

ALLIS-CHALMERS

# SCOPE

FALL 1967



A GREAT DAY FOR THE ORANGE... Page 2

# ALLIS-CHALMERS SCOPE

Magazine for Employees

Jack Pearson ..... Editor

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## BETWEEN THE COVERS

This issue's cover picture shows two Allis-Chalmers One-Ninety XT's setting the pace at an exciting tractor pulling contest. See the story at right.



Jacqueline Bucher of Deerfield, Ill., is a real "ham." Read how a new world has opened up—via short wave radio—for this daughter of an Allis-Chalmers employee.

Page 7.

It was a long time ago, but floor length, ankle-hugging "hobble skirts" were once the rage of the feminine set. And quite a problem for Allis-Chalmers.

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Ever heard of a "Hydrocombine?" It's the heart of an unusual Pacific Northwest dam where Allis-Chalmers hydraulic turbines and generators perform.

Page 12.



Isolated towns in Thailand will be linked to the outside world by a road project. Allis-Chalmers equipment is a big factor.

Page 17.



# A Great Day for the

Race time is only seconds away . . . the drivers, tense behind their wheels, rev up the engines to a deafening roar . . . the stands are filled to capacity . . . the track is the center of attention for everyone.

It's not the Grand Prix or the Indianapolis Speedway or even a local stock car attraction. It's a tractor pulling contest at a small county fair—but the excitement is genuine and the competition intense.

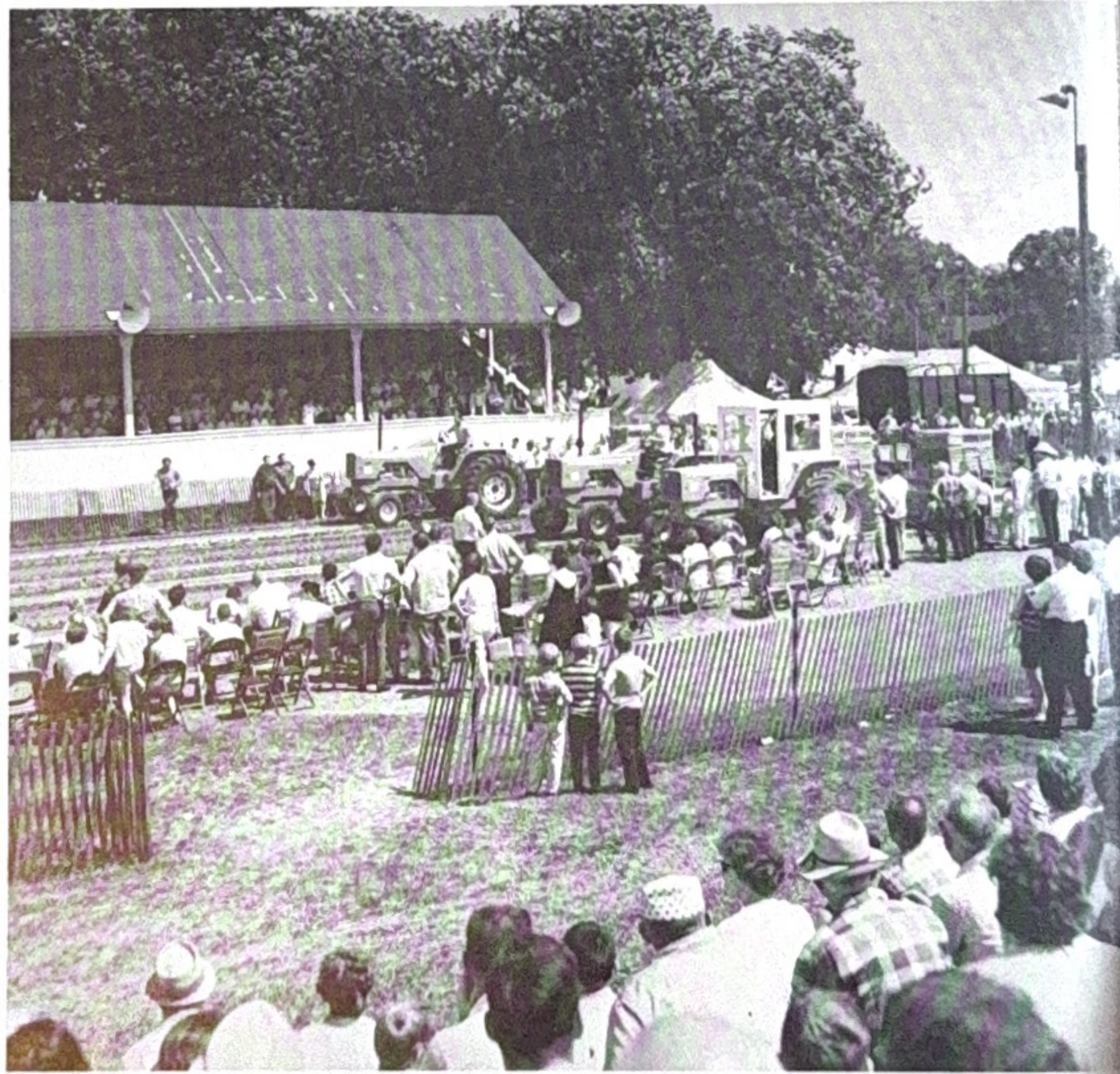
Through the vast agricultural heartland of North America, county and regional fairs represent the highlight of the year to hundreds of

thousands of farmers. Just about everyone in the family attends. They wouldn't miss the big event for anything in the world.

The fairs are usually held in July or August. They provide an excellent opportunity for farm equipment dealers and sales people to talk to the farmers and exhibit their wares.

That's why tractor pulling contests are becoming more and more important to present and future sales of farm equipment dealers. Winning such a contest makes a big impression.

A typical setting for such contests



The tractor pulling contest was the highlight of the Jefferson County Fair. The crowd jammed the grandstand and infield area of the track.

# Orange

this summer was the Jefferson County Fair at Jefferson in southern Wisconsin. Jefferson County is about midway between Milwaukee and Madison, in the heart of gently rolling corn, alfalfa, and soybean land.

J. W. Holl of nearby Fort Atkinson has been an Allis-Chalmers dealer for the last 17 years. Holl is well liked by the farmers. Hard working, genial, with a reputation for honesty, he makes an excellent dealer. But farmers don't buy products only on friendship and admiration of the dealer. The products have to be solid, dependable, worth the prices the farmer has to pay.

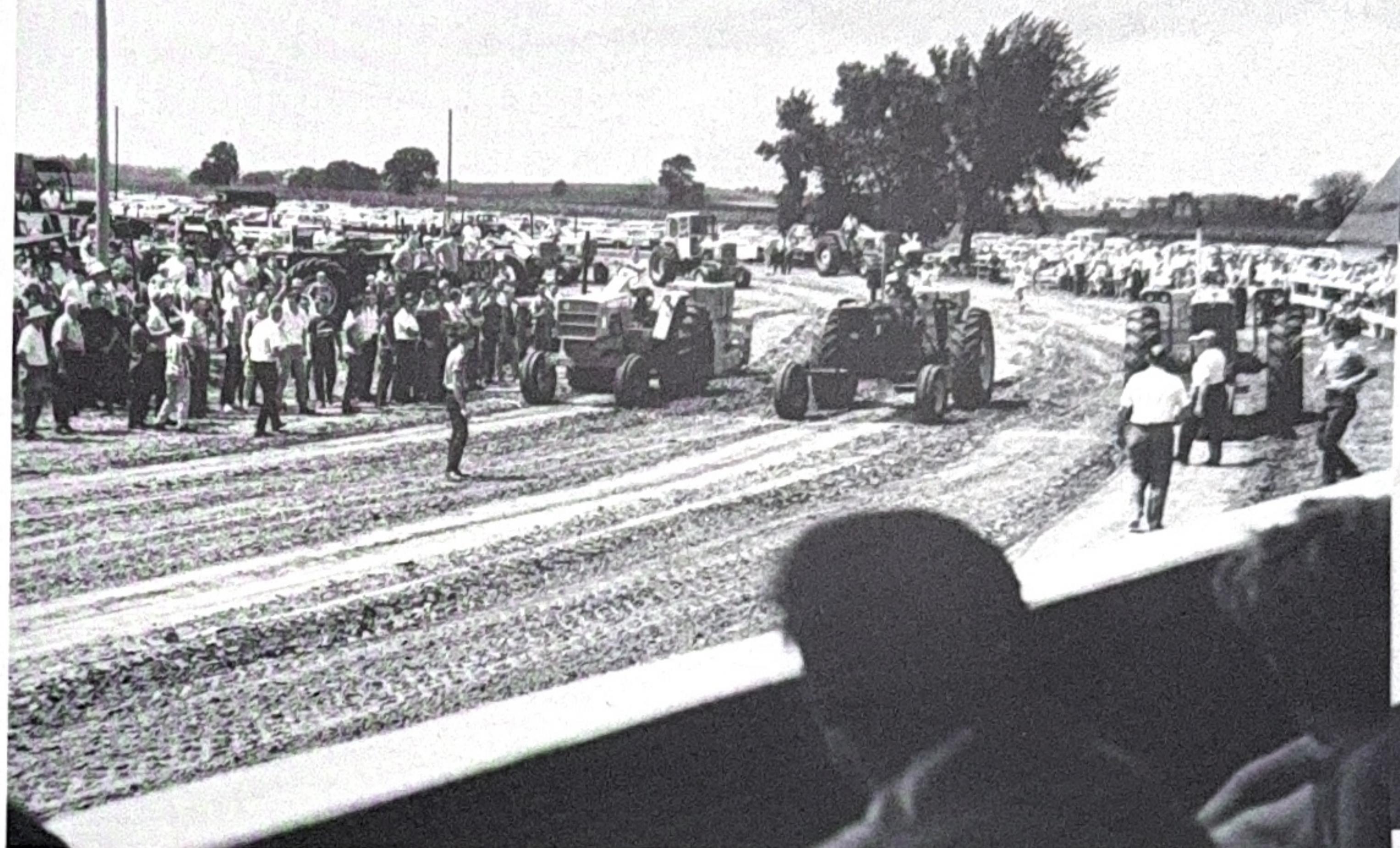
Holl has had a lot of competition for sales through the years—from John Deere, International Harvester, J. I. Case and Massey-Ferguson dealers. In addition, those dealers have begun using tractor pulling contests as showplaces for equipment.

