NR listed 9/4/92

NPS Form 10-900
(Rev. 8-86)

OMB No. 1024-0018

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
REGISTRATION FORM

1. Name of Property

historic name: Carpenter Dam

other name/site number: N/A

2. Location

street & number: 1398 Carpenter Dam Road

not for publication: N/A

city/town: Hot Springs vicinity: X

state: AR county: Garland code: AR 051 zip code: 71901

3. Classification

Ownership of Property: Private

Category of Property: Structure

Number of Resources within Property:

Contributing	Noncontributing	
		buildings
		sites
1		structures
		objects
1	0	Total

Number of contributing resources previously listed in the National Register: N/A

Name of related multiple property listing: N/A

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1986, as amended, I hereby certify that this _X_ nomination ____ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property _X_ meets ____ does not meet the National Register Criteria. ____ See continuation sheet.

Cathryn L Byrd — 7-14-92

Signature of certifying official — Date

Arkansas Historic Preservation Program

State or Federal agency and bureau

In my opinion, the property ____ meets ____ does not meet the National Register criteria. ___ See continuation sheet.

Signature of commenting or other official — Date

State or Federal agency and bureau

5. National Park Service Certification

I, hereby certify that this property is:

___ entered in the National Register ___ See continuation sheet.

____ determined eligible for the National Register ___ See continuation sheet.

____ determined not eligible for the National Register

____ removed from the National Register

____ other (explain): _____

Signature of Keeper — Date of Action

6. Function or Use

Historic: Industry — Sub: Energy Facility

Current : Industry — Sub: Energy Facility

7. Description

Architectural Classification:

N/A

Other Description: Solid, concrete gravity dam

Materials: foundation Concrete, Steel roof Concrete, Asphalt (powerhouse)
walls Concrete, Steel other
Brick

Describe present and historic physical appearance. X See continuation sheet.

8. Statement of Significance

Certifying official has considered the significance of this property in relation to other properties: Local.

Applicable National Register Criteria: A

Criteria Considerations (Exceptions): N/A

Areas of Significance: Community Planning and Development
Entertainment/Recreation

Period(s) of Significance: 1929-1942

Significant Dates: 1931

Significant Person(s): N/A

Cultural Affiliation: N/A

Architect/Builder: Ford, Bacon, & Davis Co.

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.
X See continuation sheet.

9. Major Bibliographical References

_X_ See continuation sheet.

Previous documentation on file (NPS):

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

Primary Location of Additional Data:

_ State historic preservation office
_ Other state agency
_ Federal agency
_ Local government
_ University
_ Other -- Specify Repository: _____

10. Geographical Data

Acreage of Property: Approximately three

UTM References:

	Zone	Easting	Northing		Zone	Easting	Northing
A	15	497630	3811000	B	__	_____	_____
C	__	_____	_____	D	__	_____	_____

___ See continuation sheet.

Verbal Boundary Description: ___ See continuation sheet.

Beginning at the northwest corner of the dam, proceed southwest 1160 feet to the southwest corner of the dam. Then proceed southeast approximately 150 feet. Then proceed northeast, along the eastern elevation of the dam, 1160 feet. Then proceed northwest to the point of beginning.

Boundary Justification: ___ See continuation sheet.

This boundary includes all of the property historically associated with this resource that retains its integrity.

11. Form Prepared By

Name/Title: Stephen C. Cox, Student: University of Arkansas at Little Rock
Edited by AHPP staff

Organization: Arkansas Historic Preservation Program Date: 07/15/92

Street & Number: 225 E. Markham, Suite 300 Telephone: (501) 324-9346

City or Town: Little Rock State: AR ZIP: 72201

Summary

Carpenter Dam is a solid, reinforced concrete gravity dam which uses its structural mass to resist water and earth pressures that could cause it to slide, overturn, or float. It is a linear, rather than a curved or angled, dam and has a vertical upstream face. Carpenter Dam is a hydroelectric generating facility and its powerhouse structure contains two water turbines and generators capable of producing a maximum of 59 megawatts of electric power. The dam forms Lake Hamilton on the Ouachita River, just south of Hot Springs, Arkansas. Construction on the dam was completed in 1931.

