in the early 1800s,

decades before the Civil War, in the South. Whatever and whenever the origin may have been, a basic form today called the "pyramidal cottage" had become very common in southern port towns after the 1870s, from Texas to Florida and in the Mississippi River Valley. It can be surmised that the pyramidal cottage came to Arizona with southern settlers or it may have been brought from California after the Civil War by the army. The pyramidal was also one of the types later associated with popular culture from the 1890s to the 1930s, marketed as a worker's dwelling and also available ready-cut through mail order. The type spread very rapidly during the early twentieth century.

Square Cottage

Significance: Information regarding the significance of this type, very rare in Arizona but encountered in Ajo, has not been found. Similar to the very popular pyramidal roofed type, it has a square footprint but has a gabled rather than pyramidal roof.

Bungalow

Significance: The bungalow was probably the most dominant, historic vernacular dwelling type built in Arizona. In fact, the popular bungalow spread rapidly throughout the capitalist world as a physical, economic, social and cultural phenomenon reflecting a "common culture," the international, standardized one of the consumer-oriented world economy that began to develop in the last three decades of the nineteenth century (King 1984: 7). The dwelling type known by the term "bungalow" has been defined by several criteria and its documented history dates to seventeenth-century India. The banggolo or bangla, a peasant's hut of rural Bengal, was a low-roofed house of sun-dried brick, thatched or tile roofing, and porches all around. The term later signified a house for Europeans in India. In the nineteenth century, the term bungalow transferred to England where it referred to either a holiday house, a simply-constructed, detached dwelling (sometimes having a porch), or a one-story dwelling. In the United States the term bungalow at first referred to a simple, rustic, summer residence for the upper class. Bungalow also meant a typical, early-twentieth-century, privately-owned, suburban dwelling for millions of middle class Americans. The bungalow was the origin of a phenomenon most strongly associated with California's suburban explosion, especially that of Los Angeles. What became known as the California bungalow resulted from a mild climate, a creative and entrepreneurial society, abundant cheap land made available by the electric tramway, and a strong economy (King 1984: 1-8, 133, 139, 141). The

California bungalow was quickly adopted by Arizona contractor-builders.

As a cultural phenomenon, the bungalow movement was a popular one, spread by the media and occurring during the last two decades of the nineteenth century and the first quarter of the twentieth century. The bungalow signified the search for a modest, simple, artistic, and inexpensive American cottage. (Architects like the Greene brothers in Pasadena, California, and Frank Lloyd Wright also followed this popular movement to design residences for the elite). Social and cultural ideas underpinning the bungalow were inspired by the English Arts and Crafts movement of the 1880s. A rejection of the materialism of consumer society, Arts and Crafts adherents believed in unity with nature, the pursuit of simplicity, and handcraftsmanship. The ideas behind the Arts and Crafts movement were adopted in the United States by individuals such as Gustav Stickley, editor of the Craftsman, published between 1901 and 1916 to promote the bungalow by means of designs, plans, and discussions.

The bungalow in the United States was a transition in domestic architecture to the modern, twentieth-century, rationally-planned dwelling where interest focused upon a scientifically-arranged kitchen (King 1984: 143). Responding to sophisticated demands of suburbanites in the late nineteenth- and early twentieth-century for comfort, privacy, and convenience, typical bungalows had specialized rooms and included such spaces as well-equipped kitchens, living rooms, dining rooms, mud rooms, bathrooms, and bedrooms with closets. Built-in elements like bookcases and buffets were additional amenities.

In Arizona there were three principal variants of the California bungalow. Identified by Virginia and Lee McAlester by their roof forms, these include (1) the front-gabled bungalow, the most prevalent type; (2) the side-gabled bungalow, the second most common type; and (3) the cross-gabled bungalow, the least common type.

Compound-Plan (or Cross-Wing) Cottages

Significance: Bent-plan forms, especially the L-shaped variants, derive from the picturesque cottage or house, introduced in the 1830s and 1840s by authors of very influential, architectural pattern books responsible for the popularization of these forms. Irregular massing symbolized modernity, a break from the formal symmetry of traditional dwellings with simple, rectangular plans, and the complexity found in nature.

