THE EXCAVATION OF FATHER KINO'S SECOND CHURCH

and

THE DEVELOPMENT OF THE MISSIONS IN PIMERIA ALTA

by

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FORWARD

For many years past, the foundations of the Grand Old Mission of San Jose de Tumacacori had shown the ravages of erosion, and were beginning to fail. One of the assignments of the National Park Service was to correct this depreciating effect, and preserve this picturesque old building, so the people of this age and those of future generations might enjoy its grandeur.

This erosion problem fell to my fortune, so in the fall of 1934 I went to Tumacacori and started work. My first duty was to determine what was necessary to drain the foundation in order to prevent further damage. This was accomplished by excavating a trench from the failing foundation to the drainage area, a thousand feet to the east. The trench immediately revealed the fact that it traversed an area, which had once been the site of many small houses or several rooms of a large house. The first two hundred feet cut through nine separate building walls. This changed the entire program and the major thought of foundation stabilization immediately took on new color and became one of "Ruins Surveying." This opened up the possibilities of definitely locating the two lost churches of Father Kino, which according to his diary were constructed in the eighteenth century.

So far as we now know, the year 1701 marks the date when the village of Tumacacori was put under the charge of a visiting priest. In that year, Padre Juan de San Martin was given charge of the three new pueblos of San Gabriel de Guevavi (the present Guevavi), San Cayetano (now Tumacacori), and San Luys (afterwards abandoned and the site now lost.) After mentioning this event, Padre Kino,
in his diary continues:

"In all places buildings were constructed and very good beginnings were made in spiritual and temporal matters. In Cubavi, in a few months we finished a house and a church, small but neat, and we laid foundations of a church and a large house."

The above quotation from Father Kino's diary and Spanish records in the archives at Mexico City definitely confirm two churches, the one already completed, which I shall hereafter refer to as Church No. 1, and the second foundation started, which I shall call Church No. 2. As Father Kino died in 1711, and the above quotation is from his diary in 1701 and the present structure was started around 1600 and completed twenty years later, the present structure must be the third church.

The following quotation from "Mission of San Jose de Tumacacori" by Frank Pinkley, Superintendent of the Southwestern National Monuments, ties these three churches together: (Footnote 1.)

"A small room or house in which services were held at Tumacacori, had been in use for several years after the appointment of Padre Juan de San Martin. Another building was probably erected about 1730, when Padre Juan Baptista Grasshoffer came to administer the affairs of the church. It was this second building (Church No. 2) which was attacked by the Apaches in 1769 and was almost in ruins in 1772. It was repaired in 1784 and Bancroft says it had become the headquarters of the Padre by that time. This building was re-roofed in 1791 and probably suffered badly in one of the Indian raids subsequent to 1600. A new church (Church No. 3) was then planned and the construction started. This church was still under construction in 1622, but work was being held up by delay over the payment of some cattle, which were being sold to raise funds, so I am convinced by my study of the walls, that the church was never completed. Manuscript evidence bearing on the construction of the new church is found in the burial record, where Padre Ramon Hibernos made an entry to the effect that in December 13, 1622, he had removed the bodies of Padres Carrillo and Gutierrez from the old church (Church No. 2) to the new and buried them on the Gospel side of the altar. From this evidence it is reasonable to assume that the present church was still under construction at the death of Padre Gutierrez, which occurred in 1620, and he was

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Footnote 1. "San Jose de Tumacacori", Frank Pinkley, p. 7
buried in the old church. (Church No. 2) By the latter part of 1822, the new church (Church No. 3) was nearly enough completed to be dedicated and, the old church being abandoned, the bodies of these fathers were removed to the new, to prevent desecration. On the evidence as it stands, we cannot assume the present mission walls at Tumacacori to date earlier than 1800.

The third or last church is the present Mission, which I have designated as Church No. 3. The location and ruins of Churches, Number 1 and 2 were lost until I was assigned to Tumacacori National Monument to repair failing foundation of Church No. 3. In making a study for drainage of the back or east wall, a trench exposed the walls of earlier buildings as stated previously.

Upon excavation, the walls of Church No. 2 were exposed. Immediately upon discovery of this former church, the Franciscan Fathers at San Xavier requested the bodies of Padres Carrillo and Gutierrez, who according to Padre Ramon Hiberos' burial record, had been reinterred in Church No. 3. The finding of these bodies proved difficult, due to the fact that the arroyo to the west of the Mission had washed six additional feet of silt into and around the entire Mission, raising the contour of the entire area. The records showed that the bodies were originally buried six and one half feet below the floor level on the Gospel side of the altar. The remains were actually found twelve and one half feet below the floor. The finding of these bodies, which were originally laid to rest in Church No. 2, and which according to Padre Ramon Hiberos were reinterred in Church No. 3, convinces me that this was the sequence of the churches and that the present mission is Church No. 3.

The Tumacacori Mission represents one of twenty-nine churches
established by the Franciscan Father, Eusebio Francisco Kino, during the eighteenth century. This chain of missions represented the Spanish frontier of colonization. Tumacacori was the seventeenth link, starting in Southern Sonora and continuing westward to Yuma, Arizona.

Tumacacori Mission, in earlier times called San Cayetano de Tumacacori and later renamed San Jose de Tumacacori, is located forty-nine miles south of Tucson, and a little more than eighteen miles north of the Mexican border at Nogales in southern Arizona.

It must be remembered that the Fathers did not found the missions in the valley of the Rio Santa Cruz and then persuade the Indians to settle nearby. They discovered the Indian villages, already long established, and located the missions in the settlements, which dated back to remote times. This explains the locative name which we find added to the Saint's name of these missions. Tumacacori was the place name of a Sobaipuri (a Pima-speaking people) Indian village, situated in the Santa Cruz valley during prehistoric times. Mission San Jose de Tumacacori, according to Frank Pinkley, is, literally translated, The Mission of Saint Joseph at (the Indian locative name) the place of many small fenced fields, or the place of many fields having many small low fences.

The Santa Cruz flows northward, near the eastern edge of Pimeria Alta (the land of the Upper Pima). Broadly speaking, Pimeria Alta was bounded on the north by the Gila River, on the west by the Gulf of California and the Colorado River, on the south by the Altar River and on the east by the San Pedro River. Tumacacori entered
DOMINION OF CANADA

UNITED STATES OF AMERICA

MEXICO

GULF OF MEXICO

PACIFIC OCEAN

PIMERIA ALTA
(SHOWN IN RED)
the pages of history in January, 1691, when a delegation of headsmen from the Santa Cruz valley intercepted two Jesuit Fathers, Kino and Salvatierra, at Tuchhbia and persuaded them to visit their villages. The headsmen hoped that the Fathers would establish missions among their people.

This report has to do only with the excavation at Tumacacori, and no attempt is being made to write a complete history of the Mission. However, a very complete chronology of the Mission, compiled by H. E. Rensch of the National Park Service, which was later supplemented by additional data compiled by myself, follows the report of the excavation of Church No. 2, and the individual rooms, adjacent thereto.
THE EXCAVATION

It was in the Fall of 1934 that the excavation of the drainage trench definitely established the fact that Tumacacori Mission (Church No. 3) had been built on the ruins of adobe buildings. This discovery was of such interest that I personally conducted the excavation of that area, designated on the map as Room 50, later known as Attwell's Church, and now definitely recognized as Father Kino’s Church No. 2. This was of such tremendous archaeological importance that Mr. Paul Beaubien, M.A. in Archaeology of the National Park Service was assigned to Tumacacori National Monument to devote his entire time to this project, under my supervision.

The outline of work demanded some deviation from principals usually employed in work of this nature. First, the dirt from the excavations was to be replaced as soon as the uncovered structures were surveyed by the engineers, who were occupied in various construction work throughout the entire Southwestern Monument area, and whose visits to the site were intermittent and of varying durations. Thus, as they measured each detail of the exposed foundation and completed survey map of the ruins as the work progressed, the disposal of the dirt was a major problem. Usually when the dirt piled too high, the scene of activity was shifted to another portion of the ruins. So, the excavation for any group of rooms progressed at sporadic intervals, presenting a chaotic appearance to some five thousand visitors. (Please note photographs 5, 6, 17, and 25.)

Secondly, since this Mission was set aside as a National Monument, for the enjoyment and enlightenment of the public, it was our duty
at all times to escort the public through the ruins, but to explain the importance of this find and its archaic use. We had to be on guard at all times against any unintentional destruction of the fragile adobe walls, as well as vigilant day and night against pot-hunters and treasure-hunters. The latter were drawn to the Mission by rumors of fabulous wealth, which the Padres were supposed to have hidden in the ruins during the Apache raids in 1769.

The third difficulty which presented itself, was the fact that we keenly felt the lack of trained archaeological students to carry on the scientific work, and were obliged to use unskilled Mexican laborers in many semi-technical operations.

Fourthly, previous to the time that Tumacacori was made a National Monument, treasure-seekers and pot-hunters had dug innumerable pot-holes over the entire area, which necessitated the differentiation between the actual doorways and windows and the holes made by these vandals. This fact handicapped our study and caused an appalling loss of structural information and artifacts.

Fifthly, the customary practice in excavating rooms, was to open up a two or three foot trench along each side of a wall, the width being dependent on depth, leaving an island of undisturbed soil in the center of the room. This arrangement (photographs #s 7, 9, 10, 15, and 40.) did not lend itself to the taking of comprehensive photos, but it did lessen the amount of dirt to be removed twice. Also the island served as a witness that no cross walls, floor levels, or fallen ceilings were overlooked. In some instances, a room was entirely cleaned, when special conditions, such as unusual type of floor, abundance
of artifacts, etc., indicated that a complete clearance might prove profitable.

Sixthly, another limiting factor was that no remnant of wall or floor was to be damaged. Thus, the only chance to exploit undisturbed stratification was eliminated.

At the outset, no work inside of the present Church No. 3 was contemplated, but a series of unforeseen factors developed, which led to some investigation. First the Franciscan Order wished to have the bodies of two priest, Fathers Carillo and Gutierrez, exhumed from the sanctuary for removal to San Xavier; second, walls of rooms 17 and 18 were encountered outside the mission and, possibly, could have continued under it.

On December 31, 1934, Father Vincent of San Xavier and I arrived to remove the bodies of Fathers Carrillo and Gutierrez. Augustine Cardial, who has witnessed some of the vandalism at the Monument, gave us the information that a party, headed by the superintendent of a mine in Mexico, had dug a treasure hunting hole, fifteen feet deep, where Carrillo and Gutierrez were said to have been buried. The party had found the bones of two adults. When refilling, all the bones were tossed back into the hole, except one skull, kept for a souvenir. Cardial's story was supported by all evidence unearthed.

In Father Vincent's presence, a six foot hole was dug, and no bones were found, but another try was made a few days later. At a depth of twelve and a half feet, the jumbled parts of two adult skeletons were found, associated with pieces of plaster, bricks and debris typical of treasure hunting holes. Mr. Beaubien removed the four femurs, three of which were the only long bones unbroken, the frag-
ments of one skull and about half the smaller bones. Then having other duties, he had two laborers remove the other bones. Pieces of boards, and shreds of cloth, which Father Vincent recognized as burial vestments, were found. Of course the treasure hunters would have taken any beads, crucifix or coffin ornaments and other artifacts found.

The bones were darker in color and much more fragile than any others found in the church. Also, large masgidian processes on the one skull indicated it was a male. Mr. Beaubein, the Fathers of San Xavier and I sincerely believe they were the bones of the two Fathers thrown back in a treasure hunting hole.

The bones were reburied at San Xavier, February, 1935.

Since the discovery of Father Kino's Church No. 2 is of such vital importance, and the inspiration of this thesis, it seems advisable to begin a description of the excavation with this building.

The foundations of this room mark the site of an earlier mission. Facts in support of this belief are: the large size; appropriate proportions of length to width; foundation stones correctly placed to support the pilasters of a choir loft; the proper arrangement of the sanctuary to the nave, also the proper arrangement of the choir loft to both and the entrance way under the choir loft on the east end of the nave being of such large proportion that it undoubtedly was to accommodate masses of people; the absence of any knowledge of other foundations which might locate one of the early missions supposed to be at Tumacacori, and stone foundations high enough to carry pilasters unlike any other building on the Monument except the present mission, and the fact that the constricted sanctuary is not uncommon in early Southwestern Missions. The two offsets between the sanctuary
and the nave were on the same foundation, which would eliminate the possibility of two separate rooms. After all the darker soil had been brushed from the foundation, the offset was still unexplained, unless it were the sanctuary.

On the side walls near the east end, a few adobe bricks, 3" x 12" x 25", remained in place on the foundation. The bricks at the northeast corner, several courses high, were laid across the wall or side by side, instead of end to end as was the usual procedure at Tumacacori. Disregarding any lime plaster that may have covered the outside surface, this gives a wall thickness of only 25". The foundation ranged from 30" to 36" in width, but wherever it remained the wall above was only 25".

Here and there a bit of white wash topped with red stain remained on the inner surface of the walls, both on the stone foundations above floor level and on the adobes. On some spots of plaster here, as well as in Room 46, there was a thin film of lime over the red, which could be rubbed off easily. Whether this was a coat of white wash or a deposit of lime from the soil, I do not know. It seemed to be on some of the wall surface where the white wash topped with red stain was missing.

Along the south wall near the east end (Sheet 2), a little blotch of plaster lay on the hard packed, but sloping adobe floor. This bit of plaster, a mixture of red and white, resembled stains left on a floor near a wall newly calcimined by an awkward workman. I do not believe that this bit of plaster marks the floor level, but I do believe it marks the level on which a constructed floor was laid. However, no ev-
idence of a constructed floor was discovered. The elevation of this bit of plaster is several inches under the top of the foundation of Room 50. (Elevations, Sheet 2.)

In the eastern portion, a short length of foundation projected inward from each side wall (Sheet 2). These could have been foundations on which were built pilasters to support a choir loft. However, their tops were flush with the floor instead of being equal in height to the side wall foundations. The north one was the smaller, but it was as large as the foundations of the pilasters supporting the choir loft of the present mission. Just a few feet west of the south one, a trench for a modern pipe line had been dug through the wall of Room 50.

Midway along the top of the south wall, an interesting construction feature was encountered. The stone foundation had been covered with a layer of plaster for a distance of about four feet. In the plaster, a row of brick had been laid flat, side by side. At each end of the row, one brick had been set on edge with top slightly above the row of flat brick. The two end bricks of the flat row had been broken to a triangular shape, 6" wide at base and laid with the pointed ends northward. This caused the edgewise bricks to have their south ends farther apart, approximately 12", than their north ends. Also, the edgewise bricks sloped gently to the south. Although this structure was a foot above floor level, I, as well as Mr. Beaubein and others, believe it to mark a doorway.

At the east end where a doorway was to be expected if Room 50 was a mission, I found one. A novel feature of this was the fact that it was wide enough to accommodate several abreast at one time. Of the two walls encountered there, (Sheet 2) the inner one was the
foundation of the east wall of the patio, and was about 18" above
the foundations of Room 50. (See Photograph 40.) The position of
the patio wall prevented the uncovering of the inner surface of the
room wall. The uncovering of the outer surface was begun by one of the
most intelligent and careful workers on the project. Later he was
suspected of tendencies toward practical joking so I do not know
positively, whether the design depicted (Sheet 2) was carved into the
top course of this wall by him or by the early builders. Shortly
after the top course was uncovered, the east edge was caved off by
careless visitors. Just below the top course, the wall was straight-
faced, and evidently 24" in width.

There was a step-like projection of the foundation about 10' 7"
long at the north end of the wall (Sheet 2). Whether it once extended
the whole length of the wall can not be known. Its level was similar
to the probable floor level inside, but it was approximately 2' below
the top of the patio. Because a doorway was found here it strengthened
my belief that this was a mission. It is my belief that if it were
permissible to remove the foundation of the patio wall and uncover the
east wall of Room 50 properly, more construction details of the door-
way would be obtained.

Abutting against the north wall of Room 50, on the outside, was
part of a small room structure. The walls were constructed of adobe
bricks, 2\(\frac{1}{2}\)" x 7\(\frac{1}{2}\)" x 16". The floor was of hard packed adobe mud laid
over a layer of small boulders. Some of the laborers spoke of social
gatherings on the order of Fourth of July picnics, that had taken
place at Tumacacori some thirty years ago. Meat was barbecued; pump-
kins were taken from a small granary on the site of this room structure to the bake ovens nearer the Santa Cruz. He said the granary had been constructed by families living at Tumacacori long after the abandonment by the Spaniards. I consider his explanation as good as any.

Room 18

The inside dimensions were 18' 9" long, 5' 6" wide at the north end, and 5' 9" wide at the south end. The average width of the wall was 5' 11". They had been coated, both inside and out, with a thick layer of lime plaster, in which were imbedded handfuls of red crushed brick at irregular intervals. The horizontal intervals varied in the bottom row from 8" to 3', but 1' 3" was common. Two, three, and sometimes four horizontal rows of spots were still visible.

However, enough was clearly present to distinguish it from the later type, seen on the mission and graveyard walls. In this latter type, the spots are imbedded at regular intervals and closer together, besides being composed of a different colored material. The spots on the later walls are composed of crushed, oven-fired bricks, mostly black and brown in color. The addition of darker colors presents more contrast in a white wall.

The tops of the south, west and north walls approach the present ground level. No adobe bricks remained in place; the wall or foundation being composed of large river boulders set in adobe mud. This foundation averages five feet in height, and is found under all walls of the mission except the baptistry and two gaps along the nave, which were the entrances to Rooms 17 and 16.

No constructed floor was present, but the lower edge of plaster
inside indicated the approximate level.

The entrance to Room 18 was indicated by two vertical, non-bonded cracks on the inside of the mission, extending about 8'6" above floor level. The adobe wall between these cracks did not rest on a heavy stone foundation, as did the walls on either side. It is impossible to say whether this opening was once surmounted by an adobe arch or by a wooden lintel.

Just north of Room 18 is an enclosure (Sheet 2), the west wall of which is marked only by a light foundation from 1'9" to 2'0" in width. When first discovered, I believed this foundation marked where the graveyard wall once extended to Room 18, before Room 18 was abandoned. However, the inclusion of broken, burned brick and chunks of lime plaster, may indicate more recent construction. Foundations containing such debris, elsewhere on the monument, seemed to date from the time of abandonment by the Spaniards. The south end of this foundation was butted against the corner of Room 18 after Room 18 was plastered.

(Note: Frank Pinkley and J. H. Tovrea, in the monthly report of the Southwestern Monuments, August, 1936, page 123, state the following in regard to the foundation of Room 18: "One startling thing about this foundation, which developed on examination, (when excavated at an earlier time by Mr. Co. Boundey) was that there were a few inches of the adobe wall still standing above the rock foundation and these few inches of the adobe wall CARRIED THE ORIGINAL STUCCO PLASTER WITH THE CHARACTERISTIC RED AND BLACK DECORATION SUCH AS THE WHOLE LOWER SECTION OF THE CHURCH ONCE CARRIED."
I saw no black decoration, nor were the decorative spots arranged on the walls of Room 18, as they are on the mission proper. However, at the time of the later excavation, there was no adobe wall present on the five foot stone foundation, which served as the lower part of the wall.

**Room 17**

This room was almost a counterpart of Room 18, although slightly larger. The north end of the east wall had been destroyed, either by treasure hunters or by the recent repair work to the mission proper, but I believe the south wall of the sacristy was the north wall of this room. The east wall and especially the southeast corner were damaged greatly by metallurgical operations after the room was abandoned.

Here and there a few square inches of plaster clung to the inner surfaces of the south and east walls, but no red spots were seen. Considering the limited amount of plaster remaining, the absence of spots was not surprising, even if this room had been plastered in a fashion similar to Room 18.

The entrance to this room was similar to that of Room 18.

**NAVE OF MISSION**

Here we found four lime plaster-river boulders structures, which may have been altar or pilaster foundations. (Sheets 1,2,3.) The northwest foundation had been disturbed somewhat, but about one foot below the present surface, it assumed the size and shape figured on Sheet 2. The boulders of the northeast foundation were found loose in the soil with fragments of lime plaster still adhering to their surfaces. The tops of the south pair were flush with the latest constructed floor, and all four had been about two feet in depth.
The purpose of these foundations is unknown, but I do not believe they were fragments of old walls (J.H. Tovrea, Monthly Report of the Southwestern Monuments, January, 1935). No wall foundations set in lime plaster were found at Tumacacori. Besides, it would be an unusual coincidence to have similar sections of two walls exhibit missing segments of equal length at the same relative positions. Further, the only other wall of approximate width was the south wall of Room 12 more than 200 feet away. Again, the north pair had been disturbed somewhat by treasure hunters, but the south pair were symmetrically rectangular.

A purpose for the south pair (as supports for a choir loft) is logically presented by Frank Pinkley and J. H. Tovrea in the monthly report of the Southwestern Monuments, May, 1936, Pages 375 to 379.