"Basically, you have to have a good, powerful tractor," explained O. E. Lieberg, Allis-Chalmers branch manager from Madison. "But there's a lot of luck involved, too. You have to have sharp, experienced drivers. Tires should be new, over-sized if possible. The condition of the track is also significant."

"Let's take a hypothetical case. Say Brand A tractor is in great shape, a much better tractor than Brand B. But let's say Brand A tractor has an inexperienced driver, and Brand B has an experienced contest driver,

Much of the success the Allis-Chalmers tractors had at Jefferson was due to the efforts of this trio (left to right):

O. E. Lieberg, branch manager, Madison; J. W. Holl, dealer, Fort Atkinson, and J. M. Anderson, district representative, McFarland.



Poised at the starting line, an Allis-Chalmers One-Ninety XT was matched against John Deere and International Harvester units.





Arnold Jacobs, piloting his Allis-Chalmers D-21, was the winner of the 90 horsepower and up classification, representing the biggest farm tractors in America. Perhaps his proudest booster was his son, Bobby.

so B beats A on track know-how. Perhaps Brand A is so powerful that it starts its slightly worn tires spinning. It loses. There are so many factors to consider."

Lieberg, Holl and Allis-Chalmers District Representative Jim Anderson began preparations long before the Jefferson County Fair opened.

A prerequisite of the Jefferson contest was that the tractors entered in the various classifications had to be driven by their owners. This eliminated the possibility of bringing in "ringers" to operate the tractors. Holl and Anderson rounded up most of the Allis-Chalmers tractor owners in the county and persuaded them to enter.

"I suppose we coached them a little, too," Anderson said. "But that's all part of the game. There's nothing wrong with teaching your customers how to best operate their equipment."

They also encouraged the farmers to equip their tractors with new tires and to tune up their engines.

"Man, these contests can get wild," Anderson said. "Over at Janesville a couple weeks ago, there was a battle

royal between drivers of tractors made by different companies. A real fist fight. These farmers want to win, and they can get hot about it."

Anderson chuckled as he told of the altercation. He's 6 feet 5 inches, weighs 265 pounds and looks like he could pick up the nearest cow or tractor in his bare hands. "Just a little ol' country boy," said his wife, Kathy, playfully punching him in the stomach.

The results at Janesville had been only fair, if you were an Allis-Chalmers booster. A second and a fifth place finish with One-Ninety XT's.

"There are various kinds of tractor pulling contests," Anderson explained prior to the Jefferson races. "Local rules apply. Some pull dead weight and the farthest pull wins. Others pull a sled with a tractor of comparable weight on it, and the winner is the one which has the longest pull in 60 seconds. The pull here is of a determined amount of dead weight (concrete blocks) with the quickest pull over a 300-yard course the winner."

At Jefferson, a record crowd of close to 2,000 packed the fair park

stands and infield prior to the race. The weather was perfect, the corn on the cob was free, and the tractor entries glistened in the sunlight. It somehow seemed like a medieval jousting tournament, with a shining array of orange tractors in one spot, a sparkling line of green competitive units in another, a glowing group of yellow tractors in still another, all glaring at one another, waiting for the battle to start.

The races began with the smaller classifications. It was not until the 70-80 horsepower division, however, that interest hit a high pitch. This was the most popular power class, the one with the most entrants, the one with the most prestige.

In this, as in previous events, the contestants raced against time. So, even though a tractor might seem to be ahead in its own heat, it could in reality be far behind the times in another heat. Each race also was split into halves—a dash down the track in front of the crowd first, then later, a similar dash back.

The track had room for only three tractors at a time. When the gun sounded, each tractor strained with



Winning the popular 70-80 horsepower competition was a first for Ron Seavert, a relative newcomer to tractor pulling contests. Ron's expert driving, together with a solid performance by his Allis-Chalmers One-Ninety XT, took the crown.

tremendous power to start the sled and its great weight (1,600 pounds) into motion. As first one, then another of the units began accelerating, the spectators roared. They roared again as one, then another took the lead down the stretch, and groaned in unison as one would spin out, or raise its front end, or just simply poop out. (To spin out means that the tractor's forward progress stopped but the rear wheels continued spinning.)

After each of the tractors crossed the finish line, the judge announced the times, again setting off a clamor from the crowd.

One of the early starters, a green John Deere entry, had posted the best early time. Atop an orange Allis-Chalmers unit, tall and tanned Ron Seavert, intently chewing a wheat stalk, was only seconds behind.

As all of the tractors finished their first run, the spectators seemed to inch forward on their seats in expectation of the final segment. The green early pacer immediately ran into trouble, first stalling, then rearing its front end in the air like a bucking stallion. It seemed as if



Jefferson County Allis-Chalmers tractor owners (from left): Top—Sidney Auck and Larry Draeger; middle—George Fischer, Ron Seavert and Arnold Jacobs; kneeling—Albert Block and Vern Magsamen.

Seavert had the victory, and the judge's announcement, barely heard above the din, confirmed it. A lot of people went a bit wild—among them Lieberg, Holl and Anderson.

Seavert was not the only driver of a bright orange tractor who had a lot to be proud of. In a field of 13, with seven entrants, Allis-Chalmers swept first, second, third, fourth, fifth and sixth places. "Tremendous, fantastic, whooeee," whooped the joyful Holl.

But there was more to come. Although the 70 to 80 horsepower class was the most popular, the 90 horsepower and up class, which represents the biggest farm tractors in America, was the most impressive. Now 2,000 pounds—one ton—of blocks weighted down the sleds.

There were three entrants—an

Allis-Chalmers D-21, a John Deere 4020 turbocharged unit and a J. I. Case 1030.

Driving the Allis-Chalmers tractor was Arnold Jacobs, who had also been entered in the 70-80 horsepower class and had finished second, only 2.1 seconds behind Seavert.

"Arnie's wife can drive a tractor better than he can," chortled Holl. "If he doesn't win this one, he'll never live it down. She'll want to enter all the contests from now on, instead of him."

Arnie came through. On both runs, the John Deere tractor pulled away to an early lead, but also on both runs lost penalty points and actual time when its front end rose. Jacobs' run, both down and up the track, was smooth and devoid of error. He won convincingly.

The first to congratulate him after his big triumph was his nine-year-old son, Bobby. "Gee, dad, you were just great," Bobby exclaimed. "Mom's over at the hot dog stand, telling everybody. She's real proud."

Jacobs' time over the course was an excellent 106 seconds. The John Deere entry totaled 130 seconds and the J. I. Case tractor 143 seconds.

"Guess that'll keep 'er in the kitchen a while," Jacobs said. "Let's go get a hot dog, Bobby."

Lieberg, hot and perspiring but very, very happy, mopped his brow. "What a day," he said. "This can't help but boost Allis-Chalmers sales in this area. A farmer sees a winning tractor—he wants that tractor. We've always known which the winning tractor was. The Jefferson County folks do now, too." ■



The Allis-Chalmers sweep brought joy to many people, including (left to right) Margaret Pearson (whose husband took the picture), Lieberg, Anderson and Anderson's wife, Kathy.

# This Is WN9TQG... Answer, Anyone



Jackie can send 30 words per minute with her Morse set. Other hams say she has a wonderful "fist," meaning her sending is not only fast, but clear and distinctive.

THE call letters in the headline above identify Jacqueline Bucher to her ham radio friends all over the country.

Jackie is the 15-year-old daughter of Phillip Bucher, a senior catalog compiler in the Deerfield (Illinois) Plant. She has been an avid ham operator for the past year. She also is blind.

"The 'W' means United States," Jackie explained. "The 'N' is for novice, but I recently passed my gen-

eral class test, so that letter will change soon. The '9' is for our district, which includes Illinois, Indiana and Wisconsin. The 'TQG' is me—the letters the Federal Communications Commission assigned to me. That part will always be the same."

Her father said that "she's always been a bright girl, but until she got wrapped up in her ham radio set, she didn't have any drive, any real purpose in life."

Jackie agreed. "Ever since I first

heard a radio I wanted to be on the air," she explained. "I thought maybe I'd become a disc jockey or something like that, but I didn't do anything about it for a long time." When a neighbor died two years ago, his widow gave Jackie his old ham radio set. She and her father soon learned Morse code and began listening to messages beeping from their set in their home at all hours.

It was not until Jackie met Joe Kaniuk and his daughter, Marlene,

from nearby Morton Grove, that she really got started. Kaniuk and his daughter are long-time hams. With their help and guidance, and a good deal of study and hard work on Jackie's part, she eventually took and passed the novice test. In the months that followed, she and Marlene spent many enjoyable hours sending and receiving messages to one another.

Holding a novice license means Jackie cannot use voice transmission. She can only send Morse code on a set that is on crystal control, limited to 75-watt power and confined to a certain number of frequencies.