Compound-plan dwellings epitomized the popular vernacular because their forms proliferated in the post-Civil War to pre-World War I building era, the period of industrialized or mass vernacular. Irregularly massed dwellings were possible because of the technical innovations of the cast iron stove and balloon framing which permitted the massing and heating of complex forms. Gabled T-plan cottages and houses, especially those with the gable-roofed T-stem frontally and symmetrically placed with respect to the side wings, were popular with the Mormons in Utah (Carter & Goss 1988: 33-36). Examples of T-plan cottages, with the stem oriented to the side and rear, have been found in Mormon communities in Arizona.

Chronological Development

1916 to 1920: During this initial period of development in Ajo, both Ajo Townsite and Ajo Townsite First Addition were platted. The southeast business block adjacent to the plaza was erected immediately, most likely in 1916. The first wing of the Hotel Cornelia was built in 1917. The new school was built and in service by 1919. Nearby but outside the boundaries of the Ajo Townsite, the superintendent's residence, the hospital, and the doctors' residences were erected. This was also the first era of company housing. During this four-year period, the hollow clay tile structured models of Kenyon and Maine in the Spanish Colonial Revival or Prairie styles and all the uniform, redwood frame square cottages and side-gabled massed-plan cottages were constructed. As would be expected, this development occurred in the blocks nearest to the town center, in the Ajo Townsite. The first group of houses were the Kenyon and Maine models built in 1916 or shortly thereafter. These resources appeared on every other lot as John C. Greenway had instructed in his letter of November 22, 1916 to Michael Curley. In 1919 the second group, the uniform, redwood frame houses, appeared, again following the skipped-lot pattern previously applied. It is unknown why this shift in styles occurred soon after the initial founding of Ajo. These square and side-gabled massed-plan cottages may have been pre-cut catalogue models and, if so, a less expensive alternative to the fireproof construction of Kenyon and Maine.

1920-1930: In the mid-twenties more architect-designed, Spanish Colonial Revival style buildings were added including the Catholic and Protestant churches, the Masonic Temple, and the Greenway mansion. Some infill between the uniform company houses was beginning to occur as well as a tendency to grow at the edges of the fan-shaped street

pattern. At this time, gable-front and cross-gabled bungalows and other vernacular types began to appear and to predominate. There were still many vacant lots in Ajo Townsite.

1948: During the post World War II construction boom because of the introduction of the smelter in Ajo, 1948 was the year when the Phelps Dodge Corporation built over forty houses on vacant lots in the Ajo Townsite. These houses included several similar types of uniform company housing, most of which were pyramidal cottages. (Undoubtedly there are more of these 1948 models outside of the boundaries of the inventory area. Also, when Ajo Townsite Second Addition was platted in 1937, many uniform company houses were built in that addition north of Solana Avenue. Undoubtedly many of these will prove to be contributing properties and are worthy of future evaluation.)

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John C. Greenway, General Manager, to Michael Curley, General Superintendent, New Cornelia Mining Company, November 22, 1916.

George Skinner, owner of the Greenway Mansion. Gila Bend Arizona, March 26, 1995.

Ward, Lea, daughter of Protestant minister Rev. Ramirez and resident of Mexican Townsite. Tucson, Arizona, May 17, 1995.

Verbal Boundary Description

The boundaries of the Ajo Townsite Historic District incorporate blocks 1 through 31 of the original Ajo Townsite. The district is bounded on the east by the railroad tracks, on the west by Orilla Street which curves into N. Cunada Street, on the north by W. Solana Avenue, and on the south by W. Elota Avenue. Also included within this district is a contiguous zone southwest of the townsite which incorporates seven contributing ridge top resources (#s 13-19). This zone, part of what is now known as New Cornelia Addition recorded in 1986, includes the managers' mansions, the New Cornelia Hospital, and the former residences of doctors who worked at the hospital. One additional discontiguous property in the New Cornelia Addition is being included; that of the former guest house (#20) for the New Cornelia Copper Company Board of Directors. It is located west of the Ajo Townsite on Guest House Road.

