

Blankenship Ranch - Gachado Well Line Camp

Organ Pipe Cactus National Monument

Arizona

Stabilization Report - 1972

by

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INTRODUCTION

GACHADO - GENERAL

Gachado Well line camp is a historical resource at Organ Pipe Cactus National Monument. Along with the Blankenship Ranch House, it is to receive more interpretive emphasis when they can be made safe for visitor traffic. It was to this ultimate objective that the Southern Arizona Group Office requested the services of Ruins Stabilization to undertake emergency stabilization of both sites in order to preserve their fabric until further work could be programmed and approved. Of the two structures, the Gachado Well adobe, constructed circa 1920, exhibited the most advanced deterioration. Preliminary investigations indicated that the walls at the time of construction were some 14 inches thick; however, at the beginning of the project the abutment of the south and east walls admitted a seam of light from the outside some seven to eight inches high. The thickness of the remaining adobes ranged from about five to eleven inches. All that remained on the surface to indicate where the chimney had been was a mound of melted adobe. The south half of the west wall had a fissure reaching from ground level to ceiling varying in width from 12 to 18 inches. The inside west wall was channeled in two areas by water to a depth of four to five inches. Inside basal erosion occurred on all walls with the east and west walls being the most advanced. This was also true of the junctures of walls and ceiling. Basal damage, both natural and mechanical, along the outside perimeter of the structure varied in depth, and in places had eroded completely through (door jamb and lintel area.)

Method

In order to be historically correct, it was necessary to trench around the outside perimeter to find the foundation. We discovered that there was no foundation as such. The first course of adobes was set at, or slightly below the surface as it existed at that time. The walls had originally extended up to nine inches further out than they did at the time the project began. In the years following construction, flooding and the attendant deposition of silt were graphically illustrated in the banded profile of the trench. If these data were correctly interpreted, the floor was partially filled in in order to keep it dry during wet periods. In fact, we were pleased to discover a concrete floor which required only minor patching to return it to serviceable condition. The floor was about three inches higher than the outside surface. One course of soil cement adobes were laid below present ground surface on the original line, and will serve as a base and guide during comprehensive stabilization. The outside walls were step-veneered and plastered as were the inside walls. 80 percent of the east facade was veneered with distressed soil cement adobes, starting from the base. The veneer work covers steel pipes which were used as supports for the vigas. The veneer was finished with a soil, water and concrete adhesive slurry which was applied with a whisk broom to simulate natural water erosion. The south window facing, south door jamb and threshold along the east wall were replaced with new wood. A three-foot extension was added to the existing shelter to complete the emergency treatment of the structure.

Blankenship - General

The Blankenship ranch house presented similar problems, although time limitations prevented treating any defects other than the roof. The roof in the kitchen area had two large holes in it and some of the straw above the vigas had fallen or decayed. The existing cement roof surface had weathered seriously and was admitting some moisture into all of the four rooms. The adobe chimney from the fireplace in the second room was badly eroded and only a concrete shell remained above the top of the parapet.

Method

The roof surface was completely removed. Under the roof surface was a layer of soil which was left undisturbed except for those areas which exhibited marked deterioration from inside the structure. In such instances, it was removed, the latilla material was replaced to match the original and a new layer of soil was applied. Over this, a latticework of 1-inch boards was attached. The latitudinal boards were nailed through to the vigas and the longitudinal ones were attached to them with tin strips and nails forming a framework of rectangles approximately 18" by 33". The lattice offered a more rigid foundation over which to apply the 3/8" plywood. 20 mil polyvinylchloride was glued to the plywood and around the cap edges. A "tongue" of PVC was laid in each canale, except on Room 4 where the particular construction form prevented it. Over this, two 2" layers of soil cement were poured with a 24 hour wet curing each layer. After a second 24 hour wet curing of the top layer of soil cement, two inches of

dry soil was spread on the finished surface. Adobes were dry laid inside the concrete shell of the chimney so a cover could be supported over it to retard further erosion.

Formulas

The plaster used on the interior of Gachado was 6 - 1 soil-sand. Adobes and mortar joints were made from a 5 - 1 - 1 mixture of soil, sand and cement. The layers of soil cement applied to the Blankenship roof also used a 5 - 1 - 1 mixture.

Stabilization History

This project, which was the first stabilization undertaken on either structure, began on April 17, 1972, and continued through May 12, 1972. The work was preliminary to basic stabilization which has been programmed for fiscal year 1972.

Crew

The crew was composed of Earl Johnson, Kee Johnson, Willie Yazzie, Karl Ward, Jose Federico, Alfredo Canez, and intermittently, Homer Medlin from the Center office. We are deeply indebted to the area staff whose assistance helped to make the project a success.

RUINS STABILIZATION RECORD (First Sheet)

Room 1
Kiva _____
Date April 12, 1972 Organ Pipe Cactus National Monument
Project number _____ Name of ruin Gachado Line Shack
Personnel of party on this job: Wall (N.E.S.W.) N, S, E and W
Suddeath and six masonry workers. Floor, roof _____

References to publications and justifications for job:

See Introduction.

ARCHITECTURE

Orientation, plan and type (Situation, evidence of additional stories, period of construction relative to surrounding rooms, evidence of burning, etc.)

The Gachado Line Shack is a rectangular structure with the long axis oriented North and South. It was constructed of mold formed adobe blocks measuring circa 14x7x3.

Floor (Floor type: additional notes)

Finished concrete with expansion lines.

Roof (Roof type: additional notes)

The roof was formed by vigas, savinos and latillas over which were placed cement sacks and soil.

Details (Notes on doorways, lintels, etc.)

There is a door in the East wall, south of center and a window north of center. The West wall has a window south of center. The North wall was bricked up and had a vent for a stove pipe. It had originally been a fireplace. The outside West wall had a trace of concrete plaster.

RUINS STABILIZATION RECORD (Second Sheet)

Condition on date when work started

Ancient masonry: Fair. Defects: The North wall had minor basal erosion and some erosion at roof line. The outside North was badly eroded and the chimney had melted. The South wall had minor basal erosion on the west quarter and separation from roof. The outside South wall has severe basal erosion. The East wall had moderate to severe basal erosion and extensive roof line erosion and deterioration of the door and window frame-ings. The West wall had extensive basal and dripline erosion (one area was eroded through) and separation from the ceiling.

Repair or reconstruction previous to this work:

None

Materials, construction, and technique in making repairs or accomplishing job:

Basal, dripline and some ceiling separation erosion was treated by using soil cement adobes and soil cement mortar to replace or veneer the original work. A soil sand and water plaster was used on the interior walls to repair damaged original plaster. The base outline was replaced with soil cement adobes.

Reference to drawing:

Work authorized by Archeologist

Date work started: April 17, 1972

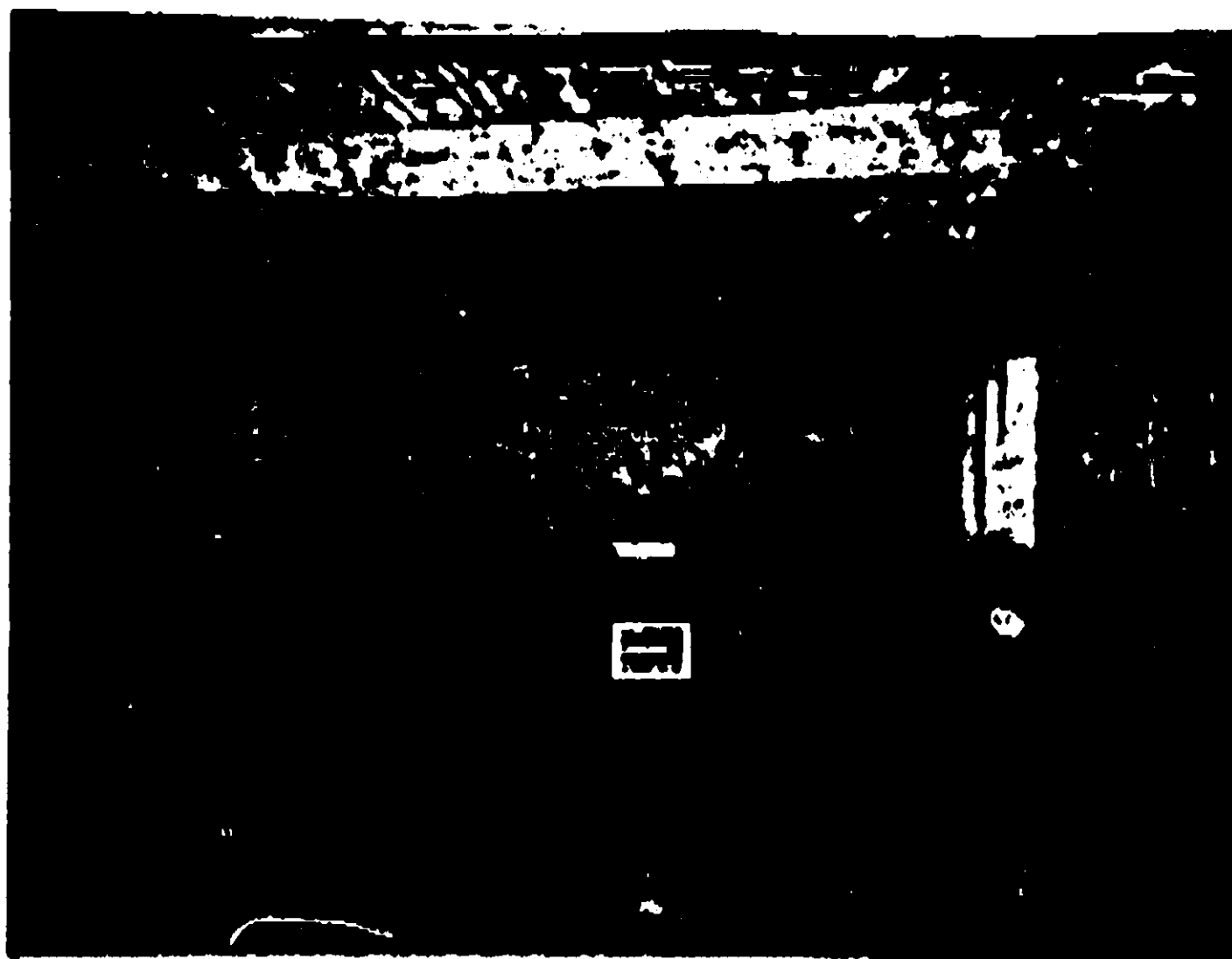
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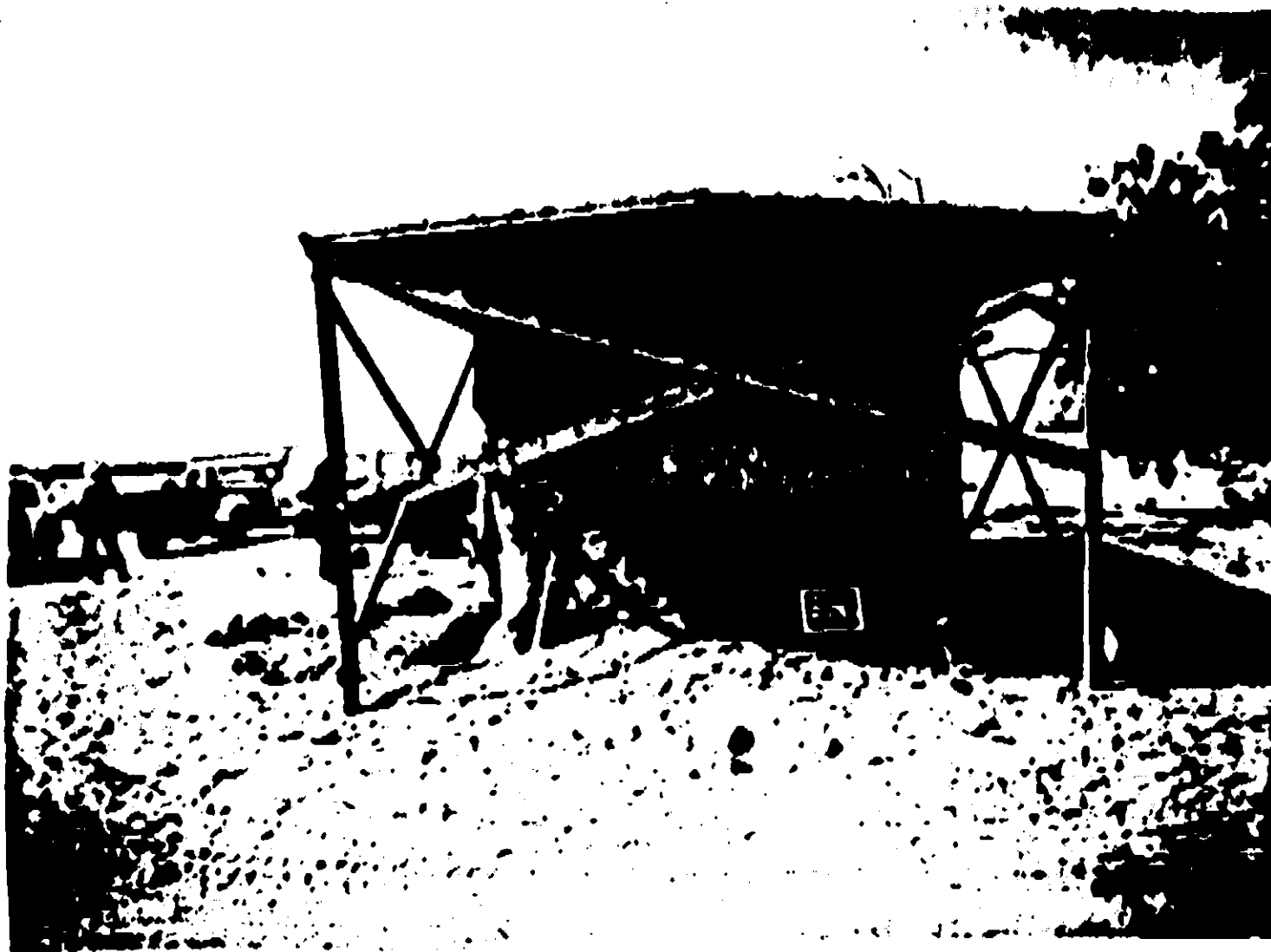
Date work finished: May 12, 1972