Now that she has passed her general test, Jackie will be permitted to transmit by voice. "But I think I'll stick to Morse," she said. "You can send a clearer message, and anyhow, I like sending in code." But she will be able to use more frequencies, and thereby can expand her contact area to Central and South America and possibly even Europe.

Passing the general test was quite an accomplishment. Besides having

to send and receive 13 words per minute, she had to answer such questions as "What is meant by the harmonic of a fundamental frequency? What is the Q of a resonant circuit?" She had to study long hours for many months, usually with the help of her father, since much of what she had to read and memorize was not available in Braille.

As Jackie taps out the code message to an answering ham, she usually is not lacking for words. In addition to the routine conversation about the type of sets they have, whom they have contacted, and where, the ham operators often exchange information about their families and hobbies. Besides being an honor student at her high school in Northbrook, a suburb of Deerfield, Jackie writes plays, sings folk music and accompanies herself on an auto-harp, a sort of mechanical zither.

The self-sufficient young lady gets around the neighborhood very well, with only the use of a white cane. "At school it gets to be a problem,



though," she said, "not for me but for the other kids. They're always tripping over that fool stick."

A blind person must be 16 before he or she can own a guide dog. Jackie's looking forward to next spring, when her father has promised her one. "I just can't wait," she said. "Am I going to love that animal!"

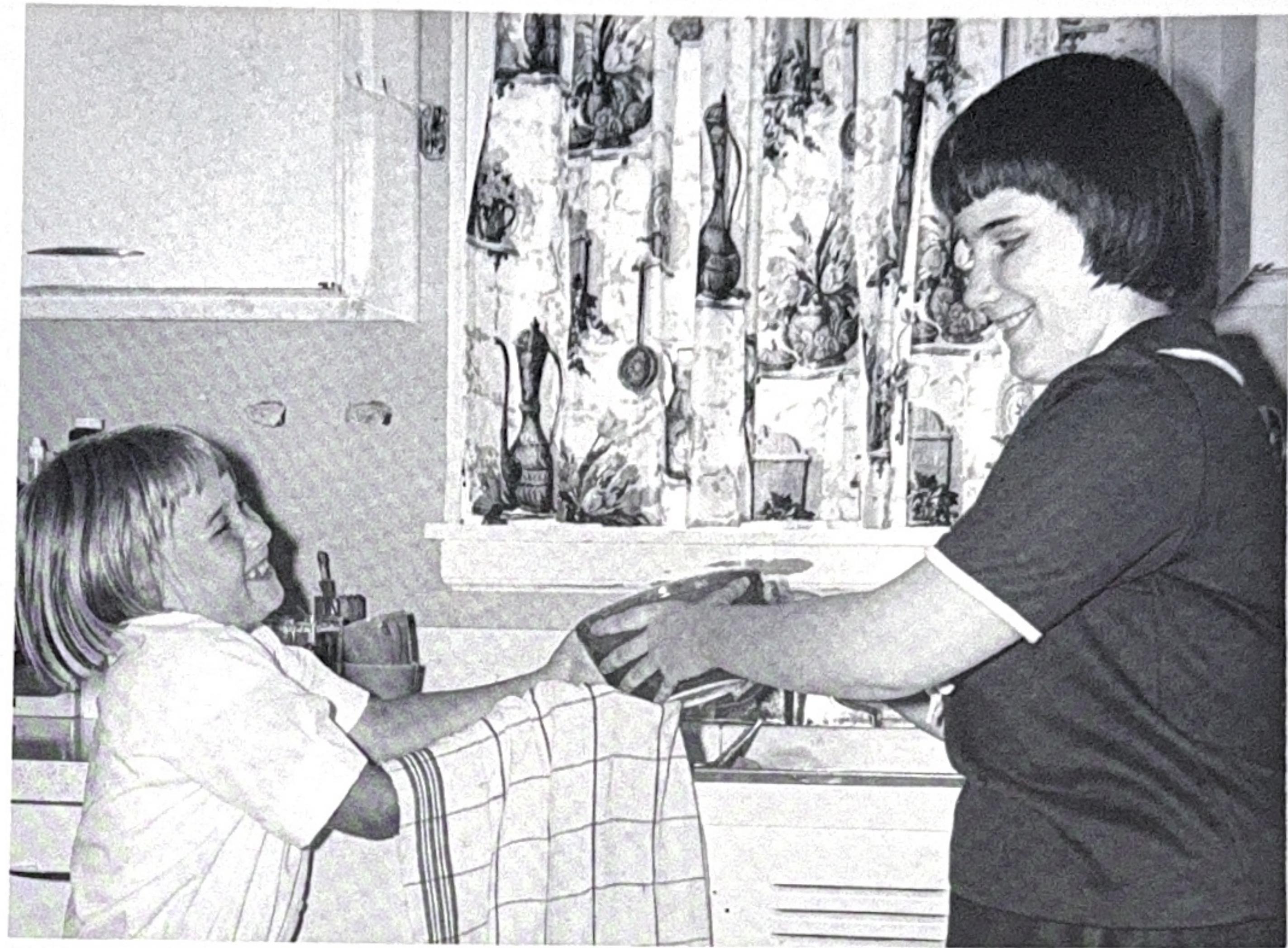
Jackie's father now also can send and receive Morse, and her mother, Lila, and 13-year-old brother, Phil Jr., have a working knowledge of the code. Beverly, at 7 the youngest child, still finds the dots and dashes a bit mystifying.

Jackie's Dad has arranged a little room for her in the basement. There's a table against the wall with a light above, not very fancy, but then a ham radio operator doesn't need much more than a key and a transmitter.

For a visitor from SCOPE magazine, Jackie wanted to give an actual demonstration of how she sends and receives messages. In the basement, Bucher flicked on the set, and Jackie sat down and began fiddling with the dials. Her face immediately lit up. "This is WN9TQG . . . This is



Another of Jackie's hobbies is folk singing and her auto-harp. Her mother is with her.



Jackie likes washing dishes while Beverly, 7, does the drying. In the photo at the left, Jackie's father, Phillip Bucher (left), a senior catalog compiler, and Richard Brumm, supervisor, technical publications, are next to a 645 wheel loader at the Deerfield Plant.

WN9TQG . . . Answer, anyone . . . Answer, anyone," she repeated several times. The dots and dashes seemed to fly from her fingers. After a few moments she got a reply from someone in Ohio. They dotted and dashed back and forth several times.

"Hey," Jackie exclaimed, "this guy is a friend of mine, the one I play chess with. How neat!"

She told her visitor how she often plays chess via radio with a young man living in Columbus, Ohio, and she carried on the verbal conversation while sending messages via Morse code—a rare ability indeed. But she soon became completely engrossed with her new friend.

"We might as well go back upstairs," her father said. "When she meets someone new, she's gone. She'll keep going for hours."

He reached above his daughter and turned out the light. "We're going upstairs, honey. You won't need this light, will you?" he said, laughing.

"Oh, big deal," she answered, also laughing. The Buchers, least of all Jackie, don't make much of her handicap. When she's at her ham radio, it's really no handicap at all. ■



Bucher recently purchased a tandem bicycle, which has proved to be a family favorite, especially to Jackie.



# THE HOBBLE SKIRT

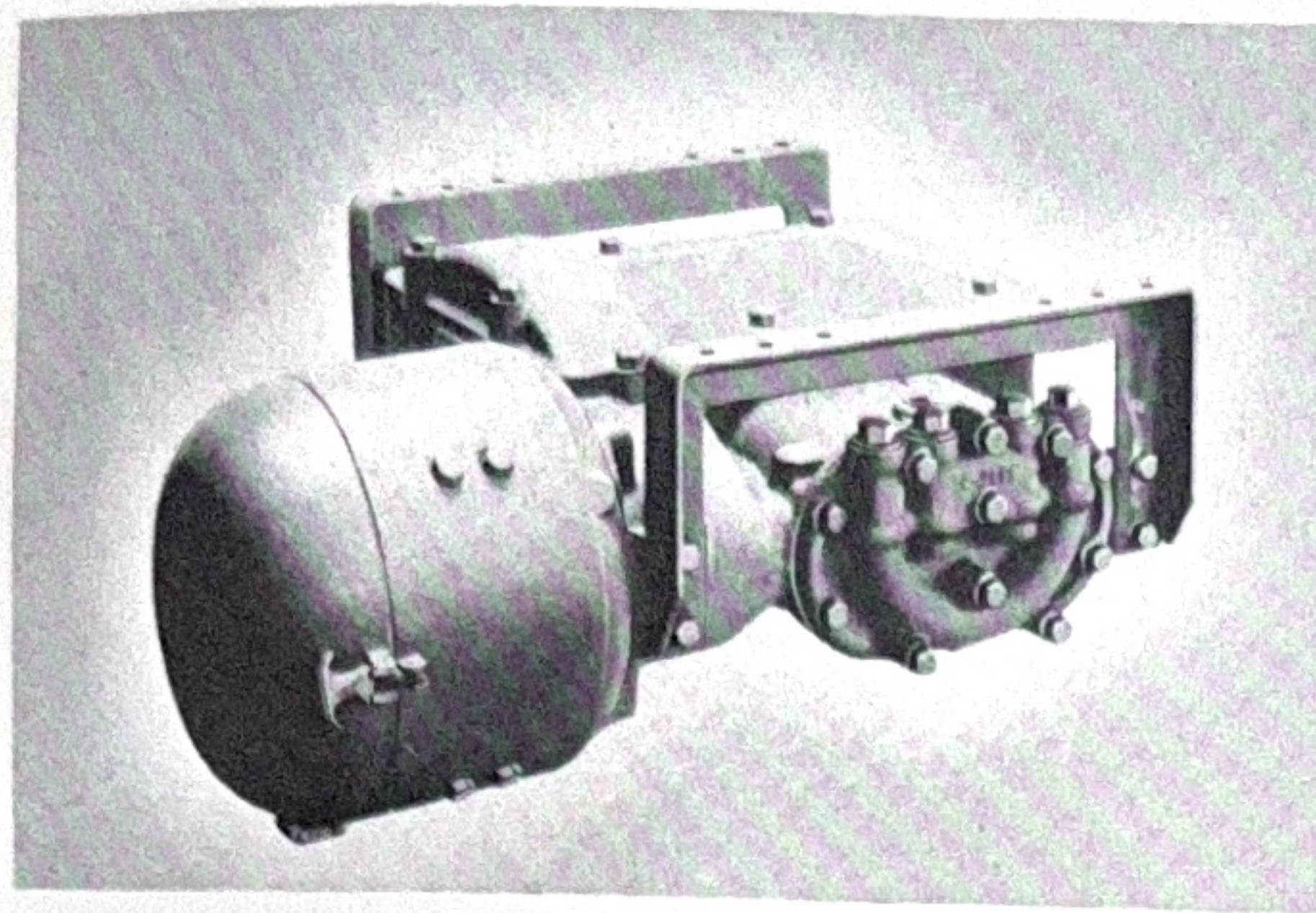
*For a man, it's somewhat difficult to understand just why women wear the things they do. Today it's the miniskirt; a few years back it was the sack dress. Nearly 58 years ago the hobble skirt was in vogue. That caprice of fashion, Company historian Walter F. Peterson recalls, had an incredible impact on Allis-Chalmers.*

