

HISTORIC AMERICAN ENGINEERING RECORD

OCEAN MINE NUMBER ONE COMPLEX:
POWERHOUSE AND VENTILATION FAN
(HAER NO. MD-)

Prepared by

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Newark, Delaware

September 1989

HISTORIC AMERICAN ENGINEERING RECORD

OCEAN COAL MINE NUMBER ONE:
POWERHOUSE AND VENTILATION FAN

HAER No. MD-

Location: East and West Sides of Route 36
Midland Vicinity
Allegany County
Maryland

UTM (Powerhouse): Zone 17. E 676750 N 4384650
UTM (Ventilation Fan): Zone 17. E 676520 N 4384840
USGS Quad: Lonaconing, Maryland - West Virginia

Dates of Construction: Powerhouse: circa 1900
Ventilation Fan: circa 1940

Present Owner: Maryland Coal & Realty Company
Hope Road & Depot Street
Frostburg, Maryland 21532

Present Use: Vacant

Significance: The Ocean Mine Number One Ventilation Fan and Powerhouse are among the few structures remaining from what was once the Consolidation Coal Company's Ocean Mine Number One complex. Together they represent important improvements in coal mine safety and efficiency. They are also significant as reflections of the last wave of capital improvements in tunnel mining before the industry shift to surface, pit, and strip coal mining. The belt-driven Aerodyne-type fan sat above a brick-lined vertical mine entrance where it could force air into the mines below. The powerhouse was erected as a shop for the manufacture, repair, and transportation of ore carts for use in the mine.

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Coal Mine Site

Ocean Mine Number 1, located at Ocean, on the east side of the George's Creek, began coal mining operations in the mid-nineteenth century. The mine was originally one of the holdings of the Ocean Steam Coal Company, which was organized in the 1850s by William Aspinwall, a steamship line magnate. In 1860, the Ocean Steam Coal Company was absorbed by the Consolidation Coal Company, a firm Aspinwall helped to create. Consolidation Coal Company continued to operate Ocean Mine Number 1 until the 1940s, when they sold it to the Maryland Coal & Realty Co.¹

The mine itself worked the Pittsburg or Big Vein coal seam and was developed on the double entry system. Its original slope opening was closed and paved over sometime in the late 1970s. In the early 1900s, the coal was mined by pick, blasted by powder, and gathered and hauled to a side track in the interior by horses. It was then conveyed to the bottom of the slope and hoisted to the outside, where it was loaded onto railroad cars and transported via the Cumberland and Pennsylvania Railroad.²

The ventilation fan and powerhouse are among the few structures that remain on the Ocean Mine Number 1 site. Located approximately 0.1 mile apart and adjacent to the mine entrance, the fan and powerhouse represent at least two major periods in coal mining operations at the site. The present configuration of the Aerodyne-type fan was installed circa 1940 at a total cost of \$4434.33. The fan was driven by belts run from an older stationary engine mounted on a welded metal platform immediately to the west of the fan. The fan sat at a bricklined vertical entry to the mine, where it could force air into the mine "rooms" below. The existing fan, which represented a significant improvement in mine ventilation, was a rarity in the coal country of western Maryland. The ventilation fan at Ocean Mine Number One appears to have replaced an earlier ventilation system. The exact technology of the earlier system is unknown due to lack of period documentation and the ruinous condition of the associated masonry work.

Because there are no surviving documentary descriptions or pictorial representations of the fan, the exact nature of its mechanical relationship to

the mine is unknown. The paucity of information is compounded by the lack of oral histories related to the site as well as the fact that the mine itself is sealed shut.

The exact functions of the powerhouse remain in question due to the same circumstances encountered at the ventilator fan: lack of period documentation and the gutted and deteriorated condition of the structure. The powerhouse incorporates two major twentieth-century construction periods and elements of an earlier, possibly nineteenth-century structure.

The first section to be built was the present south wing. This open plan brick structure was erected as a shop for the manufacture and repair of ore carts. Shortly after the construction of the cart shop, the building was extended to the north with the powerhouse wing, which contained the mechanical equipment necessary to haul ore carts in and out of the mine. The powerhouse appears to have no immediate functional connection to the ventilator fan approximately 0.1 mile to the north.

Together the Ocean Mine Number One Ventilation Fan and Powerhouse represent significant improvements in mine safety and efficiency. They are also significant as reflections of the last wave of capital improvements in tunnel mining before the industry shift to surface, pit, and strip mining.

Powerhouse

The powerhouse is set on the west side of Route 36 and embanked into the side of the road. A dirt lane runs along the west elevation of the building and provided access into the various entry bays. On the opposite side of the lane the terrain slopes sharply down to a small creek, which is largely embanked with coal mining debris. Further along the west side of the public road are a series of stone retaining walls laid in roughly coursed ashlar and seemingly related to earlier structures on the site. This is particularly important in light of the section of dressed ashlar wall in the east elevation of the north wing.

The entire building measures 142 feet in length and consists of two brick sections joined at an approximate 40 degree angle. The south wing is rectangular and measures approximately 44 by 76 feet. The trapezoid-shaped

north wing measures 35 by 85 feet at its longest dimension. At its north end, the building's gable fronts onto a large open-air storage area, where the coal was loaded for transporting onward. Also off the northeast end of the building is a section of railroad tie cribbing that has no clear function in terms of the surviving structure. Because this tie structure is ruinous, it is difficult to determine what its function is, other than as a retaining wall for some sort of loading device.

The powerhouse may, in fact, consist of three construction periods. In the first period there was a stone wall building of indeterminate size. The section of coursed ashlar wall in the north wing is all that remains of this building. In the second period the main wing or current south section was built on. Both periods two and three appear to have occurred almost simultaneously and share a common roof which was built in one piece. The only real conclusive evidence for there being two periods in the construction of the brick segments of the building is the straight joint at the end buttress.

The south wing of the brick structure appears to be the original building and on the exterior consists of five bays defined by 1' 9 1/2" x 4" deep, stylistically unarticulated pilasters. The downslope elevation is laid in common bond with an irregular ratio of headers to stretchers. The bond pattern ranges between five- and seven-course. The top of the wall is finished with a two-course corbeled cornice composed of headers bringing the wall out flush to meet the pilasters. Above the corbeled cornice the wall rises an additional four courses in stretcher bond. All masonry is laid in a coarse, sand-textured mortar finished with simple joints.

The west elevation retains all of its original openings except in the southernmost bay, which has been broken out for the admittance of wheeled vehicles. There are two categories of openings in the west elevation as reflected in the plan. Three of the openings are broad windows divided into two sections of sash, while one single-sash opening consists of the door adjacent to one of the pilasters and a window to the south. All window openings and the door opening are capped with two-course, segmental, header arches. All the windows are further finished with granite or weathered concrete sills. Each opening is enframed as noted in the plan, with windows

set in 4 1/2" from the brick surface and the door frame set in 2 1/2" from the wall surface. The door frame is finished with 1 3/4" architraves with a milled cyma molding. All openings additionally possess a segmentally cut wood head filling the area between the top of the architrave and the underside of the arch.

The roof of the structure is covered with corrugated metal nailed to diagonally set subroofing. At the top of the roof are two clerestories to provide light to the interior of the structure. Also of note is the original south gable, which is parapeted and stepped with six steps on each slope of the gable, the top-most step being shared with the opposite gable. It also appears that each of the parapets was capped with a thin concrete slab.

In the center of this wing is a small open forge. This forge is built on a brick foundation with a dressed work area. The flue turns back from the mouth of the forge at a sharp angle, and there are ring staples driven into the primary elevation or east side of the structure. Adjacent to the forge at a distance of roughly 8" is a heavy stone foundation (as indicated in the plan and photograph # 9). This appears to have been a machine mount, although the nature of the machinery is unknown. The flooring around both of these areas is of herringbone machine-pressed brick which appears to be original (or installed shortly after the construction of the building. The brick is laid directly on grade with no mortar or other visible fill. The interior also contains numerous fittings irregularly set throughout the hall. These are in large part covered with gravel, dirt, straw, and debris from the conversion of the building into a garage and maintenance shed. The only other fixtures inside the building of note are a run of overhead line shafting, consisting of a single axle on which are mounted three belt wheels, and a series of three wood blocks mounted in the iron roof trusses, which carry porcelain insulators related to the electrification of the structure.

Within the northwest corner of the structure is a small, roofed, brick compartment termed a "sand house" with a single door in the south end facing the far south gable and a loading hatch in the area fronting onto an access bay cut through the original gable end wall. This small structure is built of roughly coursed brick (possibly reused) laid in common bond. The joint

between the compartment and the main fabric of the structure is achieved by furring in one of the internal brick pilasters with a straight joint of unevenly coursed brick masonry. The entire interior of this compartment is roughcast directly on brick. A door at the north end of the compartment leads from the gable end of the main structure into the north section of the building.

Facing into the interior of the south wing is a small balloon-framed compartment in the same north gable of the building as the aforementioned brick compartment. The balloon-framed compartment is built on 2" x 4" studs, spaced 1' 7 1/2" apart on 1' 10 3/4" centers. The exterior of this compartment is sheathed with milled vertical board. The vertical boards have no ornamented edges and range in size from 6" to 12" in face. Around the openings fronting into the main hall of the building are simply molded milled architraves. The cheek jambs consist of convex moldings flanked on either side by shallow cymas rising up to flat edges. The overall molding is 4 1/4" in face. The central element is 1 1/2" and each of the side sections are 1 3/8". The lintel for the architrave is a simple board nailed directly to the vertical siding and capped with a shallow drip molding. Over the door, the architrave used for the side surrounds continues overhead and is capped with a drip board, under which is a shallow quarter round bed molding. The interior of the framed compartment is composed of approximately 4" square timbers laid parallel with the ridge of the main building and sheathed with beaded edge and center matched board siding. In one quarter of the compartment is a later cupboard apparently composed of scrap packing wood. The finish details in this area suggest its earlier use as an office.

