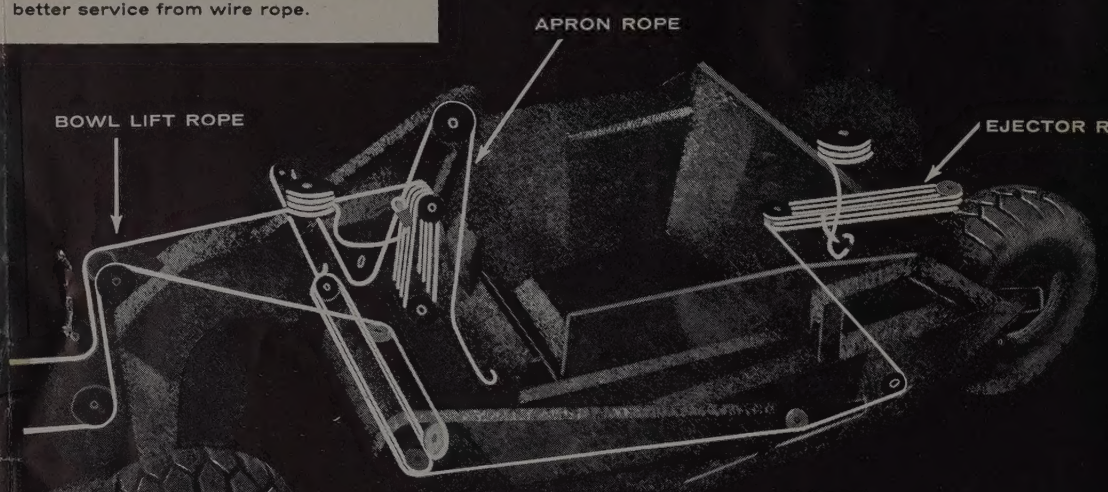
WESTERN CONSTRUCTION

JULY 1958

ONE OF A SERIES of advertisements to help the construction industry get better service from wire rope.

CARRY TYPE SCRAPER



BOWL LIFT ROPE
6 x 25F PREformed Regular Lay Whyte Strand IWR
6 x 25F PREformed Lang Lay Whyte Strand IWRC

APRON ROPE
6 x 25F PREformed Lang Lay Whyte Strand IWRC

EJECTOR ROPE
6 x 25F PREformed Regular Lay Whyte Strand IWR
6 x 25F PREformed Lang Lay Whyte Strand IWRC

Macwhyte Scraper Ropes

can lower your yearly rope costs

Scraper service needs the best wire rope — and the right rope will cut costs.

For carry-type scrapers, Monarch Whyte Strand 6 x 25F IWRC is the *correct* rope. It is specifically designed for the severest service wire rope can get. The outside wires are big and tough. They provide plenty of surface for abrasion-resistance. The independent wire rope core gives extra crush resistance, while the 199-wire PREformed make-up assures a flexibility that matches the rugged demands of constant heavy servic

The thorough Internal Lubrication Whyte Strand Wire Rope is a furth help in extending service life under sever service. Check these features. They mea longer life — and that means less ro for you to buy!

For helpful information about Wi Rope and its correct use on contractor equipment, write for your free copy Bulletin 5702. It's loaded with helpf cost-saving information.

MACWHYTE Wire Rope COMPANY

MACWHYTE WIRE ROPE COMPANY
2909 Fourteenth Avenue, Kenosha, Wisconsin
Manufacturers of Internally Lubricated PREformed Wire Rope, Braided Wire Rope Sli Aircraft Cables and Assemblies, Monel Metal, Stainless Steel, Plastic Coated and N Coated Wire Rope, and Wire Rope Assemblies. Special catalogs available.

MILL DEPOTS: Los Angeles 33, 185 South Myers Street, Ph.: ANgeles 8-2884-5 • **Francisco 7,** 188 King Street, Ph.: EXbrook 2-4966 • Portland 9, 1603 N. W. 14th A Ph.: BRoadway 1661 • **Seattle 4,** 87 Holgate Street, Ph.: MAin 2-1715.