A burial of a young girl was found between the restored altar and the southwest foundation. The grave had been lined with burned brick and boulders, presumably from nearby. Two or three of the brick carried lime putty (use the word putty to denote the absence of sand). One of these bricks exhibited grooved decoration, and may indicate the character of the original surface of the side altars.

An unusual feature, of unsuspected significance at the time of finding, was discovered at the northeast corner of the nave. Here, the foundation projected into the room about eight inches, just below the old floor level. Later it was found that this offset extended from the disturbed boulder-lime plaster structure to the northeast corner of the sanctuary, while in the sacristy, the thick adobe wall overhung the foundation a corresponding distance. Evidently, the adobe wall was laid about eight inches too far for the foundation.
SANCTUARY

The specialized plaster, as on Room 18, was found low down on the west wall and the west half of the north wall. In the southwest corner, this plaster ran behind the pilaster, which supports the west half of the arch between sanctuary and nave. It is certain that this pilaster was erected after the wall had once been plastered. The lower edge of this plaster was three and three-tenths feet below the latest constructed floor level of the sanctuary, and four-tenths feet below the lower plaster line of Room 18*. The latest floor level of the sanctuary was two and eight-tenths feet above the latest floor level of the nave.

A semi-cone shaped lump of lime putty, re-enforced with brick, was found underneath the statue niche of the west wall. The surface bore some red and green paint, and was modeled with a curvilinear design. I believe it to be the ledge which projected from the niche. As it carried a more elaborate design than the ledge of the nave, it was a welcome find. It could be restored to place with dowels and plaster of paris.

In the northeast corner, two pieces of lime putty decoration were found. Their surface had been painted brown and then covered with some sort of gilt. Their original part in the decorative scheme can only be surmised.

SACRISTY

Because of many rumors of an underground passage leading from this room, more dirt was moved than was really practical. The north two-fifths was excavated to a depth of ten feet, without finding any traces of a tunnel. The top eight or nine feet had been disturbed by treasure
hunters, but the test hole extended at least a foot into undisturbed gravel. Here, again, the specialized plaster of Rooms 18 and 19 was found below the present floor level. Only a thin strip remained on the north wall at the old floor line, but there were two red spots of crushed brick in the west half, and two to the east.

One of my first theories in regard to this plaster was that the crushed brick was inserted in a first coat of plaster to hold a second layer. I abandoned this theory, for several reasons. The nave, sanctuary, and sacristy have had two coats of thick lime plaster and, with large areas of the undercoat exposed, there is no crushed brick in evidence. Another point is that the imbedded pieces of brick are troweled smooth with the surface, instead of projecting slightly, as would be desired, were they to serve as structural features. Again, the pieces are arranged in groups, which do not make as good a tie, as they would were they scattered. To my mind the red brick insertions can be classified only as ornamentation—the forerunner of the later type of brown and black decoration, which are seen in the walls of the present mission.

The finding of the same specialized plaster in Room 18 and the sanctuary and the sacristy indicates that they were in use at the same time. The fact that Rooms 18 and 17 were plastered seems proof enough that they were completed and in use.

It now seems that the present mission has been remodeled; Rooms 17 and 18 being abandoned, and the floor of the sanctuary being raised two and eight-tenths feet. The plaster behind the pilaster in the sanctuary indicates that the present dome was not built at first, because the pilaster supports the arch, which in turn supports the south side
of the dome. This makes it evident that the roof was also changed. Perhaps it was raised because the floor below was raised. Since no plaster is to be seen behind the pilasters higher on the walls, and as none of the specialized plaster is to be found, except at floor level, it appears that the remodeling took place after a period of neglect, when rainy weather had an opportunity to remove it. A long period of neglect during which wall erosion took place, would explain why the upper margins of the entrances to the side rooms are not in evidence. Because of this, the walls in some places would have, especially around an opening, to be resurfaced. It is doubtful that such a thick wall could have been supported by a wooden lintel for a distance of thirteen feet, but it is possible. If by any chance the lintel was burned, all the wall between the door jambs would have to be rebuilt from the ground up.

According to a burial record, Father Butilierres, who died in 1820 was taken from an old church and reburied in a new one, (Frank Pinkley, Mission of San Jose de Tumacacori, Page 7) 1822. This would allow two years for the completion and subsequent rebuilding of the present mission.

PATIO

Just east of the mission was a patio with the walls of some of the surrounding rooms still above ground. This area was termed a hollow square by Prof. W. Wrightson in 1860. His description of Tumacacori is taken from Mr. Frank Pinkley's booklet, "Mission de San Jose de Tumacacori." (Footnote 1.)

1. "San Jose de Tumacacori" Frank Pinkley, page 9
"The church is an adobe building plastered with cement and coped with burnt brick. . . . Adjacent to the church, in the form of a hollow square, were the residences of the priests, containing spacious and airy rooms, with every evidence of comfort and refinement, while surrounding these in the interior, was an arched colonnade, forming a shady walk around the whole inclosure. To the east of this square of sumptuous residences was an oblong building, where the metallurgical operations were carried on. Here are still the remains of furnaces and quantities of slag, attesting the purpose for which this was formerly used; and further still to the east was the garden, including about five acres and surrounded by an adobe wall. The acequia passed through this, and here are the remains of a bathing place and washing vat. There are also fruit trees and vines still growing. . . To the south of the mission building, and fronting the church, was laid out a large plaza, which was surrounded by peon houses, thus forming a respectable villagé."

To the best of my knowledge, the above is the most accurate of any early description.

**ROOMS 13 AND 14** (Sheets 1 and 2)

At the northwest corner of the patio, are the walls of what was once a two story building. The ground floor was divided into two rooms by a stairway, but there is no evidence of a partition in the upper story. The west wall of this building, which serves in part for the east boundary of the graveyard (See photographs #1#) is, withstanding the erosion better than the other walls because of the plaster covering on the west surface.
The floor level of the upper story is well marked by the holes which held the supporting beams (See photograph 11.) Except for a few large beams near the stairway, whose part in the original structure must be guessed, the beams averaged six and a half inches in diameter, although they varied from five to eight inches. The horizontal distance from center to center of beams averaged fifteen and nine-tenths inches. One large beam, projecting from the south wall along the east side, was probably inserted after the building was finished, to give additional support to the east end of the floor beams. The north end of this log is missing.

The stairway was of adobe bricks, with stone-capped treads. Some of the large flat stones, two to five inches thick and sometimes three feet long, were topped with lime plaster about one inch thick. I believe the whole stairway had once been plastered.

At the foot of the stairway was a small vestibule with a doorway, 4' 3" wide, which led to the patio. This was possibly the only doorway, when the structure was first completed. Laborers on the project said they could remember when two families inhabited this building. Undoubtedly, some changes may be attributed to these later occupants. Speaking in general, an inclosure at Tumacacori rarely had more doors than were absolutely necessary. The entrance midway in the east wall of Room 14, was unnecessary until the room was separated from the central doorway by the short length of walls (See Sheet 2) between the two pilasters at the foot of the stairway. This light wall of unplastered adobe bricks (See photograph 13) exhibits a different character than the other walls of the building. It is laid on a
plaster floor and butts against plastered pilasters. The adobes are lighter in color and, quite noticeably, contain fewer pebbles. The location of the doorway in question would weaken the wall where the second story beams were supported and apparently there was something heavy to support with nine (one was omitted Sheet 2) pilasters and two heavy pillars on the ground floor.

An old description by Powell, 1849 refers to this building • • • . East of the church there was a large square yard, on the west side of which, passing under some solid arches, we came to a flight of steps, leading to a granary, etc. It is a very large establishment and the monks and priests had every accommodation to make life comfortable. • " (See footnote No. 1.)

As the stairway here was the only flight of steps encountered outside of the mission, and the solid arches could refer to a cloister (the arched colonnade of Prof. Wrightson) along the west side of the patio, it seems that Powell thought the second story to be a granary. On what characteristics he based his opinion, I do not know. Perhaps, if he had visited the place in 1620, he might have identified it as something else.

The pillar of Room 14 proved interesting. Observing some plaster on one of the inner adobe bricks, I removed the top layer of adobes, and decided that they had been appropriated from at least three old walls on the monument. Three types of plaster were represented on the inner surfaces of bricks of the top two courses: one type, three-quarters of an inch thick, which had been applied with a trowel; one which had a thin white wash on it; and another which had a white wash topped with red stain.

1. "Chronology for Tumacacori Mission" (included in this thesis)
On the floor, between this pillar and the pilaster to the south, was a streak, one foot and two inches wide, of roughened plaster, indicating a former wall. (See photographs 26 and 27 and Sheets 1, 2.) There is however, no evidence of a wall butting against the pilasters, (See photographs 15 and 27.). The pilaster at the south end of Room 14 leans to the side several degrees, but was plastered at the same time as the wall. (See photograph 27, when photographing this pilaster, I neglected to hang a plumb bob beside it, but the camera was held approximately true.)

An interesting feature of Room 13 was the bench along the east side. This bench was 1' 5" high, 2' 2" wide at the south end, and 2' 5" wide at the north end. On top of the bench in front of the north pilaster, was a circular depression, about 3" deep, which would serve very well for holding an olla upright. The bench was in a fair state of preservation with much of the plaster covering intact.

The floors of these rooms were very uneven. For example, the northwest corner of Room 13 was four-tenths of a foot higher than the southwest corner. In several places the floor had been destroyed by treasure hunters; at least, the holes were filled with loose soil containing pieces of brick, bits of plaster, etc.

The batter along the west wall of this building was 8" wide at the north end of Room 13, and gradually decreased in width until, it disappeared just short of the south wall of Room 14. From the floor it rose vertically one and two-tenths feet, then sloped into the wall two and two-tenths feet above floor level. Where small areas of plaster were missing, the batter was composed of small boulders set in the adobe mud. At a few other places on the monument, they re-
sorted to this sort of construction in order to save a wall from weathering away at ground level. Whether the inside of this building was ever in need of such repair is doubtful.

There were two small apertures in the west wall of this building (Omitted on Map 2). They were rectangular in shape, and about twice as large inside as out. I do not have their measurements, but they could now easily be measured from the graveyard side of the wall.

The short length of wall between the two pilasters, just north of the stairway (See Sheet 2), was indicated only by one course of fired brick, lying loosely on the plaster floor. It is doubtful that a true wall was ever there.

A distinctive feature of this building was the character of the adobe bricks employed in the walls. They were light gray in color, and contained more small pebbles than any others thought to be of Spanish origin. However, the plaster on the outside of the wall (west wall) is undoubtedly of Spanish date.

The inside plaster of this building was crudely applied, being much more uneven than any other plaster I found. This suggests that these rooms have been replastered since the early quarter of the 19th century.

The difference in the adobe, aided in distinguishing the east wall of Room 13 from the west wall of Room 1. On Sheet 2, it is clearly indicated how Room 14 was built around, and after, Room 1.

ROOM 1

In the west wall were two recesses, which had marks at their margins, indicating their former use as cupboards. Both were 3' square, 1' deep, and 4' 5" above the floor level. However, the north
one had once reached to floor level, and had been filled in afterward. It is quite probable that the north one was a door and the south one a window, before Room 13 was constructed.

In the north wall were two openings lined with fired bricks. The west one led to a bake oven (See Sheet 2), and was 9" wide and 10" high. I do not know the exact height of this opening above floor level, but it was approximately 2' 9". The other opening was 3½" high, 5½" wide, 1' 9" above floor level, and 1' 1" west of the east wall of the room. It extended at a downward angle through the 2' adobe wall, but was blocked by the later 1' 9" boulder wall. Perhaps at one time this opening had been part of a drainage system for waste water.

The east wall was sadly vandalized. Sheet 2 gives the width at floor level. Also it had been undermined from the large treasure hunting hole.

Along the south wall had been a bench (bench table) of which only an adobe core remained. A plaster line in the floor, 6" wide in front of the core, indicated the original width to have been 1'9". Three broken bricks at the west end, but apparently in place, indicated there had been two courses of burned brick on top, giving it a height of 2' 3". Along the north wall there was evidence of a bench entirely constructed of burned bricks. The remains never exceeded two courses in height, but the plaster line above indicated a height of 1' 4", or four courses of brick with the plaster between and on top. The bricks used were 3" x 12½" x 12½" (there were no two bricks of the same size at Tumacacori. Whenever a brick size is given in this thesis, it is the average of several measurements). There was a 3½" plaster fill back of the bricks, giving 1' 4" as the width of the bench.
In the northwest corner of Room I was a large quantity of burned bricks with lime plaster adhering to their surfaces. A few of these bricks were smoke-blackened. Their occurrence suggested, at first, the possibility of an inside bake oven, which had been destroyed by the treasure hunters.

A large treasure hunting hole had been dug through the floor (much larger than shown on Sheet 2). In the east portion of the room, the floor had been of fired brick, while the west portion of the floor was of well-laid stone flagging. Both materials had been set in lime plaster. The bricks, \(2\frac{1}{4}'' \times 6'' \times 12\frac{1}{2}''\), were laid in a herringbone pattern as in Rooms 2 and 3. An unusual feature of the room was the plaster-lined conduit or drain leading in from the patio, through Room 2. It ended in the treasure hunting hole.

There was little wall plaster present, except on the north wall over the bench. The west wall had been plastered in part with adobe mud, sometimes two inches thick. I believe this wall had been exposed to erosion for a time and then smoothed over with adobe mud before a final application of lime plaster was made. This would indicate a period of time in which the roof was gone. All lime plaster was approximately \(\frac{1}{4}''\) thick. Because of the plaster line in the floor, along the whole length of the room in front of the south bench, it was evident that the present floor had been laid after the bench was plastered.

At the north-east corner of the treasure hunting hole, 6'' from the east wall and 1' 5'' from the north wall, was what first appeared to be the corner of an underground room. This plastered corner extended downward 1' 9'', and terminated where the walls had been undermined from
the treasure hunting hole. From the corner, the plaster faces extended about 2' west, and 1' 6" south, before ending in the treasure hunter hole. The north face corresponded rather closely to the front of the bench while the east face appeared to be in line with the east edge of the conduit. The significance of this structure is lost, because of the treasure hunting hole. Perhaps the conduit led to a cistern in this corner of the room and was mistaken for a treasure vault by the treasure hunters. The loose bricks in the northwest corner of the room could have been from a cistern.

The central portion of this room lying over much of the treasure hunting hole was not excavated.

**ROOM 2**

The west wall was broken by the doorway to Room 1. A very little plaster on the sides at floor level gave the exact width of the door. A large gap in the south wall prevented the exact location of the door, which was certainly there. The doorway to Room 4 was crudely closed with courses of different sized burned brick and adobe mud. The thin wall between Rooms 2 and 3 had been vandalized considerably, and the exact location of the doorway was not ascertained. The floor bricks butted against this partition, but the few bricks which would have located the doorway were missing.

The floor of burned brick, laid in a herringbone pattern, was fairly well preserved. However, the pattern was broken by two rows of bricks, side by side, with bricks laid end to end, which extended from the doorway on the south to the north doorway. Investigation under this break in pattern (where bricks were already missing) disclosed nothing, and I have no theory about this unusual feature.
A few small holes in the floor may indicate storage places for small objects. There was a small jar in one such hole, while later in Room 7 a large olla was found under the floor. I suspect the storage of small articles in this manner is less typical of the Spaniards than of the natives who occupied these buildings after 1827.

The plaster-lined conduit, crossing a corner of the room, was under one thickness of brick, 2\(\frac{3}{4}\)" thick.

**ROOM 3**

The only interesting features of this room were the two benches (wall tables) and the floor. Some bricks were missing from each, but compared to other structures at Tumacacori, they were well preserved. The west bench, with two rows of brick laid end to end along the back wall and a third row in front with brick laid side by side, was slightly wider than the east one. On these bricks in a few places was a \(\frac{1}{8}\)" layer of white plaster, unlike the red-topped benches of the south side of the patio.

North of Room 3 was a solidly built floor of river boulders. From east to west this floor was level, but the north edge was about six-tenths of a foot lower than the south side. The east and west edges had an abrupt straightedge appearance, while the north edge was "ragged." The south edge merged with the stone re-enforcing wall, which protected the north walls of Rooms 1, 3, 4, 5, and 7. Some lime plaster remained on the north face of the boulder re-enforcing wall; the lower plaster line being 1' 10" above the boulder floor. Evidently, almost 2' of fill had accumulated over the boulder floor before the wall was plastered. The top of the reenforcing wall sloped downward from the inner wall, so I do not believe it ever supported
an adobe wall.

**ROOM 4**

There was no constructed floor present; the floor level given on Sheet 2 is that of a hard uneven earth floor, on which occurred more or less loose soil. The wall carried quite a bit of plaster, \( \frac{3}{4} \) to 1" thick, but there was no definite lower edge to establish a floor level.

A test pit, about 6' square and 5' below adjacent floor levels, was excavated without finding anything of importance.

The only entrance to Room 4 was the filled-in doorway leading to Room 2. Evidently, Rooms 1, 2, 3, and 4 formed a separate unit in the original structure.

**ROOM 5**

This room contained more plaster than any other on the north side of the patio. The walls carried the usual white plaster, \( \frac{3}{4} \)" to 1" thick, while the surface of the plaster floor was rather dark in color. I believe the dark color was due to use instead of stain.

A small cache of lead ore (?) was found under the floor, 1' from the west wall and 6' from the south wall.

A mortar (See photograph 22) was found just inside the doorway 10" above the floor level.

**ROOMS 6 and 7**

Room 6 had been floored with plaster laid over large boulders, but much of the plaster is now gone. Construction here suggests that boulder floors elsewhere were once topped with plaster. A trench around the walls of Room 7 uncovered only a boulder floor but, as suggested above, the room had probably been floored with plaster.
Two holes in the floor of Room 7 were noteworthy. One, with center 1' from south wall and 6' 3" from the east wall, contained a large olla (See photograph 23). The olla, containing only a few minute fragments of egg shell beside earth, was found upright with its mouth about one inch below floor level, provided the boulder floor had been covered with plaster. Under the floor and almost touching the olla, were two other artifacts; a small jar, and a crude candle-stick (?) fashioned from a portion of a fired brick. (See photograph 23)

The other hole, "figure eight-shaped", had contained two wooden posts, side by side. The contents of this hole were so well rotted that the type of wood or the exact size, about 5" and 6", could not be determined. This hole was at the base of the south wall, 5' 6" east of the west wall.

The three light walls of the storage bin (See Sheet 2) were of unplastered adobe bricks laid on the plastered floor, and butted against the plastered south wall of the room. I believe it dates from 1827.

The most perplexing problem in regard to Rooms 6 and 7 concerned the types and amount of plaster in the room fill. Three types were abundant. The top part of the fill, from two to four feet in depth was composed of fallen walls, carrying the usual room plaster, \( \frac{3}{8} \) to 1" thick. Between these fallen walls and the floor was a layer of loose fill, from 6" to 2' 6" thick, which contained large fragments of two other types of plaster. One type, which was from 3" to 4\( \frac{1}{2} \)" thick, contained a core of broken brick, and had one polished red surface. This type exactly resembles the remnants on the floor to be seen in the mission. Isolated chunks of this plaster had also been found in Rooms 1, 2, 3, 4, and 5. The third type was plain white in color, and varied
from 1\(\frac{7}{8}\)" to 3" in thickness. One side appeared to have been laid on smooth earth, while the other surface was very smooth, or, it could be said, polished. Except for the excessive smoothness, this latter type suggested a plastered roof.

The last two types were mixed indiscriminately in the loose fill. Pieces of both were found inside and on top of the storage bin. From the top, I removed a section of an "island", left by trenching around the walls, but nothing developed from which I could form an opinion. Sometimes one type was on top; sometimes the other. Sometimes the smooth surfaces were up; sometimes they were down; and, sometimes they were on edge. In regard to quantity and distribution, I estimated there was about half enough of each type to cover each room, and they were evenly distributed over both rooms.

The red flooring suggested a second story, but were that the case, I believe supporting evidence of some sort would have been discovered. If the white type had not been found above the red so often, I could have been sure it was the missing plaster from the boulder floor. I believe now that the broken pieces of red flooring had been introduced after the rooms were abandoned, and that the whole fill had been churned by treasure hunters.

Except for the east side, all walls of these rooms were of the "double adobe" type, characteristic of this side of the patio. The bricks measured 2\(\frac{3}{4}\)" to 3" x 11\(\frac{1}{2}\)" x 24". The east wall was of the "single adobe" type, but it may not have always been so. It is possible that the adobe bricks of the eastern half have been removed in the last hundred years. The foundation, which would have supported this tier of adobe was not noted, but the south wall of Room 8 lacked an even
foot of reaching the east wall of Room 6.

No evidence of a door was found in the east wall of Room 6, the gap shown on Sheets 1 and 2 seemed to have resulted from vandalism. However, the extra width of the east end of this room would permit an opening through the east wall in front of Room 8, providing there were a curved south wall.