The north wing joins the south wing at an approximate 40 degree angle. It is also constructed of brick, laid in six-course common bond with simple mortar joints. Like the first period structure, this section is finished with a header, two-course corbeled cornice, 1' 9 1/2" x 4" deep pilasters, and two-course, segmental header arches. All of the additional trim as represented by surviving door and window architraves is identical to that in the original building. One major alteration to this wing is in the form of a low brick shed which partially cuts through the central bay of the three-bay wing on the

west wall. The function of this shed appears to relate to either storage or the presence of a ruinous conveyer belt and shaking operation contained within the building. The shed and conveyer belt arrangement are clearly later additions. Disturbances in the original building indicate that both were installed after the conversion of the building from its purpose as a power station for the ventilation fan. The north wing also possesses a clerestory atop the shallow gable roof, which, like the roof of the original building, is covered with diagonally set subroofing sheathed with corrugated metal. The clerestory is composed of a four-bay arrangement, each bay containing a 12-light section of sash. The wood sash is four lights broad by three lights high. The clerestory roof echoes the pitch of the roof of the main structure and is clad on the exterior with corrugated metal siding.

Both sections of the building possess roofs that are carried on an iron truss system. Across the backs of the trusses in the north wing are laid five purlins in each face in addition to a ridge board and a plate. The diagonally set subroofing is nailed directly to these purlins, the ridge pole, and plate. The roof system in the earlier south wing is composed of three full metal trusses, which are cross-braced with horizontal and diagonal struts. At the north gable end, the roof was carried on a simple timber rafter laid directly atop the brick wall. The end rafter has decayed and collapsed the roof and, consequently, a large section of the northwestern gable wall. At the southern end of the later north wing, the roof truss is also of iron but is designed to meet the trusses in the adjacent original building. In the south wing, there are five sets of cast iron roof trusses. These include the iron gable truss into which the diagonally set truss of the wing is joined. As in the north wing, the end truss, or the south gable, is of timber frame. The roof here is supported on six purlins in each elevation of the roof as well as a ridge board and plate. From the interior the clerestories are finished with four-bay, side elevations, each fitted out with a twelve-light sash--four lights across and three tall. Additionally, the clerestories are completely finished with board interiors. There are also three dormers across the embanked side of the original building. These dormers are six-over-six-light sash and finished on the interior with narrow flush set boards.

Interviews with the owner of the building and those living near the site indicate a series of uses over time. The south wing of the structure was built as a shop for the manufacture of ore carts and related coal mining machinery. The north wing was intended as the electric powerhouse for the coal mine and as a housing structure for the winch and gable mechanisms used for hauling ore carts in and out of the mine. In later years, the cable machinery was removed and the gutted structure reoutfitted with an ore washing and grading device. While there are currently no known historic graphic images or narrative descriptions of the structure, a 1915 photograph showing the powerhouse and coal tibble does survive (see photograph p.16).

Ventilation Fan

The Ventilation Fan, Ocean Mine Number One complex, is situated on the east side of route 36 and approximately 0.1 mile from the related power station and ore cart manufacturing shop. The ventilation fan and related features are located at the head of a vertical brick-lined shaft in a grove of second growth trees and brush. To the south of the fan housing and shaft are an extended series of excavated brick- and stone-lined channels below ground level that relate to earlier heat-driven draft ventilation systems. According to a 1943 Consolidation Coal Company inventory, the extant Ocean Mine ventilating system was installed circa 1940.³ There are currently no known historic photographs or graphic images of the structure.

The older stone-lined shaft, which predates the actual fan mechanism, appears to be all of one period, but consists of two major structural elements (see plan and section drawings of ventilation fan, p. 15). Below grade and adjacent to the blower itself is a slightly flaring stone channel constructed of roughly coursed and dressed field stone laid in even courses but without any apparent bonding. Due to extensive weathering, it is difficult to determine if the walls are dry-laid or were originally set in a coarse textured mortar. The shaft area contains the remnants of a brick pier and two-course segmental header arch of the sort identified in the related forge and powerhouse building. The brick section runs back to the brick-lined mine shaft and squares off to meet the form-cast concrete base supporting the

blower. This element of the structure relates to an earlier ventilation system.

The second major element represents a narrowing in the below-grade passage to the mine shaft. This section is constructed of stone quoined with heavy dressed blocks and roughly coursed on the interior with rubble. The interior face of the area was entirely sheathed or cased with brick laid in an eight-course common bond. In addition to the masonry lining, the ends of several iron anchors extend into a 5 1/2" deep x 9" tall brick channel inside the channel. The bolts appear to have held some additional structure for which there is no surviving evidence. Extending above ground and adjacent to this area are the ruinous remains of a short section of heavy stone wall that appears to have carried the base of a covering structure for this area. A very small fragment of this wall remains and is non-diagnostic.

Blower

The blower mechanism is approximately 36' long and consists of a flaring, open-ended vent. The vent proceeds to a right angle entering the top of the shaft at the edge of the stone and brick-lined channels to the south. The blower itself is constructed of 1/4" thick metal, either iron or steel, joined with bolted flanges in a series of segments. The resulting contour is one that flares from a broad mouth into a narrow throat and then back out again to a broad area at the head of the shaft. The flanges average 3" in depth and are 1/2" wide at the joint. In addition to the mouth of the blower, there are two other entries into the mechanism. The first of these contains the fan belts that run from an engine (now removed) mounted on a block to the propellor shaft in the throat of the blower. The second access is for maintenance and consists of a run of four treads, the bottom most being of cast concrete. The remaining three treads of steel grillwork rise up to a small 3'3" deep x 3' wide landing opening to an iron door in the area of the blower between the rear of the propellor blade and the head of the shaft. The fan belt housing is further distinguished by having a beveled floor leaning up into the blower and an open gable dormer composed of a completely unelaborated timber head covered with corrugated metal sheathing. The fan is identified by

three plaques mounted inside the blower mouth. The largest reads the "Jeffrey Mfg. Co., Columbus, Ohio, USA, AERODYNE FAN, U.S. Pat. Off. Patent Pending." The next plaque above it reads, "When ordering parts for this machine always give this number: 5945. The Jeffrey Mfg. Co., Columbus, Ohio, USA." The smallest plaque is an ownership plaque that reads "The Consolidation Coal Code. No. 4771, Class (left blank)."

The ventilation fan is a disc or axial-flow fan with a design similar to that of an airplane propellor.⁴ Its primary function was to force air directly into the mine shafts below. The purpose of ventilating coal mines was twofold: first, to remove powder smoke and noxious gases that might injure the health of the miners; and second, to remove toxic gases such as methane, which, if allowed to collect, would eventually form a dangerously explosive mixture with the air. Prior to the invention of the ventilation fan in 1851, furnaces designed to consume these gases were placed within the mine shaft.⁵

1. Maryland Historic Sites Inventory, Form # AL-VI-B-040, p. 5.
2. Annual report of the Mining Inspector of the State of Maryland, from May 1, 1915 to May 1, 1917, 70-72. Maryland Historic Sites Inventory, Form # AL-VI-B-040, p. 4.
3. Consolidation Coal Company, Inventory June 30, 1943. Records of Maryland Coal and Realty Company.
4. Maryland Historic Sites Inventory, Form # AL-VI-B-040, p. 4.
5. The Mining Catalog. Keystone Consolidated Publishing Company, 1923, p. 520.

Bibliography

Annual Report of the Mining Inspector of the State of Maryland, from May 1, 1915 to May 1, 1917, 73.

The Mining Catalog, 1923.

Phil Jenkins, oral interview by Bernard Herman, David Ames, and Gabrielle Lanier, June 1989.

Elmer Pifer and Jean Nichol, oral interview by Bernard Herman, David Ames, and Gabrielle Lanier, June 1989.

Mary Jo Price, Special Collections Librarian, Frostburg State College, telephone interview by Gabrielle Lanier, August 1989.

Betty Van Newkirk, Curator, Frostburg Museum, telephone interview by Gabrielle Lanier, August 1989.

GRAPHIC DOCUMENTATION

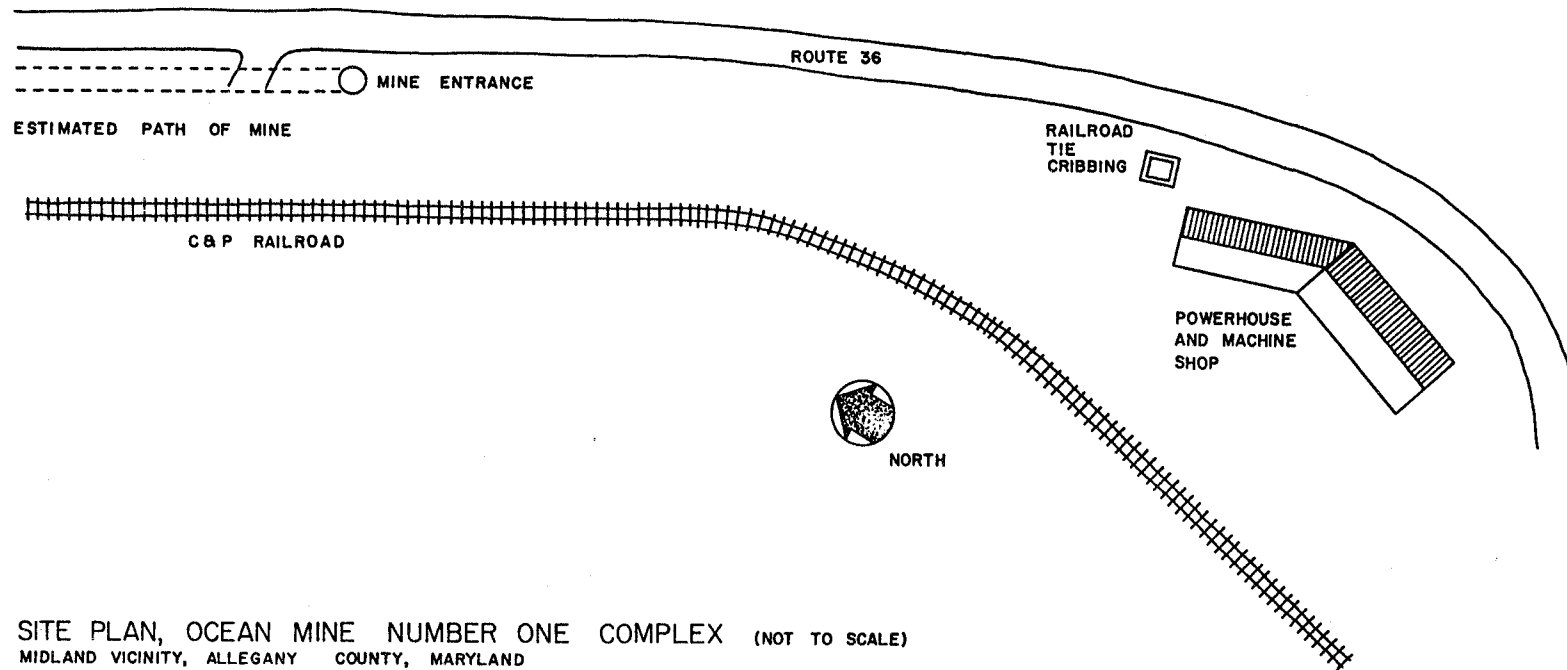
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MINE AREA