There's a Macwhyte Distributor near for Quick Serv

What's YOUR TRUCK CRANE JOB?

NORTHWEST 25 Ton – 35 Ton TRUCK CRANES

Above: Heavy steel calls for careful handling and accuracy. The Northwest is a 35 ton Truck Crane.

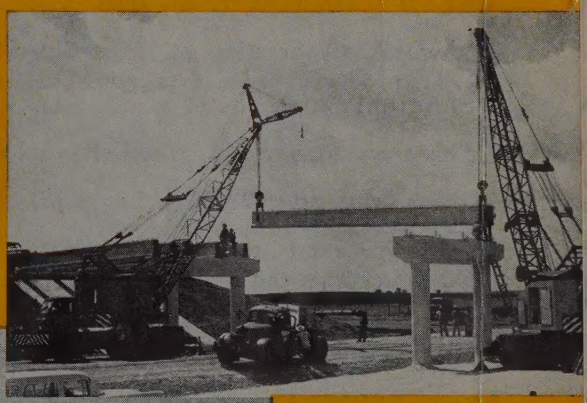
OVER THE COUNTRY — from California to New land — from Minnesota to the deep South, Northwest ck Cranes are proving their versatility in handling jobs ll kinds.

e is a choice of rubber tired units that bring you a com- tion of advantages that make money.

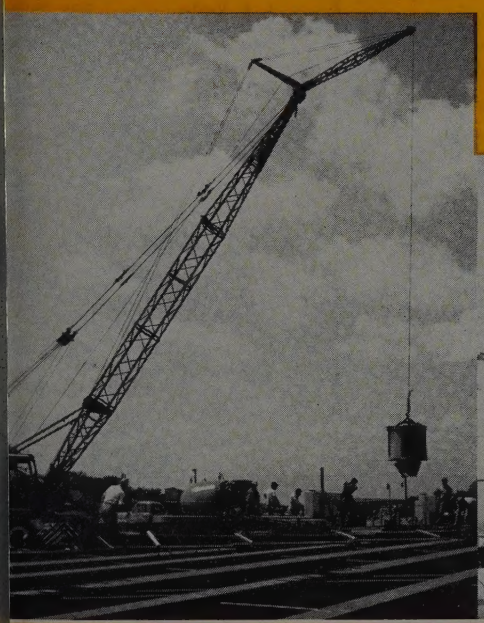
pendent High Speed Boom Hoists are ruggedly built for in and hour out service — power controlled in both ctions and operating independently of all other machine tions, Sectional Boom Hoist Rigging and Pendant Lines, ted Gantries, Telescopic Boom Struts, Adjustable Jibs, ovable Counterweight, 3rd Drums and a host of Carrier ntages all combine to permit the maximum in flexibility et the job done quickly and profitably.

e is a lot to learn about these machines. Ask for a catalog he size you need.

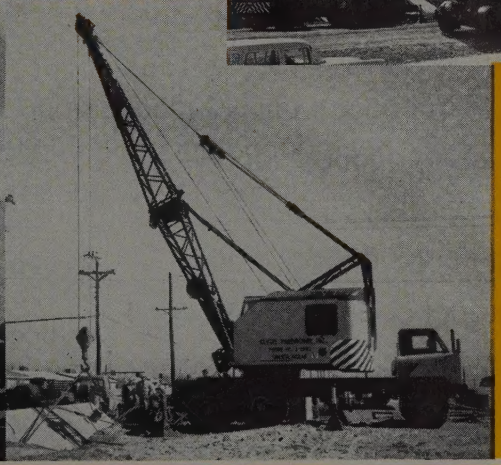
NORTHWEST ENGINEERING COMPANY
135 South LaSalle Street • Chicago 3, Illinois



Above:
Two Northwest 25 ton Truck Cranes coordinate smoothly to set a precast concrete Beam on an overpass job.