Elaboration

Carpenter Dam is a solid, reinforced concrete gravity dam which uses its structural mass to resist water and earth pressures that could cause it to slide, float, or overturn. It is a linear, rather than a curved or angled, dam and has a vertical upstream face. Carpenter Dam is a hydroelectric generating facility and its powerhouse structure contains two water turbines and generators capable of producing a combined maximum of 59 megawatts (59,000 kilowatts) of electric power per hour [by comparison, a typical household might use between 750-2000 kilowatt-hours of electricity per month]. The dam is 1160 feet in length and 118 feet from the riverbed to the top of the dam) in height. It is situated on the Ouachita River just south of Hot Springs, Arkansas, and forms Lake Hamilton, a 7200-acre reservoir.

The dam's eastern face is on the downstream side and the one most visible. The southern half of the dam comprises the spillway area, where there are ten (10) tainter-type spillway gates. A tainter gate, named after the man who invented it, is a large metal door placed between tracks on either side of spillway chute. The gate is connected to metal arms at its top and bottom which meet at a central axis. When connected to an electric winch or motor these arms rotate on the axis, thus raising or lowering the gate. These gates are used during periods of high water to reduce the lake's volume, each gate having its own electric motor for raising and lowering the gate. At the base of the spillway a reinforced concrete foundation slab extends horizontally away from the dam. At the outer end of this slab numerous reinforced concrete piers jut back toward the face of the spillway. These piers serve to break up and reduce the force of the water pouring down the spillway and thus prevents erosion of the riverbed underneath the foundation.

The main feature of the northern half of the downstream face is the powerhouse, which sits adjacent to the northern end of the spillway. The lower half of the powerhouse structure if of reinforced concrete and steel construction and

contains the penstocks, spiral cases, wicket gates, and turbine wheels and shafts. The penstocks are tubes which carry the water under pressure to the spiral cases. These are large tubes which wrap around the turbine wheel and direct a uniform flow of water into the turbine. The wicket gates surround the turbine wheel and can be opened and closed to control the amount of waterflow into the turbines.

The upper half of the powerhouse structure encloses the generators, monitoring equipment, workrooms, and other equipment necessary for the production of electricity. This upper half is constructed of reinforced concrete, steel, brick, and glass. The exterior facade reflects the time period in which it was built in that a few basic art deco elements are incorporated as ornamentation. A group of transformers rest on a reinforced concrete ledge outside the east wall of the powerhouse. Several of these transformers are original equipment.

The northernmost section of the dam simply consists of the rear face of the reinforced concrete gravity dam structure. There is no spillway facing on this section of the dam.

There are four other significant exterior features which have not been previously mentioned; three are original features, one is an addition. One of the three original features is a lighted, hand-railed walkway which runs along the top of the dam from one end to the other. The other two original features are cranes. One of these is a gantry crane, situated on a track above the roof of the powerhouse. By opening large doors in the powerhouse roof this crane can be used to lift and move generator components and other pieces of equipment whenever maintenance or repairs need to be done. The gantry crane is original equipment. The other crane is a locomotive crane, mounted on a track on top of the dam. The original crane was replaced with a new one in 1991, but the presence of a locomotive crane on top of the dam is an original feature. This crane is used to service all sections of the dam other than the powerhouse. The add-on feature of the dam is an elevator. Installed in the early 1950's, the elevator extends upward beyond the powerhouse to a catwalk connected to the top of the dam. This elevator allows several workers with tools to move from the powerhouse floor to the top of the dam quickly and easily.

Summary

Carpenter Dam is eligible under Criterion A with local significance for its seminal role in the growth and development of the city of Hot Springs and its immediate environs as a regional recreational center for both residents and tourists. In particular, the popularity of Lake Hamilton -- the man-made lake created by the dam -- as a residential area and recreational resource has dramatically affected the local economy, increasingly so in recent years. As a result, during the summer months Lake Hamilton is the dominant economic resource in the Hot Springs area.

Elaboration

There are several ways in which Carpenter Dam has played an important role in Arkansas history. It was the third and final one of a series of great electrical generation projects (the other (the other two being Remmel Dam and the Sterlington, Louisiana natural gas-fired power plant) envisioned by Harvey C. Couch, founder and chairman of the Arkansas Power and Light Company and one of Arkansas' pre-eminent industrialists and economic developers. Its completion in 1931, just as the full force of the Great Depression hit Arkansas, helped sustain AP&L through several years of tough times. Like Remmel, its sister dam located a few miles downstream, it is an example of advanced industrial design and engineering that was rare in Arkansas at the time it was built. Also like Remmel, it is further significant by the fact that it is one of only a handful of industrial facilities in the state that are still operational after more than fifty years of continuous service.