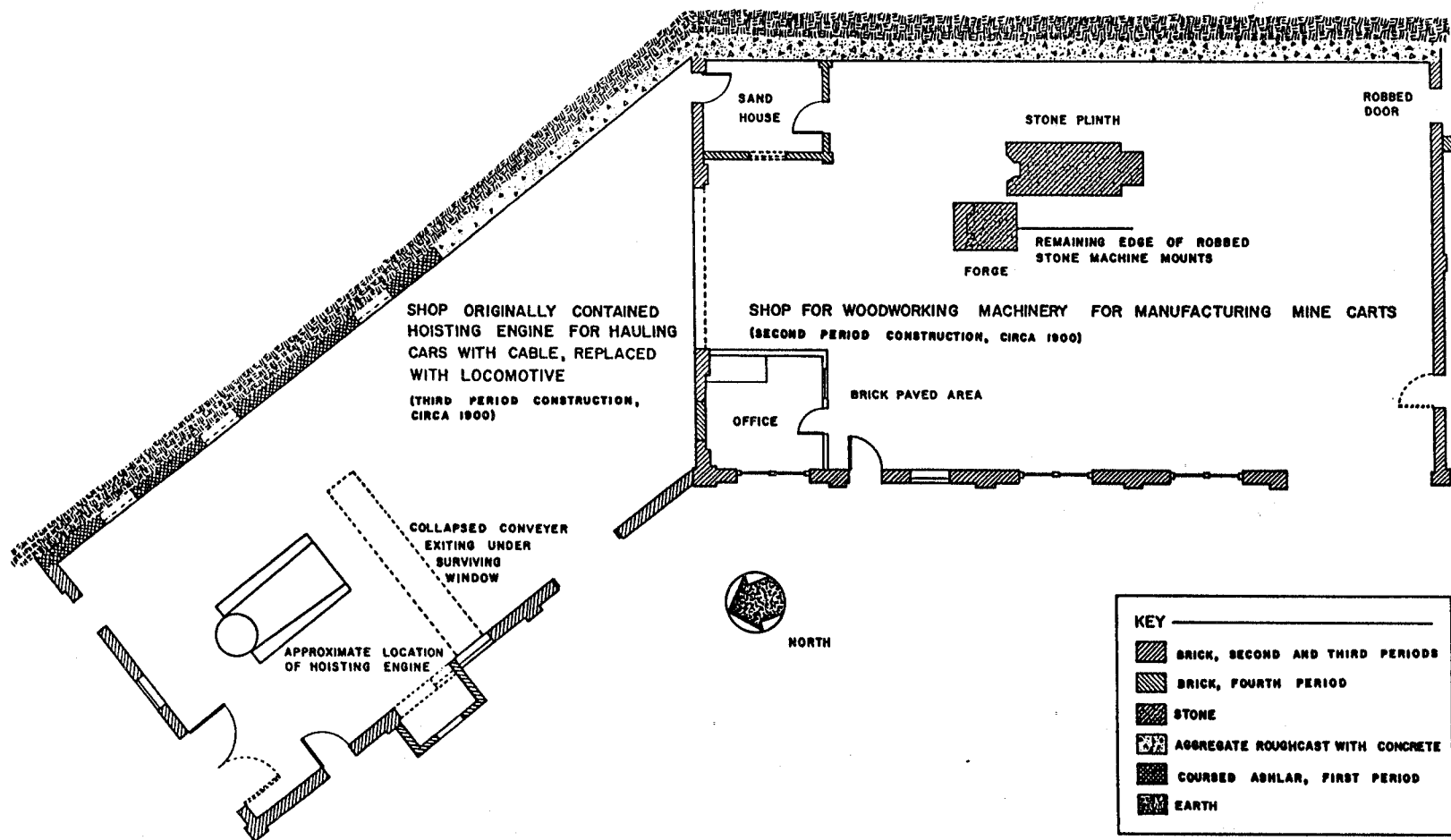


VENTILATOR FAN



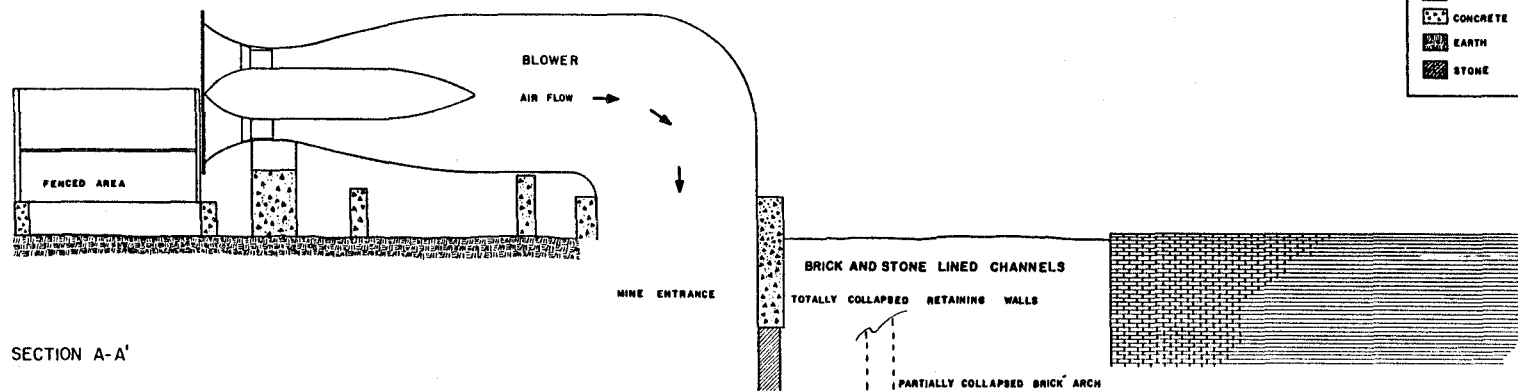
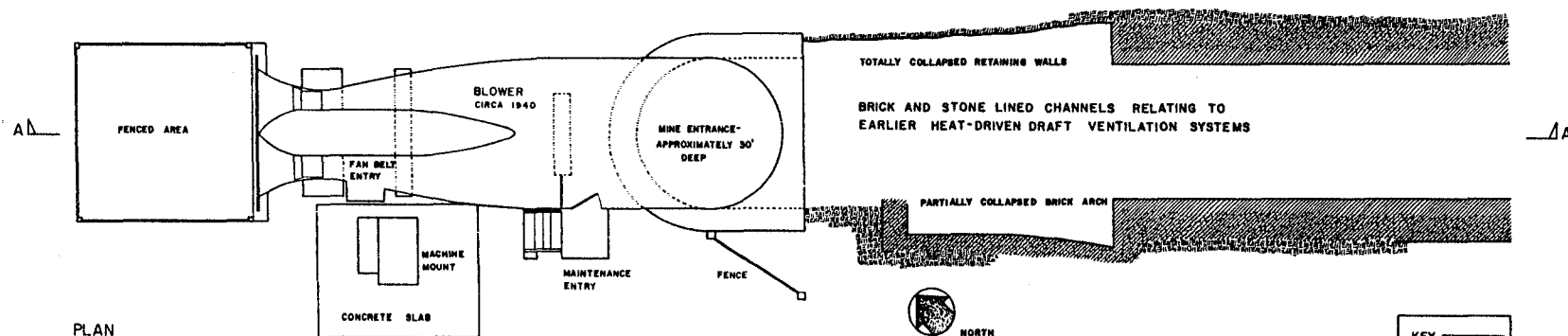
SITE PLAN, OCEAN MINE NUMBER ONE COMPLEX (NOT TO SCALE)
MIDLAND VICINITY, ALLEGANY COUNTY, MARYLAND

Ocean Mine Number One Complex
Powerhouse and Ventilation Fan
HAER No. MD-
(page 13)



POWERHOUSE, OCEAN MINE NUMBER ONE COMPLEX
MIDLAND VICINITY, ALLEGANY COUNTY, MARYLAND

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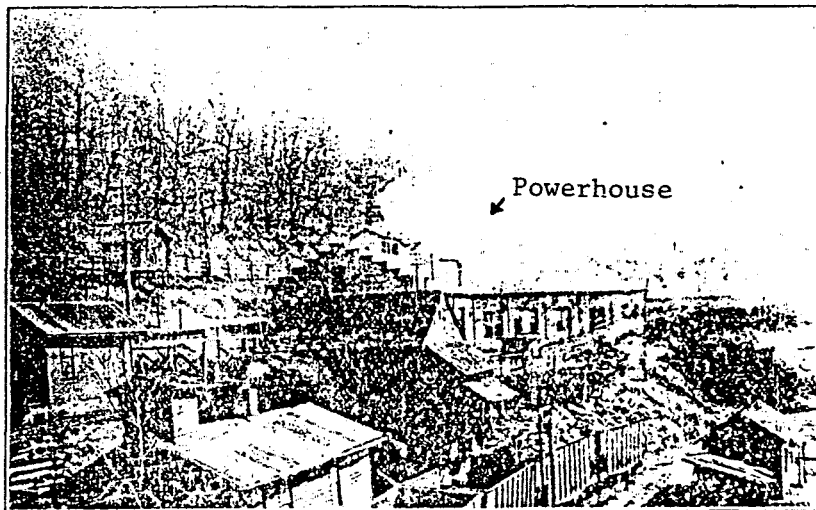


VENTILATION FAN, OCEAN MINE NUMBER ONE COMPLEX
MIDLAND VICINITY, ALLEGANY COUNTY, MARYLAND

Photograph of northwest side of powerhouse, from Annual Report of the Mining Inspector of the State of Maryland, from May 1, 1915 to May 1, 1917, p. 71.