Left: Northwest 25 ton Truck Cranes are speeding up many concrete jobs. They bring you smooth booming, plenty of reach and perfect control of the load.



Left:
A 35 ton Northwest Truck Crane resets a large concrete tank.

G-75-SC

call your local NORTHWEST Sales Agent

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CALIFORNIA: Gerlinger Steel & Supply Co., REDDING
CALIFORNIA: Southern Equipment & Supply Co., SAN DIEGO
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1234 Sixth Ave. South

ALWAYS READY TO

WESTERN CONSTRUCTION

KING PUBLICATION

July
1958

Vol. 33 No. 7

TABLE OF CONTENTS

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Subscription rate is $10.00 per y $12.50 in foreign countries. Cost single copy is $1.00. Cost per sin copy of Construction Equipment Di tory, published each January, is $5 Every regular qualified recipient Western Construction receives a c of the Construction Equipm Directory bound into the January is

Accepted as Controlled Circula publication at Portland, Oregon, P master. Please send Notice 3579 Western Construction, 609 Miss Street, San Francisco 5, California.

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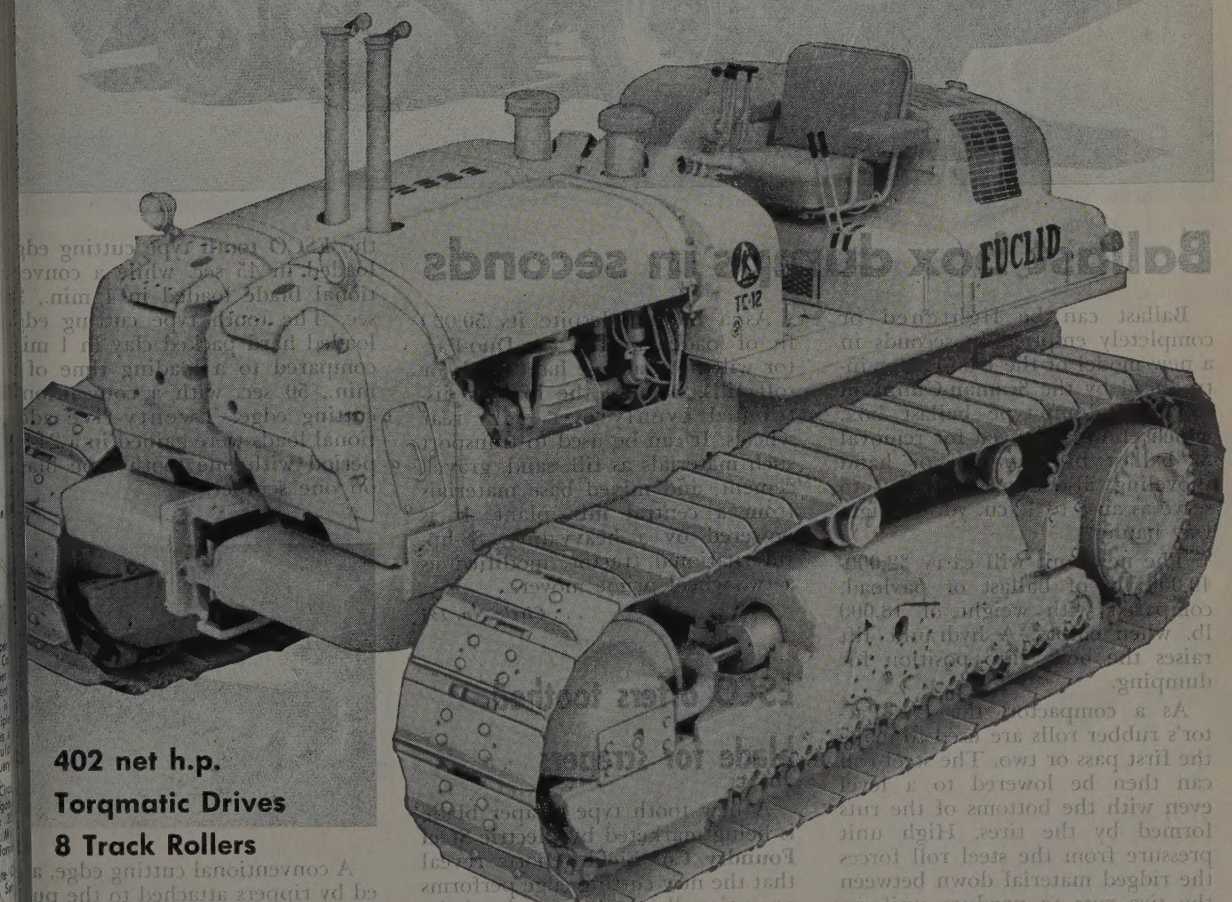
For 32 years serving the construction needs of the 11 Western States