(Note: Place "before" and "after" pictures on blank bond sheets, caption, and keep with these record sheets. Include "during" pictures to show interesting or important details or technique. Use additional sheets for any heading if necessary).

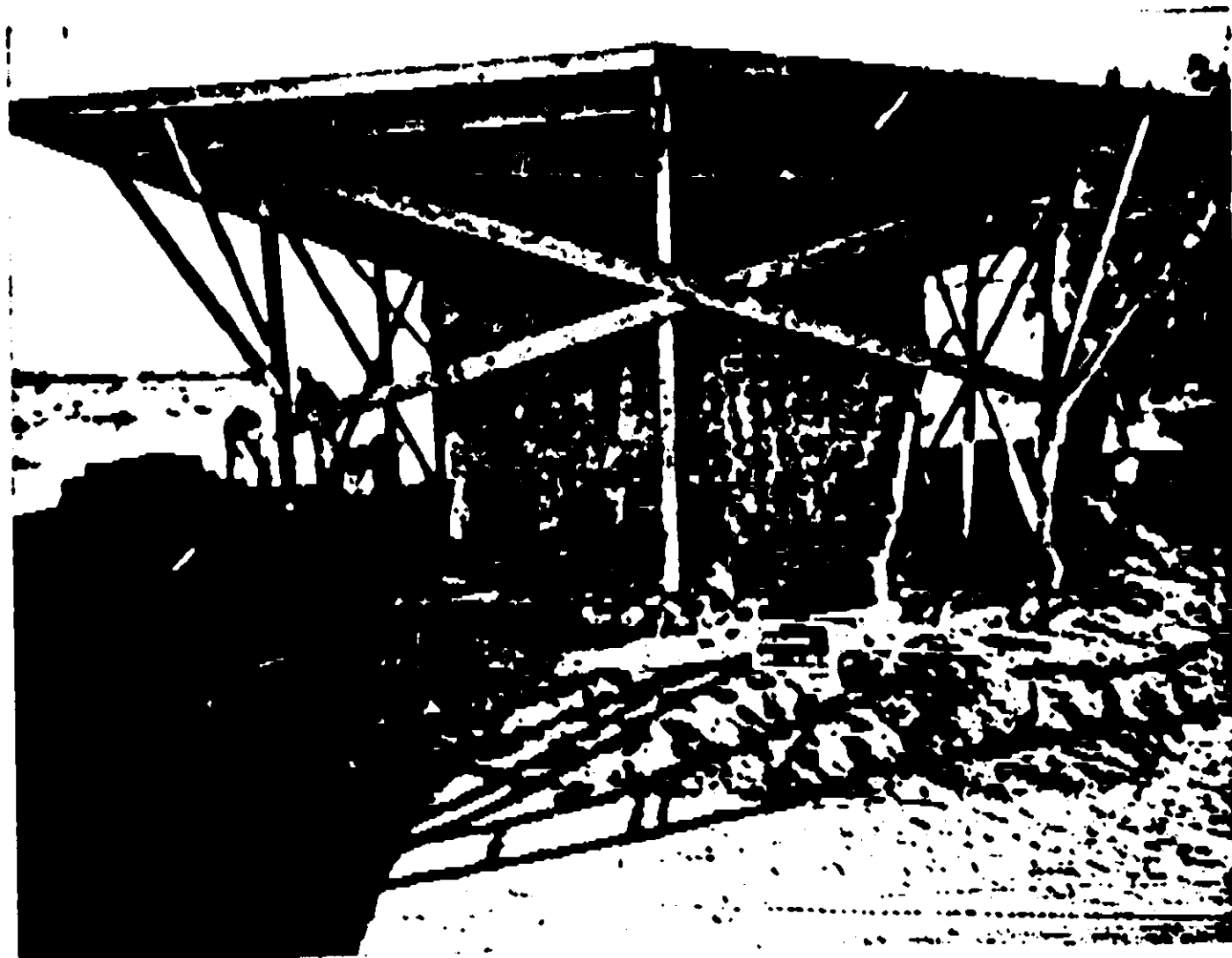


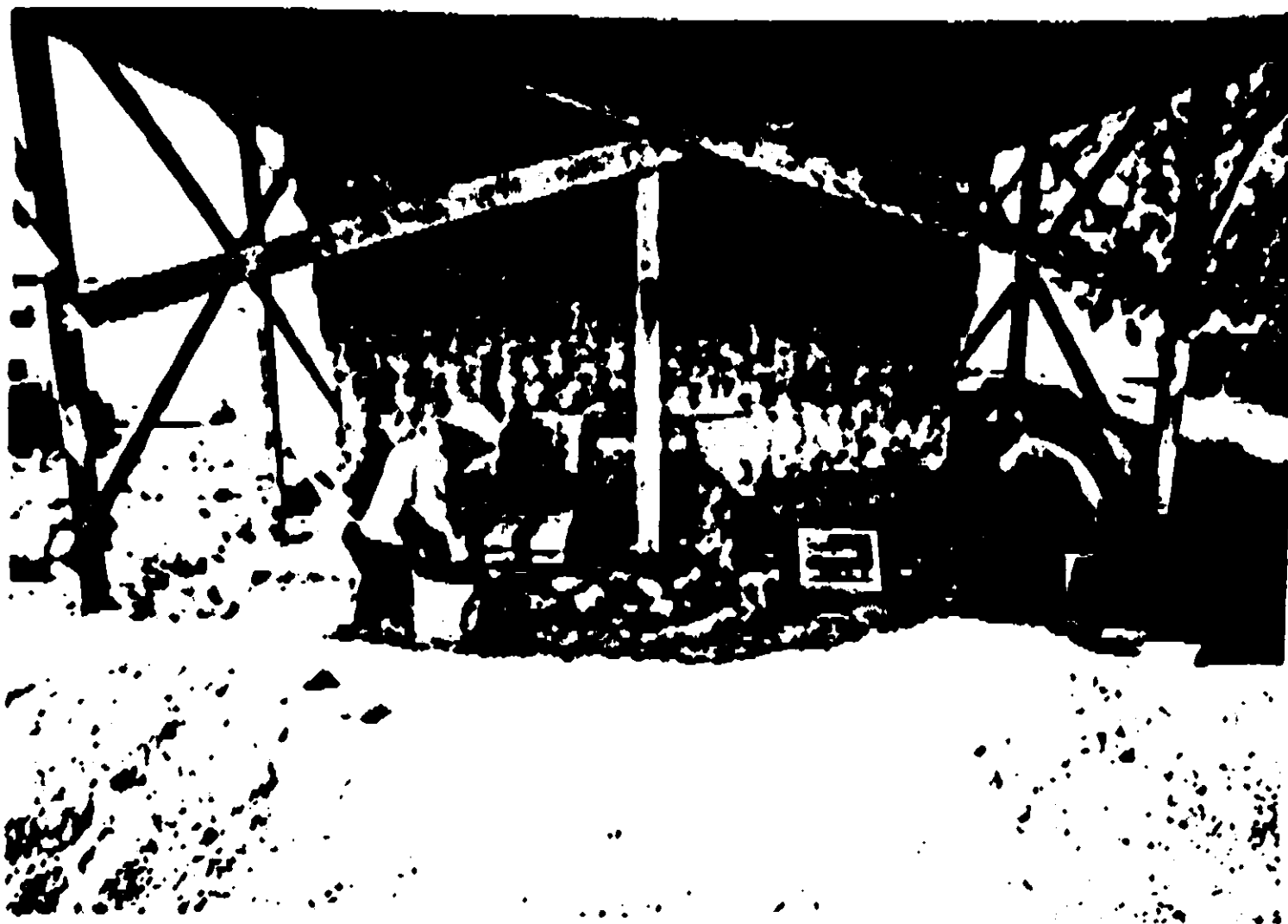
The interior north wall of the Gachalo Line Shack was in good shape except for some minor basal erosion, one small hole west of the flue and an open seam between the north and east wall juncture (not visible in the before photograph.)