MINE INSPECTOR'S ANNUAL REPORT, 1915-16.

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OUTSIDE VIEW OF POWER HOUSE AND TIPPLE AT MINE NO. 1-CONSOLIDATION
COAL CO.

PHOTOGRAPHS

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East and West Sides of Route 36
Midland Vicinity
Allegany County, Maryland

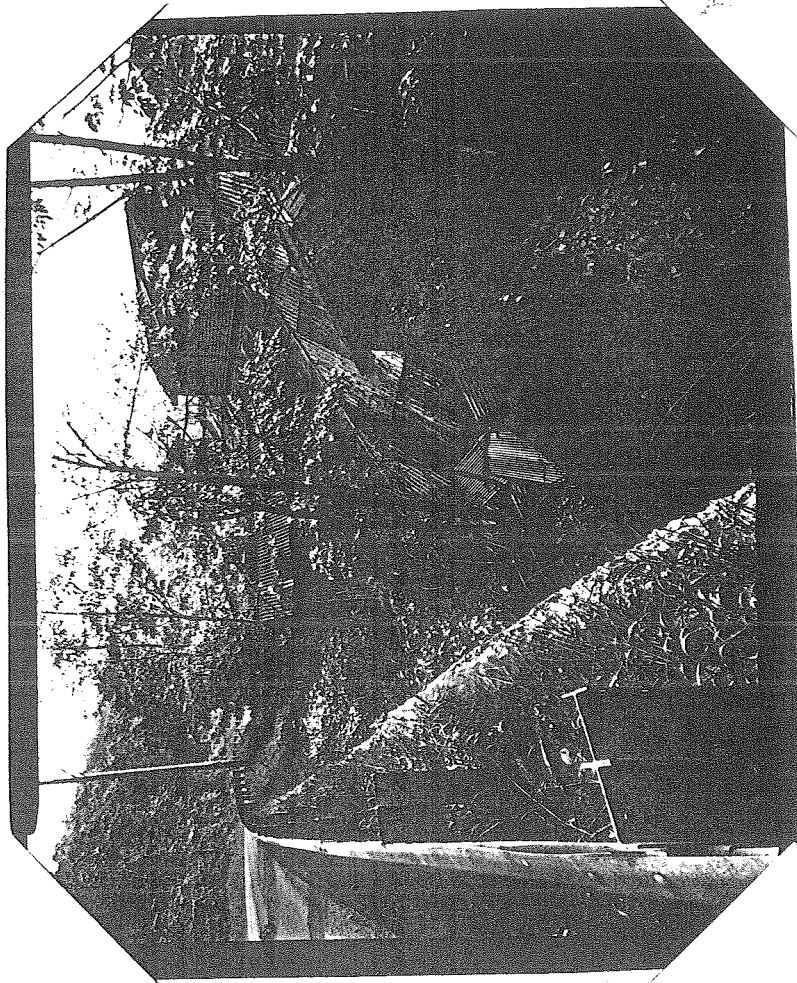
Photographer: David L. Ames