TC-12 . . . now even further ahead of other crawlers

in maneuverability . . . service accessibility . . .

in functional design . . .

and in work-ability



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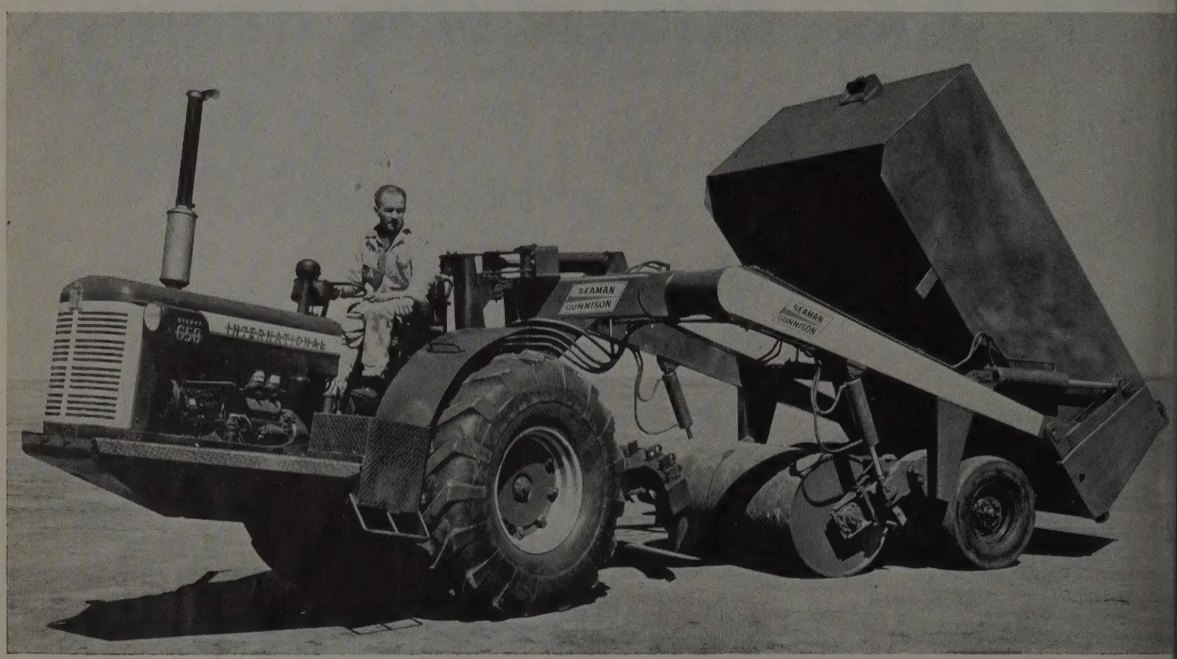
EUCLID EQUIPMENT

FOR MOVING EARTH, ROCK, COAL AND ORE

NEW EQUIPMENT

Obtain more information on these new developments in construction equipment by circling the corresponding numbers on reply postcard.