The fickle and irrational hand of fate occasionally raises havoc with the most rational and promising of business ventures. When fashion decreed that the "hobble skirt" must be the style, one of the victims, curiously enough, was one of America's great manufacturers of heavy machinery.

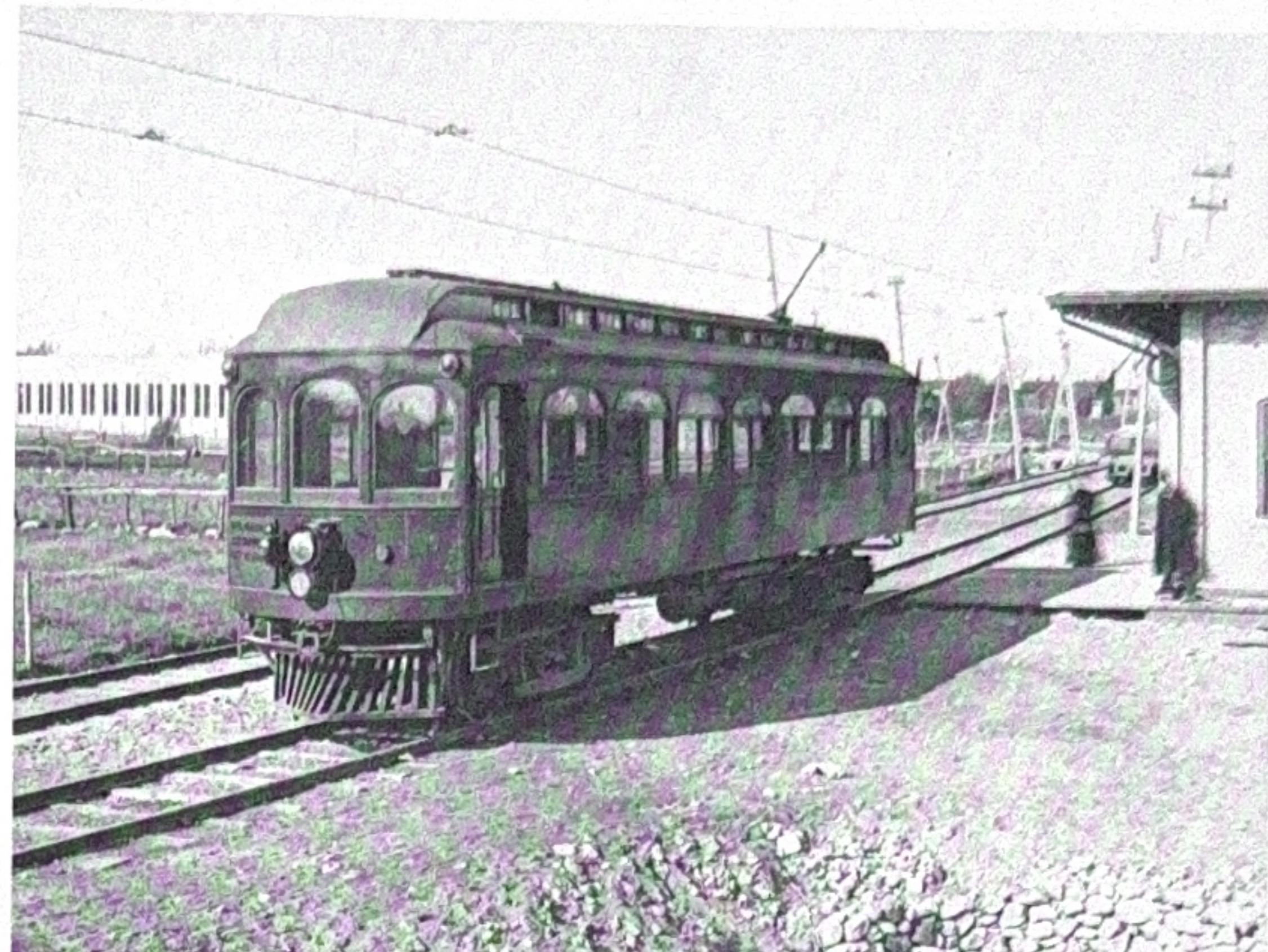
The electrification of street railways and the development of the interurban line not only produced a revolution in American urban life by relieving housing congestion and making suburban life possible, but also created an almost unprecedented source of business for some industries. Early in the 1900's there were 1,280 companies operating 40,000 miles of track and capitalized at \$5,000,000,000. The electric cars, built high off the ground to allow room for the motor control units and air-brakes underneath, served people in all climates and in all weather throughout the year.

Allis-Chalmers had been profiting from this business by supplying Reynolds-Corliss steam engines to many of the electric railway power stations. To supply more equipment for the thousands of cars should have been a most profitable venture.

Accordingly, Allis-Chalmers acquired rights to the manufacture and sale of Christensen air-brakes in the United States, Canada and Great Britain. Extensive quarters were prepared for manufacturing the air-brakes at the Reliance Works in Mil-



This 1907 vintage interurban railway car and thousands of others like it were equipped with Allis-Chalmers built air-brakes. Compressors for the brakes, such as the one pictured above, were mounted beneath the cars. Boarding and exiting passengers had to step up and down nearly three feet.



waukee. H. A. Christensen himself was engaged as engineer in charge of the new department. With a superior staff, how could this venture fail?

W. H. Whiteside, president of Allis-Chalmers, had arranged for the purchase of the patents on the advice and with the consent of the executive committee of the Company's board of directors. The business judgment of this group was generally held to be unimpeachable, for it was made up of Elbert H. Gary, head of the United States Steel Corporation; William A. Read, head of the banking firm of William A. Read and Company; James Stillman, of the National City Bank of New York; and Cornelius Vanderbilt of New York.

Unfortunately, their knowledge of business exceeded their understanding of women and the role of fashion in the lives of women. Shortly after the Railway Compressor Department had become a beehive of industry, when the compressors for the air-brakes were being sent all over the country, this line of business suddenly collapsed, completely due to a change in women's fashions.

In September of 1909, a revolution in women's dress began in Paris. The flowing skirts, many with as much as six or seven yards of material at the lower edge, began to shrink and continued shrinking. They became flat and narrow, ignoring the hips and keeping the lines of the figure as

straight as possible. The hobbling, toddling gait of the geisha became fashionable because women could not walk otherwise.

Condemned by the pulpit, abused by the press, Dame Fashion asserted herself by making the skirt even narrower—and more popular. In desperation, men introduced bills in some state legislatures designed to correct and regulate women's dress. But all to no avail.