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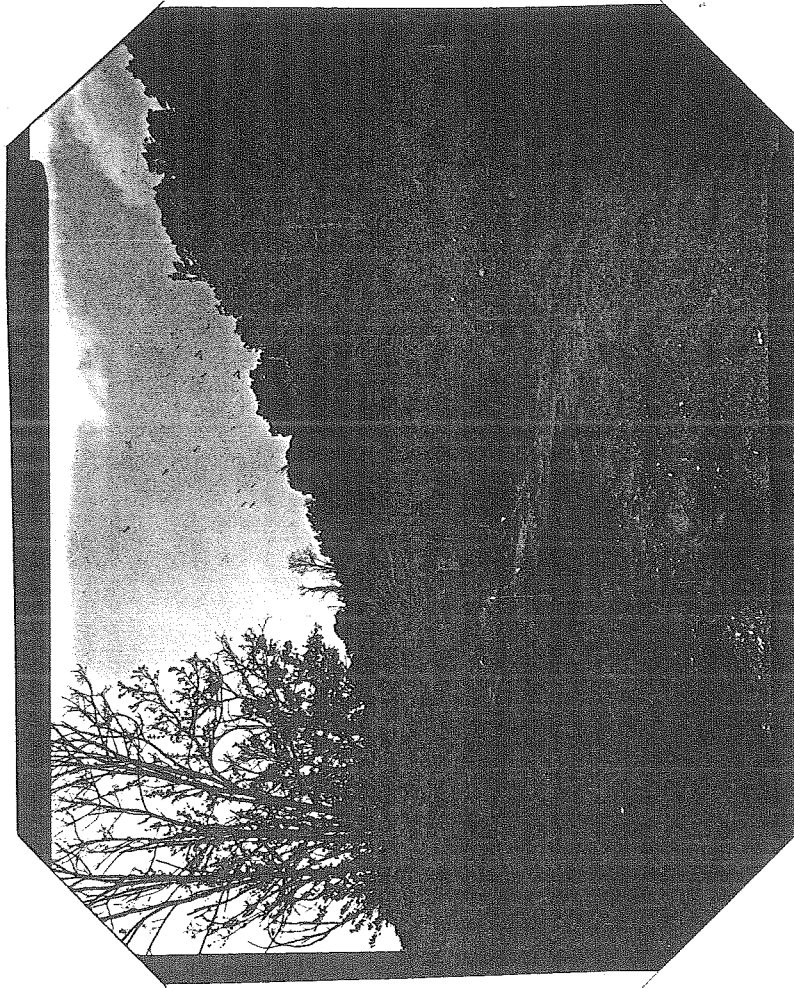
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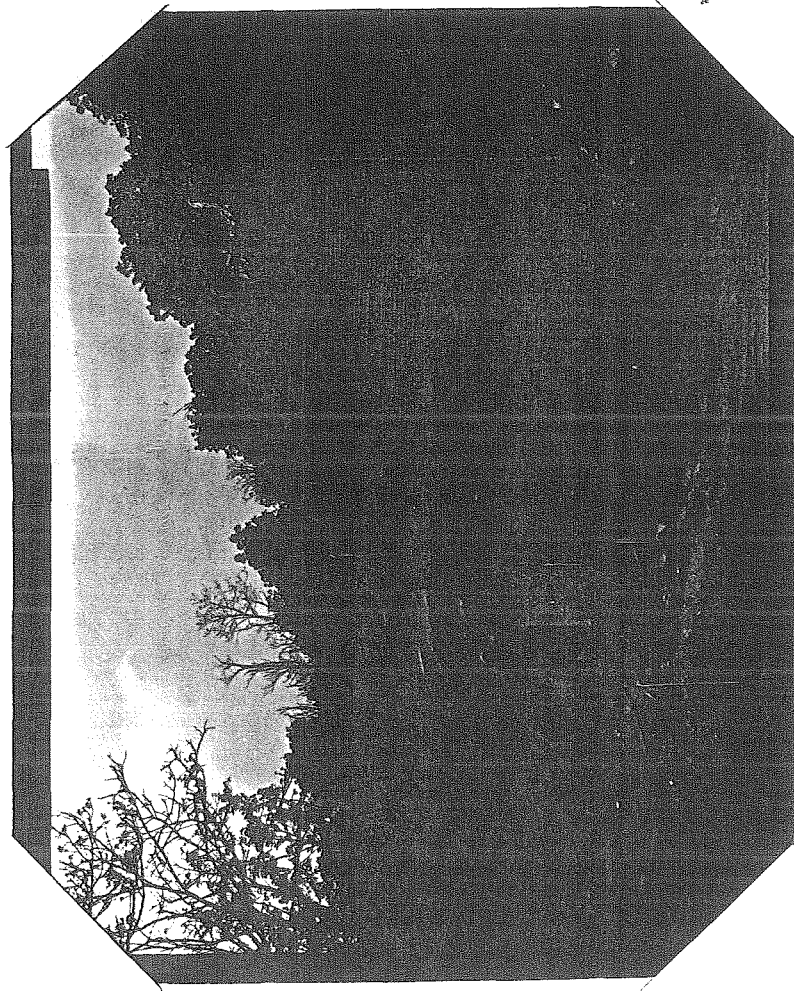
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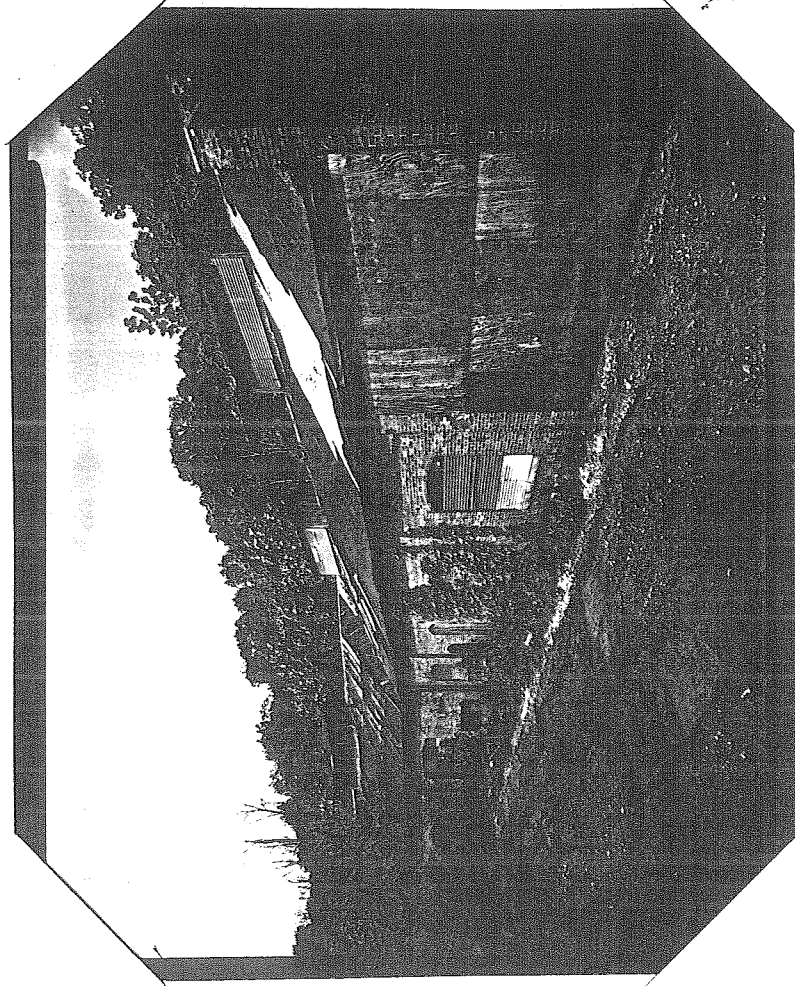
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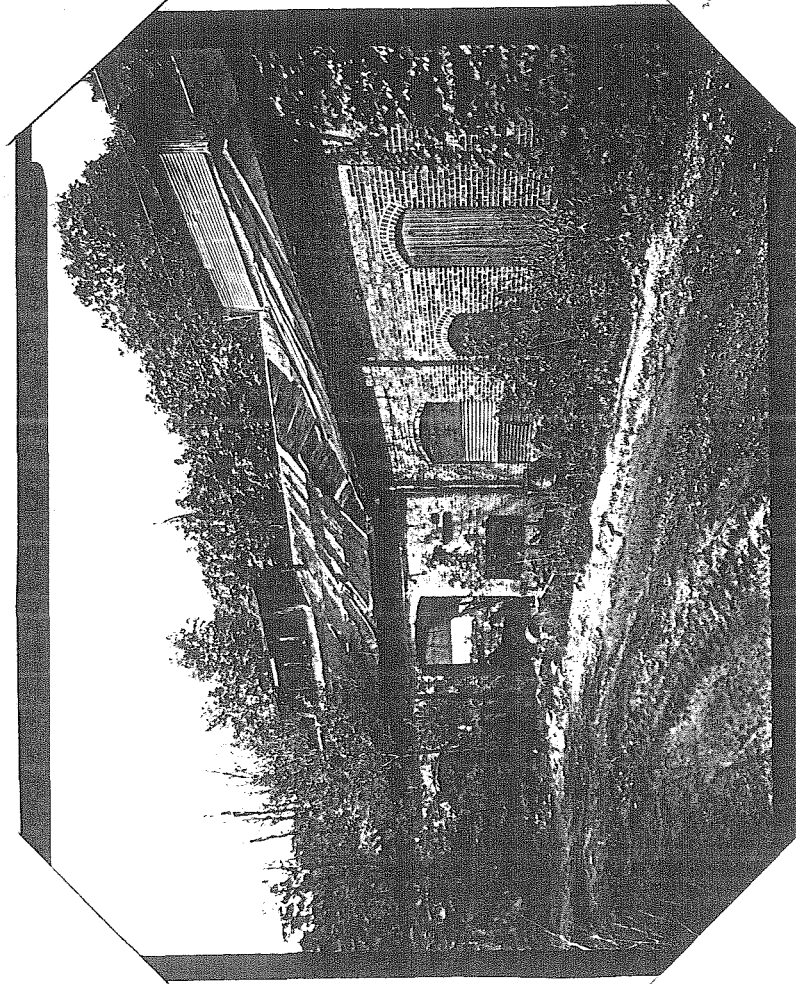
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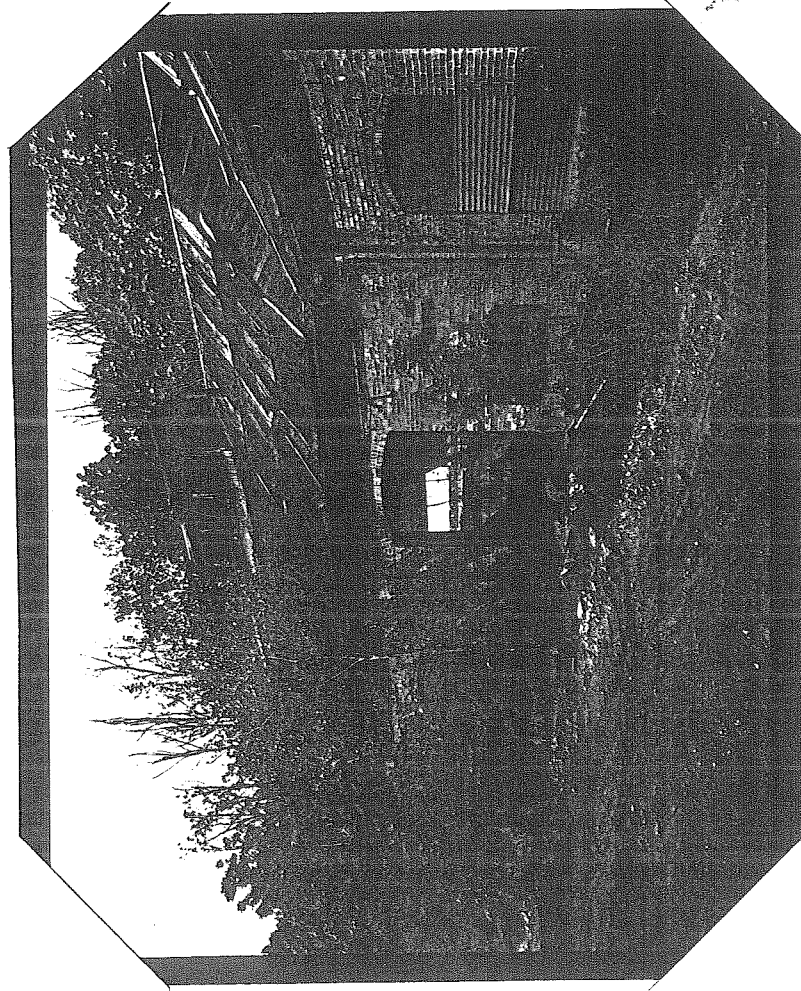