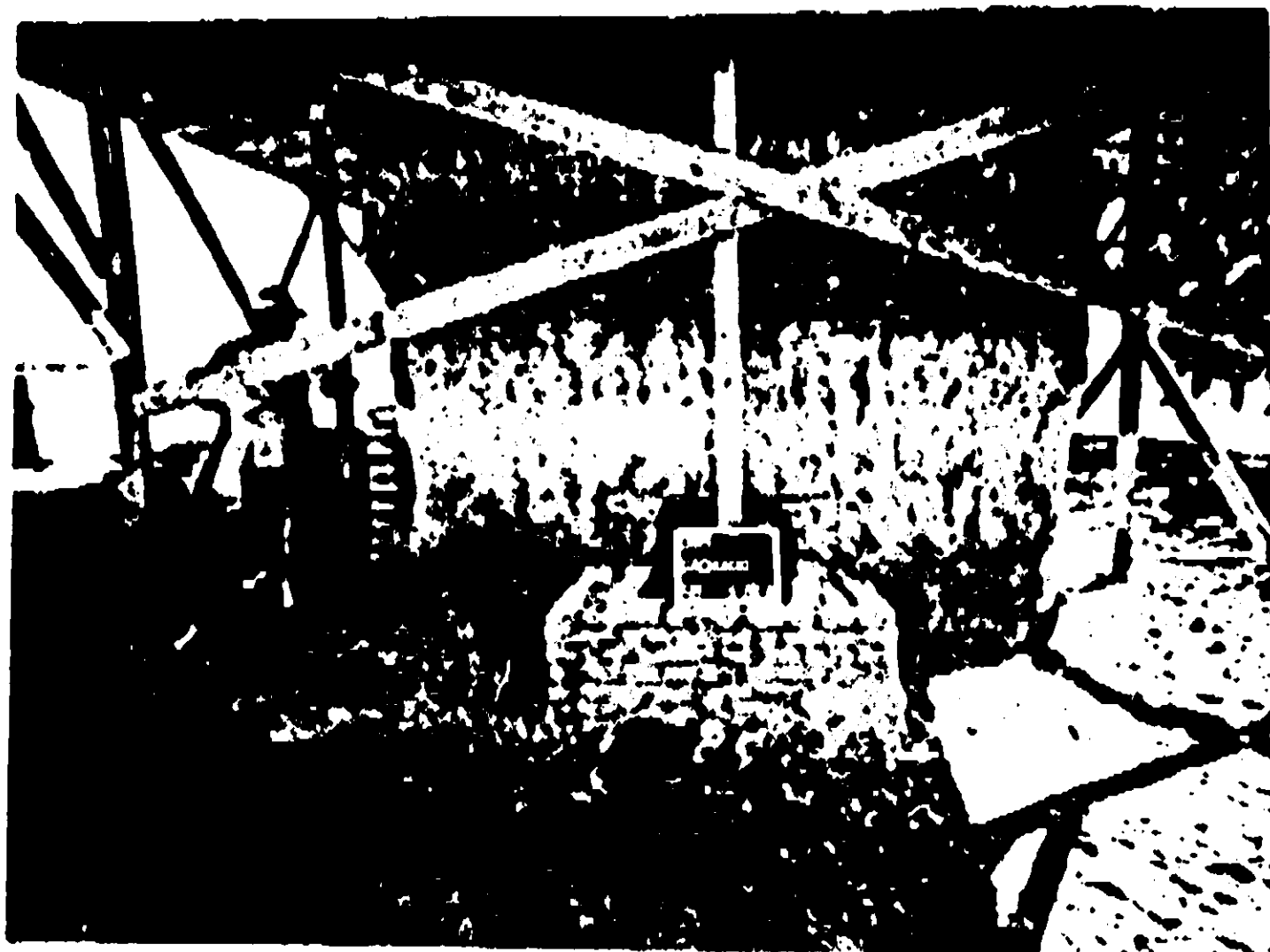
The exterior north wall suffered moderate to heavy basal erosion. The chimney which had abutted the north wall had melted into a pile of adobe (top photograph.) The stones by the lower central portion of the wall served as the chimney foundation.



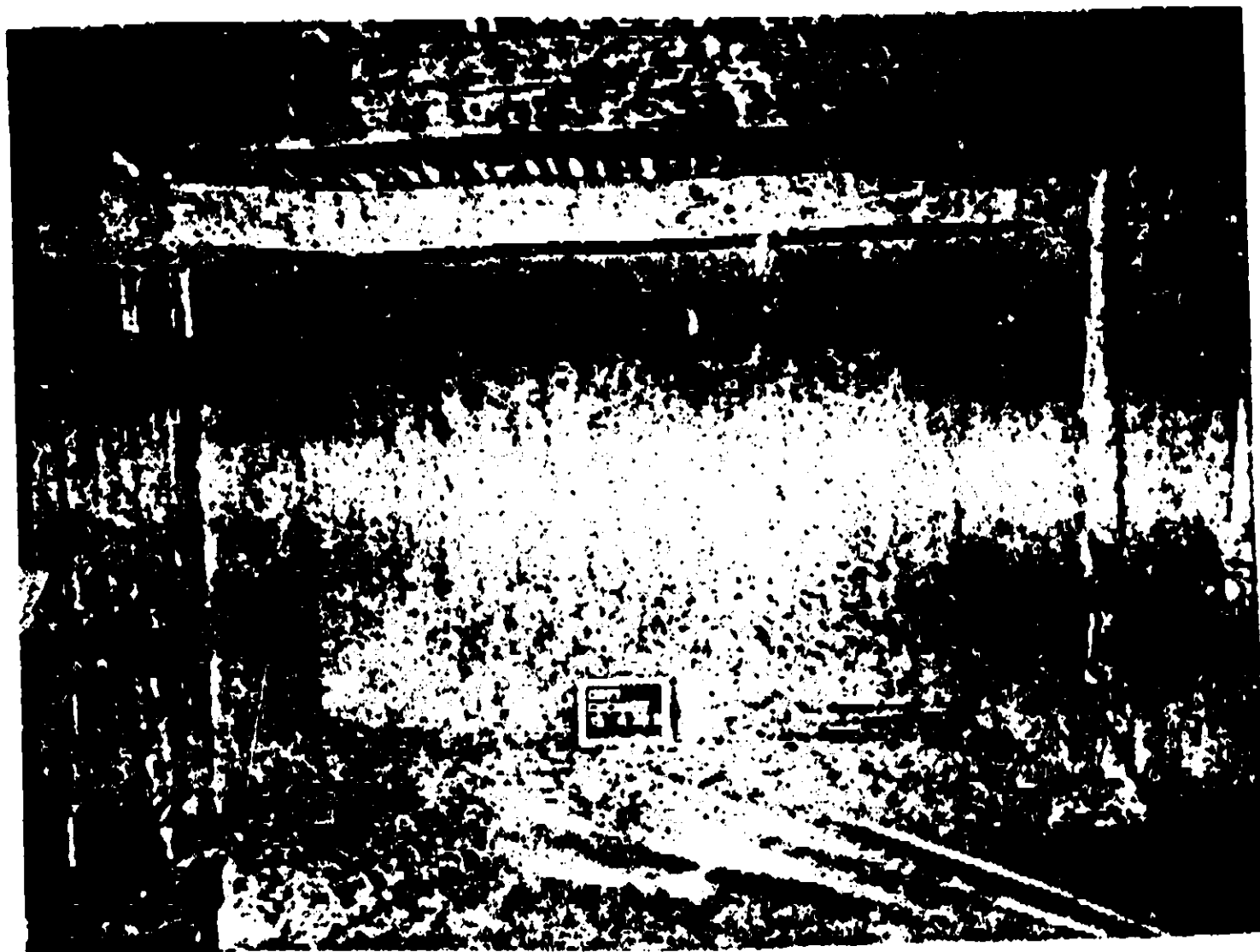


The chimney perimeter was found and raised some six courses to serve as a guide to the workers during basic stabilization of the site.



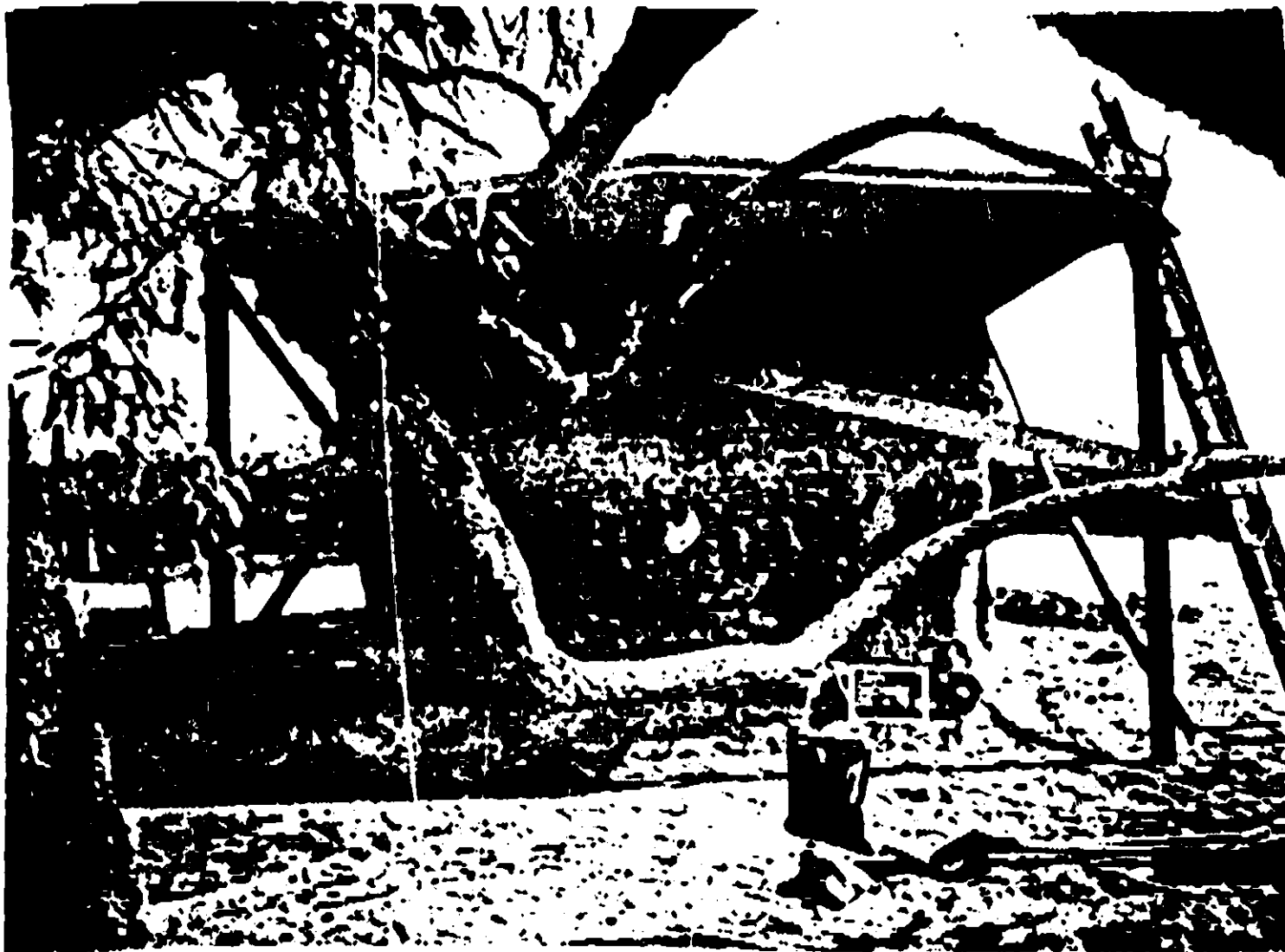


The chimney stub was "antiqued" and literally splashed with a concrete adhesive, soil and water mixture to simulate melting adobe.



The interior south wall had some minor basal erosion on the west quarter and some separation from the roof.