Boundary Justification

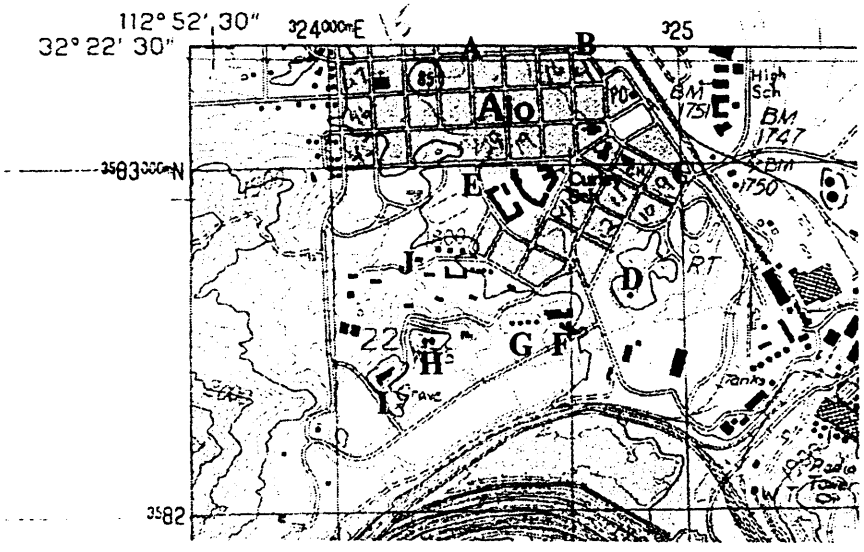
As shown on the Ajo Arizona, Historic Resources Inventory map, the original inventory undertaken in 1995 included the above-mentioned resources as well as Ajo Townsite First Addition and a small, southwestern portion of the Second Addition to the Ajo Townsite. (Most of the Second Addition, which lies to the north of the First Addition, was not inventoried). Also mentioned in the text are Mexican Townsite and Indian Townsite (see Additional Documentation for site plan, Garner 1992: 183), townsites which no longer exist due to the expansion of the mine (see Section 8, P. 34). Mexican Townsite was located according to the early plan, between the ridge top properties and the mine, but "Indian Town" was built south of the open pit mine (Rickard 1996: 57). The First Addition (1917) and the southwestern portion of the Second Addition (1937) to the Ajo Townsite represent the early and continuing growth of the community. However, they are not being included in this nomination due to an insufficient density of historic properties with sufficient integrity.

The boundaries described above for the Ajo Townsite Historic District are the same as those of the original Ajo Townsite plat, a significant City Beautiful plan designed by Minnesota architects Kenyon and Maine (see Additional Documentation). The seven contributing contiguous ridge top resources and the discontiguous Guest House property are included for their strong early association with the Ajo Townsite.

National Register of Historic Places Continuation Sheet

Section Number Maps

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



Ajo Townsite Historic District
UTM References

USGS Map, 7.5 Minute Series
Ajo South, Zone 12

A 324,400 E 3,583,320 N

B 324,720 E 3,583,320 N

C 325,020 E 3,582,960 N

D 324,860 E 3,582,630 N

E 324,400 E 3,582,970 N

F 324,650 E 3,582,560 N

G 324,600 E 3,582,550 N
324,510 E 3,582,540 N

H 324,380 E 3,582,510 N

I 324,150 E 3,582,400 N

J 324,050 E 3,582,690 N

The photographer for the following photographs is David F. Johns of Johns & Strittmatter Inc. unless otherwise noted. The date is January 17, 1995 unless otherwise noted.