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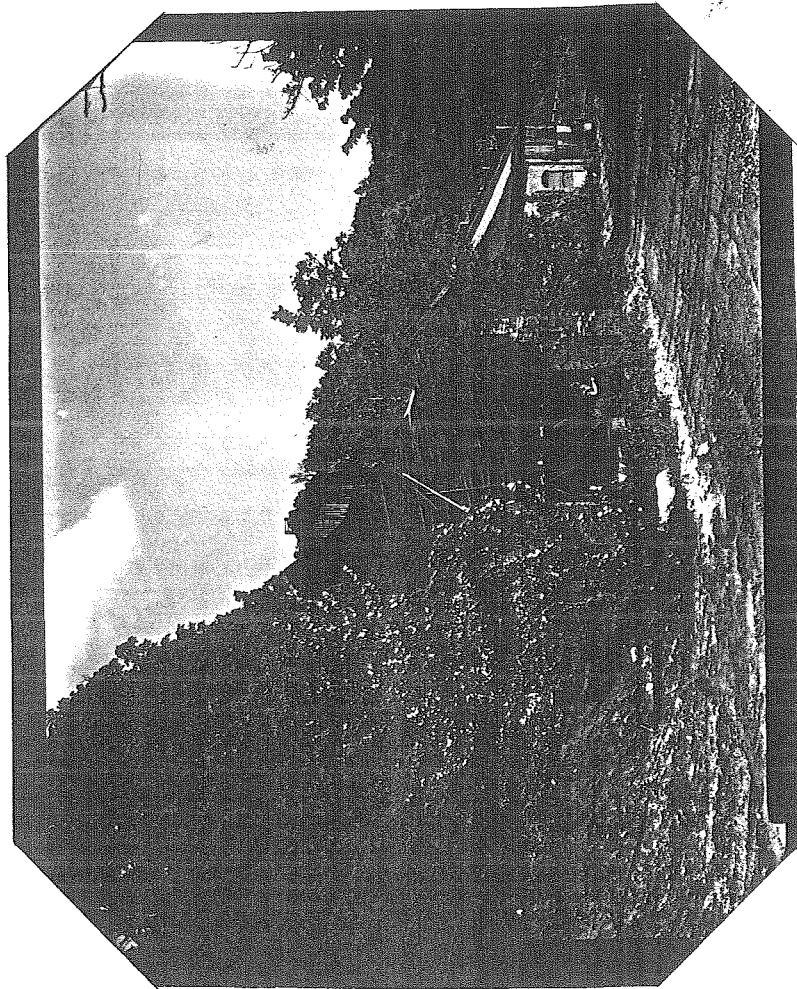
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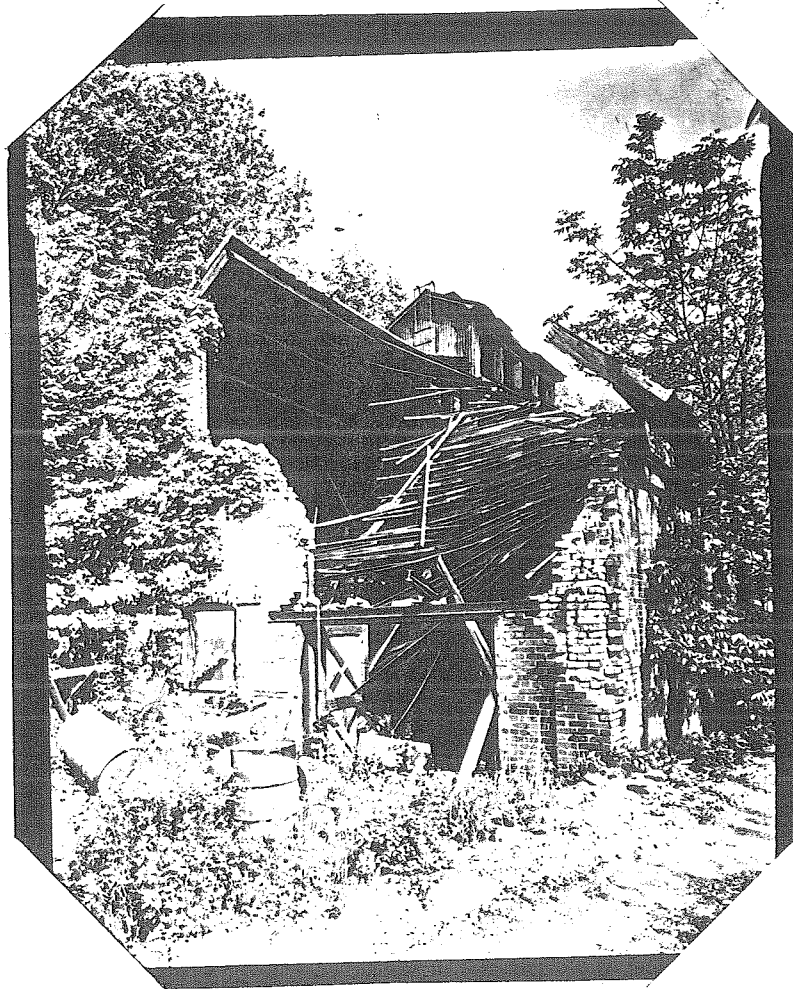
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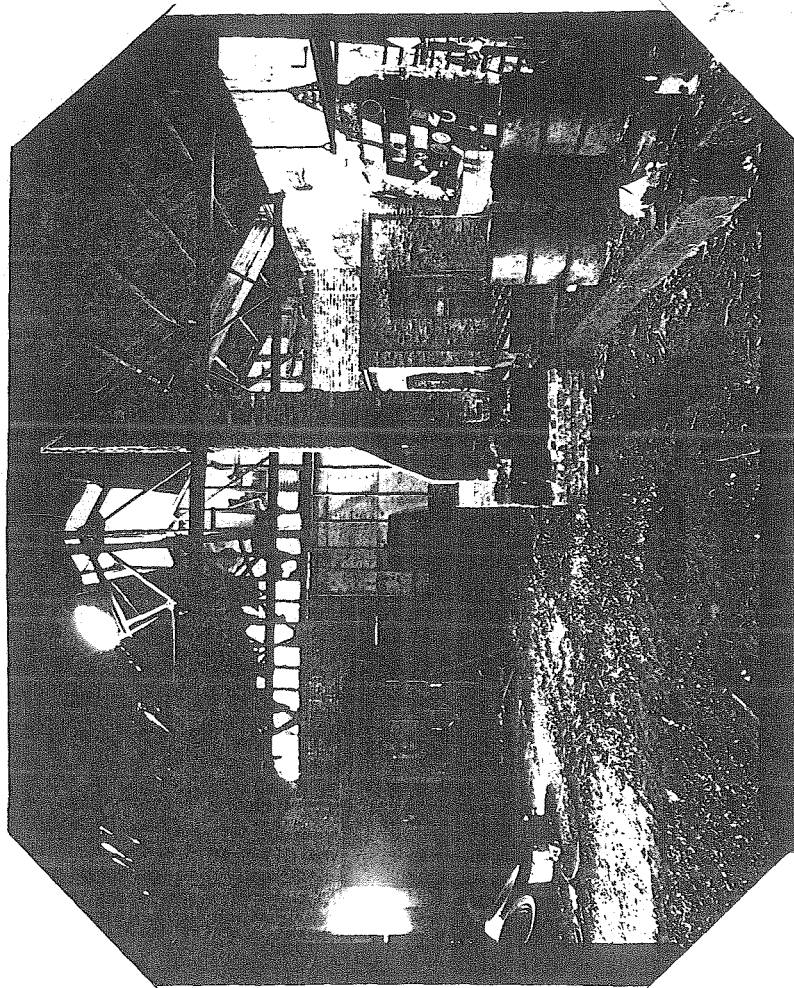
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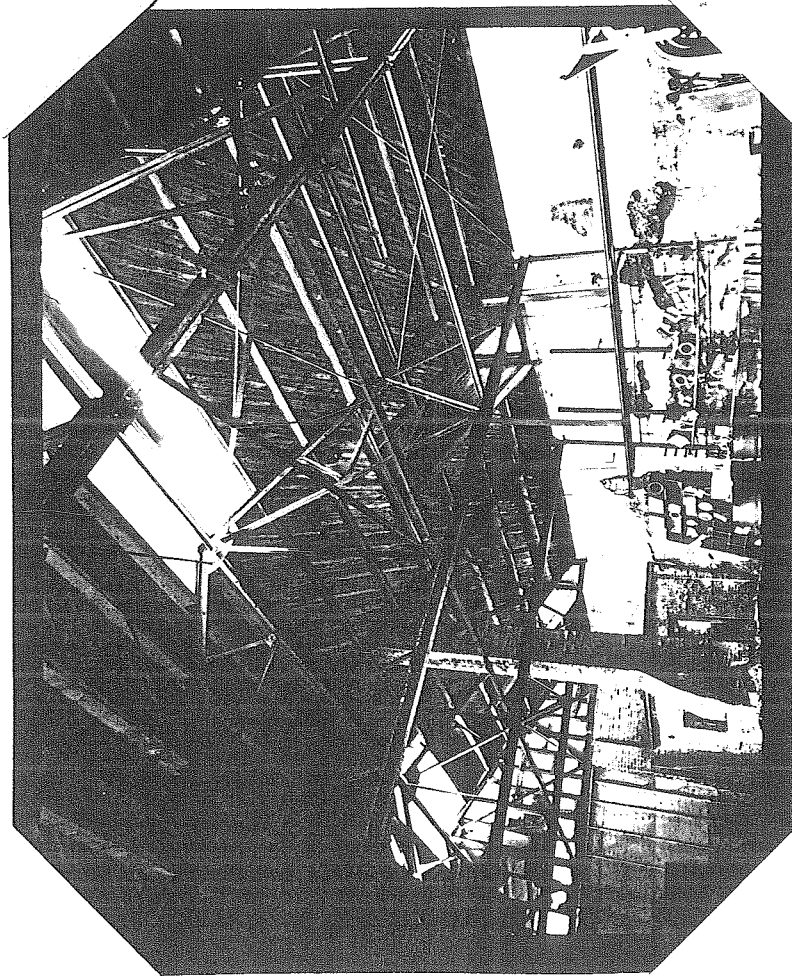
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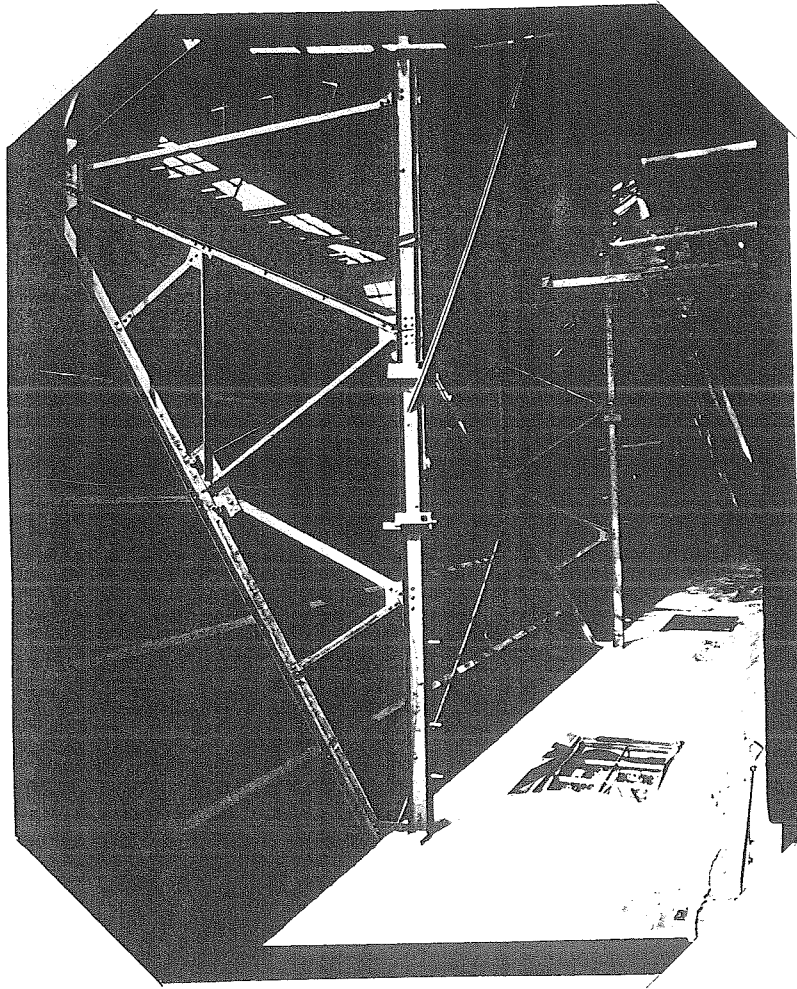