**ROOM 15**

A special feature of this room was a floor of burned brick, $1\frac{3}{4}$" to $2" \times 10\frac{1}{2}" \times 10\frac{1}{2}"$. (See photographs 23) The bricks were laid in checkerboard fashion, instead of the herringbone manner so common to the patio. Much of the floor had been destroyed by vandals, but several courses were uncovered along the west wall near the north end. Between the two western courses was a row of spalls. Evidently, the floor had been laid from the east, so that when the last row of bricks did not fill the final space, some small pieces of brick were used to bring the last row against the west wall.

The plaster of this room was also unusual. A white wash had been applied to the walls on the south, east and north. On the west wall a thin layer of ash-colored plaster had been troweled before a final application of white wash; while in the doorway on both sides was found the white wash topped with red stain, which is believed to be associated with the oldest buildings on the monument. The plaster of Room 38, may be seen where this wall extends through the north wall of Room 16. (See Sheets 1, 2.)

The north end of the east wall butts against the corner of Room 14, and the upper part of the west wall has been restored by Mr. Pinkley.
ROOM 16

The walls of this room are still standing several feet above the ground level. Probably, much of them are recent. Local people speak of Room 16 as Pedro Calistro's room. Calistro, an Opata Indian, who died recently, was known as the "Keeper of the Mission" and lived nearby, for many years. See article "Indian Holy Week at Tumacacori," Southwestern Monuments Monthly Report for August, 1935.

The east wall contains pieces of fired bricks, a piece of modern glass, and a recently sawed timber. Both ends of the wall butt against a thick layer of plaster, which suggests that part of the side walls are of Spanish origin. Several wooden boxes of modern date are built into the south wall. The north wall is divided into two parts by the west wall of Room 15. The age of the western portion is important, for, possibly, there was once an entrance to the graveyard here. Now, visitors reach the graveyard via the sacristy window, and Mr. Beaubein says that one would not expect to find only the one entrance, on the west to the graveyard. However, nothing was learned about the age of this segment of wall from excavation inside, and I did not dig outside.

The west two-thirds of this room have been deeply excavated by treasure hunters, so I could not learn if the west wall of Room 15 once passed underneath. There were several square feet of plaster flooring along the north wall near the east end. Perhaps, this floor, about 2' 6" below present ground level, belonged to Room 38 before the south wall of Room 16 was constructed.

ROOM 38

Due to vandalism not much of these walls remained. A portion of
the south wall carried some unusual plasters, which consisted of a brown sandy application, 1\" to 1\''\(\frac{3}{4}\)\" thick, topped with white wash. Evidently, some adobes of the west and east walls had been reutilized as they carried a white wash topped with red stain on the surfaces inside the wall.

**ROOM 39**

This room also, was sadly vandalized. Several adobe bricks of the east wall carried white wash, topped with red stain, on the surfaces of the inside wall.

**ROOM 40**

A few floor bricks, laid in a herringbone pattern, were found along the east wall, but the rest of the floor had been destroyed by vandals. A large amorphous mass of bricks and plaster was found in a treasure hunting hole under the floor level in the north part of room.

Here, four or five square feet of plaster on the east wall, near the north end proved interesting. A thick, 1\", layer of white plaster had been troweled on a covering of white wash, topped with red stain. If there were two building periods at Tumacacori, one in which lime was scarce and applied only with a brush, and another when lime was more plentiful and applied thickly with a trowel, here is positive proof of their respective ages.

A short bench was found on the east wall. As this left a very thin wall between Rooms 40 and 43a, this "bench" may have been a wall niche topped with a wooden lintel, or an arch of adobe bricks. The bricks which would form the bench top, were missing, but their impressions remained in a layer of plaster.
ROOM 42

The north, west and south walls are of an earlier period than the east wall, which abuts the side walls and contains more pebbles than the others. Evidently, the entrance has been blocked by the more recent walls. The gap in the north wall, which was dug by some treasure hunter in a drain, would not be wide enough for a doorway with sides at right angles to the wall.

Except for the treasure hunting hole, the floor was in good condition (See photographs 30 and 31.) A 3" layer of wood-ash was found in the northwest corner, where the square corner had been rounded out and a few bricks inserted into the walls to form a small crude fireplace. (See photograph 31.) Adjacent walls evince signs of heat and smoke. Undoubtedly, this room has been occupied since 1827.

The wall plaster, where it remained, varied from 1/2" to 1" in thickness.

An interesting feature was the drain passing under the floor. It began at the restored tanks in front of the mission and emerged into the patio through a large hole in the north wall of Room 43a. (See photographs 30 and 42.) It should be noted that the drain of Rooms 1 and 2 fell about one-tenth of a foot in 25 feet. The floor level of Room 43a was five-tenths feet higher than the floor level of Room 1, at a point 140' from the south end of the drain. Possibly, there was once a continuous drain from the tanks in front of the mission to Room 1. The drain of Room 42 was 2\frac{1}{2}" high and 7\frac{1}{2}" wide.

ROOM 43

43 was the number given to the south portion of the cloister, which once surrounded the patio on the south, west and north. Apparently,
the principal entrance to the patio was through the south side, and it
is marked by a filled-in arch in the south wall of Room 43. 43a is the
part of this enclosure west of the arch, and 43b is the part between
this entrance and a deep treasure hunting hole at the east end. 43c
is the treasure hunting hole, and is bounded on the west by an under­
floor wall. This wall is a continuation of the east wall of Rooms 47 and
48.

Directly in front of the arch mentioned above, the floor has been
destroyed by vandals, but Mr. Boundey, then custodian of Tumacacori Na­
tional Monument, assured me the driveway had once been paved with bricks,
in which deep ruts were worn by cart wheels. Two and a half bricks (See
Sheet 3) were found in place in the driveway which indicated that the
floor pattern differed from the herringbone pattern on either side.

There was a bench extending along the west side and most of the
south side (See photograph 15). It terminated with a ragged end at
the treasure hunter hole of 43c. It was missing in the driveway, while
the plaster line in the floor indicated that it had once ended flush
with each side of the arch. In several places this bench gave evidence
of having been topped with a thin layer of plaster stained red. This
red stained plaster was much thicker than the white wash topped with
red stain to be seen on older walls. The wall plaster, \( \frac{3}{4} \)" to 1"
thick, was plain white in color.

One short bench and part of another were found in the western
portion of the north wall (See photographs 14, 15, 28, and 29.) while
not enough remained of the eastern portion of the wall to indicate the
occurrence of others. The eastern portion of the easternmost bench had
been destroyed, so that its exact length could not be determined. The
westmost bench was in fair condition, and perhaps its length indicates
the distance between the pillars of the colonnade, mentioned by Prof.
Wrightson in 1860. However, I discovered no proof of a colonnade or
arcade anywhere. The two short benches had thin backwalls, whose
original height I do not know.

The drain, which entered Room 42 from the south, had been entirely
destroyed in Room 43a. However, its passage through the north wall was
marked by a large stone-lined hole (See photographs 28 and 42.)

There was a large treasure hunter hole through the floor of Room
43b. From this one, like most others, the adjacent floors had been
undermined. After settling, the floors always sloped toward the holes.
I was never able to reach the sides of these holes without damaging
the structures above; so was never able to examine the strata pierced by
the treasure hunters. There were many rumors of underground passages
or tunnels at Tumacacori, and I suppose that most of them had their birth
with the vandals, who had dug through the floors of Room 43 and 45 to find
the floors and walls of older buildings on the same level as Rooms 46,
47 and 49.

All of Room 43c had been excavated to a depth of about 7' below
floor level by treasure hunters. The fill was typical of all treasure
hunter holes except that it contained more large boulders. There was a
large shapeless mass of boulders, set in adobe mud, in the southwest
corner of the room. (Sheet 4). Probably, boulders had been loosened
from this mass to supply the loose boulders of the fill. The floor of
Room 43, on the wall between 43b and 43c, was interesting. Above the
adobe wall bricks was a $\frac{1}{2}$" layer of lime plaster; above this plaster
was a 5" layer of adobe mud; and, above the solid adobe was a 3" layer
of plaster in which were set the floor bricks.

On the outside of the north wall, 43c, was the bottom end of a wall drain. (See Sheet 4 and photograph 32) similar to the drains on the walls of the mission. (See photograph 33.) Below, and to the east of the drain, was a lump of plaster and brick (See photograph 32), whose part in the original scheme could not be determined. Just above this object was a layer of loose soil and pieces of brick in the wall. Evidently the wall had been rebuilt at one time. The drain appeared to belong to the older wall, but quite possibly it could have been constructed at the time of rebuilding and just had its lower end seated in the older wall. The layer of loose soil and broken bricks could be seen in the wall from the drain east of the corner, along the east wall, and west to the corner of Room 45. The level of this layer corresponded to the floor level of Room 43. The eastern part of the south wall butted against the corner of Room 45.

An unusual feature of construction in Room 43c was the depth of the walls below floor level. There was no floor present, but the bench height at the southwest corner indicated a floor level similar to Room 43b. Probably, the walls were begun at ground level and then filled with earth to support a brick floor at the proper height.

**AREA 41**

41 was the number given to the area, which I supposed to be the west and north portions of the cloister. 41a designates the part in front of Rooms 14, 15 and 16; 41b lies south of 41a; while 41c applies to the section fronting southward.

The west wall of 41a was marked by a stone foundation on which, in a few places, was found one course of adobe bricks, 3\(\frac{1}{2}\)" x 11\(\frac{1}{2}\)" x 24".
In front of the entrance to Room 15 was a 5' gap in the adobe bricks (See photographs 24 and 25.), which I think marks a doorway between the patio and cloister.

Six adobe bricks, $3\frac{1}{2}'' \times 12'' \times 24''$, seemed to be in place against the east wall of Room 14. The group was laid three courses high and two bricks long. Possibly they marked the site of a bench.

Just north of these adobes and south of the east entrance to Room 14 a test pit was begun. A boulder floor was encountered on a level about 2' below the east wall of Room 41a. About five square feet of this floor were uncovered without reaching an edge, when refilling it became necessary in order to discontinue excavation. It had occurred to me that the light colored, pebbly adobes of Room 14 had been laid on foundations or walls of earlier date. In this test pit against the side of Room 14, all courses of adobes seemed to be the same.

At the present ground level, one course of small boulders extended foundation-like about 6' northeast from the corner of Room 16. This is shown as a stone wall on an earlier map of Tumacacori. It may have marked a recent wall but it had no part in the original construction.

Much of the east wall of 41b was traced by trenching along each side of the foundation, and it was never uncovered from the top. Perhaps, another door, as in front of Room 15, would have been found if time and funds had permitted additional excavation.

The south wall of 41c was marked by a stone foundation without any adobe bricks (See photograph44). A break near the west end gave passage way for the drain. A much longer gap near the east end may be attributed to vandalism. Near the latter break was a structure which was tentatively identified as a foundation of a primitive flour
mill (See photograph 21). On this foundation could have been placed a nether stone with spindle. On the nether stone and pierced by the spindle would have been the upper millstone, attached to which would have been a pole projecting horizontally. A burro hitched to the pole and walking in a short circle would furnish power for the operation of the mill. The grain would be introduced around the spindle, and then the flour would be collected at the edges of the stones. To support this theory there was a hard-packed adobe floor from 5' to 8' in all directions from the foundation. The floor, yellowish in color, could be distinguished both in color and in density. As this floor was above the south foundation of area 41c, the milling operations were subsequent to the destruction of the wall.

Immediately in front of Room 4 and perhaps a part of the south wall foundation was a short length of stone foundation, whose original purpose is unknown.

About three feet in front of the foundation, and on the same level, were found, together, a small milling stone, a small mortar, and the major portion of a metate (See photograph 22.)

The east wall of 41c continued southward to form the east boundary of the patio (See Sheet 2). This was only a rock foundation, with the south end terminating in a modern drain ditch. This foundation was pierced by a plaster-lined drain, about 9' south of 41c. Both ends of the drain ended in treasure hunting holes. No fired bricks were used in the construction of this drain, in contrast to the brick drains of Rooms 1 and 2.

ROOM 51
Only stone foundations were found here. A tree prevented a thorough exploration of the eastern part, while a treasure hunter hole, 7' 6" below foundation level, had been dug in the west and north portions of the room. (Sheet 2) If the stub north wall once extended to the damaged west wall, it would have been directly in the treasure hunter's path. The west boundary of the loose fill lay along the inner line of the west wall. "Cave-ins" along the edge of the hole would account for the missing portions of the west foundation. The foundations of the east, west and north walls were neither as wide nor as deep as the south foundation.

From the arrangement of the floor plan and the plaster, Room 51 is ideally pictured as the sacristy. The walls of Rooms 50, 51 and 52 were constructed simultaneously, which lends to the proof that they could have been Nave, Sacristy and Baptistry. The lack of doorway evidence is due to the fact that the remaining foundations were below floor level at those points.

A thick piece of lime plaster had been built into the western end of the north foundation. It may have marked the side of a doorway or the bottom of a wall drain, but there was not enough of the structure present to be accurately identified.

**ROOMS 52 AND 53**

Except for a few adobe bricks, laid side by side, on the east wall foundation, only stone foundations remained. The side walls of Room 53 ended at the edge of a treasure hunter hole, which extended into Room 49. The north wall of Room 53 did not end in as ragged a fashion as did the south wall, so the rim of the treasure hunter hole may have coincided
with the side of a doorway or the end of the wall.

Some fifteen square feet of hard level adobe floor remained in the northeast corner of the room. Here and there, but always within a foot of the wall, a bit of white wash plaster seemed to be in place on the floor. To me, it seems improbable that an earth floor would be whitewashed, but that seemed to be the case. The plaster, while thin, was much more substantial than the thin white film noted in Room 50, which I thought could have been deposited by ground water. The walls adjacent to this floor carried some white wash topped with red stain.

A stone foundation, 2' 2" x 1'9", was found against the north foundation (Sheet 2), with its top flush with the floor. I always identified such structures as pilaster foundations, but the purpose of any one of them is unknown.

The western portion of Room 52 had been disturbed to a shallow depth by vandals. Just west of Room 50 and 52 was found what first appeared to be a floor of small boulders (Sheet 1), two or three inches below foundation level. From one to seven feet away, the boulders thinned rapidly, presenting a very ragged margin. Perhaps the boulders had been placed there to protect the walls from running water, after rains.

ROOM 49

There was nothing here to indicate a floor level, and there was no plaster present. The only evidence of a doorway was the one between this room and Room 50, but at one time there could have been a door to Room 46 without its being found now. A thin stone foundation enclosed, on the south and west sides, a pit in the northeast corner of the room.
The pit was excavated to a depth of about four feet, before a firm and smooth earth floor was found. On account of the pipe line excavation adjacent to the north wall of Room 48, it was impossible to definitely establish a bond between the east wall of Room 49 and the south wall of Room 50.

**ROOM 46**

Little of this room was excavated because of a big tree. No plaster was seen, and there was no floor on the north side.

**ROOM 48**

This room was in a fair state of preservation, with a plaster floor and some wall plaster. The wall plaster was of white wash topped with red stain, plus a thin film of soft lime. The white film could be easily brushed from the red.

The floor was covered with a thin layer of lime plaster, which was dark in color on the surface. I believe the color was due to usage and not to any stain. The most important character of the floor plaster was that it contained small pieces of slag, evidently as a reenforcement. The presence of slag indicates that smelters were operated at Tumacacori at an early date. On the other hand, it indicates that this series of rooms, Nos. 46 to 53, were constructed after 1731, when the discovery of silver mines such as "Bolas de Plata", brought mining men to Pimeria Alta.

The sides of the west entrance were excavated a bit, but a tree prevented the clearance of the door. Another doorway was found midway in the south wall. This door, 3' wide, had been neatly filled with adobe bricks. There was a little white wash on the filled-in door, but
no red stain. The south wall was unusual in another respect, being 1' wide at the east end and 1' 9" wide at the west end.

This room had been excavated before, as a bucket coated with cement and a celluloid comb were found on the floor.

**ROOM 47**

No plaster remained in this room. The adobe floor was 6" below the plaster floor of Room 48. All walls were well made of close set adobe bricks, except for a vertical crack at the east end of the west one-fourth of the south wall. This suggested another room just south of the eastern three-fourths of Room 47, one that I could not reach without destroying the floor of Room 43b. The floor of Room 43b was constructed about 2' 9" above the floor of Room 47 and, without digging on the south side of the north wall of Room 43b, little can be said of Room 47. I have no explanation for the thin section of the Room 43b wall near the west end of Room 47.

The east wall of Rooms 47 and 48 continued south, under the floor of Room 43. Non-bonded joints, showing in the wall between Rooms 43 and 45 indicate that the underfloor wall was once much higher. The plaster on the exposed portion above present ground level is the only plaster nearby.

**ROOM 8**

Room 8 differed in appearance from the rooms to the west. The adobe bricks of the north wall were laid unevenly on loose soil. In fact, a layer of slag lay under the eastern part of this wall. The double wall between Rooms 8 and 9 was well constructed, but there was no stone foundation under the south wall.
At the base of the south wall was a structure (Sheet 2, and 5) of fired brick covered with lime plaster. A 5" layer of wood-ash covered this platform and extended into the room some five feet, while gradually decreasing in thickness. Just outside the room at this point was a reenforcing wall of stone. Perhaps the structure inside was the floor of a fireplace, while the reenforcing wall was necessary to uphold or protect a heavy chimney.

Near the center of the room was found a large millstone (See photograph 22). The hole, bushed with lead, extended only half way through the stone; evidently, it was a nether stone. It was found in loose soil above floor level, with the working face at an angle of about 30 degrees from the horizontal.

Several large mesquite trees, growing within the room, prohibited a thorough exploration. One grew just inside the doorway so only the tops of nearby walls were outlined. A test pit, 6' below floor level, disclosed nothing but a few river boulders scattered through the soil. Possibly, a boulder floor has been vandalized here.

The poorly laid north wall, over a layer of slag, suggests to me that at least some of this room was built or rebuilt after abandonment by the Spaniards.

**ROOM 9**

The north, east, and south walls were laid on loose dirt. I am unable to explain the filled-in corner of the east side. The north wall, near the west end, carried about one square foot of plaster, which had been applied with a trowel. The plaster lay over several adjoining bricks and so was in place; that is, plastered bricks from other walls had not been assembled into the wall here.
ROOM 10

The south and west walls were laid without stone foundations. The outer north wall was of adobe bricks, 3" to 4" by 12" by 24", without a foundation. Most of the adobes of this latter wall carried some white wash plaster stained red, either on one edge or an end. Evidently, they had been removed from another building. The inner north wall was of boulders laid in mud. The east wall was well laid on a stone foundation.

ROOM 11

This room had a well-made boulder floor, but contained no plaster. There were no adobe bricks on the east wall and only three at the west end of the north wall. The foundation stones of the west, north and east walls were slightly higher than the floor, but there was no trace of a south wall. Against the west wall, near the south edge of the floor, were found about two pounds of copper sheeting from which small discs had been stamped. Possibly the discs had been used either for medals or coins.

The north portion of the west wall of orchard began at the northeast corner of Room 11.

AREA 12

This was not a room, but an area partially inclosed by boulder foundations. Excepting the present mission, the south and west walls were the heaviest and best made foundations found on the monument. The inner portion of the east wall, 1' 7" wide and one course of small boulders deep, probably served as a foundation for a light wall at one time. The eastern part of this wall, shown on Sheet 2, is composed of small boulders loosely scattered in the soil. They did not have the appearance of
a wall foundation; but rather, suggested a batter of boulders and mud
which had weathered away. No floor level was apparent.

In the northern portion of the inclosure were found about 200
pounds of animal bones; mostly sheep and cows, but with a few horse and
pig bones. Two mandibles of a domestic pig and one of a peccary were
noted.

Between Area 12 and the east wall of the patio were five problemat­
cical structures (Sheet 2). When they were being surveyed, Mr. Beaubein
suggested to the engineers that three could possibly be vasos (primitive
smelters) and another (Sheet 2; details Sheet 3) could have been an
ore roaster. However, I am unable to identify any of these structures,
without comparative materials.

Vaso I or VI (Sheet 2 and photograph 19). Part of a broken pot
had been found in the arched entrance of a primitive smelter. Some
lime plaster, one inch thick, was still clinging to the inner surface
of the arch. This plaster was smoke blackened, but gave no indication
of intense heat. Except for a six inch lining of dried mud and char­
coal, the bowl part of the structure was filled with broken brick,
slag, earth and pieces of lime plaster.

I was unable to determine whether the charcoal and adobe mix­
ture was an integral part of the structure, or whether the bowl had once
filled with charcoal and mud before a test hole had been excavated by
some treasure hunter. This lining was not found in VI or VII.