1. Town Center (#1); View Showing Colonnade and Railroad Depot Dome
   Camera Direction: SE

2. Town Center (#1); View From Plaza to Railroad Depot
   Camera Direction: NE

3. Immaculate Conception (#7); ¾ Rear View Showing Dome, Apse, and Massing
   Camera Direction: NE

4. Immaculate Conception (#7); ¾ View of Entry
   Camera Direction: SW

5. Curley School (#8); Frontal View on Axis From Plaza
   Camera Direction: SW

6. Spanish Colonial Revival Style, Kenyon & Maine-Designed Company House (#32), ¾ View
   Camera Direction: W

7. Prairie Style, Kenyon & Maine-Designed Company House (#75), Frontal View
   Camera Direction: NE

8. Hall and Parlor Cottage (#67), ¾ View
   Camera Direction: NE

9. Shotgun Cottage (#102), ¾ View
   Camera Direction: NE

10. Gable-Front Massed-Plan Cottage (#48a), ¾ View
    Camera Direction: NW

11. Side-Gabled Massed-Plan Cottage (#98), Company Housing, ¾ View
    Camera Direction: NE

12. Pyramidal Cottages, Elota Ave. Streetscape of 1948 Company Housing
Photographer: J. Strittmatter
Date: August 20, 1999
Camera Direction: W

13. Square Cottage (#36), Company Housing, ¾ View
Camera Direction: W

14. Front-Gabled Bungalow (#55), ¾ View
Camera Direction: SW

15. Gabled T-Plan Cottage (#22), ¾ View
Camera Direction: E

KNOW ALL MEN BY THESE PRESENTS:

That the NEW CORNELIA COPPER COMPANY a Delaware corporation, authorized to do business in Arizona, does hereby dedicate to the public, for its general use, all of its right, title and interest, to the depth of twenty five (25) feet below the surface, in the avenues, streets, plazas, alleys, parks and public grounds, of the Ajo townsite, in Pima County, Arizona, which are named and shown as such on this map of said townsite.

The dedication herein made shall not convey the said avenues, streets, plazas, alleys, parks or public grounds or any of them to a greater depth than twenty five (25) feet immediately beneath the surface, nor any of the ores, minerals, or metals contained therein. The dedication herein made does not convey any right, title, or interest in Blocks, 2, 6, 7, 13 and 20.

The dedication herein made is merely an easement, and subject to termination as by law provided.

IN WITNESS WHEREOF the said New Cornelia Copper Company has caused these presents to be duly executed by its officer thereunto duly authorized.