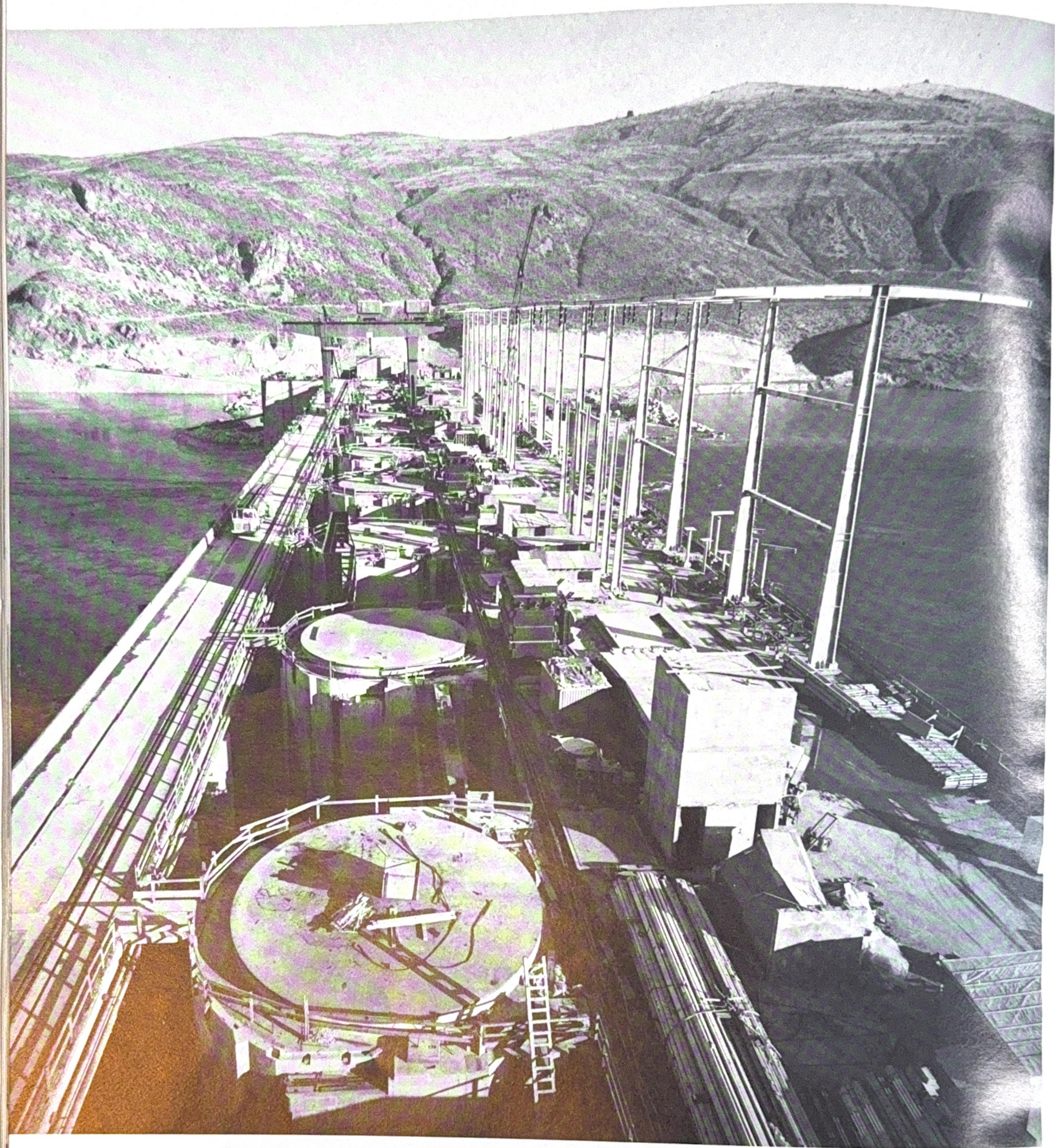
The hobble skirt and the old high street cars and interurban cars were completely incompatible. Women found it almost impossible to get in and out of the cars, serious accidents often resulting. As the number of accidents rose, public utility commissioners across the land demanded that the cars be lowered.

The Allis-Chalmers boxed-in air compressors hung close to the ties. Every effort was made to redesign the compressors and bring a smaller, lighter model into production. But it was cheaper for the street railways and interurban lines to buy new cars built and equipped by competitors than to lower the old ones.

All of the automatic machines in the Reliance plant became obsolete, and the expert personnel useless almost overnight. A sizable investment had suddenly become a distinct liability.

Allis-Chalmers and some of the leading men in the business world had been bested by the caprice of women's fashions. ■





The Wells Hydrocombine on the Columbia River is unusual among hydroelectric plants in its combination of powerhouse and spillway. Housings for 10 turbine-generator units are 10 cylindrical structures separated from each other by spillways.

# Wells Dam: Indeed, It's Electrifying

During installation in one of the 10 pits, turbine components look like the inside of a giant watch. Ringing the workmen are levers that operate wicket gates to control water flow into the turbine.

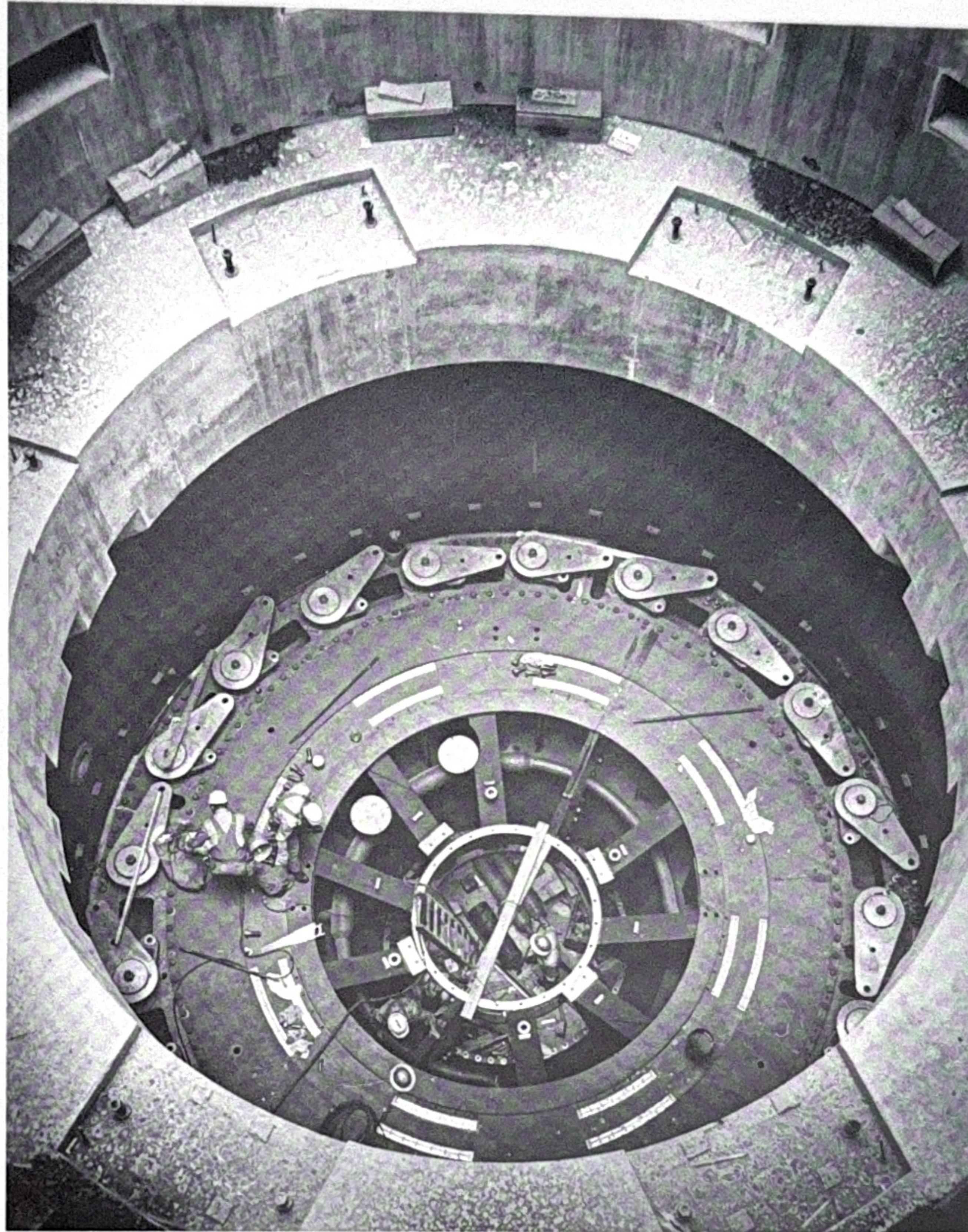


Photo copyrighted by Morrison-Knudsen Company, Inc.

THE mighty Columbia River helped put the "great" in America's great Pacific Northwest. It has been a hard-working river—as a salmon spawning site, as an artery for explorers, early settlers and the lumber industry, and in more recent history as a prolific producer of power. Now, because of Wells Dam, the Columbia will be working even harder for that growing area.

Wells is the latest among the hydroelectric facilities on the river, which courses almost 1,400 miles from its source in southeastern British Columbia, Canada, to the Pacific Ocean on the Washington-Oregon border. The installation is near the tiny central Washington town of Azwell, about 110 miles east of Seattle

and 516 miles upstream from the Columbia's mouth.