The lake it created, Lake Hamilton, was the largest lake in Arkansas for several years until the enormous Corps of Engineers projects of the post-World War II period eclipsed it. Almost immediately the lake assumed great importance as a recreational resource, an importance that has not diminished over the years, and, in fact, has increased substantially.

Carpenter Dam was built for Arkansas Power and Light by the Ford, Bacon, and Davis engineering and construction firm. Construction was begun in 1929 and finished in 1931. All the lumber and gravel for the concrete used in the dam's construction was taken from the future lake bed, while electrical power was supplied by Remmel Dam. Because of limited access to the dam site at that time, a work camp, adjacent to the dam site, was built to house all construction workers. This camp was a complete, self-sufficient village, containing barracks for the single men and cottages for the married ones, a commissary, mess hall, bath houses, dance halls, movie theater, church, hospital, and even a primary school for the worker's children. At the height of construction during the fall

of 1929, nearly 1000 men were employed on-site.

Carpenter Dam was built to provide electric power to the AP&L system during periods of peak consumption, and is still operated for that purpose today, primarily during the summer months. When not producing electricity, the dam's generators still perform a valuable service. When not being powered by their own water turbines these generators are powered by electricity supplied by other parts of the AP&L system. This electricity that is drained off the system by the generators serves to level-ize the loads being sent along the transmission lines, helping to prevent surges and maximize the efficiency of the transmission system. The integrity of the dam's generating facilities is remarkable. The turbines, generators, governors, tainter gates and motors, and the vast majority of all the other operating equipment is original and in excellent condition. The dam's appearance and character have been altered very little over the years. The few changes that have been made have all been technological or regulatory necessities.

The dam's significance in Arkansas industry and commerce, past and present, is due to the dreams and vision of Harvey Couch, undoubtedly one of the most important figures in Arkansas history. Couch was one of Arkansas' pioneers in economic and industrial development. Before founding AP&L's forerunner in 1913 Couch was an early leader in Arkansas' fledgling telephone industry in the 1890's and early 1900's, and later, in the 1920's and 1930's he became a major force in the railway industry through his acquisition of the Louisiana & Arkansas and Kansas City Southern railroads. Couch and AP&L were fortunate to have already secured all the necessary financing for the dam prior to its construction. Arkansas did not experience the full impact of the Great Depression until 1931, just as Carpenter Dam was being completed. Although the dam could not provide AP&L with a constant supply of electric power, the power it did generate was produced at practically no cost to AP&L and undoubtedly helped the company survive the tougl. times that followed. In addition to his groundbreaking efforts in business and industry, Harvey Couch gave much of himself to public service. He served as a fuel administrator for Arkansas during World War I and headed the state's relief operation after the 1927 flood. During the Great Depression, under the administrations of Herbert Hoover and Franklin D. Roosevelt, Couch served as director of the Public Works section of the Reconstruction Finance Corporation.

Carpenter Dam was named by Couch in honor of his longtime friend Flave Carpenter. Carpenter steamed up and down the Ouachita River as a riverboat captain for many years after the Civil War, and later became a farmer and businessman at Arkadelphia. It was Carpenter who first suggested the Ouachita River's hydroelectric possibilities to Couch and it was he who guided Couch on trips up the river to survey possible dam locations. The lake formed by

Carpenter Dam is named for C. Hamilton Moses, who first served as AP&L's corporate attorney and eventually became Harvey Couch's right-hand man, assuming the chairmanship of the company upon Couch's death in 1940. Moses led AP&L into a whole new era of growth and prosperity in the 1940's and 1950's, overseeing the construction of power generating and transmission facilities that rivaled anything to be found in the South at that time. Many of those facilities are still in use today.

The dam and lake were designed primarily for electrical generation, not flood control, but they are able to handle most flooding adequately with a minimum of property damage. Occasionally, though, mother nature unleashes more rain than the dams can deal with, and flooding does occur. Lake Hamilton's greatest flood occurred in 1982, but the 1990 flood was perhaps the worst. It is certainly the most-remembered due to damage caused in Hot Springs as well as around Lakes Hamilton and Catherine. The 1990 flood dealt a mortal blow to the Carpenter Dam Road Bridge. The bridge, which crossed the Ouachita River just below the dam, was already weakened by age, heavy use, and many previous floods. The bridge's foundations were washed out and the bridge itself swept several hundred yards downstream.