VII. (See sheet 2 photographs 18 and 19) This differed from VI
by having a conduit through the north wall, besides being of adobe
brick. The floor of the conduit sloped into the bowl. Possibly this
was a smoke flue, but all evidence of the superstructure had been de—
molished long ago.

VIII (See Sheet 2 and photograph 20) was much like VI. The detailed drawings of Sheet 3 give a more graphic representation than any word description.

VI, VII, and VIII, all possessed a smaller diameter some two to three feet above the earth floors, but whether the missing tops were dome or bottle shaped could not be determined from the remaining evidence. Possibly they had been hourglass shaped as was the adjoining structure.

According to primitive smelting processes in Mexico, the completed structure should have been an inverted bowl shape. Fuel and copper ore could be introduced through a small hole at the rear, near the top. A large bellows playing into the arched entrance, would create a small blast furnace. The molten material would pour out the entrance where a large pot would be buried with the rim flush with the floor. The slag would escape over the pot, depositing the heavier copper below. If the ore carried sulphur, it would have to be roasted before the smelting operation.

If these were vasos or primitive smelters, one would expect to find evidence of intense heat, a character not encountered. Perhaps an inner lining had been removed in recent years, when some citizens of Tubac gathered large quantities of slag here to be remelted by modern methods.

The use of the problematical structure, labeled roaster on Sheets 2 and 3, is unknown. Its proximity to other structures, tentatively identified as smelters, suggested that its purpose was of a metallurgical nature. Some lime plaster inside the upper part was black from smoke, but was not fused. About six inches of wood ash lay on the earth floor. Resting on the ash layer were several tin cans whose paper labels had
not entirely rotted. The top of the arched entrance had been vandalized, but it appeared to have been a foot higher than the entrances of the problematical structures nearby. The floor level of this structure was six inches lower than the floor level of VII, and one foot lower than the floor level of VIII.

The structure by the patio wall was simply a brick-lined hole with a side entrance. The vertical portion had been smoothly plastered inside with lime plaster. The side entrance was located by removing loose fill in the surrounding packed soil; there were no constructed sides of burned or adobe brick. Slag was conspicuous by its absence in comparison with the structures several yards to the east, but pottery was more abundant here than at any other area on the monument, which is accounted for by the fact that slag was crushed and used for decoration purposes on the courtyard wall. There is a probability that the entire amount was thus used. A broken burned brick from this hole bore a deep impression of a chicken’s foot. Evidently a chicken had stepped on a freshly made adobe before it was placed in the kiln.

AREAS 54, 62, 64 and 65

Only stone foundations were found here, except for the adobe pilaster of Area 65 and the south wall of Areas 54 and 65. The two pilasters of Areas 65 and 62 are almost in line with a third on the wall between Areas 54 and 55. The wall between Areas 54 and 62 is above their west wall. Nothing was found to indicate the age of these foundations, except their low level, but they may well be among the oldest on the Monument.

AREAS 55, 56, 57, 58 and 59

The east wall foundation of Areas 56 and 59, with the east foundation of Areas 11 and 12, form part of the western boundary of the old orchard. As this boundary is at the brow of a slope, it had suffered
some damage from erosion.

The north foundation of Areas 55 and 56 carried one course of adobes for more than $2/3$ its length. These bricks were of an unusual size, $6'' \times 15'' \times 24''$. No other adobes approaching this size were seen on the monument.

The north wall of Area 57 ended just short of the west wall, and the south wall ended in a treasure hunter’s hole.

There was a hard, uneven adobe floor over much of this area. Immediately above the adobe floor were several layers of odd colored soil, quite porous and friable. These layers varied greatly in type and thickness, sometimes within the course of but a few feet. (See photographs 35, 37 and 38.)

Some examples are given below:

<table>
<thead>
<tr>
<th>North side, A 55</th>
<th>East Side, A 55</th>
<th>South side A 56</th>
</tr>
</thead>
<tbody>
<tr>
<td>white 6''</td>
<td>white 4''</td>
<td>white 2''</td>
</tr>
<tr>
<td>dark blue 1''</td>
<td>blue 1''</td>
<td>blue black 7''</td>
</tr>
<tr>
<td>light blue 7''</td>
<td>white 1''</td>
<td>light blue 5''</td>
</tr>
<tr>
<td>adobe floor</td>
<td>black 1''</td>
<td>black 2/3''</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>North side, A 57</th>
<th>North side A 57</th>
<th>South side, A. 57</th>
</tr>
</thead>
<tbody>
<tr>
<td>white 2 2/3''</td>
<td>white (a few feet west) 4''</td>
<td>white 3''</td>
</tr>
<tr>
<td>blue 2''</td>
<td>blue black 2''</td>
<td>black 1''</td>
</tr>
<tr>
<td>black 1''</td>
<td>very friable</td>
<td>sandy</td>
</tr>
<tr>
<td>white 1''</td>
<td>soil from</td>
<td>sediment 2 2/3''</td>
</tr>
<tr>
<td>blue, pwd. 5''</td>
<td>white to</td>
<td>brown</td>
</tr>
<tr>
<td>black 3/4''</td>
<td>yellow 5''</td>
<td>adobe floor</td>
</tr>
<tr>
<td>white floor</td>
<td>adobe floor</td>
<td>adobe floor</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>South side, A 58</th>
<th>West Side A 58</th>
<th>South side, A. 59</th>
</tr>
</thead>
<tbody>
<tr>
<td>white 2''</td>
<td>white 2''</td>
<td>yellowish 5''</td>
</tr>
<tr>
<td>blue 2''</td>
<td>blue 1''</td>
<td>blue, ashy 4''</td>
</tr>
<tr>
<td>black 1''</td>
<td>sandy sedim. 3''</td>
<td>yellowish 4''</td>
</tr>
<tr>
<td>Brownish red 1 2/3''</td>
<td>blue 2''</td>
<td>adobe floor</td>
</tr>
<tr>
<td>blue 6''</td>
<td>brownish black 1''</td>
<td>adobe floor</td>
</tr>
<tr>
<td>adobe floor</td>
<td>adobe floor</td>
<td>adobe floor</td>
</tr>
</tbody>
</table>
North Side  A 60  South Side  A  60  Center,  A 61
white  3 1/2"  white  3 1/2"  white  5"
brown  1 1/2"  sandy sedim.  1"  black  1"
blue brown  5"  blue  1 1/2"  blue, pwd.  5"
adobe floor  --  blue  1 1/2"  adobe floor  --

It had been suggested that these layers resulted from burning the manure of a corral, on several occasions. Perhaps this explanation is as good as any. Modern methods of farming would demand that the fertilizer be taken to the fields but, I was told, some of the more lazy farmers have cleaned their corrals by burning, since the mission had been abandoned. Just what sort of soil would result from keeping a corral free of manure by burning, for a long period of time is something only a chemist would know, but I believe it would be much like the soil of these rooms. The black layers did contain small pieces of wood charcoal.

These layers extended over the walls of Areas 57 and 58; which indicates that the corral (if it was a corral) was in use after the walls of Areas 57, 58 and 59 were demolished. Perhaps Areas 55 and 56 were corrals at one time and Areas 57, 58 and 59 were stables or storerooms for husbandry supplies. Then with the abandonment of Areas 57, 58 and 59, Rooms 60 and 61 became the storerooms or stables. A short length of wall connecting the northeast corner of Room 61 with the southwestern corner of the orchard would have maintained a stock-proof corral.

ROOMS 60 and 61

Some adobe bricks remained in place on the stone foundations, and a few carried white wash topped with red stain on the surfaces, inside
the wall. Evidently they had been taken from another wall. One brick carried several layers of plaster thinly applied with a brush; first white; then red; then white; then black, and then white.

Soil layers, not so thick but similar to the layers of Areas 65, 66 etc., were found in these rooms. The layers did not extend over the dividing wall, however, nor did they extend south of these rooms.

The north wall of Rooms 60 and 61 was outlined by trenches on either side, and was never cleaned from the top. Possibly, doors would have been found, but because visitors to the monument had a habit of walking on walls newly uncovered, it was advisable to uncover the wall tops just before the rooms were to be backfilled.

AREAS 66, 67, 68, 69, 70, 71, 72 and 74

Nothing was found here other than the foundations shown on Sheet 4. One of the younger laborers on the project, said that some of the younger boys of the neighborhood had scraped out a large swimming pool in this area, just a few years ago. He said that many walls were found, and a few burials. The pool was filled from the nearby irrigating ditch, which is probably the acqua mentioned by Prof. Wrightson in 1860.

AREA 75

75 was the number assigned to a problematical structure of burnt brick, with plastered walls and floors. (See Sheet 1; photographs 34 and 35). It was located in an irrigation ditch, about 14' inside of the south wall of the orchard.

The constricted outlet would serve to raise the level of a stream
flowing through this structure. The raise in water level might be de­sired to provide a "washing vat", or to introduce the water into another irrigation ditch. A 3" dip in the floor at the south end with a corresponding 3" rise at the north end suggests a secondary purpose for which I cannot account.

ROOMS 19 to 36

Quoting from Prof. Wrightson's description: "To the south of the mission building and fronting the church, was laid out a large plaza which was surrounded by peon houses, thus forming a respectable village."

Evidently this series of rooms represents the peon houses of the west side of the plaza. Photographs 10 and 9 give views of the "dig" at different stages of the excavation. All the wall tops were not clean­ed, so the wall remains were not as high as pictured.

The east wall was eventually uncovered, and nowhere were there enough adobes in place to indicate a doorway. While this group of rooms had not been subject to much treasure hunting, water from the hills to the west had washed away much of the adobe and some of the light foundations. The thin wall between Rooms 23 and 24 contained some fired brick, indicating late construction.

Offsets in the side walls indicated that all rooms were not constructed at the same time, but I was unable to tell which of the two adjacent rooms was the older. Foundations of older walls were found under the east wall of Rooms 25, 26 and 27.

The only constructed floor was found in Room 25. It was made of broken and overfired brick, laid irregularly in adobe mud. One brick in the northwest corner of Room 21, elevation 3260.2, may in-
dicate the floor level. The floor level of Room 22 is more confusing, with 6 or 7 bricks in the southeast corner, elevation 3259.6, and $2\frac{1}{2}$ brick in the southwest corner, elevation 3260.6. The small area of smoke-blackened, adobe floor indicated on Sheet 3 probably represents a floor in that room.

The floor levels of the other rooms could only be approximated from foundation levels.

The only plaster of this group of rooms was found in Room 32, where the adobe wall bricks had been smoothed with adobe mud before an application of white wash. No red stain was discovered.

The benches of Rooms 25 and 26 were much alike, and appeared to be "cheap" imitations of the benches in the rooms around the patio. They were constructed of adobe brick, plus a top course of fired brick laid unevenly in adobe mud. Many of the fired bricks were broken; some were overfired and twisted; and, some carried a little lime plaster indicating their removal from other structures.

Foundations of other rooms in this group extended south to a distance of some fifty-six feet beyond the monument boundary. The outside of the east and west walls had been uncovered but the trenches were backfilled before they could be properly surveyed and mapped.

**ROOM 79**

Here was found only a floor of broken, burnt brick, laid in mud. This lay directly in an old roadway, a few feet from a cattle guard. Where there should have been a stone foundation, I found one on the south, and east. This was a stone foundation and on the west side a wall and three courses of burned brick remained. This structure was only a few inches below the surface of the road. This room had a
brick floor still intact.

An old drawing of Tumacacori by J. Ross Brown shows a series of rooms in this vicinity. Several long trenches were excavated without finding anything. I believe he drew, with artist's license, the west side of the plaza as if it extended west instead of south.

**AREA 80**

80 was the number assigned to the lime kiln some 100 feet north of the graveyard, beyond the monument boundary. This was a circular structure with a bench \(3\frac{1}{2}\)" wide and 3' high, around the inside. The remaining wall above the bench was nearly 4' high. The floor was 7' in diameter. An arched doorway, \(32\frac{1}{2}\)" wide, through which the south-east side would serve for introducing fuel.

The walls had been constructed with adobe bricks, but due to the intense heat needed to produce quicklime, the inner surfaces of the adobes presented the appearance of overfired bricks.

In operation, pillars of limestone would be built bench-high on the floor. Arches of limestone would be built from the pillars to the surrounding bench. Above these arches more limestone would be placed. Fuel would be placed under the arches and ignited. After burning, perhaps for two days and nights, the arches would crumble, and the bottom layers of lime would be ready for use. The stone which had not received enough baking, would be placed in the next charge. Of course, impure nodules in the limestone would be discarded as worthless. Thus, quite a bit of rejected material would accumulate, if the kiln was much used.

There were several mounts of rejects adjacent to this structure, besides some unfired limestone. We found a few inches of slaked lime
(slaked by rain water) on the floor, close to the bench. As there was possibility of this structure having something to do with metallurgical operations, a sharp watch was kept for slag and pieces of ore. However, this is the one area in the vicinity where none was found.

Several mounds in this vicinity suggested the possibility of small dwellings. Two or three were trenched without finding anything.

**Area 37**

37 was the number assigned to the area between the mission and the west side of the patio. (See Sheets 2 and 3). 37a was a large area east of the nave, and 37b was the small area just east of the bell tower. This was a pleasant area in which to work, being in the shade of the mission on warm afternoons and protected from the prevalent southwest winds at all times. Such a delightful spot must have appealed to the treasure hunters, as most of the area had been dug and redug usually deeper than it seemed advisable to excavate.

The remains of the south wall of 37b were constructed of a mixture of fired bricks and unweathered adobe brick. Perhaps there was a wall there before 1827, but the remains found appear to be more recent.

An interesting feature of the area was the amount of copper it contained. Small pieces were everywhere, in addition to a few large pieces. Altogether, some fifty pounds were collected. Samples taken to the University of Arizona were said to be copper with no silver.

There were three problematical structures of burned brick here, which Mr. Beaubein identified as units of a foundry. The north structure shown on Sheet 2 was identified as the retort. It was round in shape, and consisted of a deep foundation filled with sand. The top of the brick side walls was found at the present ground level, and
the superstructure, perhaps dome shaped, had been demolished. The sandy floor inside was a few inches below the surrounding wall, and was almost covered with a thin layer of copper, which had solidified in place. Small streams of copper had worked their way to a depth of six inches in the floor.

At the southwest side, an inch and a half below the floor level of the north side, was found a smooth, heat-darkened outlet for the molten metal. (See Sheet 2.)

About 1' 2" below the outlet was the top of another structure, 32 inches high. This horse-shoe shaped structure (Sheet 2) of mud and fired brick is where the metal could have been cast. Obviously, it would be partially destroyed, when the mould or metal was withdrawn.

Small lumps of sand, somewhat solidified from heat and coated thinly on one side with lime, and found about this latter structure, I believe to be pieces of moulds. Mr. Boundey told me of finding a mould of this type nearby. At first he thought it was the base of a statue, but later he decided it was the core mould of a bell. While he was conducting some visitors through the mission, another party arrived and dropped a heavy rock on the object. Of course, it crumbled into small pieces. No moulds found during the excavation were complete enough to indicate what objects had been molded.

The heat necessary for foundry operations could have been generated in a burned brick structure some four feet southeast of the retort. It was tunnel-like in appearance with the long axis north and south. Approximate inside dimensions were: 1' 0" wide, 3' 0" high, and 7' 9" long. Just north of this structure were a few square
feet of earth floor reddish in color from heat. Its level was about two feet above the floor of the furnace. In removing the ordinary fill from the floor, a trench leading from the furnace to the north side of the retort was discovered. I do not know whether this was a treasure hunting trench or whether it once contained a flue for conducting heat from the furnace to the retort. It was not lined with adobe or fired brick, nor did it show indisputable signs of heat. However, two bricks appeared to be in place as a roof at one point, (just to right of bone, photograph 39). Perhaps a brick lining had been removed by vandals.

In operation a bellows playing on a charcoal fire in the furnace would drive enough heat through some sort of conduit to melt copper placed in the retort. The retort would be tapped at the outlet of the southwest side, and the molten metal would flow into moulds placed in the structure below outlet.

Because of the "churned" condition of the soil due to the treasure hunting activity, there were no means of accurately dating the foundry operations. As the retort lay in part above the wall of Room 17, it is evident that they were subsequent to the abandonment of this room. This points to a late date. Mr. Beaubein believes that it is doubtful that the Spanish Fathers would care to have a foundry so intimately associated with the church. He said, "Personally, I suspect the foundry postdates the abandonment of Tumacacori by the Spaniards." I feel that the smelter could have been a source of revenue and its proximity to the church would not be undesirable.
SUMMARY AND CONCLUSION

In the preceding thesis, I believe that I have shown Room 50, which I excavated at Tumacácori, to be Father Kino's Second Church. So in conclusion I shall summarize all the data which I have used in support of my conviction.

First, I believe Room 50 to be a church, because of the following facts, which were revealed in the excavation of its foundation: There was an entrance door of such width as to be suitable for the use of public gatherings, and in the proper position (i.e., on the opposite end from the altar) as was customary in the old missions. Secondly, there were two pilaster bases near the entrance, which were in the correct position to support the choir loft over the entrance. Thirdly, one could gaze down a long nave into the narrowed sanctuary, another feature commonly found in the old missions. Fourthly, the church was of such size, being fifty-eight feet by fourteen and one half feet, that it is not probable it would be used for anything except mass meetings, and it was the only building on the excavated area of such proportion and arrangement. Fifthly, stone foundations were found on this ruin, and there were only two stone foundations in the whole area, these being Room 50 and the present mission. Sixthly, Room 51 was located in such a position as to be very easily used at one time as the sacristy. All features of the room indicate that it was a church and there are no conflicting features.

After being convinced that Room 50 was a church, I delved into history and old records, and found the following data, which led me
to identify my church, Room 50, as Father Kino's Second Church.

According to old records, 1701 marks the date when Tumacacori was first placed under the charge of a visiting priest. At that time, Father Kino states in his diary that they "built a house and a church, small but neat, and laid foundations of a church and a large house," which would establish two churches at Tumacacori at that time. The first, being "small and neat," could not refer to Room 50, as the latter is too large. Then too, Mr. Pinkley states that "a small room or house had been used for services at Tumacacori for some time," and Room 50 could not be called a "small room or house," so this too would lead us to believe that it must be the second church. Because of Indian raids, this second church was almost in ruins in 1772. Bancroft says that it was repaired in 1784 and had become the headquarters of the Padre by that time. In 1791 it was re-roofed, but a new building must have become necessary, due to the damages caused by repeated attacks of the Apaches. In 1820 this new church wasn't finished, because Padre Ramon Hiberos states in the burial records that Padre Gutierrez, who died that year, was buried in the old church. Again, they would not have buried the fathers in a "small room or house", so it very probably was the second church, Room 50, which was referred to as the old church.

"By the latter part of the year 1822, the new church was nearly enough completed to be dedicated, so the bodies of the Padres were removed to the New Church to prevent desecration." (Footnote 1.)

When Church No. 2 was discovered, the officials of the Franciscan Order at San Xavier were thoroughly convinced that this was Father

"San Jose de Tumacacori," by Frank Pinkley p. 7
Kino's Second Church. So, they requested the removal of these bodies to San Xavier for re-burial, and the fact that these remains were found, as related in my thesis, establishes Room 50 as Church No. 2, and the present mission as Church No. 3.

The excavation and discovery of Father Kino's Second Church seems to me to clarify and verify the exact location of this structure. For the past decade, the lack of this knowledge has been puzzling archaeologists and students of Spanish Missions. However, this does not close the field of research at Tumacacori. There still remain several other interesting archaeological studies outside of Father Kino's Second Church. Some of these are:

1. The location of Father Kino's Church No. 1.
2. A study of the plasters.
3. The definite establishment of the individual room usages.
4. A study of the smelters and the smelting of the ores.
5. Stratification of the present sites.
6. Excavation of the rooms about 600 feet to the east of the present mission.
7. A study of the former orchards and gardens.
8. Preservation and stabilization of the present wall foundations.
9. Location of the "thrifty village", referred to by Prof. Wrighton in his Last Mining Report in 1660.
CHRONOLOGY FOR TUMACACORI MISSION

The National Park Service has been active in collecting data for a chronology of Tumacacori Mission for many years. Frank Pinkley, Superintendent of the Southwestern Monuments, and probably one of the world's best authorities on Spanish Missions, with the aid of the Field Division of Education, National Park Service, Berkeley, California, Mr. H. E. Rensh, Robert H. Rose, myself and others have assembled the following very complete chronology of the Mission.

1536. Alvar Nunez Cabeza de Vaca and three companions crossed northern Mexico from east to west. They crossed the extreme southeast corner of present Arizona, leaving Arizona territory in the vicinity of Douglas and going south along the road later traversed by Coronado. (Sauer, 1932, map.)