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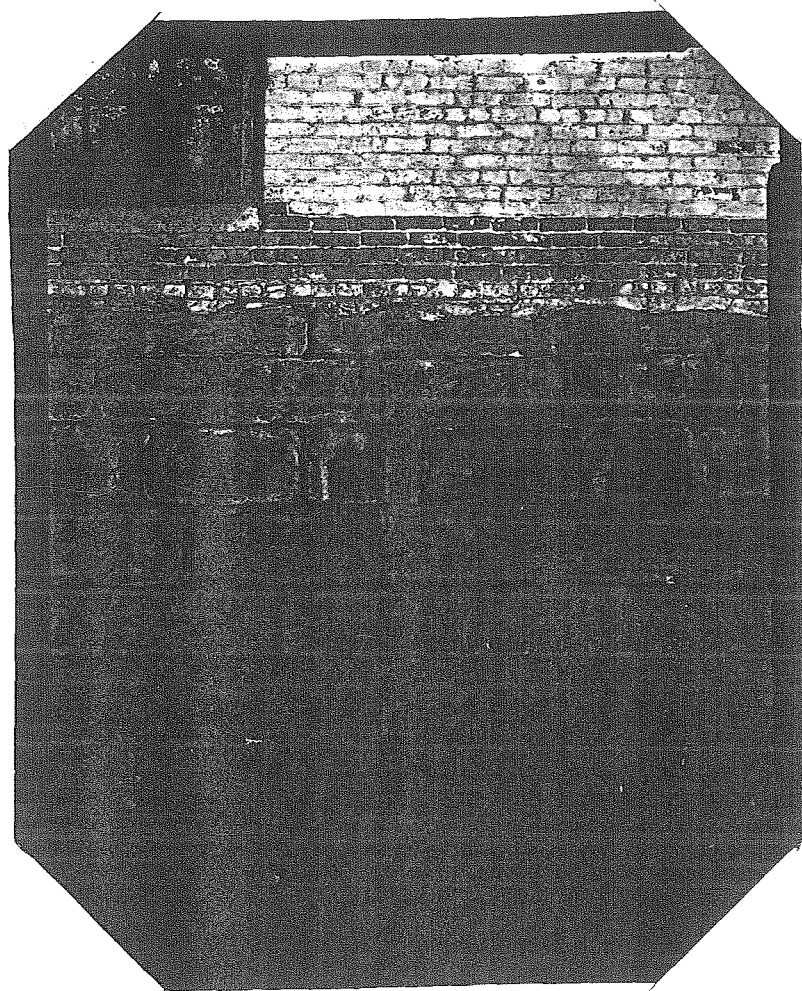
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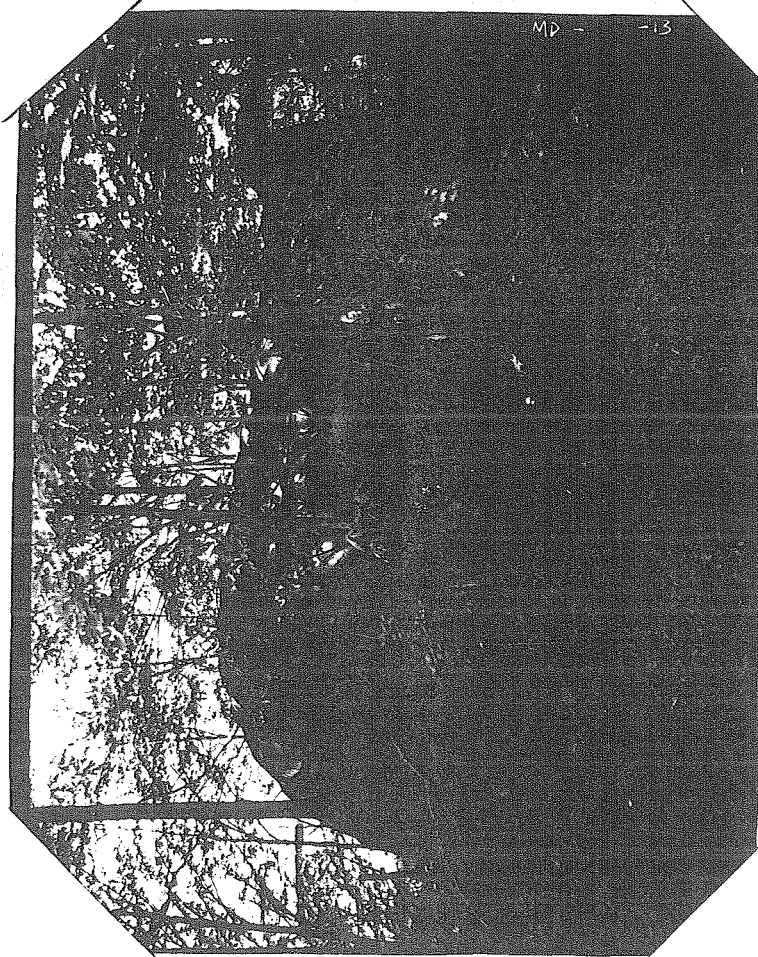
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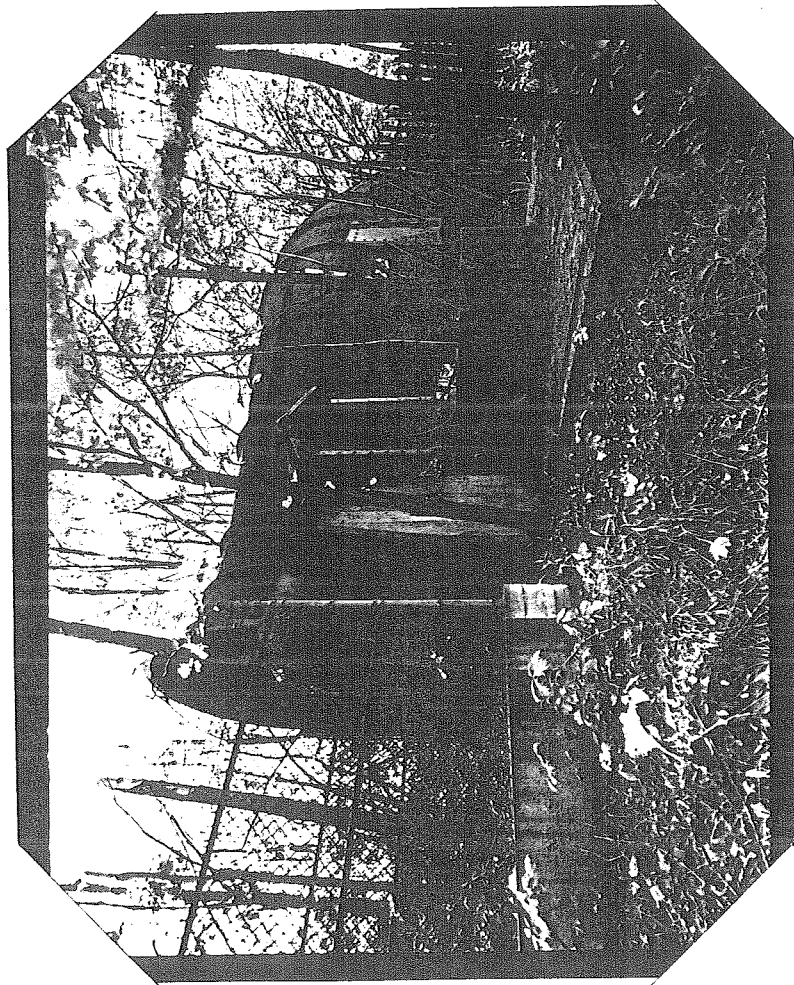
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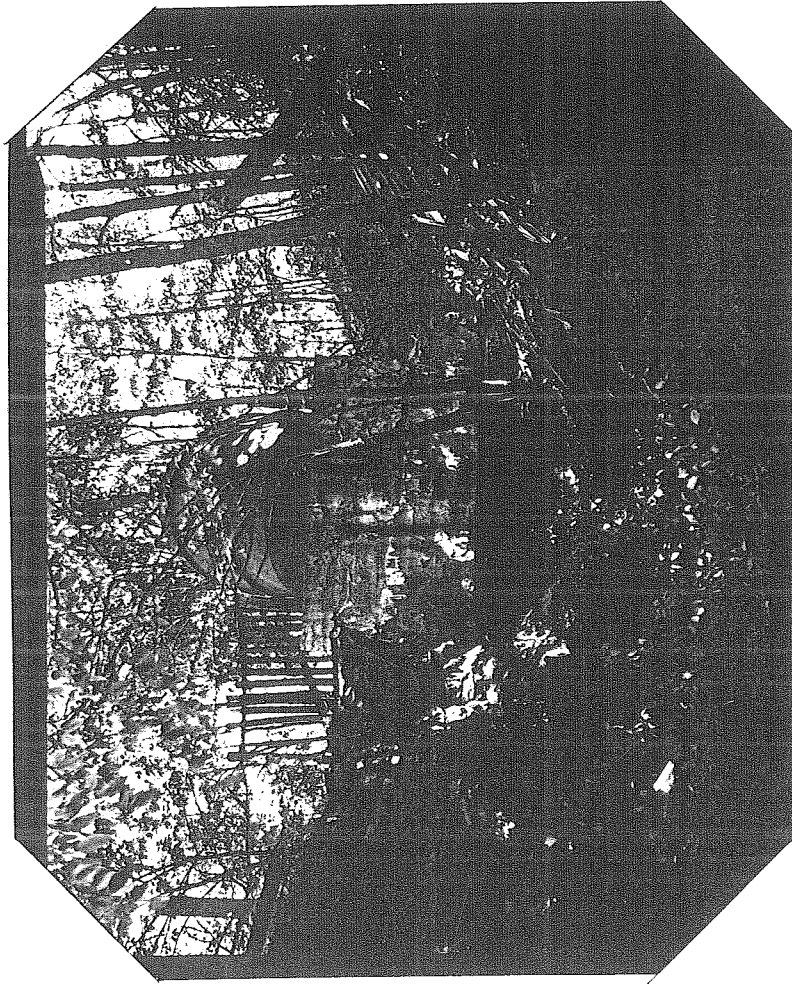