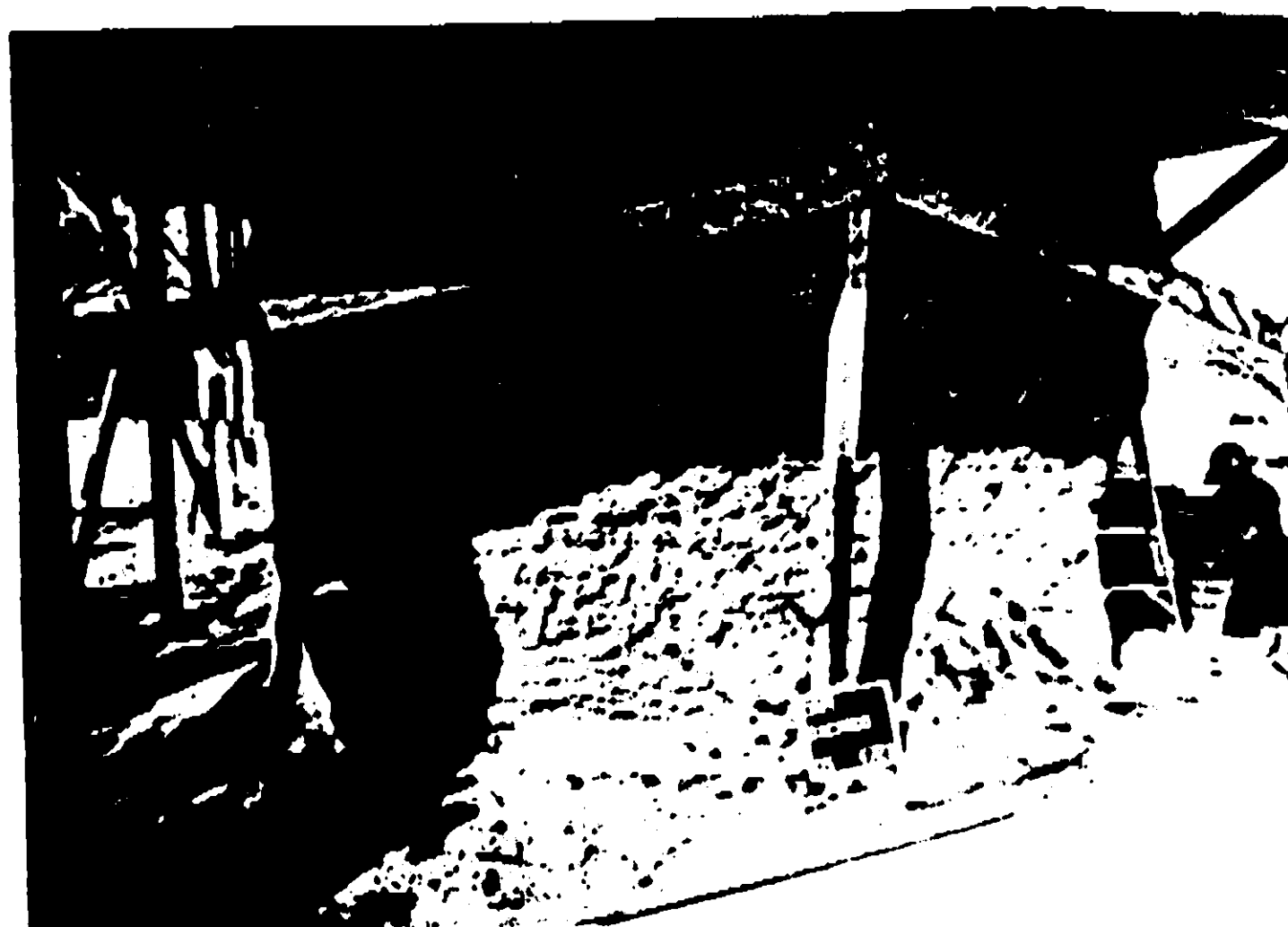


The outside south wall had moderate to severe basal erosion. The adobe bricks were made of a softer material than the mortar and had receded leaving the mortar lines in bold relief.





The basal erosion was treated by veneering the first course with hander adobe and plastering. The concave southeast corner (lower photograph) is the result of abrasion by livestock looking for a good back scratcher.





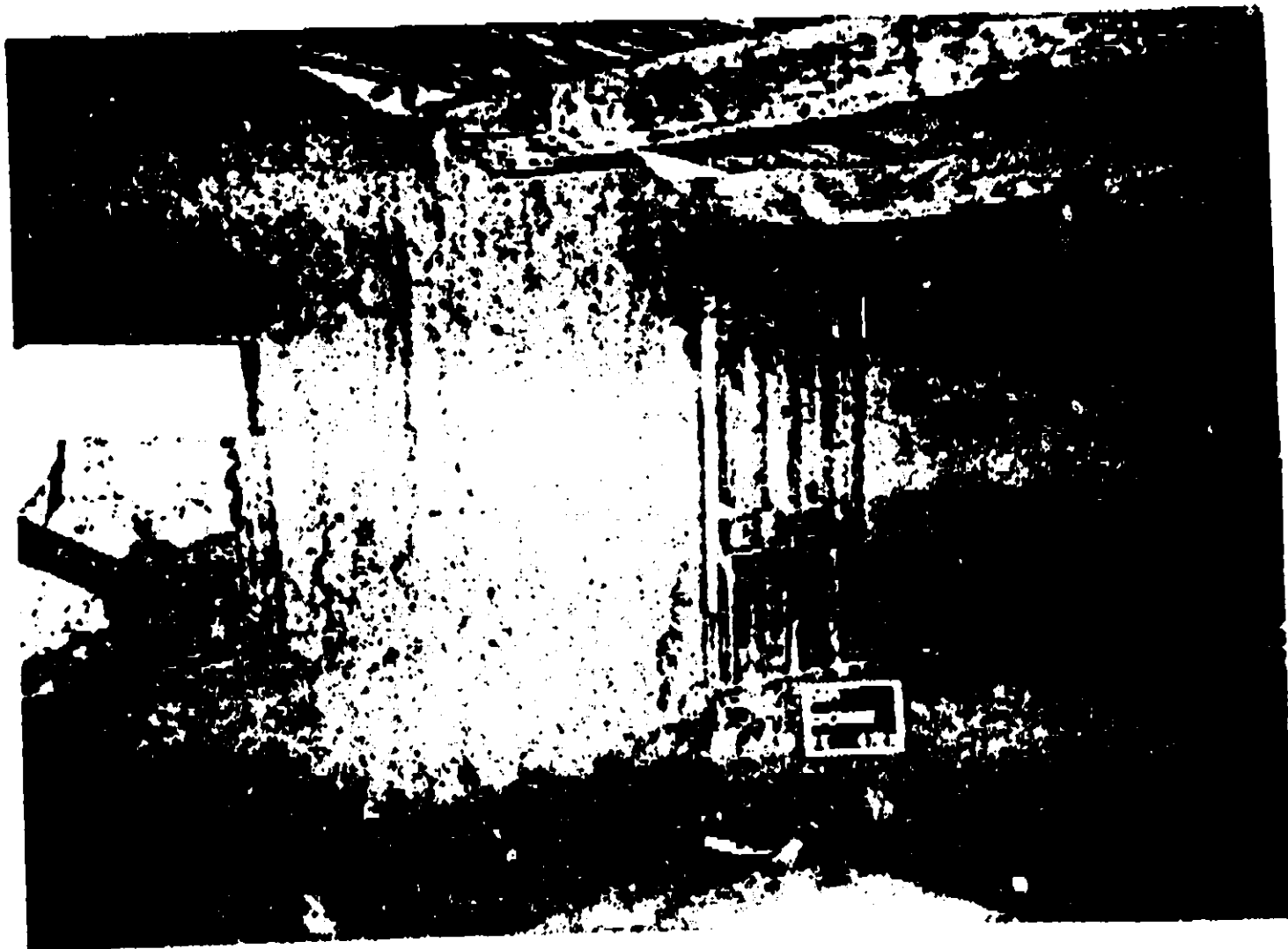
Basal erosion was moderate to severe on the interior east wall and there was extensive erosion at roof line.





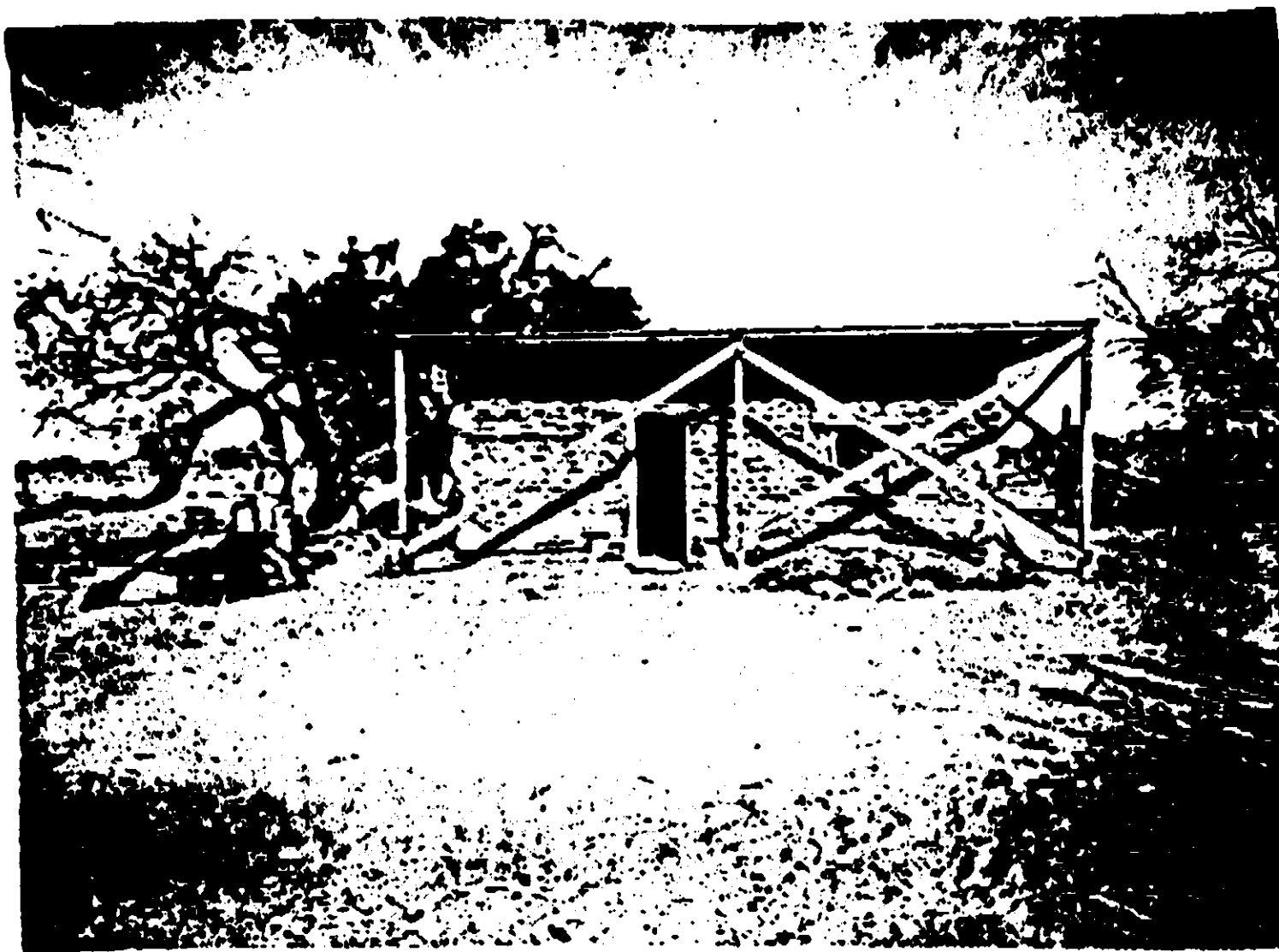
Veneering and plastering were used to repair the damage on this wall.





Since this was emergency stabilization, there was no time to repair the roofline erosion. However, the wall was strengthened by pipe supports under the vigas on the outside of this wall. The supports were hidden by veneer.





An important part of this emergency project was to build a 3-foot roof extension onto the perimeter of the Line Shack shelter.





The shelter had lost much of its effectiveness after wind carried away the surface. After the extension was built, the roof was resurfaced using gold. mineral paper.