1539. Friar Marcos de Niza, a Franciscan, accompanied by the negro, Stephen, one of Cabeza de Vaca's companions, was sent by Viceroy Mendoza to find the fabled Seven Cities to the north. He may have gone as far as the Zuni pueblos and in doing so he must have used either the San Pedro or the Santa Cruz River as his route of travel across Arizona. Sauer thinks that Friar Marcos, "penetrated at most a very short distance into the modern state of Arizona." (Sauer, 1932, 28)

1540. Francisco Vasquez Coronado led an expedition that made many discoveries in modern Arizona and New Mexico. One contingent under Melchior Diaz crossed southwestern Arizona on route to the Colorado River in order to make contact with Alarcon, leader of the sea expedition. The main company
under Coronado followed down the present San Pedro Valley and northwest to Cibolo (the Zuni Villages) in New Mexico. Two reconnoitering parties were sent out to the northwest, one under Tobar, who found the Moqui Villages, and the other under Cardenas, who discovered the Grand Canyon of the Colorado.

1564-5. Francisco de Ibarra made an expedition along the west slope of Mexico, following north from Culiacan practically the same route as that followed by Coronado. According to Sauer, he went up the Sonora River past Ures and Arispe to Fronteras and east from there to the Casas Grandes in Chihuahua. (Sauer, 1932, 38-49 and map.)

1540-1685 Period of advancing occupation and settlement northward from Mexico City to Sonora.

1599. Zaldivar sent by Juan de Onate, governor of New Mexico, across Arizona to the lower Colorado.

1604. Juan de Onate made a trip from Santa Fe, New Mexico, across northern Arizona and down Bill William's Fork to the Colorado, which he descended to the Gulf of California. (Bolton and Marshall, 1920, 73.)

1636. Jesuits extended mission work, (begun on west slope of mountains by entering Sinaloa in 1691) as far as Ures in the Sonora Valley.

1650. Mission stations reached Cucurpe and Arispe in the upper Sonora Valley. The rectorate of San Francisco Xavier estab-

lished (Bolton and Marshall 1920, 239.)

1630-1680 Settlement of Chihuahua. "By 1680 missionaries, miners
and settlers had reached... Janos and Casas Grandes" (Bolton and Marshall, 1920, 242.)

1679-1680.

"Thirty missionaries in the Mayo, Yaqui, and Sonora Valleys were serving about 40,000 neophytes in seventy-two pueblos." (Ibid., 240)

1687.

March

Father Eusebio Francisco Kino entered northern Sonora. Mission Nuestra Senora de los Dolores founded on the San Miguel River near Cosari, north of the frontier outpost of Cucurpe. This was to be Kino's headquarters for his twenty-four years of work of exploration, conversion, and mission building in Pimeria Alta, present Northern Sonora and Southern Arizona. (Ibid., 301 ff.) The father visitor Manuel Gonzalez, Father Rector Juan Munoz de Burgos, Father Jose de Aguilar of Cucurpe accompanied Kino to Dolores where they arrived March 13, 1687. Kino and Aguilar made a journey to San Ignacio Imuris and Remedios northwest and north of Dolores.

April

This trip was repeated by Kino. Buildings, agricultural work, and Christian teaching began.

May

Kino made a trip north-east from Dolores to the mining town Bacaniche to show the royal cedula to Captain Francisco P. Zevallos.

1689.

Winter and early spring, Kino and the Father visitor Manuel Gonzalez went to San Ignacio de Caborica, San Jose de Imuris, Santiago de Cocospera, and Nuestra Senora de Los Remedios.

Dolores was reported as having a church, a house, rich
lands planted to crops, a goodly number of instructed neo-
phytes.

1689. Four new fathers arrived and were stationed as follows:
Luys Maria Peneli at San Ignacio de Caborica, south Maria
Magdalena, and San Miguel del Tupo; Antonio Arras at San Pedro
del Tubutama and San Antonio de Uquetoa; Pedro San Doval at
San Lorenzo de Loric, and San Ambrosia del Tucubabia; and Juan
del Castillojo at Santiago de Cocospera, San Lazaro, and Santa
Maria de Bugota, later known as Suamca, and at the present time
Santa Cruz.

1690. Father visitor Juan Maria Salvaterra arrived at Dolores
and on Christmas conducted mass in the "new and capacious
church.

1690-91 The visitor and Kino made a journey northward and north-
westward passing through Remedios, Imuris, San Ignacio, Mag-
dalena, Tupo, Tubutama, Sariac, Tucubabia.

1691. At Tucubabia Sobaipuri messengers from the present Santa
Cruz Valley came to beg the fathers to visit them. Accordingly,
they went northeast fifteen leagues to San Cayetano de Tumaca-
cori. They returned via Guébavi, South Maria (present Santa
Cruz) and Cocospera. This was the first trip that Kino made
to the Santa Cruz Valley.

1692. Kino went to the Santa Cruz Valley, (called Santa Maria
by Kino) a second time, accompanied by Indian servants and
fifty pack animals. He preached to the 800 Sobaipuris of San
Xavier del Bac for the first time. He then went east to the
Sobaipuris of the San Pedro Valley (called by Kino, Rio de San Jose de Terrenate or de Quiburi.)

1693.
Apr.
26th
1693.
Dec.

The new church at Dolores was dedicated.

Father Kino and Augustin de Campos and Captain Sebastian Romero made a journey to Caborca and El Nazareno. Caborca was named La Concepcion de Nuestra Señora del Caborca.

1694.
Feb.

Fathers Kino, Marcos Antonio Kapus and Lieutenant Juan Matheo Mange traveled to the coast via Caborca.

Mar.-Apr.

Kino and Mange went to the coast again via Caborca. The construction of a boat was begun. An adobe building was finished at Caborca. Wheat and maize were planted.

June

Kino was at Caborca once more.

Oct.

Kino accompanied Francisco Xavier Saetato to Caborca where he was placed as a missionary.

Nov.

Kino traveled north as far as Casa Grande passing Tumacori and San Xavier enroute. Kino made a description of Casa Grande in his "Favores Celestiales." He said mass in the structure.

1694.

At the end of 1694 there were five missionaries in Pimería Alta, (1) Kino at Dolores, (2) Saeta at Caborca, (3) Campos at Magdalena and San Ignacio, (4) Daniel Janusque at Tubutama, and (5) Pedro de Sandoval at Cocospera.

As early as 1694, 100,000 head of cattle ranged at Terrenate, Bate-pito, San Bernardino and Janos.

1695.

Uprising of Pima Indians at Tubutama where the house and church were burned.
April 2, 1696

Father Saeta suffered martyrdom at Caborca. Four Opata Indians were killed, the father's house was plundered, and cattle, sheep and goats were stampeded. Later, San Ignacio, Imuris, Magdalena, and Caborca were burned.

Nov. to May 1696

Kino made a journey to Mexico City to obtain greater support for his mission and to obtain new missionaries in order to found new missions.

1696

Kino went to San Pablo de Quiburi via Santa Maria (present Santa Cruz) and Santa Cruz on the San Pedro River. The little adobe house was begun for the father and a few cattle and a drove of mares were placed for the beginning of a ranch.

1696

Jan.

Left Quiburi for San Xavier del Bac, taking cattle, goats, and a small drove of mares, thereby establishing a ranch there. The ranch of San Luis del Bacoancos on Santa Cruz River on present international border line was begun with cattle. At San Cayetano de Tumacacori there were already flocks of sheep and goats which had been gathered at Caborca in 1695 during the disturbance there.

Mar.

Kino was again at San Pablo de Quiburi and returned via San Cayetano and San Luis.

April

The same journey repeated.

Spring

Father Pedro Ruiz de Contreras was set over Cocospera and Santa Maria.

Sept.-Oct.

Kino went with Pima chiefs to Santa Maria de Bazeraca on the upper Yaqui River in order to ask the Father Visitor Oracio Police for more missionaries and to obtain protection of soldiers against inroads of the Apaches.
Nov. 1698. Kino, Captains Bernal and Mange, with 22 soldiers made an expedition down the Rio de Terrenate (San Pedro). The valley was well cultivated by the Indians who raised extensive crops of beans, squash, maize, and cotton by means of irrigation. Reaching the Gila River, the company followed it to Casa Grande and beyond to San Andres, home of chief Palacios. The party returned via San Xavier del Bac in the vicinity of which there were more than 6,000 people who lived by raising cattle and growing crops. Leaving Bac, they passed Tumacacori, Guabavi, Bacuanos, San Lazaro, Cocospera, Los Remedios and thence to Dolores, arriving there December 2nd.

Feb. 1698. Kino, Mange, and Ramos Sarmiento made a journey to Tubutama, Tucubabia and Caborca.

Mar. 30th The Sobaipuri Pimas of San Pedro Village, led by their chief Coro, won a signal victory over the Apaches, etc.

April Kino and Mange went to Quiburi. Cocospera had been attacked by Apaches, Jocomes, etc. in February, destroying the Missionary establishment. These enemies did the same the next month at Santa Cruz de Quiburi. Captain Coro of Quiburi came to the rescue with Pima allies and drove the enemy away. Kino made the journey to Quiburi in order to make an exact report on what had occurred in order that the valiant Pimas should be given the promised reward for repulsing the enemy.

Sept. Kino and Captain Diego Carrasco made a journey to the Gila River going by way of Tumacacori and Bac as far as San Andres beyond Casa Grande. The party then turned south and
southwest to the Gulf of California, at present Adair Bay, passing through San Marcelo de Sonoita. Returning to Dolores they passed Caborca and Tubutama, "in each of which places there are cattle, sheep, goats, wheat, maize, and a house of adobe for the fathers whom they expect to obtain."

Starting February 7, Fathers Kino and Adamo Gilg accompanied by Lieutenant Mange made an expedition to the Gila River via Sonoita with Indian servants, "and more than ninety pack animals." Thirty-six head of cattle were ordered sent to Sonoita to establish a new ranch there. The Gila was reached at San Pedro, fifty miles from its mouth, where, among the presents received, "were some curious and beautiful blue shells." Santa Cruz Valley via Bac and Tumacacori, W W W, was the route of their return journey. They arrived at Dolores March 14.

The Father Visitor Antonio Leal with Fathers Kino and Gilg and Lieutenant Mange, with two soldiers and fifty pack animals made a journey through Pimeria Alta north and northwest via San Xavier del Bac. They reached San Cayetano de Tumacacori on October 27th and on the 28th mass was said in an adobe house that the Indians had built with the hope that a missionary would come to live in it.

There were adobes also at San Luis Bocoancos, Guebavi and San Xavier del Bac, and at all of the places there were cattle, goats, sheep, horses, and cultivated fields watered with irrigation ditches. At San Cosme del Tucson there were "as splendid fields" as at Bac.
The journey was continued west from San Xavier on November 4th and after visiting several rancherias in the present Papagueria they returned to Dolores; Kino and Mange went southwest to Sonoita to get information about a land passage to California, making inquiry as to the origin of the blue shells. Father Leal went by carriage to Tubutama where Kino and Mange arrived on November 14th. Here there was a small earth-roofed adobe church, a house, 100 head of live stock and supplies of wheat, maize, and beans. Caborca had practically the same outfit. Father Augustin de Campos welcomed the travelers when they passed through San Ignacio on the 16th.

Captain Christoval Matin Bernal of the Presidio of Coro de Guachi (Fronteras) made a punitive expedition against the Apaches on the northeast frontier aided by Chief Coro's Indians from Quiburi.

Kino made a systematic investigation of the origin of the blue shells which he had on more than one occasion received as a gift from Indians living on the Gila River. He had seen similar shells on the Pacific shore of Lower California and was certain that they had come overland from California, indicating that California was not an island, but a peninsula.

Kino went to San Xavier del Bac to have a conference with Indian delegates who were to come there from all directions to discuss the blue shells and their origin. He passed enroute Cocospera, where 150 natives had just returned to settle and were repairing the little church and father's
house. Next, San Lazaro was reached, and, in turn, San Luis Bocoancos, Guebave and San Cayetano de Tumacacori at all of which were cattle, cultivated fields, and adobe houses.

April 28th

"The foundations of a very large and capacious church and house of San Xavier del Bac" were begun.

April 30th-

Kino had conversations with Indians, who had come far and wide, as to the blue shells. It was agreed that they did not come from the Gulf of California, but from the south sea.

May 1

Kino said mass at sunrise at Tumacacori on the return journey. At Tumacacori a messenger met Kino begging him to hurry to San Ignacio to intercede for an Indian with the soldiers in order to save his life. The ride to San Ignacio was a remarkable one for endurance.

Sept. 24th-

An expedition was made by Kino to the north and north-west in search of a land route to California. He reached as far as the junction of the Gila and Colorado rivers. He went by way of Busanic and Tucubavia, Santa Eulalia, and Batki. He returned the more direct way, via Sonoita.

Oct.

According to Duell's computation there were twenty-nine missions and seventy-three visitas in Pimeria Alta and Sonora (Duell, 1919, 57). Very few places had resident missionaries; however, Kino ministered at Dolores, Remedios, Cocospera, etc. Augustin de Campos was at San Ignacio de Caborica, having charge also of Santa Maria Magdalena and San Jose de Imuris.

Gifts of cattle were sent to Lower California.
There were many Apache raids on the frontiers of Sonora. Kino called them "their accustomed annual robberies." Soldiers sent in pursuit. Kino provided his defence for his missions by erection of towers and by sending Pimas in pursuit of the enemy.

Kino, Salvatierra, and Mange made an expedition westward to the gulf, to Puerta de Santa Clara (Adair Bay) from which place it was hoped supplies could be shipped to Lower California. Salvatierra started ahead with a pack-train and Kino followed, on a more northern route via Remedios, San Ambrosio de Busanic and San Pedro de Tubutama and Caborca, where he caught up with Salvatierra. On March 14th the party arrived at San Marcelo de Sonoita. From there they went westward past Carrizal to the Gulf, hoping to be able to go around its head to California. This was found impossible. Salvatierra returned by the southern route while Kino went the northern route eastward to San Xavier del Bac, leaving Sonoita April 6, 1701.

A small chapel was begun at San Marcelo de Sonoita.

Kino, with Mange, arrived at Bac, where he found prosperity and that many men had gone in pursuit of Apaches.

On the night of April 11th Kino and Mange slept in the adobe house at Tumacacori, which had been erected in hopes that a missionary would come to live among the Indians.

Passing San Gabriel Guebavi, San Luis Bocoancos, they arrived at Cocospera the night of the 13th, where Kino spent two days in supervising the erection of a church and a house. While there, he received reports of a successful outcome of
the Pima campaign against the Apaches.

Four new missionaries were sent to Pimeria Alta by the father provincial, Francisco de Arteaga. Father Juan de San Martin took charge of the three rancherias of San Gabriel de Guebavi, San Cayetano de Tumacacori and San Luis Bacoancos. A house and church were erected at Guebavi, "small but neat." Foundations of larger structures were laid. Father Francisco Gonzalvo was stationed at San Francisco Xavier del Bac of the Sobaipuris. He died August 10, 1702, at San Ignacio. Father Ignacio de Yturmandi went to San Pedro and San Pablo del Tubutama. Father Caspar de las Barillas was placed over the mission at La Concepcion del Caborca. Buildings were begun at all of the above places.

Kino started the expedition to the Quiquima Indian Country on the lower Colorado River, accompanied by twelve servants. He passed through Remedios, Cocospera, San Lazaro, San Luis Bacoancos, San Jose de Guebavi, where he said mass in Father Martin's little church. From Guebavi, Kino went southwest on November 5th for San Ambrosio del Busanic, passing the new ranch of San Simon y San Judas del Siboda, where they had a thousand cattle and seven droves of mares. From Busanic they passed northwestward through San Estanislao del Ootcam, Santa Eulalia, and Santa Ana del Anamic, to San Marcelo de Sonoita, where they arrived the night of November 11th.

The little church of Nuestra Senora de Loreto was roofed and white-washed. There was a plentiful harvest of wheat and maize and the cattle had been well cared for. Kino's party arrived
at the confluence of the Gila and Colorado rivers on November 17, 1701. On the 19th, accompanied by three hundred Pimas and Yumas, who wished to get provisions, he arrived at the Quiquimas country. On the 21st, Kino crossed the Colorado River on a raft. Going down the river some distance the land passage to California was discovered and the next day the return journey was begun. He was back at Sonoita by the 28th and at Dolores on December 8th.

Kino and Father Rector Manuel Gonzalez made the final trip to the lower Colorado River. Fifty or more pack animals, eighty horses and mules, and more than twelve servants went with them. The same route as the previous expedition was followed. On March 10th Kino reached the head of the Gulf of California. Father Gonzalez became ill on the return journey and death met him early in April 1702 at Tubutama.

After returning from the discovery of the land passage to California, Kino went to tend to work pertaining to the building of churches at San Ambrosio del Busanic and Santa Gertrudis del Saric, and the "large church of La Concepcion del Caborca." He also looked after "the cattle, crops, and harvests of wheat and maize which the Indians were tending for the fathers whom they hoped to receive." A journey was also made to San Marcelo de Sonoita from whence he sent wheat to sow at the Colorado River of the Yuma and Quiquima nations. Later in the year, Kino made his last trip to San Xavier del Bac, where "he began the very large church of San Xavier del Bac."
Serious inroads of the Apaches reached as far as San Ignacio where a drove of horses was driven off on the 4th. Chief Coro led Pimas in pursuit of Apaches, doing much to restrain them. Work on the churches at Remedios and Cocospera was completed by the end of the year.

The large church of Nuestra Senora de los Remedios was dedicated. January 18-20, the dedication of Nuestra Senora del Pilar y Santiago de Cocospera took place. Father Rector Adamo Gilg performed the ceremonies.

Father Geronimo Minutili was put in charge of San Pedro y San Pablo del Tubutama where the house was repaired and where gardens and orchards were planted.

Kino made a trip to Guaymas to give his encouragement to the new mission, thereby helping to strengthen the work in both California and Pimeria Alta. Gifts were later made by Kino to California in the form of cattle and supplies sent from Pimeria Alta via the new road to Guaymas.

More Apache raids were reported at Cocospera, San Ignacio and Magdalena.

The Father Visitor Francisco Maria Picolo made a tour of Pimeria Alta. During this year Kino undertook to build the church at Tubutama at his own expense.

Accompanied by Father Minutili, Kino traveled to La Concepcion del Caborca to install Father Domingo Crescoli, passing enroute San Ignacio and Tubutama. A large church had been started at Caborca and it had many other buildings. There were also gardens and much livestock.
From Caborca, Kino and Minutili went to the coast through the country of the Seris to that of Tepocas to win new converts. The island of Santa Inez (present Tiburon) was discovered. Kino later suggested that this island be used in developing communication with California.

Kino and Minutili made another journey to Caborca, stopping enroute at Remedios and Cocospera where Kino looked after the planting of gardens and orchards, then at Magdalena, where there was a little new church, Busanic where work on a church was in progress, Santa Gertrudis del Saric, Tubutama, and San Antonio del Uquitoa.

Churches were being constructed at Santa Maria Magdalena under Father Augustin de Campos, at San Ambrosio del Busanic, Santa Gertrudis del Saric, San Pedro y San Pablo del Tubutama, San Diego del Pitquin, Nuestra Senora de la Concepcion del Caborca, etc.

Kino set out for Santa Maria Bogota (present Santa Cruz) going via Los Remedios, Cocospera, and San Lazaro. At Santa Maria the foundations of a capacious hall and of two good lodges were laid. The foundations of a large church with a transept were already laid and the walls were ordered to be put up.

This journey was repeated.

A mission was made to Caborca and more encouragement in building operations were given at missions en route.

Plans were made to build a launch for communication with Lower California.
Made journey to Corodeguachi (Fronteras) for supplies.

Nov.

Father Kino, Father Manuel de la Oyeula, a Franciscan, Juan Mattheo Ramirea, and Juan Duran went to the Sierra de Santa Clara to get a distant view of the land route to California. They went via Remedios, Busanic, Saric, Tubutama, San Antonio de Quitoa, Pitquin, Caborca, Sonoita, and Carrizal.

1709

Kino continued work on his "Favores Celestiales" in addition to his manifold other duties.

1710

Kino made a special report of his work to Phillip V.

1711

Father Eusebio Francisco Kino died at Magdalena. He was buried at San Ignacio.

This chronology to 1711 is based on Herbert E. Bolton's "Kino's Historical Memoir of Pimeria Alta" and the map which accompanies it. The index is so complete and so well worked up that a chronology (1687-1711) for every mission and missionary could be made from it alone. Bolton supplements Kino's work by references to Mange's "La Luz de Tierra Incognita" and to various diaries and letters written by contemporaries.

1711-1732

Periods of neglect of the Pimeria Alta missions. There were no missionaries stationed in present Arizona and there had been none resident there since 1702 and Father Martin left Guebavi in 1702 and Father Gonzalvo was at San Xavier del Bac less that year. The Indians went back to their old ways, neglecting the cultivation of their fields.

1711-

There were only two missionaries in present northern
Sonora. Father Agustin de Campos had been stationed at
San Ignacio de Caborca as early as 1693 and remained at
this place until 1735. Father Velarde had been at Dolores
since 1702 and remained there until 1730.