Gordon P Campbell
Secretary

NEW CORNELIA COPPER CO.
BY Thomas Hoatson
Vice President

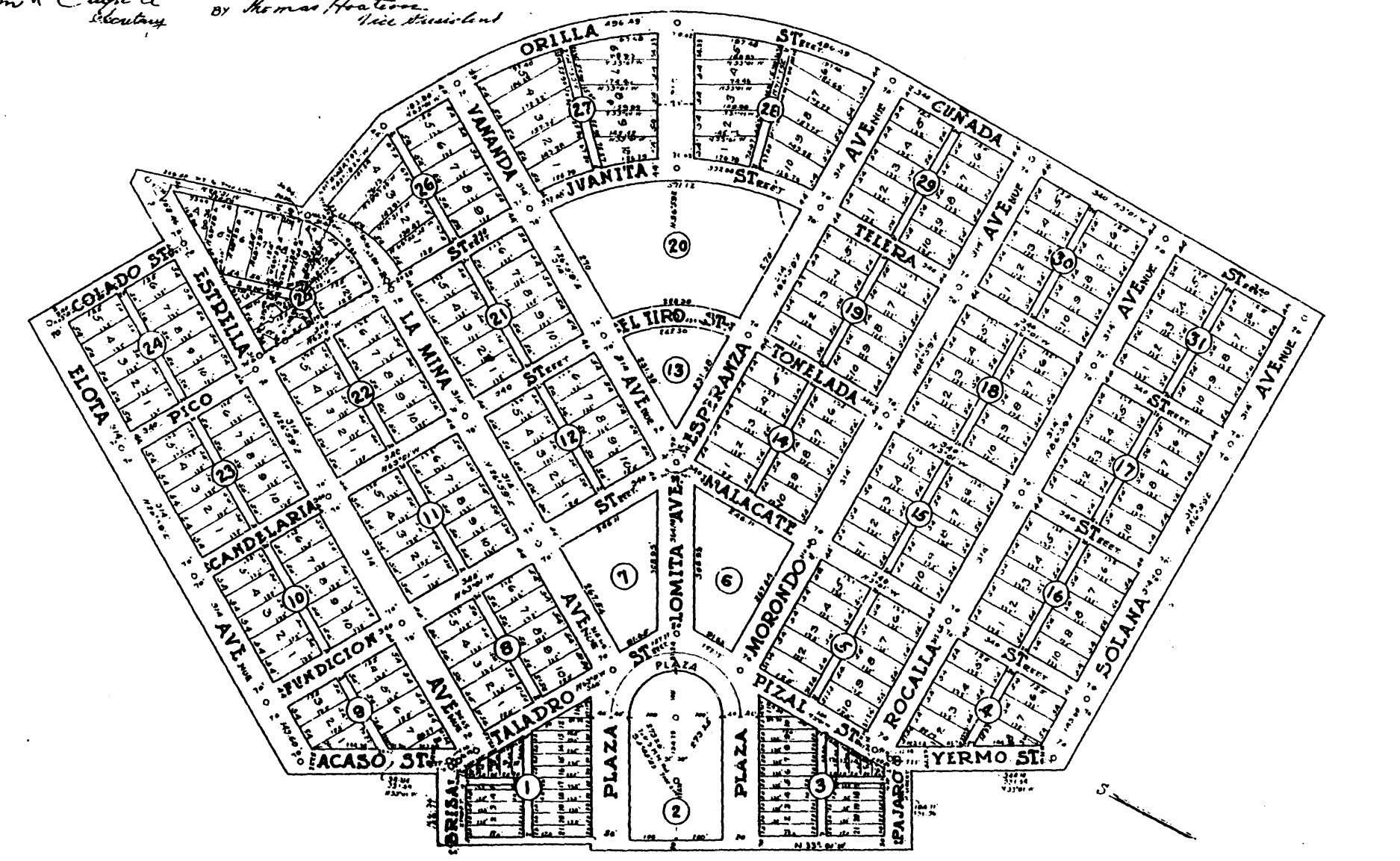
STATE OF Michigan } SS:
COUNTY OF Houghton }

Before me, James C Fisher a Notary Public in and for the County of Houghton State of Michigan, on this day personally appeared Thomas Hoatson known to me to be the person whose name is subscribed to the foregoing instrument as Vice President of the New Cornelia Copper Company, the corporation described in and which executed the foregoing instrument, and acknowledged to me that he executed the same as the free act and deed of said corporation and voluntarily executed for the purpose and consideration therein expressed.

Given under my hand and seal of office this 1st day of March A.D. 1917.

James C Fisher
Notary Public
My Commission Expires December 14 1920

SEAL



MAP of THE
AJO TOWNSITE
PIMA COUNTY, ARIZONA

Celom C. Maffy
Mar 21 17
3:55 P
3 Maps - Plats
60-61

R.B. Simmons

KEY

- HISTORIC RESOURCES
- INVENTORY AREA BOUNDARIES
- NON-CONTRIBUTORS
- PLAT BOUNDARIES
- DISTRICT BOUNDARIES

AJO, ARIZONA
HISTORIC RESOURCES INVENTORY

3645 N. CAMINO BLANCO PL. • TUCSON, AZ 85718 • 602-577-0058

JOHNS & STRITTMATTER INC.

ARCHITECTURE • PLANNING • PRESERVATION

3645 N. CAMINO BLANCO PL. • TUCSON, AZ 85718 • 602-577-0058

AMENDED BY

JANET H. STRITTMATTER INC.

HISTORIC ARCHITECT

3634 E. CALLE CORTEZ TELEPHONE: 520-320-9043
TUCSON, AZ 85716 FAX: 520-320-9043

NOV. 15, 1999

JAN. 5, 2001 (ADDITION OF 1948 PHELPS DODGE HOUSING INVENTORY NUMBERS BEGINNING WITH "A")