Lake Hamilton's significance to the area economically now outweighs that of the dam itself by a substantial margin. Because of its proximity to the city of Hot Springs and Hot Springs National Park, already nationwide tourist attractions, Lake Hamilton has over the years itself become one of the region's and the state's leading tourist attractions. It could reasonably be argued that the lake directly and indirectly accounts for as much of half of all the tourism dollars spent in the Hot Springs/Garland County area each year, an amount that would have been in excess of 100 million dollars in 1990. Despite the potential for flooding, Lake Hamilton is also one of the most attractive areas in which to live in the entire state, so much so that its residential property values are the highest in the county. While an area encompassing the census tracts that surround the lake amounts to less than one-eighth of the county's land area, the total residential property value accounts for over one-half of the county's total residential property value, an amount in excess of a half-billion dollars. Due to its direct association with the creation and maintenance of Lake Hamilton, Carpenter Dam is eligible under Criterion A with local significance.

Bibliography

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Wilson, Stephen. Harvey Couch: An Entrepreneur Brings Electricity to Arkansas. Little Rock, AR; 1985, August House.

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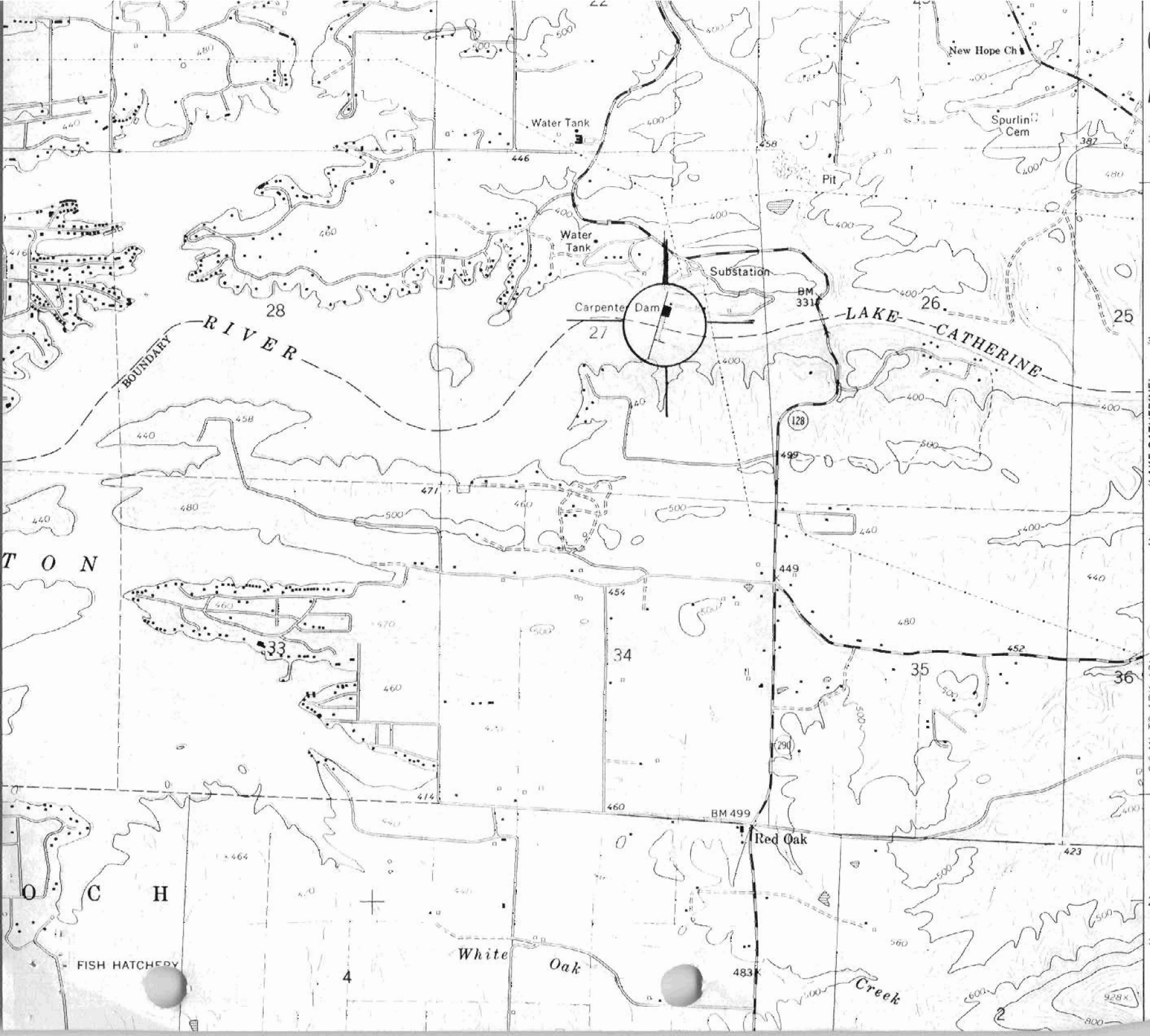
Carpenter Dam
Hot Springs vic.,
Arkansas
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15/497630/
3811000
New Hope Ch
Water Tank
Spurlin Cem
Pit
Water Tank
Substation
BM 331
Carpenter Dam
LAKE CATHERINE
RIVER
BOUNDARY
28
27
26
25
34
35
36
33
4
2
Red Oak
BM 499
White Oak Creek
FISH HATCHERY
(LAKE CATHERINE)
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T. 4 S.
25'
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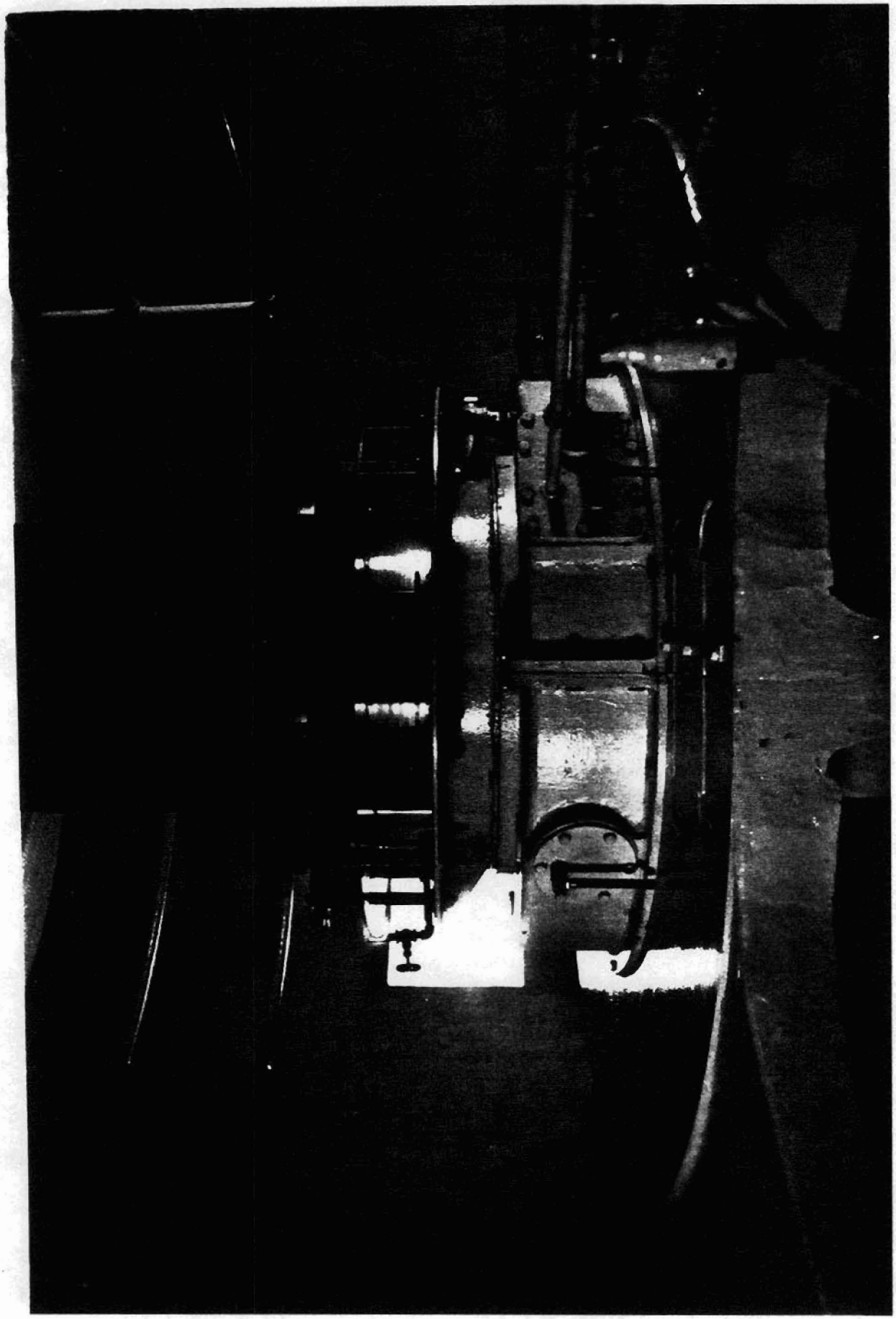