Salvatierra of Lower California proposed a journey to
make final proof that California was not an island. Campos
and Velarde made signal fires at night and smoke by day at
Caborca to guide the ships into the port of Ascencion, dis­
covered by Campos in January 1715. This was done again in
September. Salvatierra had to finally give up the expedi­
tion. (Velarde, 350-354)

Father Luis Maria Gallardi came to the assistance of
Campos and Velarde. He went to Caborca. (Hammond, 1929),
Father Gallardi was at Caborca 1720-1727 and at Tubutama
1727 to about 1732. Caborca and Tubutama were the most
populous and prosperous of all the missions during this
time. (Mills, 1932, 24-26)

"In the year 1720 new missionaries came to Conception
de Caborca and Tubutama; and afterwards going to the ran­
cherias of San Eduardo de Baipia, San Luis de Bacapa, and
San Marcelo lying far north; they found a great defection
among the Indians; the little churches built by Kino in
ruins, and the cultivation of the fertile plains----utterly
neglected." (Venegas, 1759, II, p. 176)

Venegas goes on to make a list of missions and visitas
as follows:

1. Dolores with two villages of visitation (Remedios and
2. San Ignacio with two villages of visitation (Imuris and Magdalena.)

3. Tubutama with nine villages of visitation (Santa Teresa de Adid, San Antonio de Uquitoa, San Simon y Judas del Siboda, San Ambrosia Busanic, Tucubavia, San Estanislaoc del Octam, Santa Gertrudis del Saric, San Bernardo Aquimuri, Santa Barbara de Sonoita.)

4. Caborca with four villages (Pitquin, San Valentin, Bacpia, Bacapa.)

5. Suamca with several rancherias (San Lazaro and many places along the San Pedro River.)

6. Guebavi with Spanish farms and considerable number of Indians.

7. San Xavier del Bac had also considerable number of Indians.

There was an Indian rebellion in northern Sonora when the missions were attacked and sacked. (Elliot, 1884, 48.)

Ugarte arrived at the mouth of Alta River where Callardi met him. He proved California was a peninsula.

The king requested the Viceroy, the Marquis de Casa Fuerte, to reduce the Moqui Indians. Bishop Crespo of Durango advised that they give this work to the Jesuits, but there was so great a distance to reach the region from Sonora and there were so many hostile Apaches that it was necessary to suspend the carrying out of the orders until the arrival of recruits in Pimeria Alta. (Venegas, 1759, II
1724-8 Pedro de Rivera, accompanied part of the time by Father Rector Ignacio Arzeo, made an inspection of the northern frontier. Arzeo baptized many children of the Pimas at their urgent request. Rivera in his report to the crown (1727) recommended that more missionaries be sent to Sonora.

1728. The petitions of Bishop Crespo and of Rivera were answered with a royal cédula ordering the Viceroy "to take immediate measures" for sending Jesuits to the upper Pimas.

1730. There were still only three fathers in Pimeria Alta. Velarde of Dolores was nearing the end of his career, dying before the end of the year. Campos was at San Ignacio. Callardi was at Tubutama. Decline of all the missions was fast setting in with the exception of San Ignacio and Tubutama. Even Dolores was almost depopulated. The northeast part of Sonora was especially subject to Apache attacks, which caused the pueblos and missions to become more and more depopulated. The beautiful churches and other buildings were falling into ruins and the gardens were not being cared for. The natives would not work without the supervision of a missionary. Another factor that made for the decline of them was the inadequate military protection. Between 1690 and 1740 there was only one presidio at the northern frontier, located at Fronteras, and it was seldom adequately manned. (Ortega, 1754, 337 and 339: Mills, 1932, 15-20.) Even the diligence displayed by Campos did not prevent a loss of population at San Ignacio. The natives at other places would no longer raise cattle, cultivate their lands, build houses and live in their
villages as Kino had taught them to do. (Alegre, 1842, III 173.) When Gallardi arrived at Caborca in 1720, he found
that mission and Tubutama in a state of decay and the
Christian faith nearly forgotten. To the north at An Ed­
uardo and at Sonoita the small churches erected under Kino’s
supervision had fallen down and the agriculture was neglect­
ed. (Mills, 1932, 22; see also last chapter of Venegas, 1759.)

Even worse was the destruction north of Cocospera, for the
valleys of the San Pedro and the Santa Cruz were in the
direct path of the despoiling Apaches. No missionaries
had been there since 1702.

The Spanish Government was interested in the coloniza­
tion and the Christianization of the northern frontiers but
European wars had taken up all its attention. The decade
beginning with 1730 was to see a change. New missionaries
came in, the missions were re-established, and better mili­
tary protection was provided. With the discovery of
silver and gold mines, Spanish colonies were established
until quite a large Spanish population occupied northern Son­
ora for a time, settling at the mines, the new presidios, and
establishing ranchos.

1732.

Three new Jesuit missionaries entered Pimeria Alta,
esorted by Juan Bautista de Anza, Sr., Captain of the
presidio of Fronteras. Revival and renewed activity en­
sued. The new fathers were from Germany: Ignacio Javier
Keller, Juan Bautista Grasshoffer, and Felipe Segesser.
Segesser went to San Ignacio, where Father Campos was, and Grasshoffer to Tubutama, where Father Gallardi was located, in order to learn the Indian tongue and become accustomed to their field of work under the tutelage of veterans in the service. It is not known to what place Keller was first assigned. (Hammond, 1929, 229) Anza went to his presidio.

May

In May three fathers went to their separate charges, accompanied by Anza. On May 4th they arrived at Los Santos Angeles de San Gabriel y San Rafael de Guebavi where Grasshoffer was to be left in charge. He also had oversight of the visitors, Los Reyes de Sonoita to the east, Arivaca to the west and San Cayetana de Tumacacori and Jamac to the north, 1400 souls in all. Father Seggesser was left at San Xavier del Bac. The visitas of Bac at the time were San Agustin, Santa Catharina, and Casa Grande. There were 1300 neophytes at these places. From Bac, Keller and Anza went east to Tres Alamos on the San Pedro River and then went east to Santa Maria de Bugota, known at the time as Santa Maria de los Pimas, and a little later as Suamca. In time the place came to be known as Santa Cruz, where a presidio was located. Santa Maria served the whole San Pedro Valley (1800 souls.) By the end of the year 800 baptisms took place at Bac, Guebave and Santa Maria. (Hammond, 1929, 229, 30; Alegre 1841-2 III, 245-6.)

1733. Father Gasper Steiger succeeded Segesser at Bac. Guebavi was left vacant because of the death of Grasshoffer.

1733-1751. Other fathers on the mission records: At San Ignacio
Miguel Capetillo (1734), Jose Toval (1736), Alejandro Rapuani (1740), Lorenzo Guierrez (1740-1); at Suamca, Jose Torres Perea (1741-3), Joaquin Felix Diaz (1774), Jose Carrucho (1774 and 1748), Miguel de la Vega (1749-1751). (Bancroft, North Mex. States I, 525.)

1735

Father Agustin Campos died at San Ignacio.

1736

Steiger left Bac to succeed Campos at San Ignacio. He remained there until his death in 1762. Keller was at Suamca and possibly Segesser at some other mission. Keller probably had oversight also of San Xavier del Bac, San Cosme de Tucson, as well as Guebavi and its visitas. He made a trip up the Santa Cruz Valley as far as Casa Grande in 1736.

Father Jacob Sedelmair, the greatest of the Jesuit missionaries to work in Pimeria Alta after Kino, came to Tubutama which became the head mission until the expulsion of the Jesuits in 1767.

Sept.

As part of the work of building up the mission at Tubutama, Sedelmair made a round trip of 100 leagues to the Papago Indians in the vicinity. He was received joyfully and many children were baptised. (Mills, 1932, 42; Ortega, 351-2.)

Oct.

The famous silver mine, Bolas or Planchas de Plata was discovered near the rancheria of Arizona a short distance southwest of the present town of Nogales. The exact location is not known today. A great number of miners rushed to the spot. By 1740 this mine was worked out and the place was abandoned. This was the beginning of an intense interest in mining ventures in the present southern Arizona and north-
ern Sonora. It seems that during the next few years there was quite an influx of Spanish settlers locating at the mines, at the missions, a few new pubelos, and the Presidios at Fronteras, Terrenate, and Altar. Ranchos also were established. Apache inroads and the Pima uprising of 1751 caused most of the mines, pueblos, and ranchos to be abandoned by 1752. (Mills, 1932, 4-5; Sedelmair, "Relacion," 856-8, translated in Mills, 1932, 1040139.)

**1737.**

Captain Juan Bautista de Anza, Sr., sent a proposal to the government that he be permitted to conduct an expedition to discover an overland route to California. Nothing came of it at the time.

**July-Aug.**

Keller made another journey to the Gila River, this time by way of the San Pedro River without escort. He noted the sorry plight of the Sobaipuris, the result of Apache raids. At many places there were only the remains of once prosperous rancherias. Keller went down the Gila as far as the villages of the Coccomaricopas. He returned via the Santa Cruz Valley. (Ortega, 1754, 348-9.)

**Sept.**

Sedelmair made his first northern journey, probably by way of the Santa Cruz River, since he preached and performed baptisms at San Xavier del Bac. (Ortega, 351.)

The Seris Indian uprising to the west was put down by Juan Bautista de Anza, Sr. He then went in pursuit of Apaches to the northeast and lost his life.

**1739.**

Feb.

The Marquis de Villa Puente willed money for the foundation of two more missions in Pimeria Alta; "yet in the year 1749, they had not been erected for want of Jesuits." (Venegas,
1759, II, 177.) This, with the discovery of the silver mine of Plancha de Plata (1736) and the royal cedula made in 1742 and in 1744, asking that Pimeria Alta should be on the highway to the Moqui Country, all caused much attention to be centered on Pimeria Alta during the next decade. (Mills, 1932 44-46.)

The Presidio at Terrenate was established. Another one was placed at Pitic (Hermosillo) where the new Governor, Don Agustin Vildosola, resided. (Bancroft, N. Mex. States, I, 528).

The cedula of Philip V to the Vice-roy again recommended that the Jesuits be asked to undertake "the reduction of the province of Moqui."

The camp of San Felipe de Jesus, which had been moving about to protect the missions from Apache attacks, became fixed at Terrenate on the chief high road from the Apachena. (Shea, 1886, I, 531.)

In an attempt to fulfill the royal wish as expressed more than once, that Pimeria Alta be connected with the Moqui province to the north, Keller made another journey to the north. With an escort of soldiers he did reach the Moqui region but the natives proved to be so hostile that he had to return without accomplishing anything! (Ortega, 1754, 349-350.)

Father Jose Torres was missionary at La Concepcion de Caborca. He and Sedelmair went to San Marcelo Sonoita to make a beginning of reviving the mission and ranch. (Ortega-
Sedelmair went northwest from Tubutama to the Cocomari-copas on the Gila. The route of the return trip is not known.

In another attempt to carry out the orders of the Vice-roy to open a way to the Moquis, Sedelmair went to the Gila River via the Santa Cruz Valley, Casa Grande, etc. Going down the Gila from Casa Grande, he crossed to the northern bank at Santa Teresa before its junction with the Rio Asuncion (Rio Salado.) At Santa Maria del Agua Caliente he went northwest to the Colorado up which he followed to the mouth of Bill Williams Fork. His supplies giving out, he returned down the Colorado to the Gila, crossed to the southern bank, and went upstream beyond the Cocomari-copas. Then he crossed the Papagueria southeast to his mission at Tubutama. (See Mills, 1932, map also page 55; Venegas, 1759, II, 181; Ortega, 1754, 355-8.)

Another royal cedula showed interest on the part of the king regarding the road to the Moquis via Pimeria Alta. It also asked regarding opening up a road to the far northwest. In order to facilitate the opening up of a way to the northwest it was ordered that each mission should have two fathers, one of whom should occupy himself in exploration. Spanish soldiers were to be put at the command of the fathers. This was a start in developing the road to Alta California which Kino had opened years before. (Ortega, 1754, 372.)

Father Keller of Suamca reported that he had baptised
more than 2000 Indians and had a flock of 1000 brave and industrious Pimas who were tilling the soil and tending flocks and herds. (Shea, 1886, I, 530.)

1745. Cristobal Escobar, provincial father, answered the royal cedula with a detailed report upon the conditions and possibilities of Pimeria and California. He insisted that the presidios must be kept close at hand for protection from Apaches.

1745-46. Father Sedelmair, anxious to see the contents of the royal cedula and in order to further the works of his missions, made a trip to Mexico City where he presented an account of what had been done, a description of the country, and his own ideas of the region and peoples not yet seen. New missions he said, would help push the frontier to Monterey in Alta California. (Ortega, 1754, 371-382; Sedelmair, "Relacion.") On his return, Sedelmair went west to the gulf, but found no place suitable for a port.

1746. The Apaches came to Cocospera, attacked it and burned the church. (Guiteras, 1849, 254.)

After 1746, interest shifted from the problem of the reduction of the Moquis to the old dispute of whether or not California was a peninsula. Kino and Salvatierra had explored extensively and labored hard to prove that California was not an island, but a peninsula. Many were not convinced, including Mange and Father Campos. In 1721 Father Juan de Ugarte had satisfied himself that California was a peninsula. Yet in 1736, Sedelmair found many geographers still calling California an island. The question was
not settled in 1746, and Sedelmair was ordered to make an overland trip to make the final proof, but Apache attacks called for the use of all the soldiers at home. In 1748, Father Fernando Consag explored the Gulf of California, and this, together with the overland journeys made by Sedelmair, 1747-1750, did much to convince geographers that Baja California was a peninsula. Consag reached the head of the gulf shortly before Sedelmair reached the same point, having come by the overland route. Father Link's land journey up the peninsula, in 1766, to the head of the gulf was the final step in Jesuit explorations. (Bolton and Marshall, 1920, 307.)

The interests of California and Pimeria Alta were closely intertwined during the whole mission period. "Sterile California needed overland communication with a mainland base," and it was to accomplish this, as well as to prove the peninsular theory, that the Jesuits conducted the greater part of their exploration activities. (Ibid, 307.)

1747.

Father Sedelmair made a search of the gulf coast for a harbor suitable to receive boats from California. He did not meet with success. On his way back, he brought 210 Indians from a rancheria on the coast, and settled them at Ati, where a church was built for them. (Bancroft, N. Mex. States, I, 539.)

Mar.
20th

Sedelmair reported to Father Rector Jose de Echeverria that he could make no journey to the Gila and Moqui Country.
without military escort—(Bancroft, opus. cit., 539.)

Sedelmair, with a small escort of soldiers, made the greatest of all his "entradas." He went to the Gila via the Papagueria, and continued down that stream to the junction with the Colorado. He reached as far as the Quiquima tribes on the lower Colorado. (Sedelmair in Dec. Hist. Mex. Ser. 4, vol., I, 18-25.)

Sedelmair's request for escort of soldiers to make another "entrada" was not granted.

Father Sedelmair made a trip to the Gila River. He followed Kino's old trail via Busanic and Sonoita. He reached the Quiquima tribes on the lower Colorado. On the return trip, he went directly southeast from the Colorado, thus being the first white man to cross this stretch of country. (Ortega, 1754, 362-4.)

Father Keller was still at Santa Maria Suamca, Father Jose Carrucho was at Buebavi. (Shea, 1886, I, 531.)

Sedelmair of Tubutama was Visitador Provincial of seven missions. Steiger was still at San Ignacio. Father Juan Nentvig was at the newly established mission of Saric. Francisco Payer was at San Xavier del Bac. Father Thomas Tello was installed at Caborca, where he was soon eagerly at work in conversions and explorations along the gulf. Father Michael Sola was at Basaraca. (Bancroft, opus. cit., I, 543.)

The Seris, being hard pressed, retired to the island of Tiburon. The Spanish soldiers pursued them but accomplished little.
1751.
May

Sedelmair re-established San Marcelo de Sonóita, calling it San Miguel de Sonóita, with the thought that it would be a great aid in future journeys to the Colorado and to the Gulf of California. Father Henry Ruen was put in charge. He was the first and last missionary to occupy this outpost mission. (Bancroft, Idem.)

Conditions seemed bright in Pimeria Alta. The missions were flourishing and there was hope of further discoveries to the north and west. (Mills, 1932, 72.)

Nov.
21st

The Pima Indians rose in revolt. As early as September Father Nentvig at Saric had noticed many strange Indians in his vicinity. A Pima Indian Chief, Luis by name, appointed by Governor Parilla, Captain of his nation as a reward for service against the Seris, was the leader of the insurrection, which broke suddenly on November 21, 1751. The first victims were Spaniards they trapped in Luis' own house, the evening of the 20th. After killing all the Spaniards they could find, they went to the house of the missionary, but Nentvig had been warned and he had fled to Tubutama. After destroying the church at Saric, the Indians went to Tubutama where Nentvig, Sedelmair, two soldiers and a few other Spaniards defended themselves in the cemetery while the followers of Luis burned the father's house and the new, finely decorated church. The fathers escaped to San Ignacio under cover of the night, after a night and two days of fighting. At San Ignacio, Sedelmair and Nentvig recovered from the severe wounds they had received in the fight at Tubutama. Many Spaniards had
gathered to protect the mission, but San Ignacio was passed by.

The outlying missions to the west at Caborca and at Sonoita "experienced all the main fury of the uprising." Both Father Tello at Caborca and Father Ruen at Sonoita suffered martyrdom and the churches were destroyed. (Ortega, 1754, 449-450.)

The revolt did not bring so much ruin and damage to the missions of the Santa Cruz Valley. Favor of San Xavier del Bac and Garrucho of Duebavi fled to Santa Maria del Suarme where Keller was located. The latter place was not attacked.

After much parleying, peace was brought about by Governor Parilla, but an acrimonious quarrel ensued between Parilla and the Jesuits, as to who was to blame for the uprising. Finally, after five or six years, the missionaries were entirely exonerated of charges of cruel treatment of the Indians and of not giving them enough to eat. "However, the province never recovered from the shock of the Pima uprising, and the last years of the Jesuits in Pimeria Alta was not a prosperous time." (Mills, 1932, 9-81.)

One important result of the Pima uprising was the establishment of a Presidio at Tubac in order to protect the Santa Cruz missions, the fathers, and the neophytes. This seems to have been the first settlement of Spanish soldiers and civilians in what is now Arizona.

Governor Parilla made peace with the revolting Indians.
1753-4. The Presidio of Altar was established.

Some time after the Pima revolt Sedelmair made his last "entrada" to the Gila River and the Colorado River, going by way of the Santa Cruz River. (Mills, 1932, 82)

1754. Father Paver was back at San Xavier del Bac. Sedelmair may have gone to Guebavi.

1755. Sedelmair was transferred back to Pimeria Alta from Sonora. (Mills, 1932, 82-3.)

1756. An influx of German Jesuits took place, some of them coming to Pimeria Alta. Bernardo Middendorf began a new mission among the Papagos at Tucson. He could not stay, for the Indians treated him disrespectfully and stole his food. (See Doc. Hist. Mex., Ser. 4, Tom. I, 125.) The Indians to whom Howe and Gerstner were sent would not receive them. Father Miguel Gerstner finally settled at Saric, having charge, also, of the "visitias" of Busanic, Arizona and Aquimuri. Ignatius Pfefferkorn was at Los Santos Angeles San Gabriel y San Rafael de Guebavi. Guebavi had at this time the visitas at Calabasus, Tumacacori and Sonoita (to the east.)

1759. Father Ignacio Xavier Keller died and Father Diego Jose Barrera succeeded him at Santa Maria de Suamca. Cocospera was its visita. (Guiteras, 1894, 222.)

1762. The "Rudo Ensayo," written by an anonymous Jesuit about 1763, gives the information that makes it possible to name and locate the Jesuit missionaries in Pimeria Alta 1756-1762.
Francisco Paver was at San Xavier del Bac until 1762, when he went to San Ignacio to succeed Father Steiger, who died in April. Magdalena and Imuris were two visitas of San Ignacio.

Miguel Gerstner was still at Saric, having oversight also of the visitas of Busanic, Aquimuri, and Arizona, and Barrera was at Suamca.

Ildefonso Espinosa was now the missionary at San Xavier del Bac and its visita Tucson. Father Espinosa had a larger congregation than any other mission in Pimeria Alta. At Tubutama was the Father Rector Luis Vivas. Santa Teresa was one of its "visitas." Vivas also had taken charge of the mission at Ati since the death of Joseph Hafenrichter. Uquitoas was the "visita."

Caborca and its visitas, Pitic and Bisani were administered by Father Antonio Mariz Venz. Custodio Ximeno succeeded Venz at Caborca sometime after 1762. (Guiteras, 1894, 223-226.)