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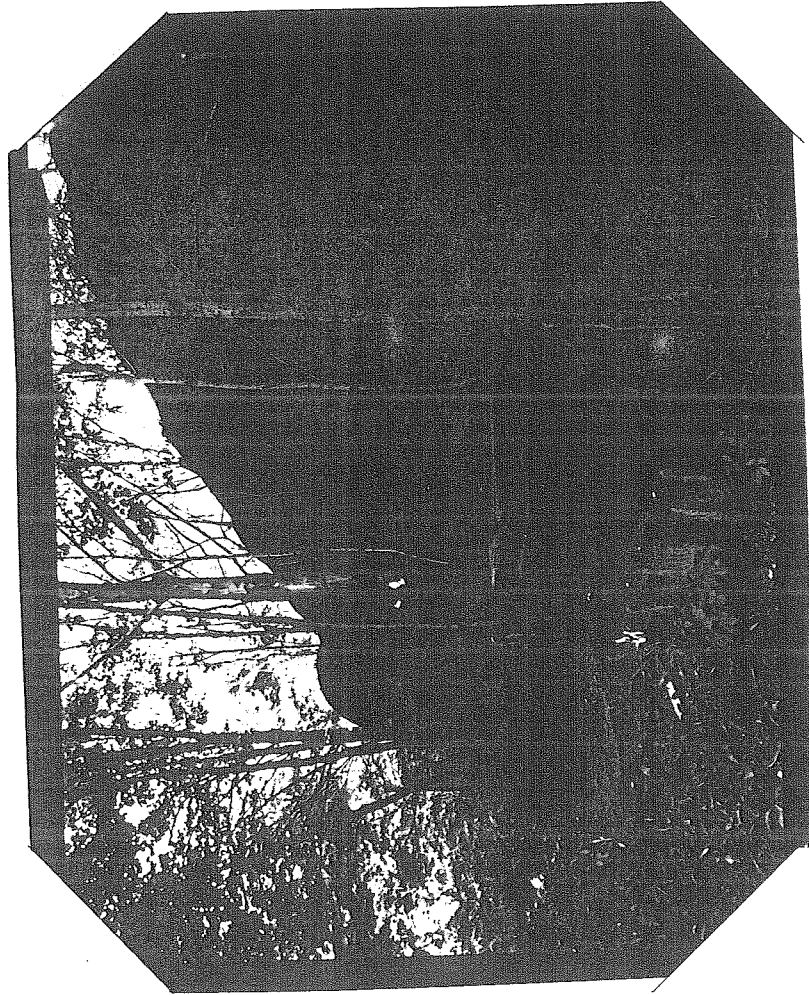
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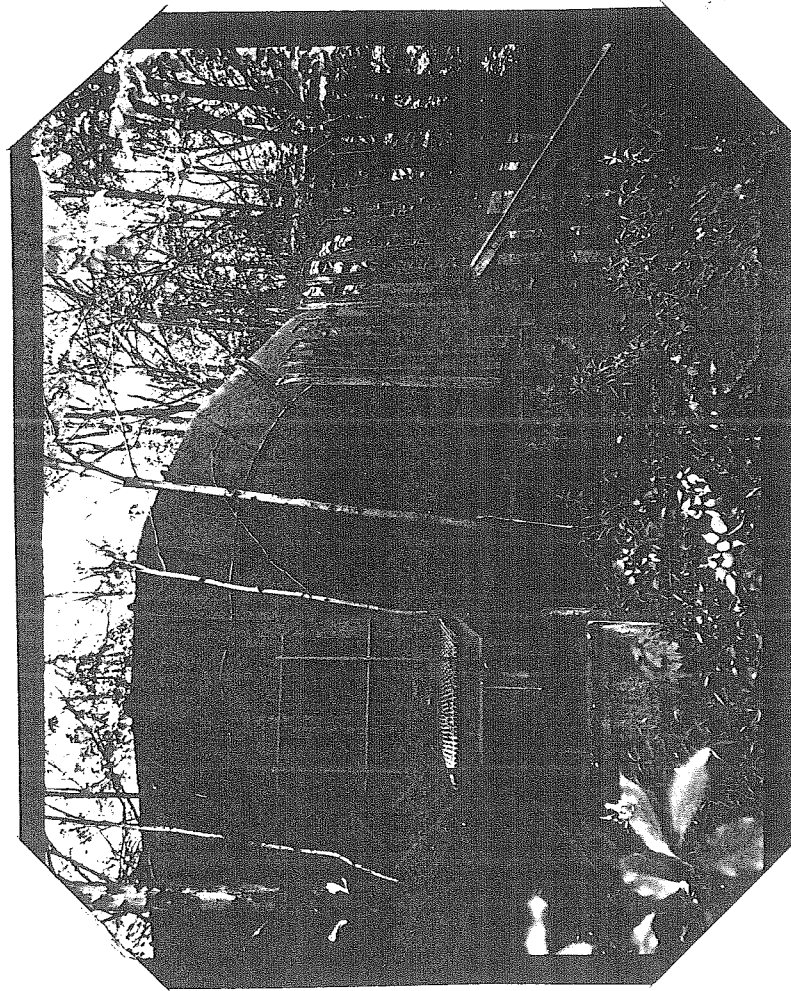
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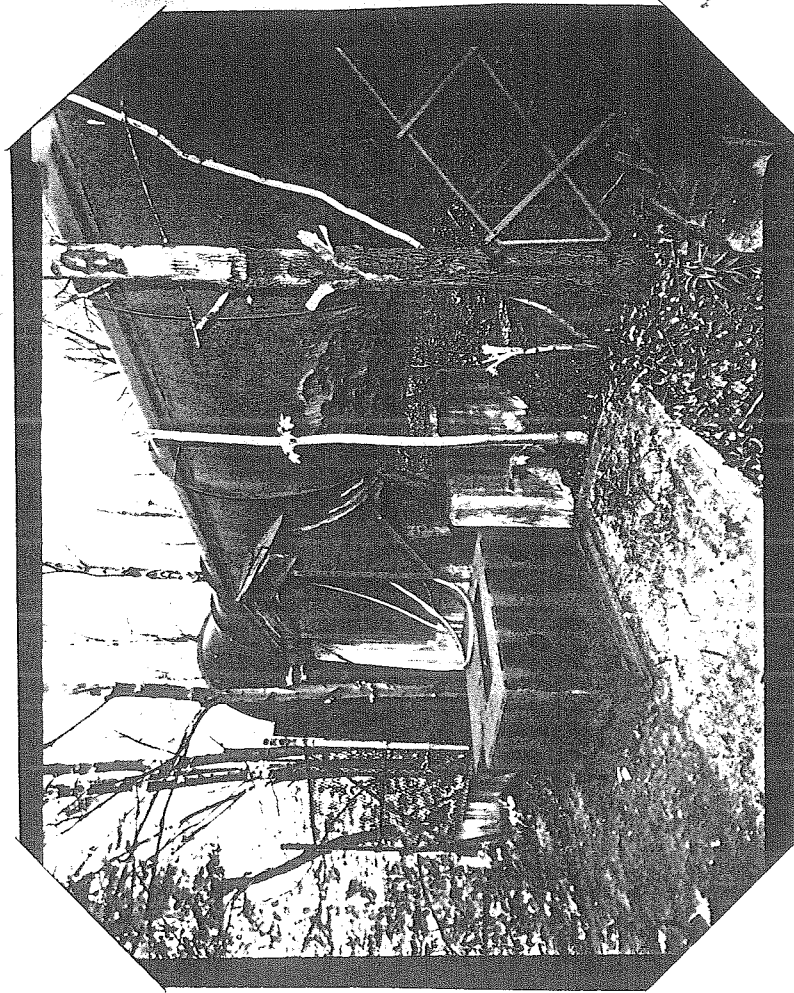
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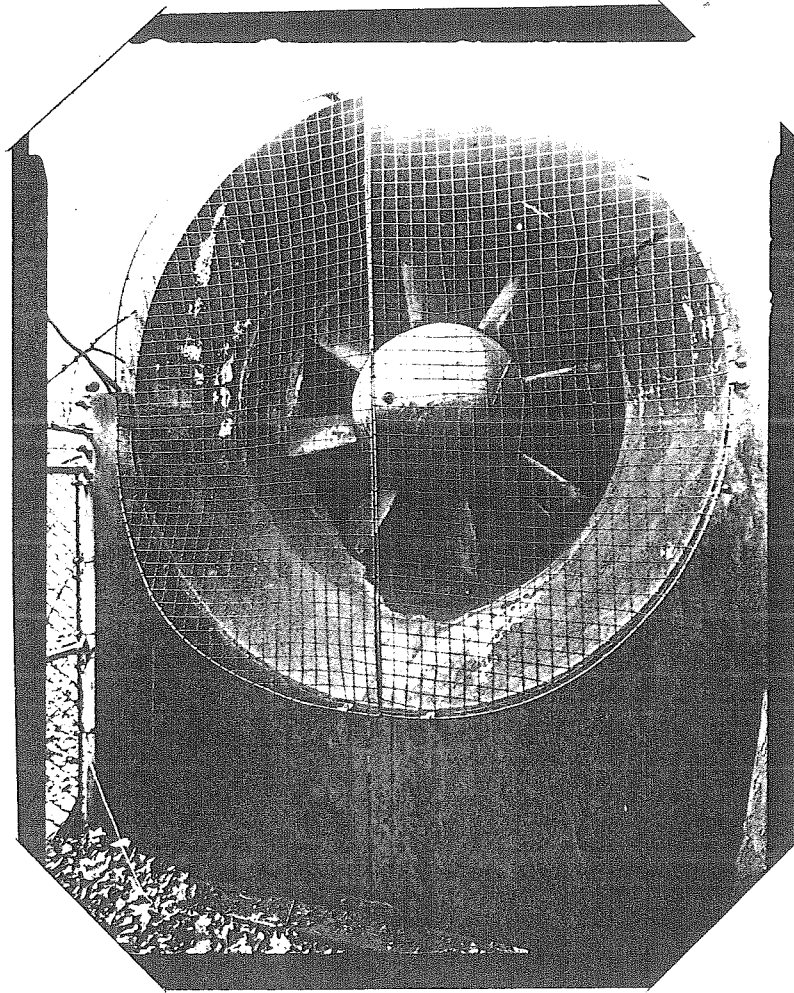


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