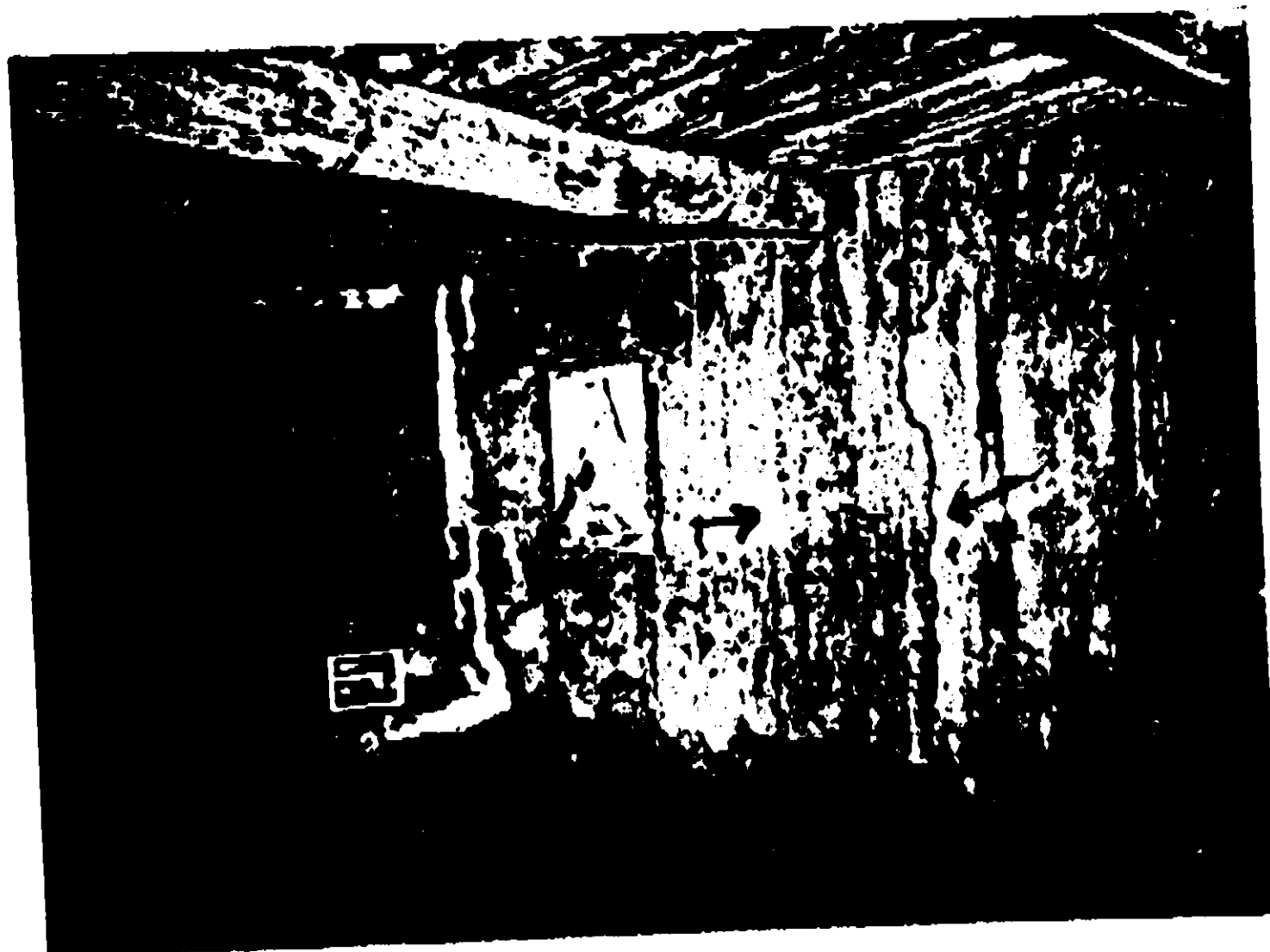


Since the east wall was badly erode at roof line,
steel pipe was used to support the vigas. See arrow.





The west wall had extensive basal erosion and a dripline on the southern portion which had eroded through ceiling to floor. Another dripline on the north portion of the wall had eroded to a depth of about four inches. See arrows.





The base was veneered and the dripline was recoursed.



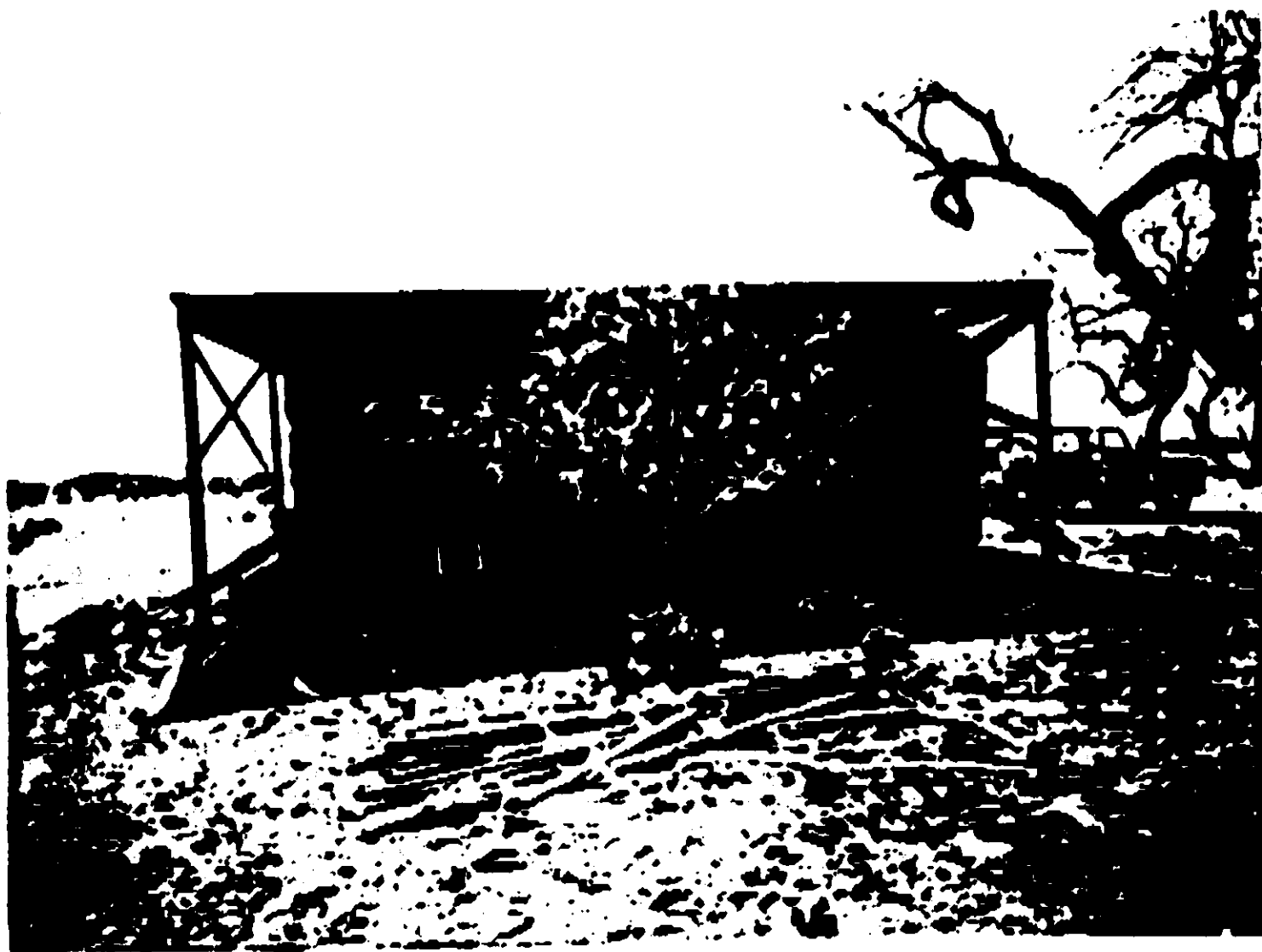


The drip line on the northern portion of the wall was veneered.



This wall was completed late on a Friday afternoon.
On Monday, as if by magic, a vandal's name had appeared.
It was removed and re-plastered. In these photos, the
new plaster was still wet. See arrows.





Basal erosion was quite heavy on the outside west wall.



The original margins of the masonry is easily seen in the top photograph (see arrow.) In the lower photo workers are repairing a badly undercut corner.





The west wall drip eroded completely through the wall and had to be recoursed and plastered on the interior.





These views of the west wall show the stabilization work in progress along the eroded dripline.





Since the dripline or water channel had eaten through the wall, full depth adobes were used to course the gap.



The stabilized west wall at Gachado.



The perimeter of Gachado was trenched to locate the original margins.

BLANKENSHIP

RUINS STABILIZATION RECORD (First Sheet)

Rooms 1, 2, 3 and 4
Kiva _____
Date April 27, 1972 Organ Pipe Cactus National Monument
Project number _____ Name of ruin Blankenship Ranch House
Personnel of party on this job: Wall (N.E.S.W.) N, S, E and W
Suddeath and six masonry workers. Floor, roof _____

References to publications and justifications for job:

See Introduction

ARCHITECTURE

Orientation, plan and type (Situation, evidence of additional stories, period of construction relative to surrounding rooms, evidence of burning, etc.)

The Blankenship Ranch house is an "L" shaped structure. The vertical portion is oriented East and West, and the horizontal portion North and South.

Floor (Floor type: additional notes)

Cement with expansion lines.

Roof (Roof type: additional notes)

The surface was cement, the second layer soil; the third layer straw followed latillas-savinos of Saguaro ribs and vigas.

Details (Notes on doorways, lintels, etc.)

The north wall of Room 1 had a door as did the south wall. The south wall of Room 2 also had a door. The exterior of the structure had been plastered with cement.

RUINS STABILIZATION RECORD (Second Sheet)

Condition on date when work started

Ancient masonry: Poor. Defects: (roof only) The cement surface of the roof was badly broken up. There were two holes in the east portion of Room two completely eroded through.

Repair or reconstruction previous to this work:

None.

Materials, construction, and technique in making repairs or accomplishing job: The roof was stripped of cement. Straw, Saguaro ribs and soil were replaced as needed. A lattice work of 1" boards was attached to the vigas with nails and tin strips. Over the lattice work 3/8" plywood was laid and PVC (20 mil) was glued to it and the parapet. Over these three 2-inch layers of cement were spread and they were topped by a two-inch layer of soil.

Reference to drawing:

Work authorized by Archeologist

Date work started: April 27, 1972

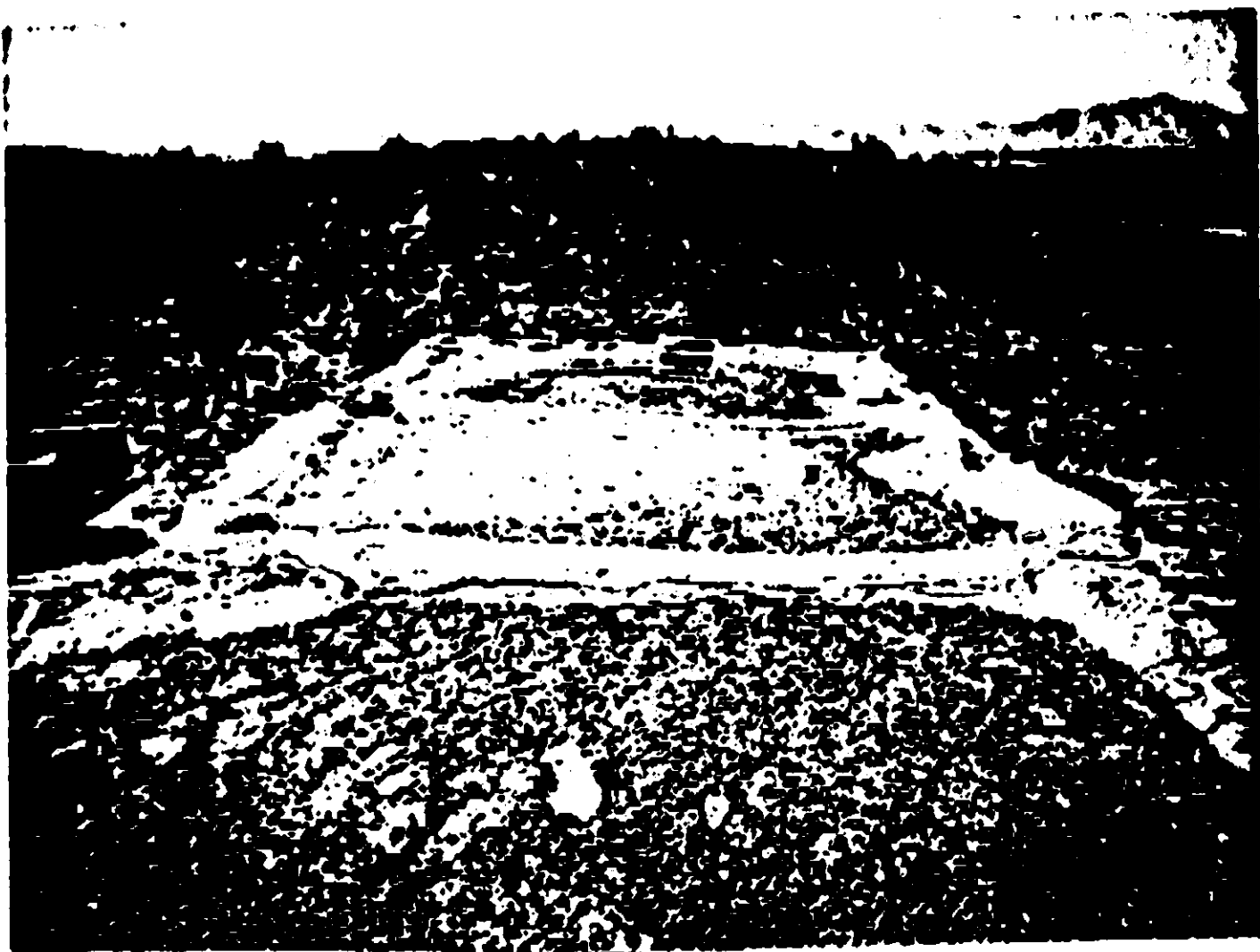
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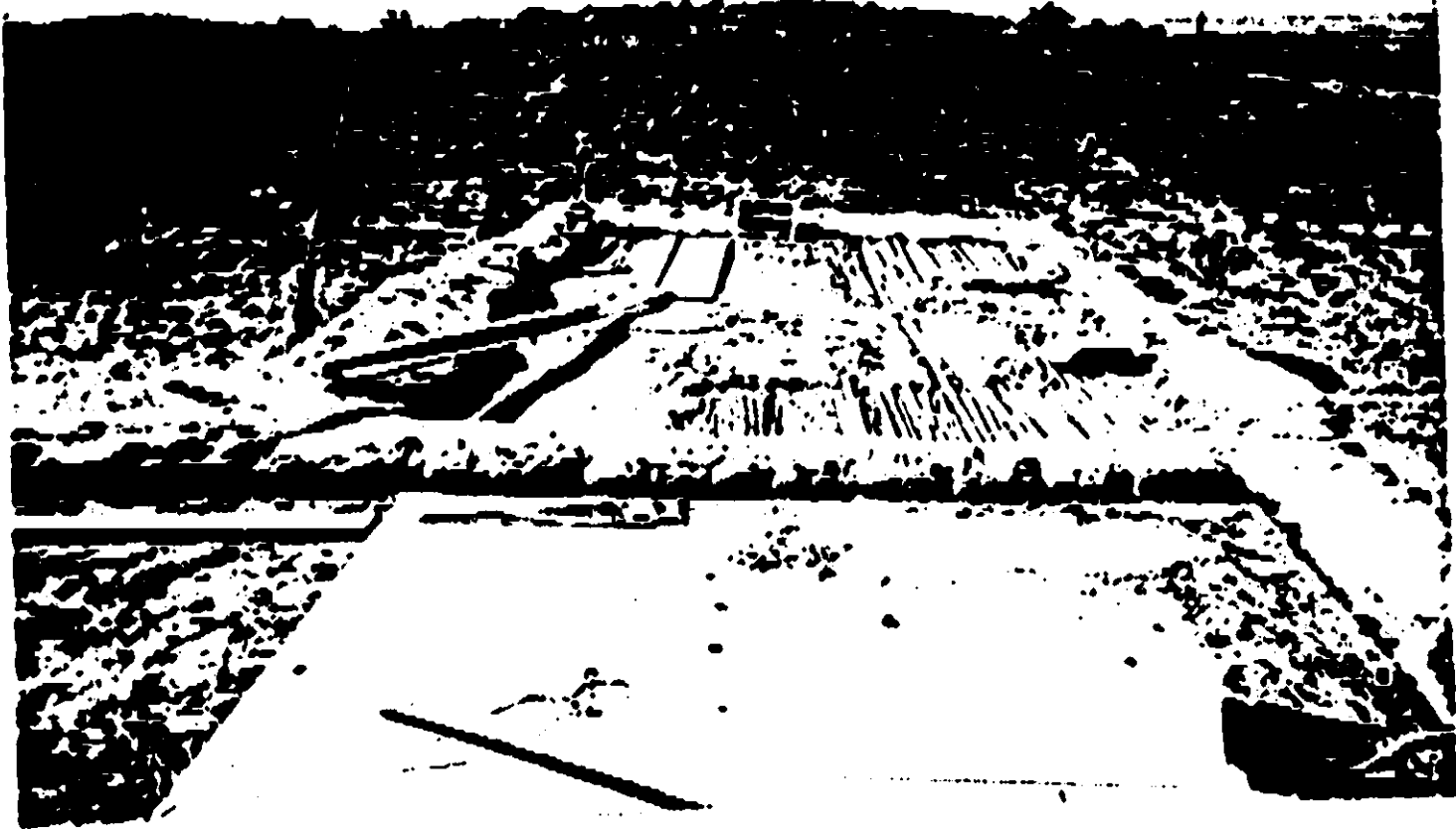
Date work finished: May 11, 1972

(Note: Place "before" and "after" pictures on blank bond sheets, caption, and keep with these record sheets. Include "during" pictures to show interesting or important details or technique. Use additional sheets for any heading if necessary).

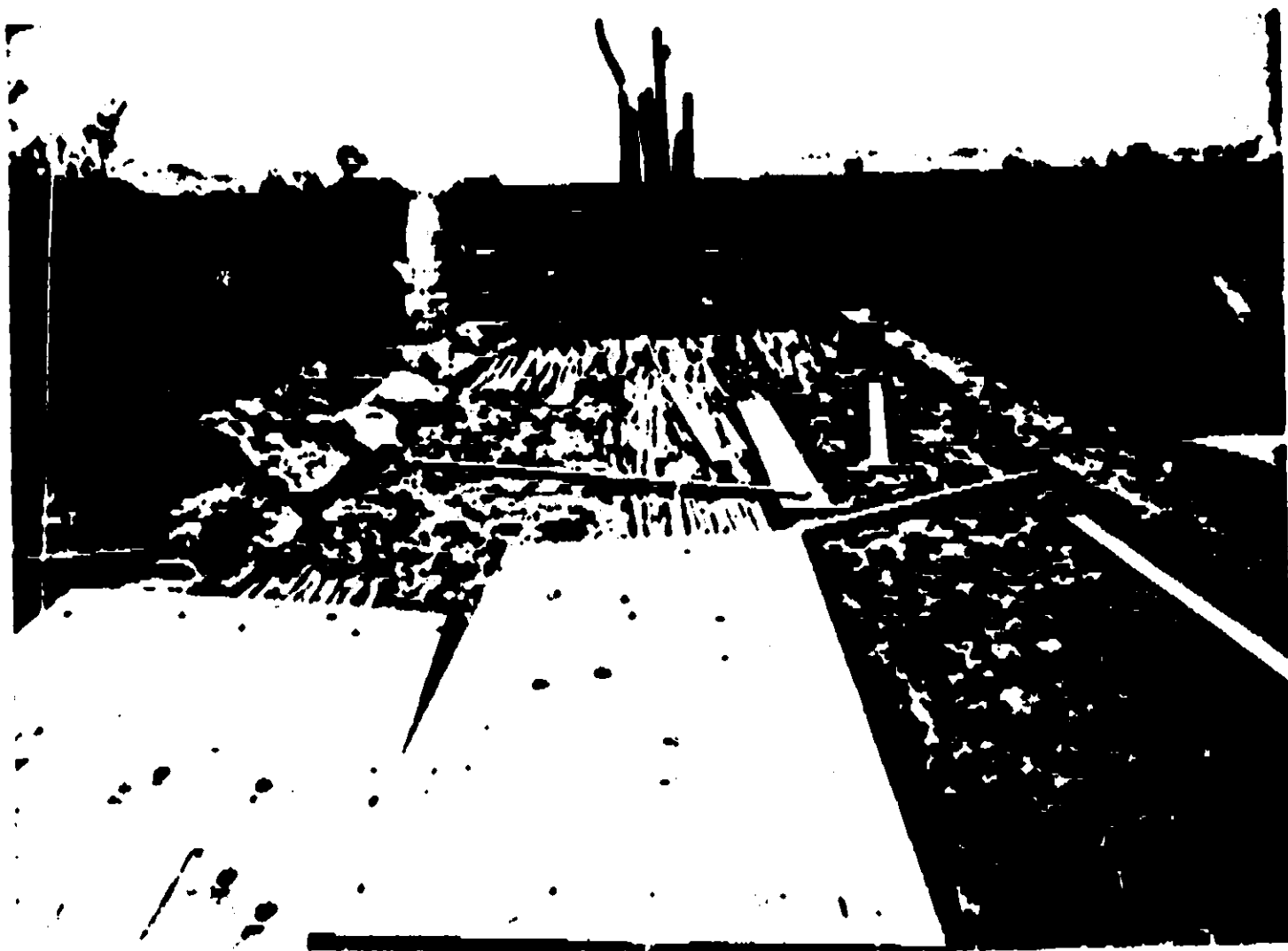


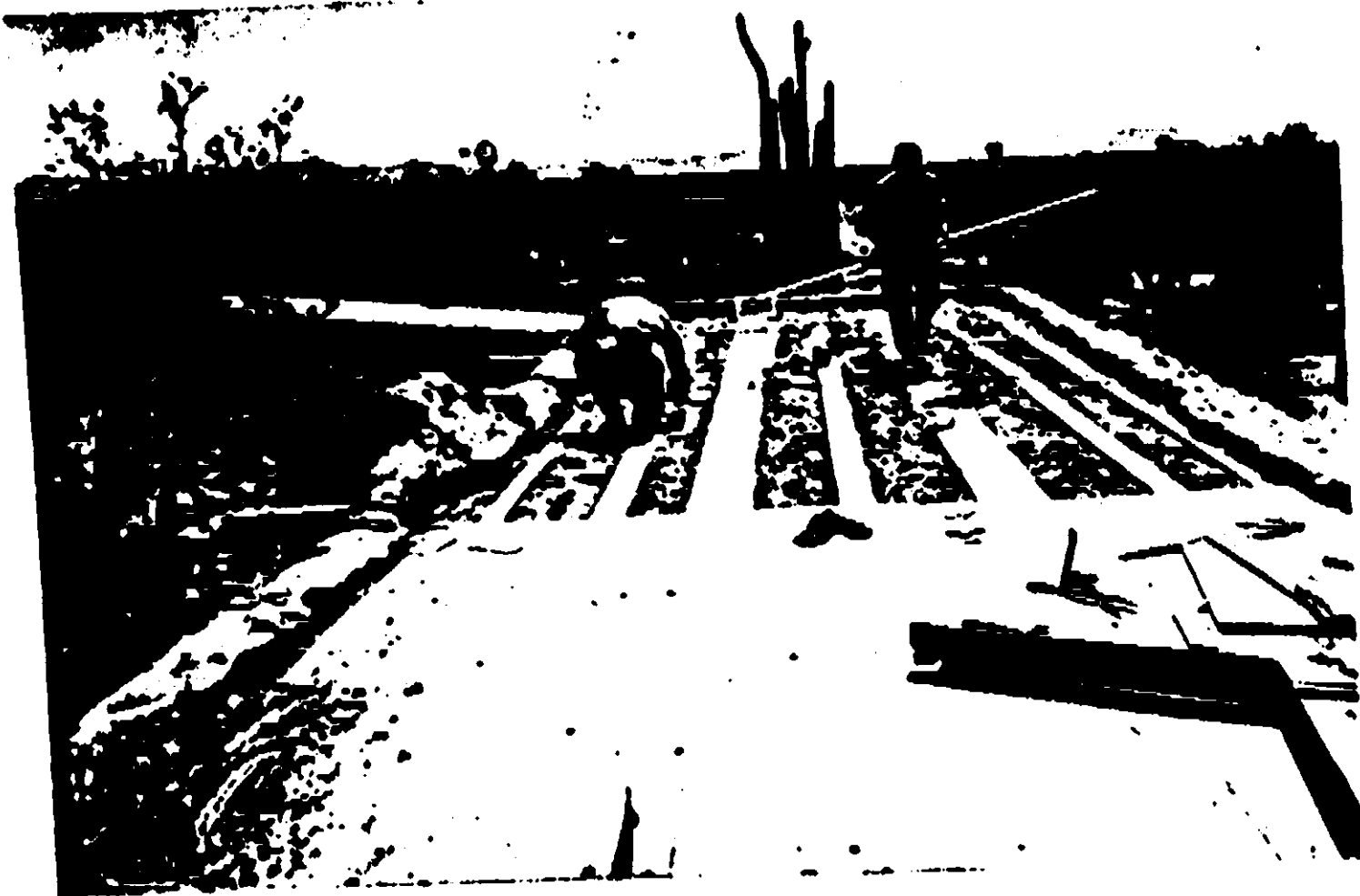
These two views of the ranch house roof show the deterioration of the concrete which once covered it.