Ballast box dumps in seconds

Ballast can be lightened or completely emptied in seconds in a new model of the Duo-Pactor introduced by the **Seaman-Gunnison Corp.** A dump-type ballast box, which eliminates need for removal of ballast by clamshell or hand shoveling, also allows the unit to serve as an 8 to 12-cu. yd. off-highway hauler.

The new unit will carry 32,000-40,000 lb. of ballast or payload, compared with weight of 18,000 lb. when empty. A hydraulic lift raises the body into position for dumping.

As a compactor, the Duo-Pactor's rubber rolls are used to make the first pass or two. The steel roll can then be lowered to a level even with the bottoms of the ruts formed by the tires. High unit pressure from the steel roll forces the ridged material down between the tire ruts to produce uniform compaction the width of the Duo-Pactor. Compaction tires for up to 125 psi. inflation pressure are available for the eight rear wheels of the unit.

As a hauler, despite its 50,000 lb. of loaded weight, the Duo-Pactor will not damage haul roads or soft fills, because the load is distributed evenly over eight rear wheels. It can be used to transport such materials as fill, sand, gravel, cement, and mixed base materials from a central mix plant. It is powered by a heavy-duty, 88-hp. International tractor, modified as a two-wheel prime mover.

. . . Circle No. 151

ESCO offers toothed blade for scrapers

A new tooth type scraper blade is being marketed by **Electric Steel Foundry Co.** Field reports reveal that the new cutting edge performs exceptionally well in rock, shale, limestone, hardpack clay, sandstone and other tight formations, usually hard to load.

Working in limestone and shale, a 15½-yd. scraper equipped with the ESCO tooth type cutting edg loaded in 45 sec. while a conve tional blade loaded in 1 min., sec. The tooth type cutting edg loaded hard packed clay in 1 mi compared to a loading time of min., 50 sec. with a convention cutting edge. Twenty-five ad tional loads were gained in a 24-h period with one tooth type bla on one scraper.

A conventional cutting edge, a ed by rippers attached to the pu cat, loaded rock and shale in sec. A scraper equipped with t tooth type blade reduced the lo ing time to 20 sec. and eliminat the use of rippers.

. . . Circle No.

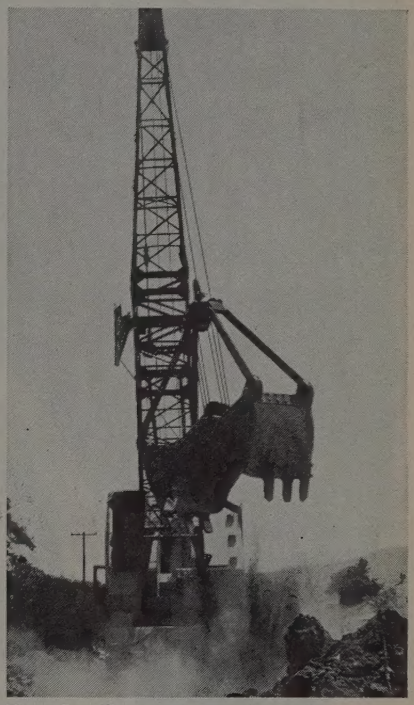
ENGINEER'S FIELD REPORT

PRODUCT RPM DELO OIL

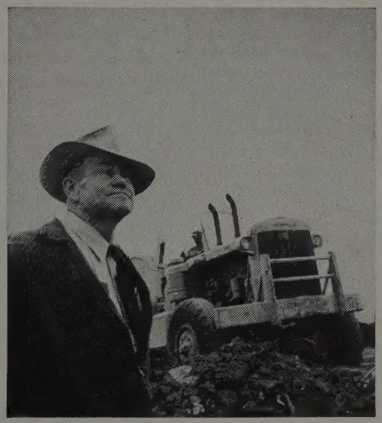
FIRM EDWARD KEEBLE CONSTRUCTION CO. San Jose, California

RPM DELO Oil keeps tractor on the job 15 years

Still Working after 15 years using RPM DELO Oil in this D-8 Caterpillar operated by Edward Keeble Construction Co. Block, crankshaft, and most other parts of original engine are still in use. Another of firm's D-8's using RPM DELO Oil ran 12,000 hours without engine repairs. When torn down, maximum crankshaft wear was .004".