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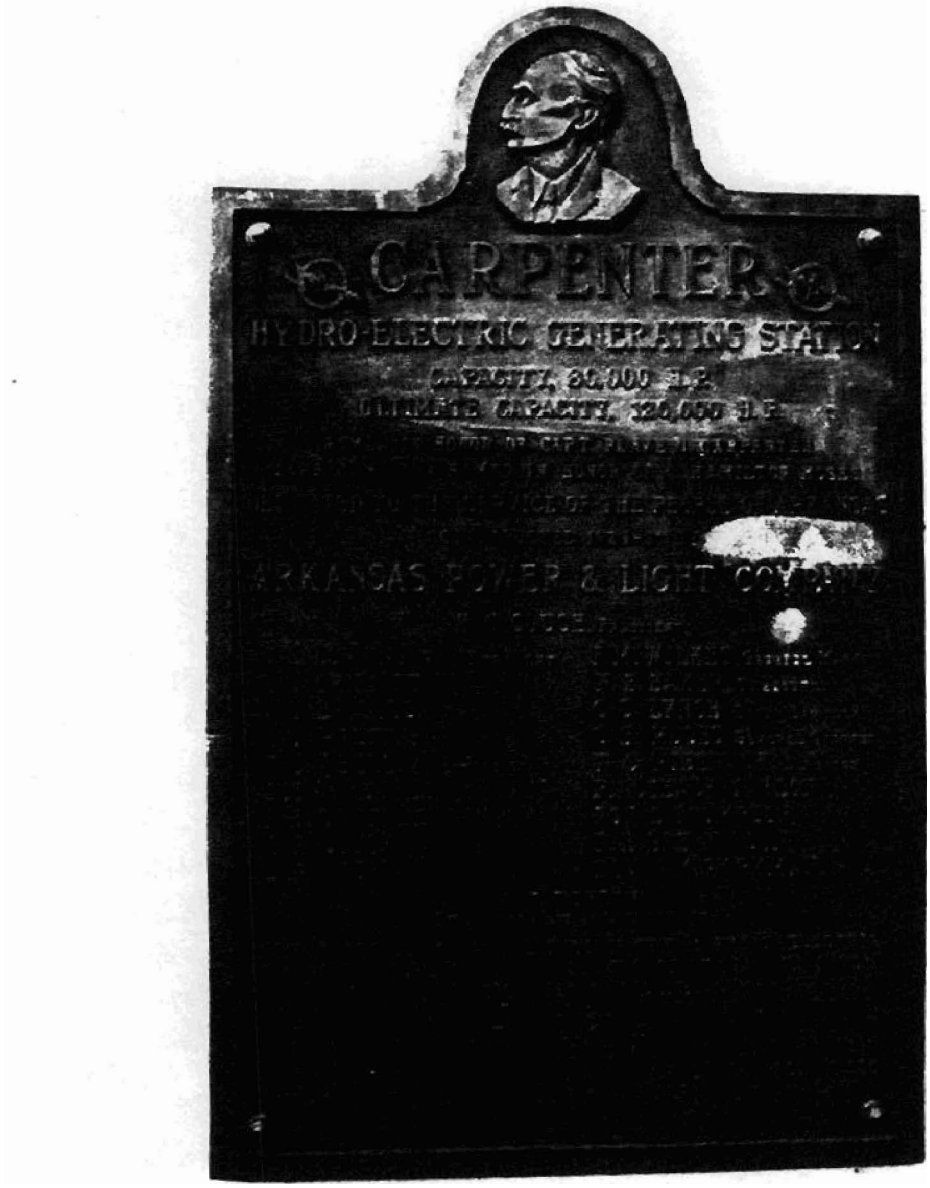
CARPENTER
HYDRO-ELECTRIC GENERATING STATION