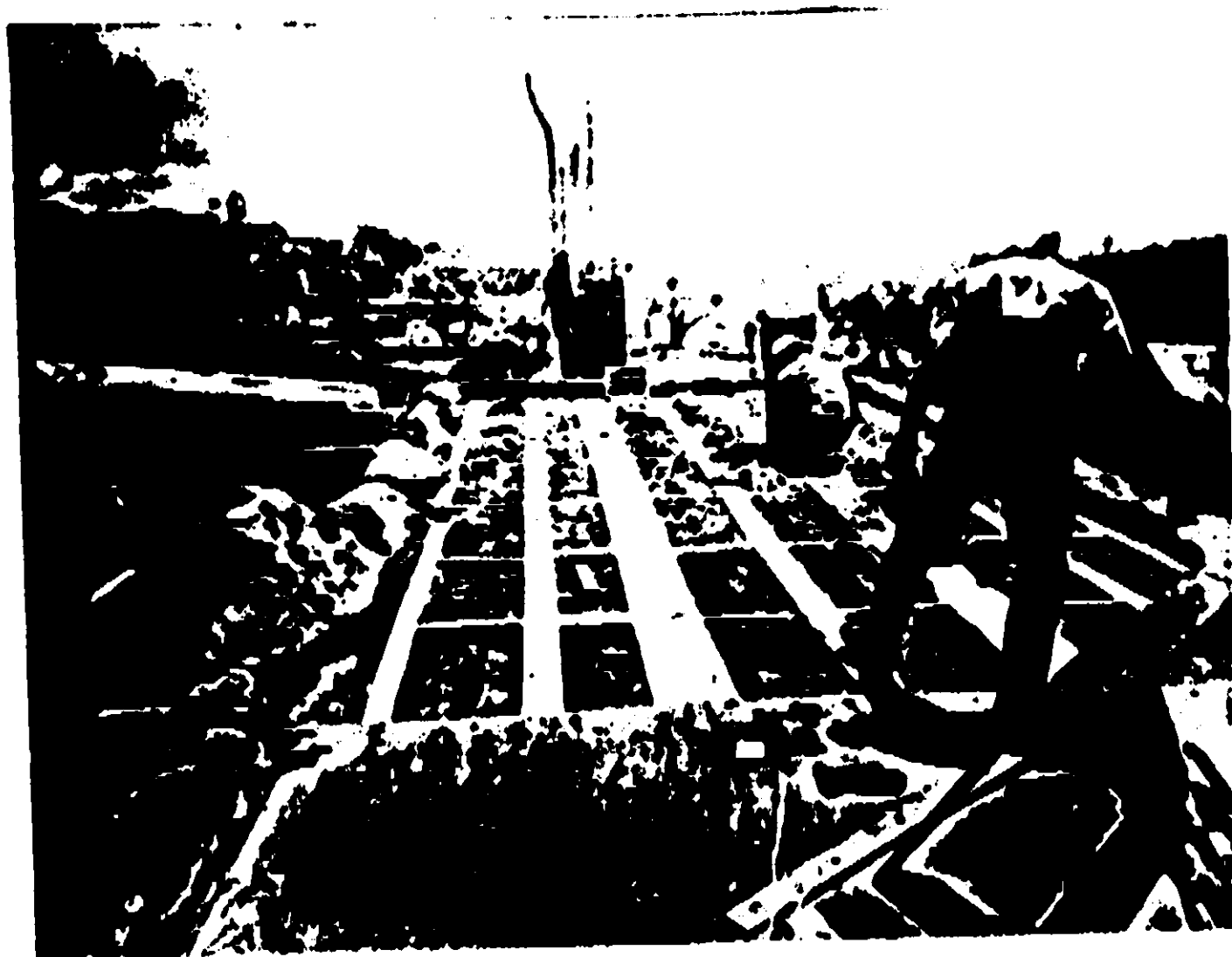


After the old roof surface was removed, some of the Sugarcane rib latillas which had decayed because of roof leaks were replaced.



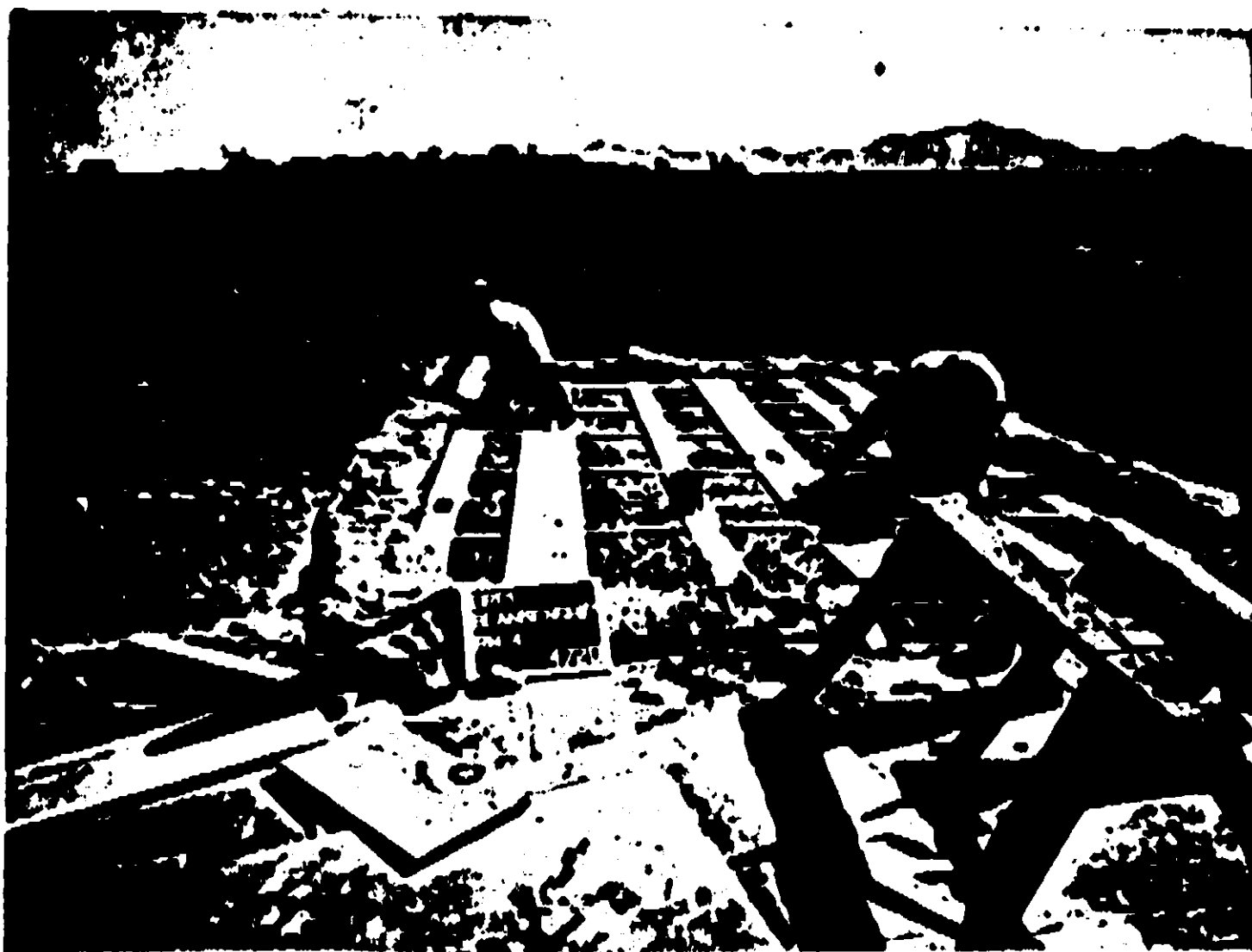


A lattice work was constructed on the roof after the old surface was removed. Nails and tin strips were used in securing it to itself and to the vigas below.