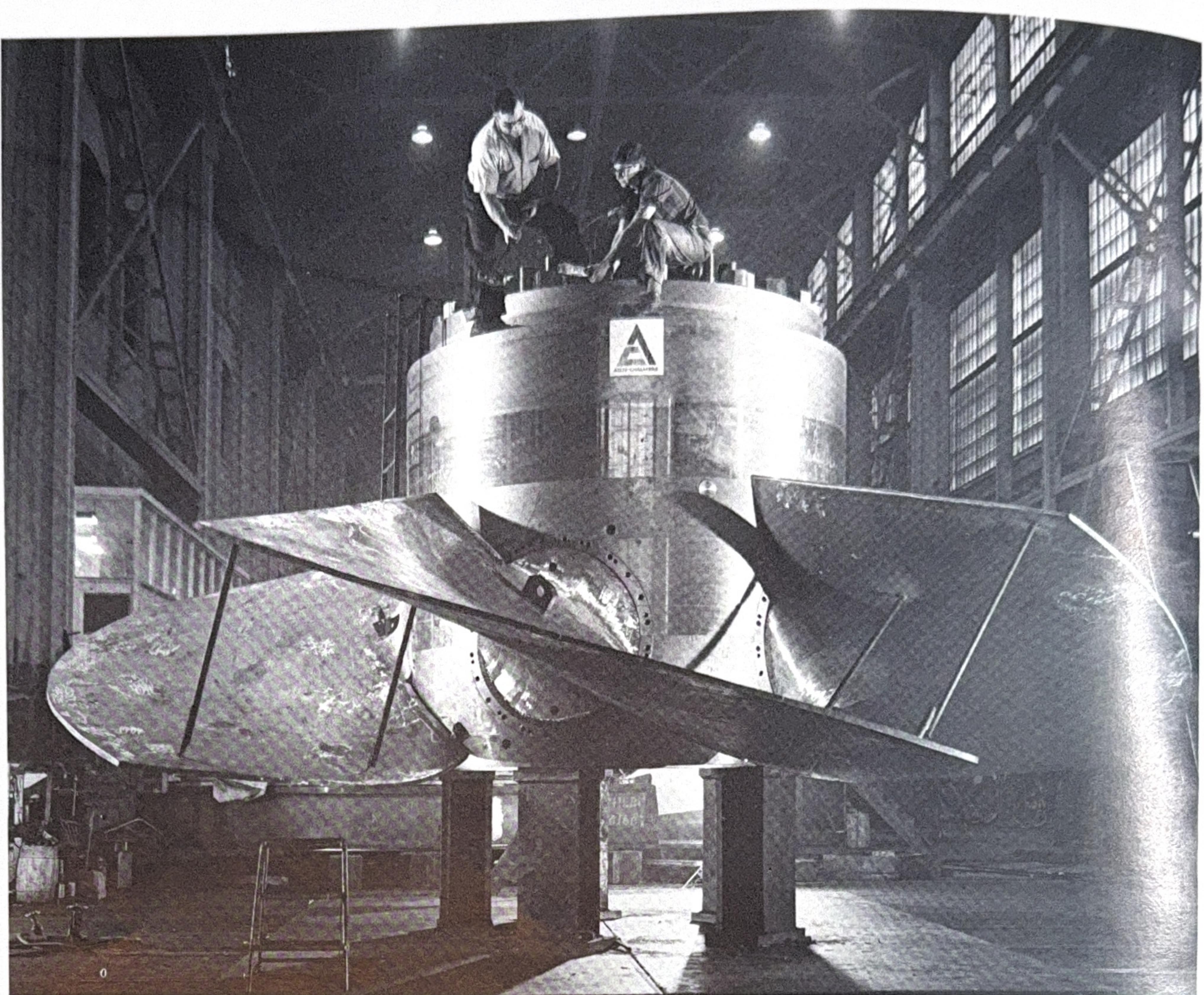
Within the last few weeks, six Allis-Chalmers hydraulic turbines and six of the Company's generators have begun operation at Wells Dam. When the facility is in full production, expected early in 1968, there will be a total of 10 turbines and 10 generators from the Hydraulic Products Division under contracts which total about 19 million dollars. The turbines are York Plant products; the generators are from West Allis.

The Wells project is a big one, but it is impressive also because of its design. It's definitely not conventional. The usual separate powerhouse setup has been eliminated, and a concept called "Hydrocombine"

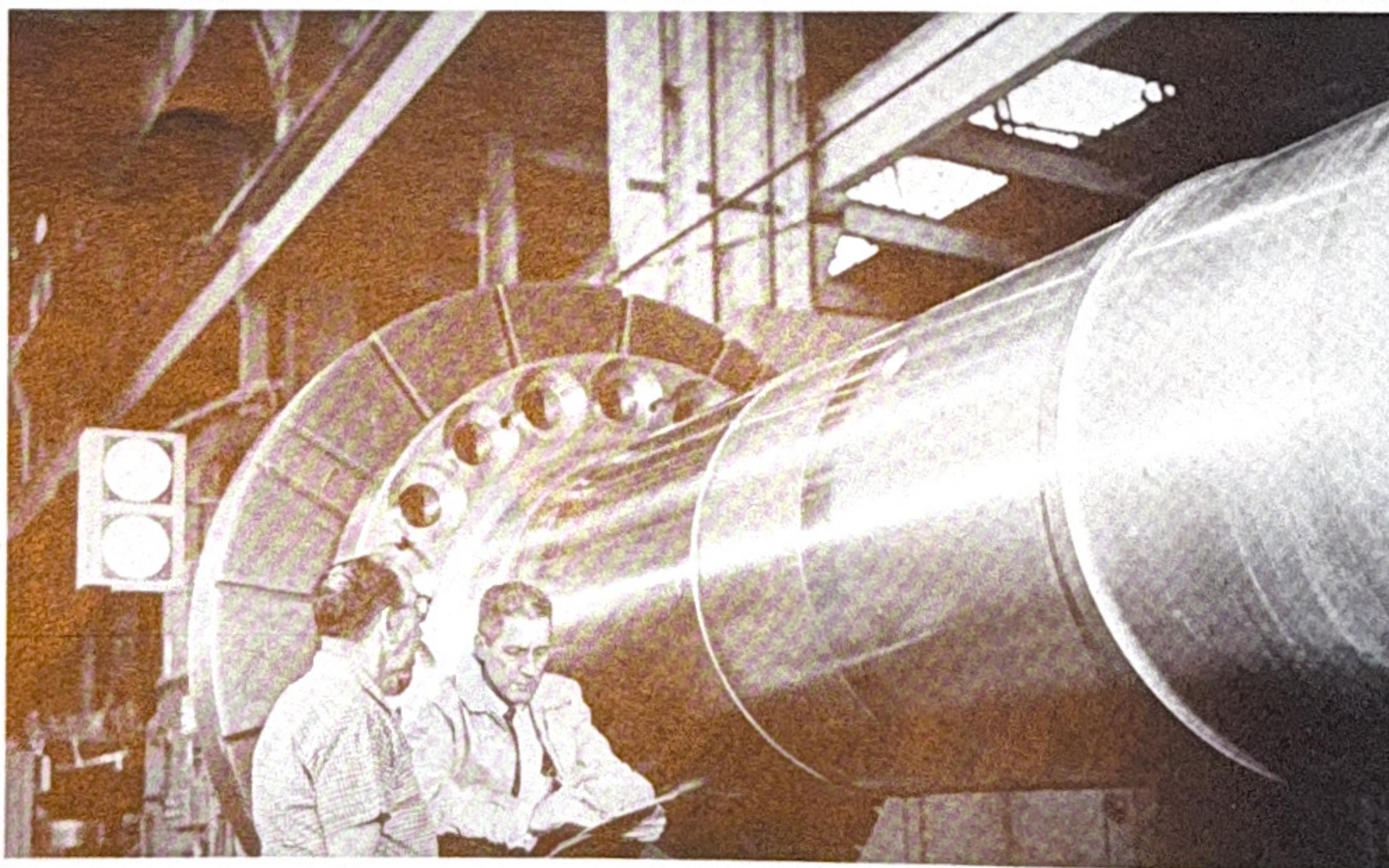
provides a single concrete structure which combines the power generation, spillway and fish passage facilities and the switchyard.

Hydrocombine is a design conceived by the Bechtel Corporation of San Francisco, the engineering and construction management firm for the project. The owner is Public Utility District No. 1, Douglas County, Wash. The design has resulted in construction cost savings of nearly 15 million dollars.

The dam, extending about eight-tenths of a mile, consists of the Hydrocombine and earth embankments at each end. Built right into the Hydrocombine—itself almost the length of four football fields—are 10 silo-like enclosures, the locations for



The York Plant is the scene of this work on a turbine runner. Atop the unit, which will be propelled by falling water, are Ray Wilt (left) and Richard Roelke.



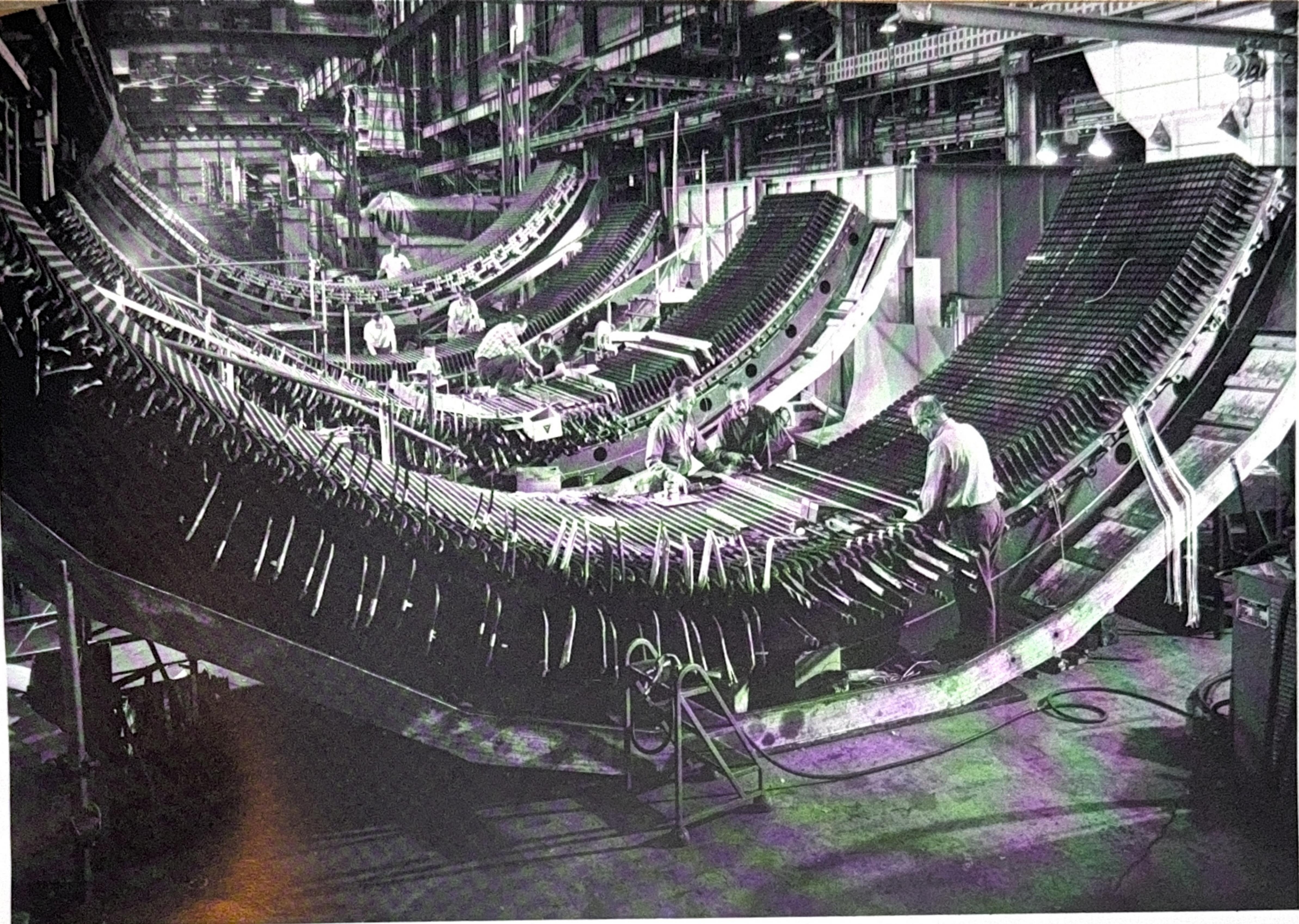
A 42½-inch diameter machined shaft will connect a turbine runner to a generator. Checking the shaft are York Plant's Gordon Seitz (left) and a Bechtel Corp. inspector.