The "Rudo Ensayo" says that Pfefferkorn was still at Guebavi. (Guiteras, 1894, 223.) Although Shea, 1886, I, 532, cites Pfefferkorn's own book as stating that he was transferred to Cucurpe in 1757. This may have been a misprint for 1767. I could not get hold of a copy of Pfefferkorn's book to check it.

The Sobaipuris of the San Pedro Valley, although warlike, had tired of constantly opposing the Apache attacks and had abandoned their rancherias, some taking themselves to
Suamoa and others to Bac. (Guiteras, 1894, 192.)

In Sonora there were 29 missions, 73 towns, and several ranches of Christian Indians. There were eight missions in Pimeria Alta.

Dolores was abandoned before 1762 because of the "insalubrity of the climate, causing great mortality among the natives." Remedios was abandoned for the same reason, the natives moving to Cocospera. There was a small Spanish settlement at Dolores.

Soon after the Pima uprising, Sonoita was destroyed by its own inhabitants. At the same time the following places were also depopulated: Aribaca, Tucubaba, Ocuca and Sopori. (Guiteras, 1894, 231.)

Aside from naming numerous Indian rancherias as having been abandoned because of Seris or Apache inroads and other causes, the "Rudo Ensayo" mentions many abandoned mining towns, Spanish ranches, and other settlements which would lead one to believe that during the 4th decade of the 18th century there was a considerable Spanish population in Pimeria Alta, brought there to mine and to raise cattle.

Juan Bautista de Anza was commander of the Presidio of Tubac with a population of 500. The church established here was called Santa Gertrudis del Tubac.

There were 1250 mission Indians in the Santa Cruz Valley.

Most of the mining towns, the ranchos and other Spanish settlements had been depopulated and destroyed by Apache
raids. (Guiteras, 1894, 241-257.)

Four Presidios in Pimeria Alta: (1) Fronteras or Santa Rosa Corodeguiachi, the only garrison in upper Sonora from 1690 to 1704; (2) Terrenate erected in 1742 against the Apaches; (3) Tubac, established in 1752, (it was a visita of Guebabi but in 1762 the natives lived at Tumacacori.) All the following ranches in the vicinity were deserted: Sopori Tucubavi, Aribaca. Thirty leagues south was abandoned mining settlement of Bolas de Plancha.; (4) Altar was established in 1753 and 1754 on account of the Pima uprising. (Guiteras 1894, 251-257.)

In the province of Sonora:

Mining towns and Spanish towns including five presidios.................................................22
Uninhabited mining settlements.....................48
Inhabited ranches......................................2
Uninhabited ranches................................126
Total uninhabited....................................174
Total inhabited........................................24

(Guiteras, 1894, 257.)

1763. Because of Apache attacks, Father Espinosa of Bac reported that the Indians were deserting the Santa Cruz Valley. Pfefferkorn also stated that the Indians were leaving Tumacacori and Calabasas. (Lizazoin 1763, 686.)

Serious consideration was being given to devise means by which the Indians could be held on the land. (Aguirre, in Doc. Hist. Mex., ser. 4, Vol. I, 127-9; Pineda in same 136, 8.)

1766. Saric's visitas, Arizona and Busanic, were deserted on account of Apache raids. (Englehardt, 1899, 34.)
San Xavier del Bac was raided and all the live stock was driven off. (Anza to Pineda, Doc. Hist. Mex., ser. 4, Tom. 2, 112.)

1767.

The Jesuits were ordered by the Spanish monarch to leave their missions and go out of the country.

Father Barrera was the last Jesuit at Suamca; Custodio Ximeno, at Guebavi; Anthony Castrok, at San Xavier del Bac. (Shea, 1886, I, 532.)

Pfefferkorn had been transferred from Guebavi to Cucurpe after 1763. According to Englehardt (p.29), Ximeno was at Guebavi in 1764 and Pedro Rafael Diez was the last Jesuit there in 1767.

The Jesuit missions of Sonora and California were put in charge of overseers. Meanwhile the Apache raids increased so that no settlements could be made at the mines or at rancho locations.

The 200 or so Spaniards that had been located at Guebavi, Santa Barbara, and Buena Vista had to leave the country because of Apache incursions.
THE FRANCISCANS IN PIMERIA ALTA

1767-68
There was a short period of neglect of the missions in Sonora. They were pretty well plundered by greedy overseers sent by the government to administer the properties after the Jesuits left. The Apaches took advantage of the situation to make raids, and the Indians were scattered. Only 270 Indians were attached to the missions of the Santa Cruz Valley when Garces came.

1768
The Franciscans of El Colegio de Santa Cruz de Querétaro were ordered to take over the abandoned missions of Northern Sonora.

June 30th
Father Francisco Hermenegildo Garces arrived at San Xavier del Bac. (Garces in Doc. Hist. Mex., Ser. 4, Tom. 2, p. 365.) Sixty families at Bac at this time.

Tucson also welcomed the missionary, and the Indians there built a hut for him to stay in whenever he should visit them. Garces's report stated that the "adobe church" at Bac was capacious but that it was poorly equipped with furniture and vestments. (Snell, 1919, 69.)

Aug. 29th
Garces left San Xavier with one Indian from the mission and four Indian guides to make his first missionary journey, going west and north to the Gila River. He established fine relations with the Gila Pimas on this trip. (Carrillo, 1915, 8.)

June
The same year that brought Garces to Bac brought at least twelve other Franciscans to northern Sonora from the Franciscan Colegio de Santa Cruz de Querétaro: Chrisostomo Gil de Bernave took charge of Los Santos Angeles de Quebavi,
with its visitas, San Jose de Tomacacori, San Cayetano de Calabasas, and San Ignacio de Sonóita. Francisco Roche went to Santa Maria de Suamca with its visitas of Santiago de Cocospera. Martin Garcia was at San Ignacio de Caborica, with "visitas," San Jose de Imuris and Santa Maria Magdalena.

President Mariano Antonio Buena y Alcalde took charge at San Pedro y San Pablo de Tubutama at the beginning of Franciscan occupation. Jose del Rio succeeded Buena during the same year. (Santa Teresa was the visita.) Juan Soler was the first Franciscan at San Francisco Ati with San Antonio Oquitoa as "visita." Juan Diaz was assigned to La Pumisima Concepcion de Caborca with San Antonio Pitic and Nuestra Senora del Populo (or San Juan) Bisanic as "visitas."

Bancroft does not list any missionary for Dolores del Saric until 1783 when Florencio Ibanez took charge. San Jose Aquimuri was the "visita," Arizona and Bisanic having been abandoned in 1766 on account of savage raids. Aquimuri was abandoned before 1784.

Antonio de los Reyes went to Cucurpe. (For list of missionaries, 1768-1800, see Bancroft, North Mex. States, 1883, I, 689-91.)

Other missionaries who came to Pimeria Alta in 1768 may have been Juan Sarobe, Estevan Salazar (At Tubutama 1769-1771) Jose Maria Espinosa, Juan Zuniga, and Felipe Guillen, (Englehardt, 1899, 31.)

Garces made his second missionary journey, probably to the north and east of Tucson.
The raids of the Seris, Apaches and other wild tribes caused depletion of population from 1,315 Spaniards in 1763 to 178 in 1769. Elizondo was sent against the Seris with a thousand men in 1768. This campaign was not a success. Jose de Galvez came to Sonora in May, 1769. Still the Seris were not subdued.

Tumacacori was attacked by Apaches who burned the church.

While Father Gil was absent from Guebavi, the Apaches attacked and sacked the mission buildings and killed all but two of the little band of soldiers that was guarding it. Gil was substituting for Garces, who was suffering from sun stroke acquired on his recent missionary journey. Later in that year, some of the buildings were destroyed at San Xavier del Bac. They were quickly repaired under Garces's supervision. (Robinson, 1919, 62-3)

1770

Viceroy Croix and Visitor Jose de Galvez drew up a new plan of government for the northern provinces. The intendant system was of course to be established in New Spain and the northern provinces were to be erected into an independent commandancy general. One or more new bishoprics were to be formed. This was not put into effect until 1776. (Bolton and Marshall, 1920, 386-7.)

Oct. 19th

Father Garces started on his third missionary journey, going northwest. He went as far as the Gila Bend, thereby reopening a country that had been neglected for a third of a century.

1771

Elizondo terminated his military campaign in Sonora.
This year, while in pursuit of a band of Indians, he discovered rich gold placers at Cieneguita near Altar. Within a few months, over two thousand men rushed to the spot. These mines were worked for over a decade. (Chapman, 1921, 238-9)

The Indians at Tucson, having suffered from repeated Apache raids, threatened to vadate it. This would have removed the buffer to San Xavier del Bac and the missions and "visitas" to the south and the government intended to prevent it. Garces asked that a mission be established at San Agustin de Tucson.

Feb. 20th

Garces wrote a letter to President Buena informing him of conditions on the northern frontier. He stated that the Sobaipuris had entirely vacated the San Pedro Valley because of Apache raids. (Brady, 1925, 38)

Aug. 8th

Garces made his fourth expedition. One of his purposes was to verify the belief that, without great difficulty, the frontier provinces of New Mexico, Pimeria Alta, and California could communicate with each other. On his journey of 1770, he had noticed that the Indians had blue shells characteristic of the California coast. Garces left San Xavier with three Indian companions and mounted on a mule. He went to Soncita and set out from there, going northwest to the Gila, which he reached on the 20th. He passed the junction without knowing it, crossing the Colorado when he thought he was crossing the Gila. He got as far as the vicinity of Dixieland in Imperial Country, California, September 29. Thus Garces was the first
white man to cross the Colorado Desert. (Bolton, 1917, 325-330.) He opened up the way for the Anza expedition of 1774.

Garces in Paul, 1917, 156-164.

1771.
Feb. 1.

The Apaches attacked Tucson, the third or fourth time within three years. Although there were but few people, the attackers could do no harm because the inhabitants took refuge in the house, which had fortified towers and was in an inclosure made of adobe.

Afterwards the Apaches threatened San Xavier and drove away horses, cattle and sheep, killing two boys.

Garces reported to Father President Fray Mariano Buesa y Alcalde that it was the purpose of the Apaches to lay waste most of Tucson and Bac, the two pueblos which are the main protection of the Pimeria, since the Sobaipuris had abandoned their pueblos on the San Pedro River.

He recommended that the Tubac presidio be moved to the Gila, that the Terrenate presidio be moved farther north on the San Pedro River so that the Sobaipuris could return to their pueblos. This would bring Apache country war and prevent these savages from destroying the Pimeria.

Summing up, Garces asks that the missionaries be sent to the following places; Santa Cruz on the San Pedro River, Tucson, San Marcelo de Sonoita, Ati, Aquitum, (a total of three in the Papagueria.) Four missionaries should be sent to the Gila River and many others could be sent to the Cocomaricopas, the Opas, and the Yumas, "and this does not pre-
sent insuperable difficulties, it requires only a presidio, but a large one on the Azul River, or (on the) Colorado River well upstream." In this way the Moqui and the Apache could be reduced and communication could be established between New Mexico and Pimeria "and between these and Monterey."

Garces left San Xavier for a third missionary journey. He went west to the Coyote Mountains. August 15th, he reached Sonoita, 50 leagues west of Bac. He now determined to make a visit to the Yumas, since he could approach them from the region of their friends. August 23, Garces reached the Gila, ten leagues above its junction. Garces's farthest point reached was the base of the San Jacinto Mountains. He was thus the first white man to break a path across the Colorado Desert.

October 21. Garces got back to Sonoita and five days later was at Caborca. The experience of Garces on this journey was fruitful in arousing interest in the possibility of opening communication between Sonora and California and led to the Anza expeditions of 1774 and 1775.

1772, July 6th
Father Antonio Reyes, while in Mexico City, drew up a report on the state of the missions in both Pimerias. Father Engelhardt has made a summary of the life at the missions which he gleaned from Reyes (Engelhardt, 1899, 68-71.) He says that the Indians learned the rudiments of the Christian faith very slowly. "Only baptism distinguished them from pagans." To remedy this evil as far as possi-
ble, a uniform method was adopted at all the missions. At sunrise the bell called all to mass, after which the missionary led a Spanish recitation of prayers and the catechism. "At sunset the Christian doctrine and prayers would be repeated in the little court in front of the church, when the rosary would be said," followed by other chants. Particular attention was paid to instructions on Sundays and holy days. "On the more solemn days of our Lady there would be processions through the village, during which the rosary was chanted."

The missionaries ruled in civil and political matters through headmen and other officials who were elected annually by the Indians in the presence of the missionary. These Indian officials saw that the land was cultivated and the cattle taken care of. (See Englehardt 1899, 70, for details.)

For the most part the churches as well as the other buildings at the missions were constructed of adobe and roofed with timber, grass, and earth. The Indian huts were constructed of boughs. Sometimes, in order to please the fathers, the natives would build their dwellings of adobe, roofed with thatch.

Reyes also described the appearance of the Indians their manners, dress, customs, etc.

Engelhardt translates part of that portion of Rey's report which concerned the local missions in Pimeria Alta. (Englehardt, 1899, 72-77)

At San Xavier there was a fairly capacious adobe church
with 170 parishioners who cultivated wheat and corn and raised some cattle. At San Jose del Tucson, there were about 200 heads of families, with no church building.

The church at Buebavi was well furnished. There were about 86 Indians who did some cultivation of the soil. At San Cayetano de Calabasas there was neither church nor house for the visiting priest. Only sixty-four remained faithful to the missionary. There was a church and a house at San Ignacio de Sonoita, but both were devoid of furnishings. Ninety-four Indians lived there. There were 93 souls at Tumacacori, but like Sonoita the church and house had no furnishings. The church and buildings having been destroyed by Apaches in 1768, the missionary lived at Cocospera. The whole population was not more than 110 in number. After making some attempts to re-occupy Suamca, the place was fully abandoned. Englehardt (1899, p. 1830 says that Suamca was probably never rebuilt. (Query: Was the presidio later established at Santa Cruz on the same site as the old mission of Santa Maria de Suamca? Descriptions made by members of the boundary commission and emigrants of 1854 and the early 50's, speak of the old church at Santa Cruz. Santa Cruz seems to have had more than one location before being established at the present site.)

There were 148 souls at San Ignacio. Wheat, corn and beans were cultivated. The church had three altars and was well furnished. The church and house at Imuris were almost in ruins and were poorly furnished. Only 39 people lived
there. The church at Santa Magdalena was large but in a
ruinous condition. Eighty-six Indians formed the comm-
unity.

Tubutama was comparatively prosperous. The house was
neat and capacious, and a garden furnished some of the need-
ed produce. The church was well supplied with the necessary
articles for the divine service. There were 176 souls. Santa
Teresa had a little church, devoid of ornaments, and a pop-
ulation of only 52.

There were 654 Indians at Caborca, the most prosperous of
all the missions in 1772. Cotton, beans, corn and wheat were
raised on the fertile bottom lands of the Altar River. The
house and garden of the missionary were ample and well supp-
lied. The church and sacristy were well kept up. At San An-
tonio del Pitiquin were 360 people with no church. San Juan
del Bisanic possessed an unfurnished church and house for
271 Indians. They got most of their food from fishing in the
gulf.

At Nuestra Senora de los Dolores del Saric there was a
well furnished church for a population of 137.

San Francisco de Ati had a small unadorned chapel. The
soil was good, but the 137 Indians did little to cultivate it.
San Antonio de Uquitoa had neither church nor house for the vi-
siting missionary. There were 106 Indians.

Tubac was a small military post with less than 50 sol-
diers.
Father Baltazar Arrillo succeeded Gil de Bernave at Querétaro. Father Gil became president of the Pimeria Alta missions, succeeding Buena y Alcalde who died and was buried at Ures. Gil was sent to found the new mission of Carrizal among the rebellious Seris. He suffered martyrdom March 7, 1773, the first of the Franciscans to be put to death in the Pimeria. (Englehardt, 1899, 61-66)

The Viceroy, the Marquis de Hubi, recommended in a "dictamen" the establishment of new presidios in the north. In the autumn the "Reglamento" embodying these recommendations was promulgated. They were never put into effect and Garces made complaint that the local authorities were not acting.

Garces continually insisted the presidios should be so placed as to be complete barriers to the Apaches and as to open communication with New Mexico.

Hugo Oconor was appointed commandant inspector of the frontier provinces to establish the new line of presidios. He ruled for four years subject only to the Viceroy and did much to reduce the ills from which the frontier was suffering.

Garces went on his fifth expedition, accompanying Anza's first expedition to Alta California, the first overland journey to the California settlements. Garces got back at San Xavier del Bac, July 10th. (For details see Coues, "Diary and Itinerary of Francisco Garces," 1900, I, 1-38; Bolton, 1930, I., 1-200.)
1775-1776. Anza, on his second expedition, led the colonists to be settled at San Francisco. This was Garces sixth expedition. The party started from Tucson with 248 people and 825 head of live stock. (For details see Coues and Bolton, cited above, and Eldridge, "The Beginnings of San Francisco." 2 vol.)

1776 The garrison at Tubac was moved to Tucson in order to protect San Xavier del Bac from the Apaches. The Indians were quartered in a little village adjoining the presidio, called San Agustin del Pueblito de Tucson.

1776-1783. Teodoro de Croix reigned as the first "comandante" general of a new government of the frontier provinces. Croix was a failure because he was incapable of taking a broad view. He did not see the importance of Sonora as a link in the chain of northern advance and took little interest in California and the Colorado-Gila establishments. The failure of establishing communication with New Mexico and California is due to him. (Chapman, 1916, 387.)

1779. Father Garces left San Xavier del Bac and established himself on the Colorado River as a missionary among the Yumas. Father Diaz accompanied him. He found La Pumisima Concepcion on the site of the later Fort Yuma.

1779. The new diocese of Sonora was established under Bishop Reyes.

1781. The Spanish settlements and missions on the Colorado were wiped out.

Francisco Garces suffered martyrdom at the hands of the Yuma Indians. The other three fathers were also killed, to-
gather with the Spanish colonists. The destruction of these missions and settlements meant the abandonment of the Sonora-California overland route by 1783. Chapman blames Teodoro de Croix's policies for the result. (Opus cit: 391-400)

1786. General Ugarte, aided by Opata and Pima allies, began a thorough campaign against the Apaches. Between 1786 and 1810 the Apaches were held in check comparatively well. (Robinson, 1919, 72.)

1791. Arricivita brought his account to a close in the year 1791. He treated of the Franciscan occupation.

1800. Duell states that the church at Tumacacori was completed in 1800. Bancroft says it was not completed until 1820-'22. (Duell, 1919, 66; Bancroft, opus cit.)

1810-1811. The Hidalgo revolution was one of the events that took the attention of Mexican officials away from the frontier provinces. Money and food were not regularly furnished the presidios. The rations to the Apaches were cut down, resulting in their returning to their old habits of stealing stock, raiding ranches, and murdering settlers. (Robinson, 1919, 75.)

1821. Visit of bishop.

1821-1822. Mexico was declared a republic. Spain withdrew financial aid from the missions.

1820-1822. Tumacacori was burned by the Apaches. No attempt was afterwards made to rehabilitate it.

1827. The Arizona missions are abandoned by the missionaries. San Xavier del Bac and Tumacacori as well as the presidios at
Santa Cruz, Tucson, and Tubac were under the care of the priest at Magdalena who rarely was seen in the more northern settlements.

1835.

"Don Ignacio Zuniga who had served for years as commander of the northern presidios, writing in 1835 on the condition of Sonoran affairs" indicates the former prosperity of the region as compared with his time. He said that between 1820 and 1835 5000 lives had been lost; that at least 100 ranchos, hacienda, mining camps and other settlements had been destroyed; that 3000 to 4000 settlers had to leave the northern frontier; and that in the extreme north absolutely nothing was left but the demoralized garrisons of worthless soldiers. Zuniga advocated that everything be restored as nearly as possible to the old condition. "The presidial companies must . . . be discharged and new ones organized, to be paid and disciplined as in Spanish times, control of the temporalities must be given again to the friars; colonists of good character must be sent to occupy the deserted northern ranchos; some of the presidios should be moved to better positions; and finally the Colorado and Gila establishments should be founded as proposed in the last century."

(Quoted from Bancroft, op. cit., 405-406.) These reforms were never carried out.

1628-1845

American trappers, no doubt, penetrated Pimeria Alta. Little record is extant to show that they traversed the San Pedro and Santa Cruz Valley. The "Daily Alta" ff. Jan. 12, 1857 states that in 1634 a certain Hammond with 12 others,
1846-47

Americans from Missouri, went south of Tucson and found gold. Cooke's party of Mormons and General Kearney passed through Tucson on their way to California.

1848

The Graham party of Dragoons passed down the Santa Cruz Valley from Chihuahua to California.

1848

In the late autumn the newly appointed governor to Oregon territory passed this way.

1849

Thousands of gold seekers used the route that passed by Santa Cruz, Calabasas, Tumacacori, Tubac, San Xavier and Tucson. (See notes taken from a few diaries in the Bancroft Library.)