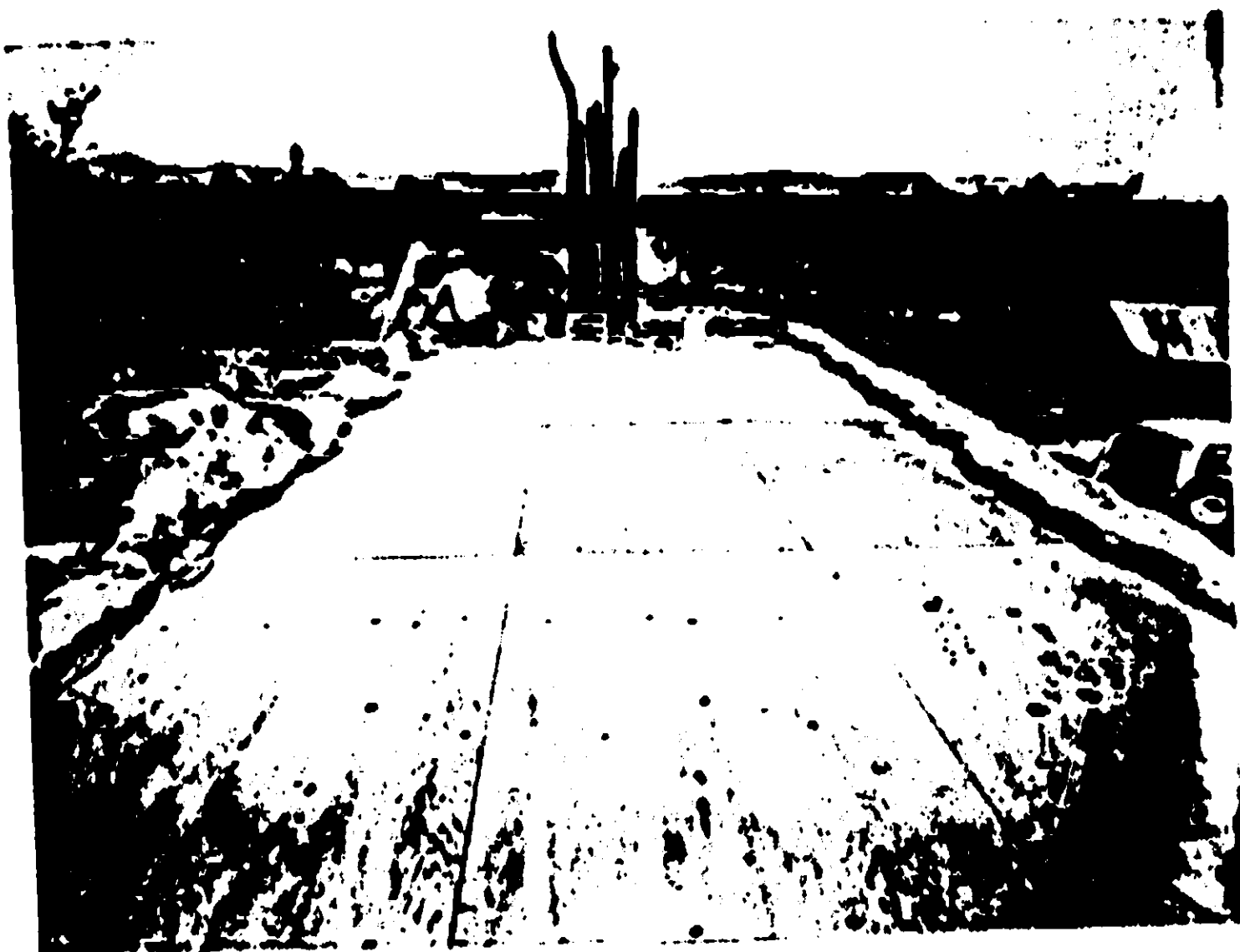


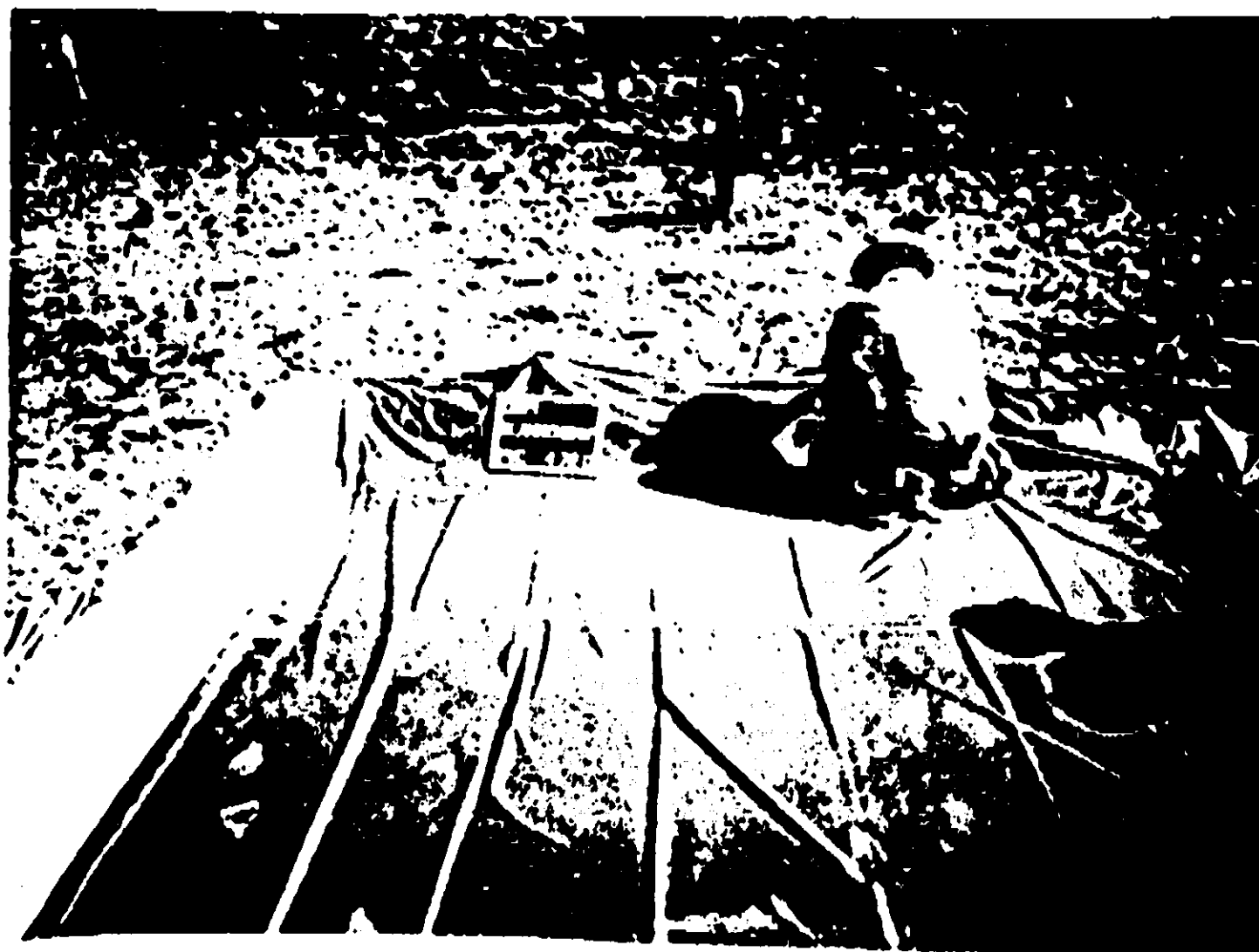
The lattice base formed a rigid foundation over which
to apply 1/8" plywood.
3/2'





After the plywood was laid and pinned to the lattice,
the perimeter was sealed to the parapet with cement.





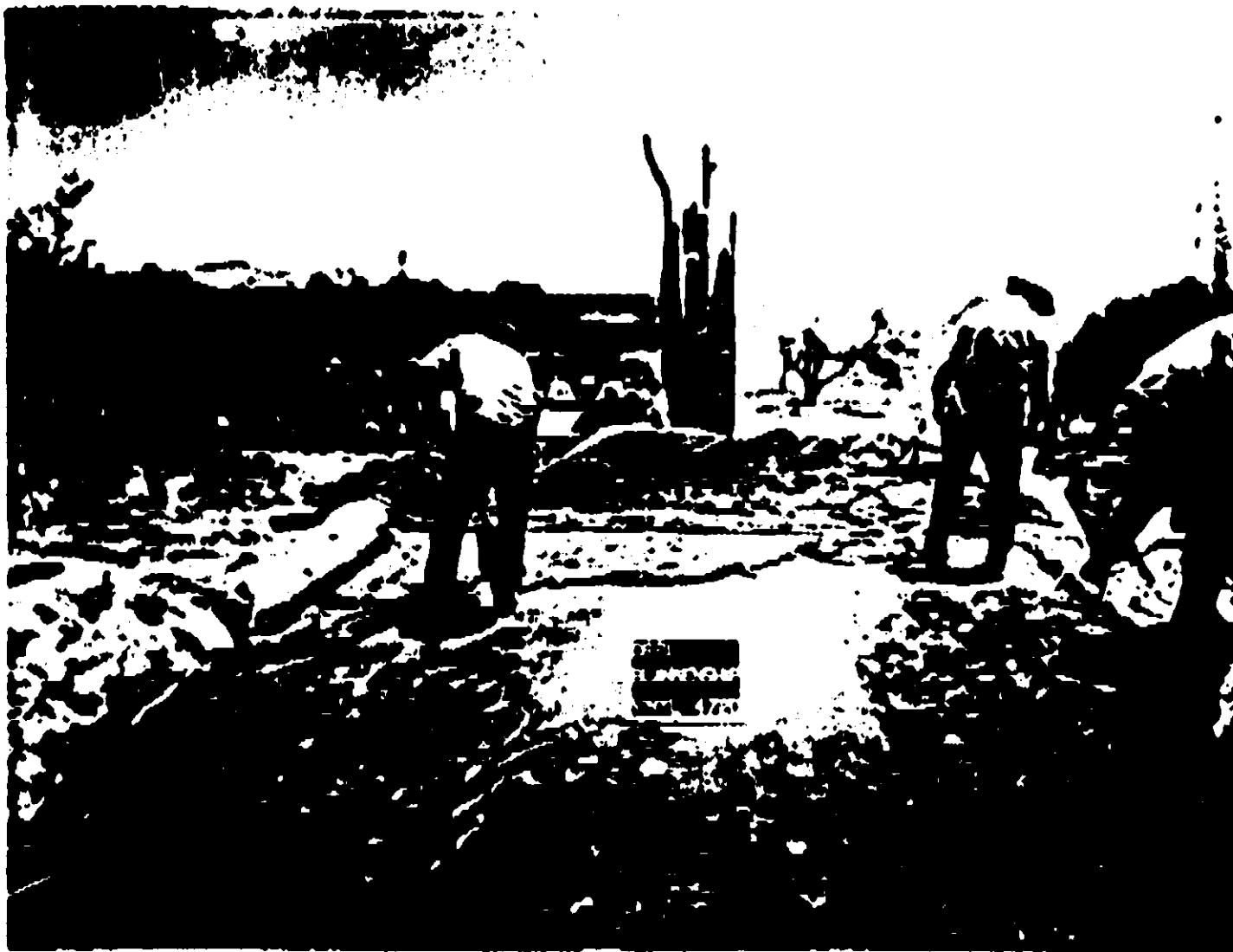
20 mil PVC was fitted to the plywood surface and glued to the parapet.





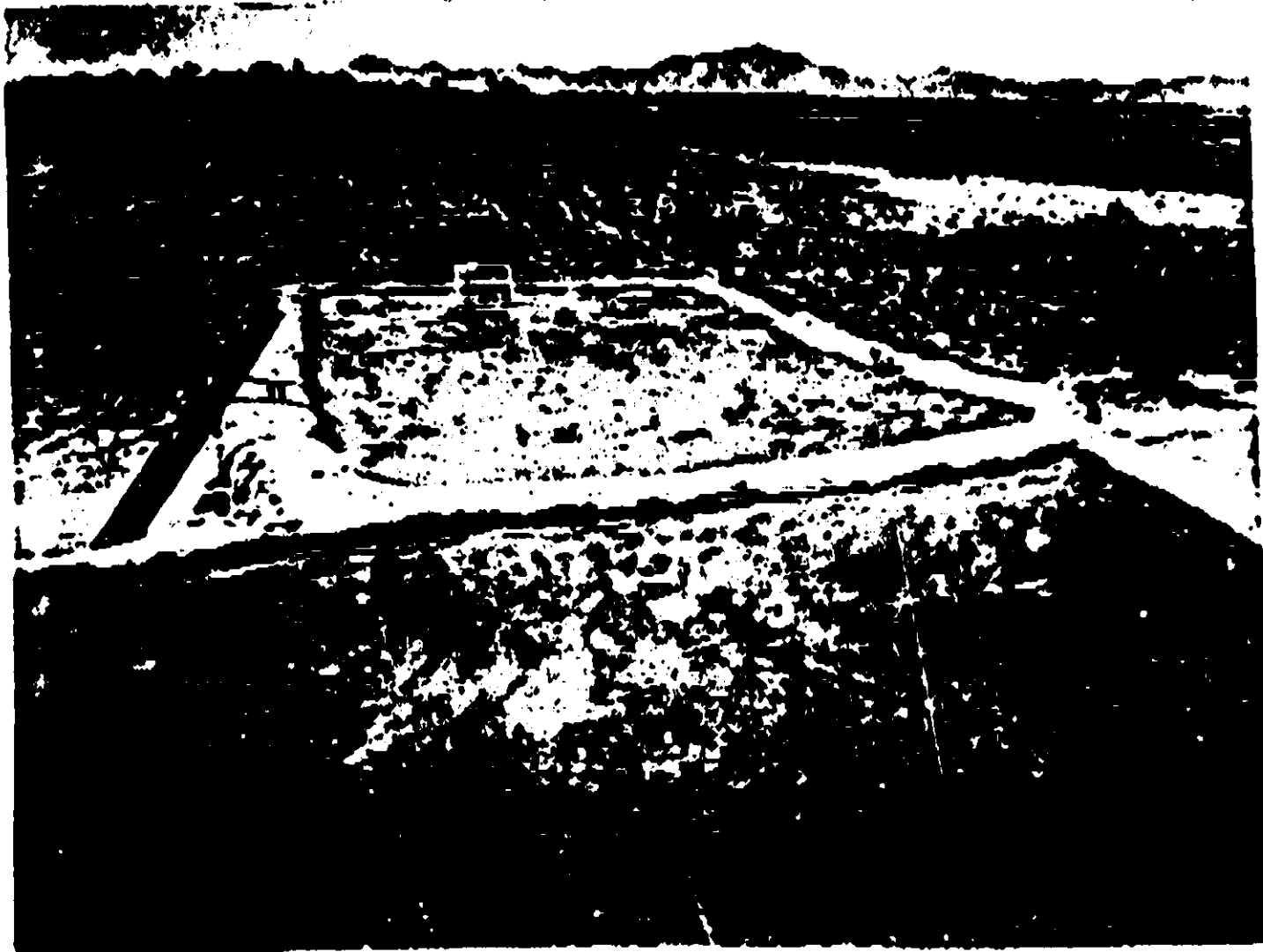
Soil cement was applied over the PVC vapor barrier to protect from sunlight and wind.





Black plastic was used to slow the drying and help prevent the soil cement from cracking.





This view shows the roof after receiving its final coat of soil cement. A layer of ordinary soil, two inches thick, was placed over the soil cement surface in order to retard its deterioration.