what in effect are individual powerhouses.

Each of the 49-foot-diameter enclosures, separated by 11 spillways, is designed to contain a Kaplan-type turbine developing not less than 120,700 horsepower and an umbrella-type generator rated at 77,425 kilowatts.

What's a Kaplan turbine? Put simply, it's a variable pitch propeller or runner, resembling a ship's propeller—except that its diameter is 24 feet. Reacting to a flow of water, the runner drives the generator's rotor (over 32 feet in diameter) revolving in a stator. Each generator is under the control of an Allis-Chalmers *Regulex* voltage regulator and excitation system.

When all 10 generating units are in operation, the Wells Hydrocom-

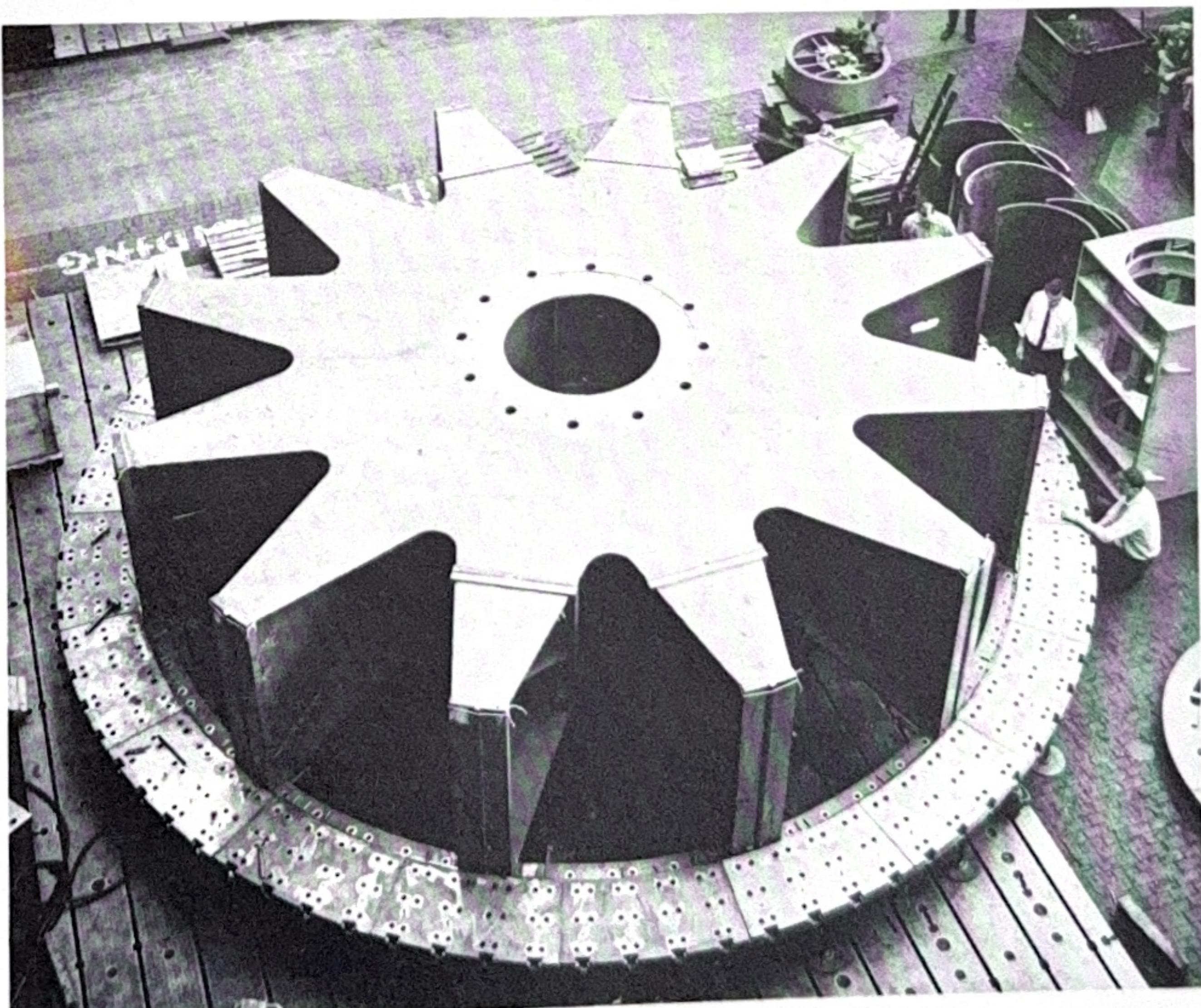


When joined, three sections like those above—made in West Allis—make up a generator stator.

bine will have a maximum electrical capacity of about 820,000 kilowatts. That peaking capability, slide-rule figuring shows, could satisfy the average household requirements of more than 1,300,000 residences. The power will be distributed in the Public Utility District's own service area or sold to other utilities.

In connection with the electrical operation, the Allis-Chalmers Portland Plant and its predecessor, Schwager-Wood Company, Inc., have provided 40 switches and 12 multi-switch operators.

Allis-Chalmers also is in the swim helping salmon and other fish move upstream to spawn. The Company supplied four turbine-driven pumps to provide water flow which attracts fish to passage structures in the end



Gear-like in appearance at West Allis is the framework for a rotor which will revolve within a stator.

At the Wells site is a field representative of the Hydraulic Products Division, D. M. Andrews.

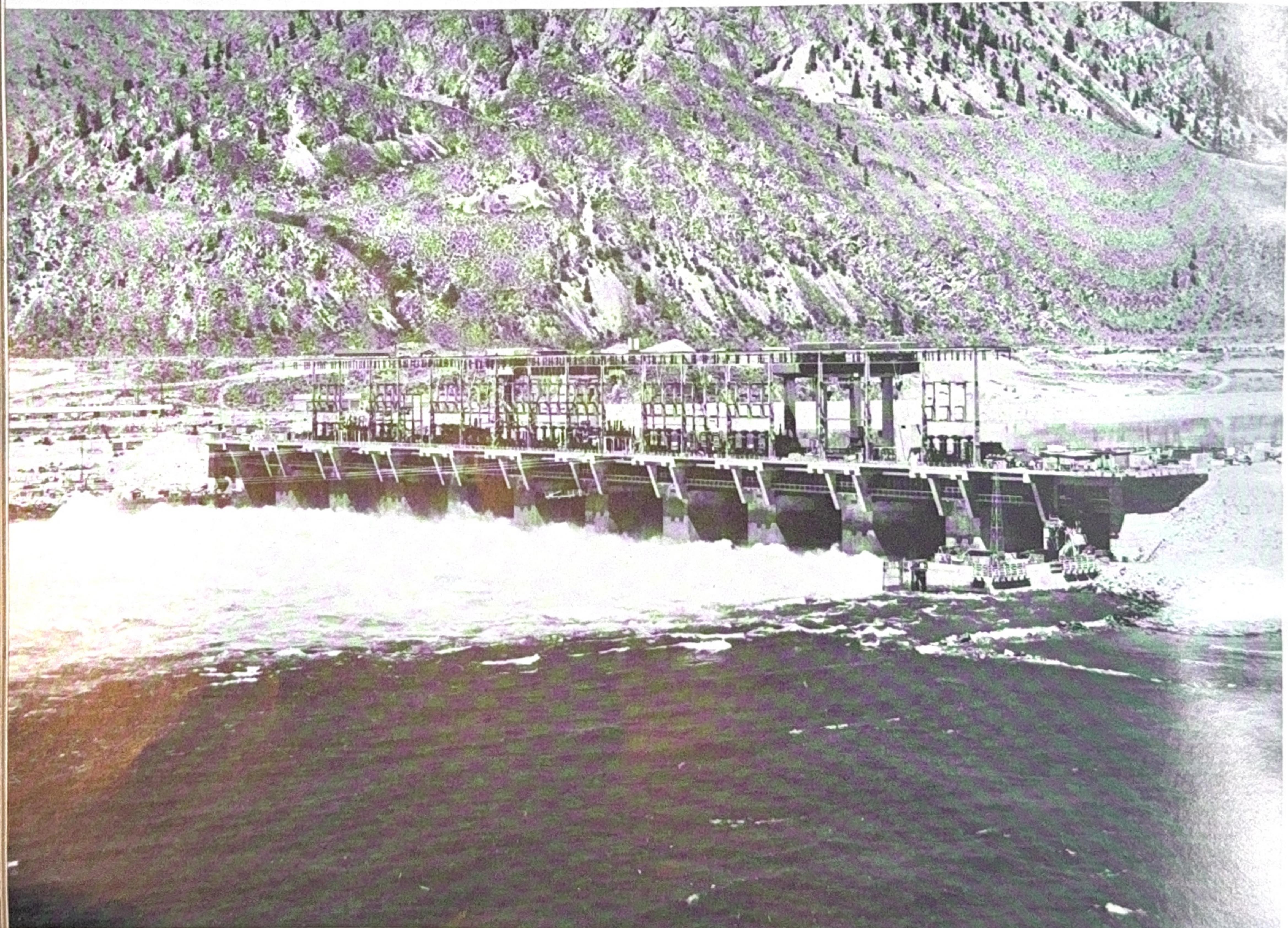


walls of the Hydrocombine. The nearby spawning and rearing facilities, incidentally, can accommodate 6,000 adult salmon.