1851

The United States boundary commissions visited the regions. Tumacacori, San Xavier, Tubac and Tucson are described in their reports.

1852

A French colony from San Francisco settled in the Santa Cruz Valley. French and American adventurers were numerous in Sonora in the 50's. (Wyllys, The French in Sonora 1850-1854.)

1854

Charles D. Postin, the first American settler in Southern Arizona, established himself at Tubac, where he found desertion. He was soon followed by others who became engaged in opening up mines.

Pete Kitchen established his ranch north of Nogales. He successfully withstood continued Apache raids.

1856

There were over 500 inhabitants (largely Mexican) at Tubac, brought there because of revived mining activities.
There were 150 silver mines within a radius of 25 miles.

1859

Vicar General J. B. Macheboeuf was sent to Arizona by Bishop J. B. Lamy of New Mexico to ascertain conditions. He received a most enthusiastic welcome by the Papagoes at San Xavier. (Duell, 1919, 70.)

1861

Between 1854 and 1861 the Apache raids were stopped by the presence of U.S. troops. With the outbreak of the Civil War, the army abandoned Arizona and the Apaches were free to go on the rampage. Tubac and the various American ranches along the river were abandoned for the most part. Pete Kitchen managed to hold out against them by taking extraordinary measures to fortify himself in his ranch north of Nogales.

1862-3

The California Volunteers arrived and brought about a semblance of order. J. Ross Browne wrote up his experiences and observations as a member of this company in his book, "The Apache County."
San Xavier del Bac

1780-1794
Father Baltasar Carrillo was superior. His assistant was Narcisco Gutierrez.

1794-1799
Gutierrez was superior. He had the following successive assistants: Mariano Bovdoq, Ramon Lopez, and Angel Alonzo de Prado.

The only other missionary mentioned by Engelhardt was Pedro Arriquibar, who was at Bac in 1819.

1785-1815
Robinson calls the period from 1785 to 1815 the golden period of missions and settlements in Pimeria Alta. Certainly the Apaches were kept in better control than the period before or after. Settlement was encouraged. Commerce thrived and mining revived. It seems that most of the extant mission churches date from this period. The present church at San Xavier was begun about 1783. Tradition has it that the Gaona brothers were the architects. It is not known whether or not they were connected with the Franciscan order.

1797
It is thought that this was the year in which the church at San Xavier was dedicated. This date is carved above the front door. After the establishment of a presidio at Tucson, a brick church was erected, probably of adobe bricks for the most part. (For details of location of church and presidio enclosure see Lockwood and Page, "Tucson the Old Pueblo.")

Los Santos Angeles de Guebavi and San Jose de Tumacacori

1772-1780
It seems that Father Baltazar Carrillo was in charge of Guebavi. It was difficult to deal with the Indians. They
refused to work and paid little attention to the priests beyond attending mass.

By 1784, the Indians seemed to have largely abandoned Guebavi, the prey of so many Apache attacks. The mission was removed to Tumacacori. Guebavi may have been used as a visita now and then later for it is recorded that a new roof was put on the church building before 1791.

San Ignacio de Sonoita east of Tumacacori was also abandoned, although a new brick church had been erected there. San Cayetano de Calabasas had no church in 1772 but before 1791 a church and a father's house were erected.

According to Bancroft, there were no soldiers at Tubac for some time after 1776, although the settlers living there were required by the government to remain. After repeated petitions that soldiers be sent to Tubac, a company of Pima allies was established there before 1784. Later Spanish settlements and soldiers were added to the garrison. The law of 1826 provided for a permanent presidio at Tubac, as well as at Tucson. In 1828 a silver mine was being worked near Tubac. In 1842 a friendly pueblo of 1694 Apaches lived near Tubac. The spiritual interests (1784-1828) were attended to by the missionary located at Tumacacori. There was a church here called Santa Gertrudis de Tubac. (Bancroft, Arizona and
New Mexico, 362-3) Father Carrillo went to Tumacacori in 1794 where he remained until his death in 1798. Narcisco Gutierrez succeeded him. Gutierrez died at Tumacacori about 1820. Ramon Liberas succeeded him. Bancroft names Juan B. Estelric as being the missionary, 1821, 1822. (opus cit. 385) Tumacacori during this period was a flourishing mission. Before 1791 a new roof had been put on the church and many other improvements made. "House of adobe for the Indians and a wall of the same material for the protection of the mission were likewise constructed."

The present church at Tumacacori was probably erected at the beginning of the 19th century. It had extensive gardens, orchards and vineyards with an excellent system of irrigation.

(For the names of the missionaries located in the other missions see Bancroft, North Mexico States, I, 689-690; and Englehardt, 1899, 180-183)

The mission at Caborca continued to prosper and in 1782 there were still 1,265 Indians there. The church was renovated and a brick church was erected at the visita of Pitic.

The churches at Ati and Oquita were renovated. The missionary at Tubutama from 1774 to 1778, Father Felipe Giullen, was killed by Indians in the latter year while on his way from Santa Teresa to Ati. Father Giullen initiated the erection of a nicely ornamented brick church.

Tubutama was the head mission of Pimeria Alta. Father Pedro Font wrote out his diary of the Anza expedition here. The bodies of the Colorado Martyrs rested here from 1781 to 1794, when they were transferred to Queretaro.
A brick church was erected at San Ignacio and its two visitas, Imuris and Magdalena, continued to be ministered to. In 1776 Magdalena was attacked and nearly destroyed by Apaches.

The old presidio of Terrenate was located at or near the abandoned mission of Santa Maria de Suamca in the early part of the 19th century, and was known as Santa Cruz. (Bancroft Ariz. and N. Mex., 326.)

See Bancroft op. cit., 407, for the origin of Robinson's statement that the golden era of Pimeria Alta history extended from about 1790 to 1820. This was only so "in comparison with past and future misfortunes." The Apaches were under control and this gave a chance for the missions and other places to have some prosperity. Mines at Aribaca, Tubac, Calabasas and other places were worked and "stock raising ranchos and other places were built up in the region extending from Tucson to the southeast and the southwest."

1908.

A ten acre tract of land and the Mission was set aside by President Taft September 15 as a National Monument. Frank Pinkley was appointed Superintendent for its protection.

1935 Feb.

Foundation walls under the mission failed. Engineers, who were called upon to repair the walls, discovered the ruins of old buildings. Excavations reveal churches constructed in the 18th century.

1935 Mar.

Franciscan church requested the bodies of the former Padres buried in front of the altar in the Mission. The bodies were excavated and reburied at San Xavier Mission.

1935 Apr.

The walls of earlier buildings were measured and mapped by Engineer Attwell. The N.P.S. plans were completed.
ABSTRACTS FROM JOURNALS OF AMERICANS IN THE SANTA CRUZ VALLEY
DURING THE 40's and 50's

Cave J. Coutts Diary (Bancroft Library)

Oct. 19, 1848. (p. 66) "St. Cruz is an old and compact rancho inhabited by one company of Mexican State Troops, though none of them would be taken for soldiers... The company is about 80 strong and was once cavalry, mounted lanciers, but some three weeks since a party of Apaches made an attack and carried off all their animals but one single mule, and all their clothing... The town is completely surrounded by a wall.

Oct. 20, 1848. (p. 68) Left Santa Cruz for Tucson. The Santa Cruz "is a beautiful little stream, passing through the mountains lined on either side by a large growth of cottonwood... Houses are thick along its banks... but all are deserted." Deserted ranchos are passed... "The people are particularly friendly; they understood that we were after Apaches." Some inhabited ranchos passed.

Oct. 22, 1848. (p. 72) Sunday arrived at Tubac "a small presidio today." (p. 74) Near Goibabe" (Guebavite?) was a gold mine where 20 men were working in dread of the Apaches.

Two and a half miles from Tubac passed a nice Indian village. The church looked very well (Tumacacori?) "Tubac itself might be called an Indian village for there are two Apaches to one Mexican. Their huts are built of straw and grass around the edge of the town. (p. 75) Apaches were friendly. Chief told his people to be fine friends to Americans and not to steal from them.

Oct. 25, 1848. (p. 78) The churches in this valley are remarkable --"At Tumacacori is a very large and fine church standing in the midst
of a few common conical Indian huts, made of bushes, thatched with grass huts of most primitive and common kind. This (the church?) was built by an old Padre who died at Monterey, Mexico last summer, and who was highly thought of." The funeral procession was the largest ever seen in the city. "This church is now taken care of by the Indians, Pimas, most of whom are off attending a jubilee, or fair, on the other side of the mountains. No priest has been in attendance for many years, though all its images, pictures, figures, etc., remain unmolested and in good keeping. No Mexicans live with them at all."

(pp. 78, 79.) "The church at Xavier del Bac. . .is said to be the finest in Sonora. 'Tis truly a noble and stupendous building. Its domes and spires. . .was of itself sufficient to guarantee a City with many churches and other large and fine buildings. But when we came up, found it standing solitary and alone, not another building nearer to it than Tucson, save the few old Indian huts of the most rude description, whose inmates (Pimas) had charge of the fine old church. It is built of "burnt bricks", the first any of us had seen in Mexico. . . The dressing, which always attend their churches is truly magnificent. Wax figures and paintings, particularly fine. Standing under the large dome and looking directly up, its whole inner surface is a complete elegant painting, indeed, the same might be said of its whole interior surface. . .The faces are exceedingly handsome. The wax figure of the Virgin Mary deprived of one arm by time, has as handsome a face as I ever saw. The exterior shows no age, on the contrary, looks rather new; but there is an appearance of age about the interior which rather adds to, than deteriorates from the sublimity of the picture. It is kept by these Pimas with incredible care and neatness."
C. C. Cox Journal (Martin 1925-6, 142-144)

"Santa Cruz, a garrisonal town, was the first settlement the emigrants came to after leaving. Dona Anna and a considerable emigrant literature was created about it." (Martin, 1925-6, 142.)

C. C. Cox (Aug. 31, 1649) and party stopped at Santa Cruz a few hours and then moved down Santa Cruz River to the deserted ranch of San Lazaro, "a beautiful place" that "had once been in a high state of improvements. There was an orchard of peaches, apples, pears, quinces, etc.

Sept. 3. "Passed another mission (San Xavier)...occupied by Mexicans and Indians—the "Elucia" was really a splendid looking building the interior of which presented a solemn and imposing scene." Camped at Tucson the evening of the 4th. (Martin, 1925-6, 142-3.) A fandango was held in honor of the Americans. On 5th "we bid adieu to Tosone and its friendly people."

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Dec. 1649. Hayes found "some 50 peach trees in an enclosure" at Tumacacori, "the ground in places covered with the seeds—the fruit has fallen and none to gather it. Corrals still standing—not a living thing seen. It had a melancholy appearance. The walls of the church still stand, no roof, and only the upright piece of the cross. It looks desolate indeed... (It was) built of beautiful large burnt brick; the walls inside plastered with cement, and adorned with paintings in the cement. The dome over the altar covered with cement which shines white in the sun; portico in front, with two tiers of columns; Rich and exquisite carving inside, 4 bells, one has been taken down; sweet-toned
probably a chime. This would be an ornament of any of our cities." 
(Quoted from Hayes manuscript by Coy, The Great Trek, 1931, 247)

Coy, 1931, 247-9.

San Xavier and Tucson

"The route continued down the Santa Cruz Valley past deserted
ranches until at last the river lost itself in the sand and the road
crossed a barren desert country to a village of Indian huts and adobe
houses. Here in contrast to their poor dwellings was a once magnificent
church..."Hayes makes the following observations, (See Coy, 1931,
248-9 for quotation from Hayes Journal) (P. 249). "About nine miles
from San Xavier was the town of Tucson. This was quite a settlement
with two blacksmith shops, and a shoe factory employing seven workers.
The women were expert in needlework. Here as at San Xavier the emigrants
were able to secure a supply of milk as well as grain and flour... The
Americans were well received and occasionally a fandango was held in
their honor."

"After leaving Tucson the California route led across the Tucson
desert northwestwardly and reached the Gila River near the Pima Villages.
This was a trying jornada of 90 miles and the stock suffered greatly.

Coy, Santa Cruz Emigrant Route

"The valley of the Santa Cruz which the emigrants... followed"
north from the garrison town of Santa Cruz to Tucson made a very pleasing
contrast to the desert country over which they had come. All unite
in describing it (in their diaries and journals) as beautiful country with
good soil and a good supply of timber, although the effects of Apache
raids were sadly evident in the deserted ranches along the way.
This first church ruin that the emigrants made note of was that of the old mission of San Gabriel de Buebavi founded by Kino, about 1702. "It was nearly a mile off the regular route but many of the emigrants took occasion to get a closer view. A long trail of ashes indicated that before its destruction there had been an extensive enclosure." (Mentioned in Hayes Diary)

Fifteen miles brought them to another village in which were the ruins of an even more extensive church. This was Tumacacori mission. The deserted mission orchards furnished a very welcome supply of fruit to the California emigrants." (Here quote from Hayes mss.) (Coy, 1931, 247)

Powell, 1931, 131

In the autumn of 1848 Joseph Lane, appointed governor of Oregon territory, took the Santa Fe Trail and then pressed far to the south to avoid snows of the mountains. It seems that he blazed the trail to Santa Cruz followed by the later emigrants (see Biography of Lane by Western psed.) Washington 1852, p. 25.)

Journal of Powell noted Sept. 28th. "We are entirely off Cooke's route, and do not, now, know anything of the road. We suppose it a new route, made by Governor Lane last year, as we saw his name marked on a tree a short distance back."

p. 133. October 1st, evening. "The first view of the town was very beautiful. It is a rise of land in the centre of the valley." Detailed description of the beautiful country follows.

"most of our train are much annoyed at being off Cooke's route so far. This way, we learn, is four days the farther."
Oct. 2nd entered Santa Cruz. Corn fields. (p. 136) "Santa Cruz is an old looking place, very dilapidated; the grama grass growing on the top of the houses. Two churches, one quite large and much ornamented, the other smaller, are quarters for the soldiers of which 130 are stationed in the town; 130 more I understand, being out on country parties after the Apaches who stripped them last spring of everything except a few sheep and goats." Took in all 3700 cattle, mules and horses." (2 months since ... killed 3 or 4 women and children in Tubac) got supplies at Santa Cruz. Flour plentiful, quinces, melons, pumpkins, sugar.


(p. 139) At what he thought was Guebavi, Powell said there was one house with four rooms, one with six rooms, in each a furnace and outside much cinder. Seventy or eighty adobe houses in back, on left bank of river. Three miles beyond was another ruined rancho on an elevation on right bank of river. Pile of crumbling adobe. One mile below this on opposite side of it was what he thought was Calabasas.

(p. 138) "Some Mexicans gave following, which was surprising to Powell since he thought the valley a wilderness like that which they had passed before coming to Santa Cruz; 7 miles from Santa Cruz deserted rancho, 3 leagues farther to Rancho Santa Barbara; from there to Guebavi (r) 2 leagues; to Calabasas (r) 2 leagues; to Tumacacori 6 leagues; to Tubac 1 league; to San Xavier 16 leagues; Tucson 3 leagues."
Ifade: sketch on south side of Tumacacori Oct. 6, 1849.

The church is built chiefly of brick, plastered over. The square tower looks as if it had never been finished. The houses, extending East, are adobe. The church inside is about 90 x 18, painted and gilded with some pretensions to taste. The altar place under the dome was, of course, more carve, gilded, and painted than anywhere else. Behind the church, north side, there is a large burying ground enclosed by a neat adobe wall plastered and having niches in it at intervals. There was a circular oratory at the south end of it near the church. East of the Church there was a large square yard, on the west side of which, passing under some solid arches, we came to a flight of steps leading to a granary, etc. It is a very large establishment and the monks or priests had every accommodation to make life comfortable.

"In the square tower there were three large bells, and there was one lying inside the church, dedicated to Senor San Antonio—dated 1609." Found Tubac deserted, Apaches two months since had killed two women and two children. "It is a mere pile of tumbledown adobe houses. The church has no roof; it is built in the form of a cross—main building 90 x 25." (Snelling family mentioned)


Emory

The Emory expedition "saw the remains of mining operations," everywhere formerly conducted by the Spaniards and more recently by the Mexicans. On the Santa Cruz River a few miles north of the boundary the remains of a mill for crushing gold quartz were found. Said Emory, "I hope nothing I may say will induce persons to run off in unprofitable searches in these distant and unprotected regions. . . . The country is
now full of "prospectus" from California, who will undoubtedly discover anything worth knowing." (Emory, 1857, I, 95)

At Tucson there were about 70 families of the mixed Spanish and Indian races, engaged in the pursuit of agriculture and south of Tucson there was a small settlement at San Xavier of semi-civilized Indians, called Papagos; "and further on, at Tumacacori, a small settlement of Germans." (Ibid., 95)

Lieut. Michler of the Emory survey party and his men were encamped at Tucson the month of June 1855. He says "During this time we became the recipients of every attention and civility from Captain Garcia, who commanded the place, and from his family." (Michler in Emory 1857, I, 118)

Michler proceeded down the valley of the Santa Cruz to have a conference with Emory at the base camp at Nogales. "You pass through the towns of San Xavier and Tubac, and the mission of Tumacacori. The first place had been ceded by the Mexicans to the Papago Indians. A beautiful church, with its exterior walls richly ornamented, carved and stuccoed, and the interior handsomely decorated and painted in bright colors, with zealous labor and religious enthusiasm of the Jesuits of the past century.

"Tubac is a deserted village. The wild Apache lords it over this region, and the timid husbandmen dare not return to his home."

"The mission of Tumacacori another fine structure of the mother church, stands, too, in the midst of rich fields; but fear prevents its inhabitants, save by two or three Germans, who have wandered from their distant fatherland to this out of the way country." (Michler in Emory 1857, I, 118)
"Ojo del Agua de Sopor is a spring, twelve miles from Tubac, in a westerly direction; it once irrigated the valley of the same name, which was cultivated by Mexicans. We found a solitary peach tree," says Michler "loaded with fruit, and signs of acequias, relics of other days. The stream is a small and pretty one. A league from it, in the Sierra Atascosa, rich mines of copper, silver, and gold are said to exist." (Ibid, 119)

Eighteen and one half miles south and west from Sopor was the deserted Mexican rancho, in the valley of Aribaca. "Within four miles and south of the deserted rancho, are to be found large excavations made by men previously engaged in mining; piles of metallic ore lay near the springs where they had been engaged in smelting." A mule trail ran south to Tubutama about thirteen miles from Aribaca. (P. 119)

The main escort and train were encamped at Aribaca in July and to the middle of August 1855.

The latter part of August the surveying had been completed. Lieut. Patterson was found at Imuris near Magdalena. Here some Apaches attempted to stampede the animals but were unsuccessful. Here the Mexican and U. S. Commission separated.

"From Imuris we traveled the road up the San Ignacio River by Cocospera, a deserted mission, to the rancho de San Lazaro, where we struck the main southern emigrant road." The road led via Santa Cruz, Janos and Corralitos to El Paso, etc.
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PHOTO NO. 3 GENERAL VIEW OF AREA SHOWING FATHER KINOS'S
CHURCH NO. 2 IN RIGHT FOREGROUND
Photo No. 4

Room 17 and 39

Before Excavation. Area where drainage trench first exposed walls.
Photo No.5  Father Kino's Second Church  Looking East
PHOTO NO. 6  SOUTH WALL OF FATHER KINO'S SECOND CHURCH
PHOTO NO. 8

ROOM 38
Photo No. 9  Before Excavation  Rooms 19 to 33

Photo No. 10  During Excavation
PHOTO NO. 13

ROOM 13 AND 14
Photo No. 16

DRAIN FROM CISTERN THRU ROOM 42

Photo No. 17
Photo No. 22  
Grinding Stones

Photo No. 23  
Olla from Room 7
Photo No. 34

Area 75

Photo No. 35

Irrigation Structures
Photo No. 43

DRAIN FROM RESERVOIR
MISSION SAN JOSE DE TUMACACORI

View looking North
MISSION SAN JOSE DE TUMACACORI
FLOOR PLAN

Scale

12  0  0  12  24  36  48 ft.
Section A-A
MISSION SAN JOSE DE TUMACACORI
PLATE 2 - SECTION
Scale
MISSION SAN JOSE DE TUMACACORI
PLATE 1-DETAILS

South Elevation

Section B-B

Scale

12 6 0 12 24 36 48 ft.
MISSION SAN JOSE DE TUMACACORI
PLATE 3-DETAILS

Scale
Details of Proposed Restoration
of Choir Loft and Mission Floor

MISSION SAN JOSE DE TUMACACORI
PLATE 6 - RESTORATION DETAILS

Section F-F

Section G-G

Scale

10 8 6 4 2 0 10 20 30 ft.
MISSION SAN JOSE DE TUMACACORI
PLATE 4-DETAILS
BRICK SIZES AND SHAPES

MISSION SAN JOSE DE TUMACACORI

PLATE 5