Total cost of the Wells project—including construction, highway and railroad relocations, land acquisition and financing—is estimated at 202.6 million dollars. The main construction was a joint venture among the sponsor, Morrison-Knudsen Co., Inc., and Utah Construction & Mining Co., Kaiser Company, Peter Kiewit Sons Co. and Perini Corporation.

The Hydrocombine, rising 185 feet from bedrock, creates with the embankments a reservoir extending 30 miles upstream to the Chief Joseph Dam. Out of the reservoir flows the prospect of a new recreational frontier with acres of boating and swimming areas, fishing pools and parks. Adding to those planned facilities the outstanding appearance of Wells Dam, it's evident there'll be the bonus of a tourist attraction from the river that works ever harder. ■

Foaming waters of the Columbia River rush from the downstream face of the Wells Hydrocombine.  
Bechtel Corporation Photo



# AN ACCESS ROAD TO THE WORLD



Field workers in a remote region of Thailand watch construction of a road aimed at facilitating trade.

## ***Allis-Chalmers Fleet Helps Thailand Build Interior Trade Link***

Previously, foot paths and waterways provided the only means of transportation. Now there'll be a two-lane paved road. That change—a vital link in economic development—is occurring in the remote interior of northern Thailand in southeast Asia.

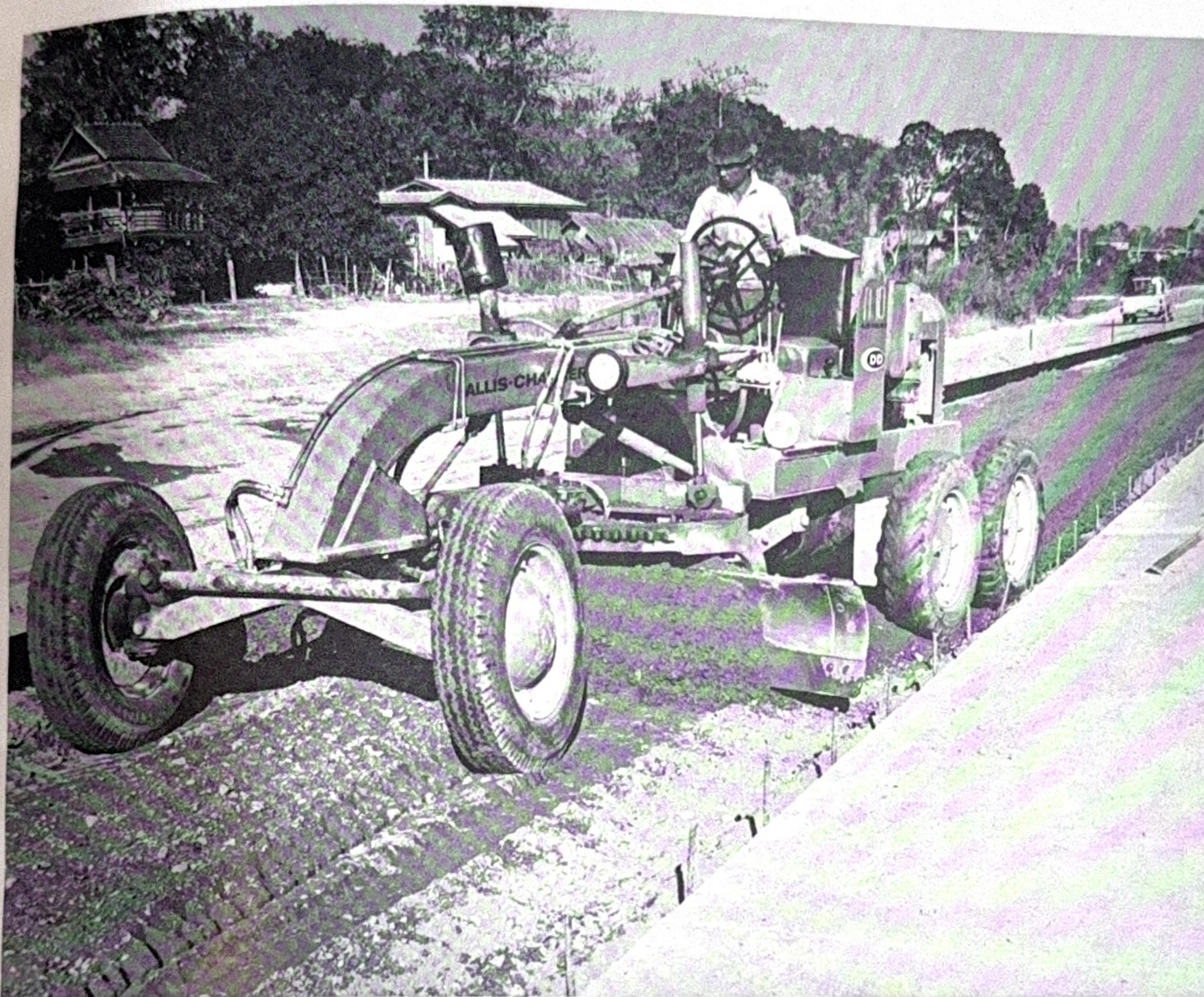
The work isn't routine. In fact, if there were a Law of the Extremes in heavy earthmoving, it would go something like this: "As working conditions get extremely dif-



(Above) Canted at a very steep angle, an HD-16 dozes gumbo over the top, stripping mud from pits containing fill material.



Mirrored in a mudhole lake, a scraper twists and turns to bring its load of gumbo out of the excavation site.



A grader spreads base material. When necessary, construction in this location means improvising, such as front tire replacement by a truck wheel—complete with the hubcap.

ficult, availability of parts and service gets extremely scarce."

So it's not surprising when the contracting combine handling this Thailand project demands the most in reliability from its 38-unit Allis-Chalmers construction equipment fleet—and gets it.

Four hundred miles north of Bangkok, Construction Syndicate-Mahathai Co. Ltd. is pushing through part of the new 22-foot wide highway from Chiang Mai, on the Ping River, to Lam Pang, about 23 miles.

Building the road involves working in heavy clay. When dry, it is very hard ground. When wet, it turns into a slippery, gummy quagmire, with numerous soft spots. Then, too, in the flat plain construction area there are many unstable mudholes, some as deep as 15 feet.

Overland travel between Bangkok and the job site can take days, sometimes weeks. Thus, an equipment breakdown could tie up a machine for days at a time.

"We have to think of equipment reliability more than anything else when we buy machinery to work in the interior of our country," said engineer Boon Luck, representing Construction Syndicate-Mahathai Ltd.

"We have found the best way to overcome parts and service problems is to buy machinery that has the least need for repairing."

Contributing to reliability is the Allis-Chalmers dealer, Thaitrac Co. Ltd., Bangkok, which makes a special effort to give complete service.

Included in the fleet are nine Model 260 scrapers, three with power shift; two HD-21, twelve HD-16 and six HD-11 crawler dozers; three M-100 and two Model DD graders; one each of the Model 645, 16 and 14 wheel loaders, and a Model 11000 diesel electric set.

The contracting combine pushes construction on several widely separated sections while intervening unstable stretches are excavated and rebuilt. Workable sections of the job

often are virtually inaccessible from the project field offices and shop, making additional demands that equipment stand up.

Excavation is done by Model 260 scrapers. These are pushed by an HD-16. The crawlers also strip heavy mud from borrow pits, where fill material is obtained. Finish grading is done with the M-100's, base spreading with the DD's.

Contractors such as Construction Syndicate-Mahathai Ltd. look on equipment, which is more expensive in Thailand than in most parts of the world, as lifetime investments. For instance, the combine counts heavily on an HD-21 purchased 11 years ago and an HD-16 bought new 12 years back. Both are still producing well.

The new road, like others in Thailand's highway construction program, will connect isolated towns and villages with the outside world, to spur economic growth and improved communications in the northeast rural areas. ■

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These are two of the lovelier members of the Allis-Chalmers family — Barbara Burk Baugh, right, and Mary Lynn Haglund. Both are daughters of Allis-Chalmers employes, and both were Miss America contestants at Atlantic City last month. Barbara, the daughter of Robert Baugh, a designer in the Research Division (West Allis), is Miss Wisconsin; Mary Lynn, the daughter of Senior Vice President G. O. Haglund, is Miss Indiana. Both did well in the national contest. Barbara, a talented singer, was second runner-up among the five finalists. Mary Lynn, a champion ice skater, won the preliminary talent competition and was one of ten semi-finalists.