Crawler Crane, like firm's other heavy-duty equipment, uses RPM DELO Oil. Keeble operates 120 pieces of construction equipment—has as many as 30 jobs going at once.



GMC V-8 10-Yard Dump Truck (left), one of a new fleet of 12, also uses RPM DELO Oil. Mr. Keeble (right), says, "For the past 15 years we have kept our heavy-duty engines in top operating condition with RPM DELO Oil. In several instances engines have actually outlasted equipment."

Why RPM DELO Oils reduce wear—prolong engine life

- Oil stays on engine parts – hot or cold, running or idle
- Anti-oxidant resists lacquer formation
- Detergent keeps parts clean
- Special compounds prevent corrosion of bearing metals
- Inhibitor resists crankcase foaming

For More Information or field help with any fuel or lubrication problem, contact representative of any company listed, or write direct.

LUBRICATING OILS RPM DELO

TRADEMARK "RPM DELO" AND DESIGN REG. U. S. PAT. OFF.

STANDARD OIL COMPANY OF CALIFORNIA, 225 Bush Street • San Francisco 20, California

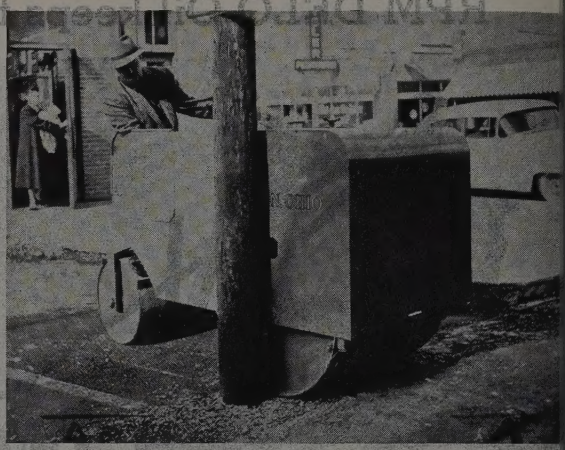
THE CALIFORNIA COMPANY, P. O. Box 780 • Denver 1, Colorado

STANDARD OIL COMPANY OF TEXAS P. O. Box 862 • El Paso, Texas

. . . for more details, circle No. 10 on Reader Service Postcard

Roller operates within ½ in. of buildings

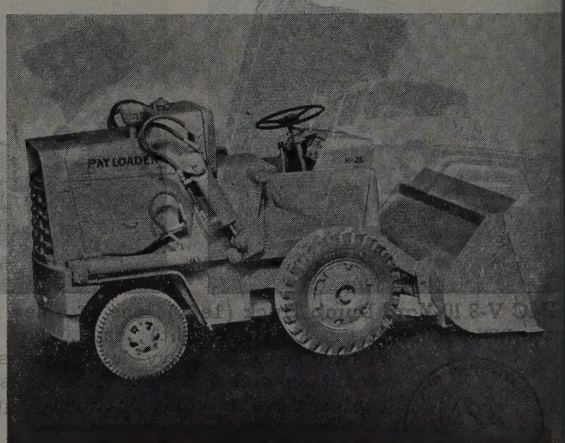
Designed to operate within ½ in. of almost any obstacle, the new Gledhill roller has proven itself an efficient worker under many conditions. The unit has single-lever control with constant mesh trans-



mission and is powered by a Wisconsin AENL 9.2-hp air-cooled type engine. A 30½-in. diameter x 36-in. drive roll and 20½-in. diameter x 30-in. steering roll turn on Timken bearings. When completely water filled the drive roll exerts 85 lb. of pressure per lin. in. Steering roll exerts 30 lb. per lin. in. Over all length of roller is 86 in.; width is 41 in. Unit works at speeds of ½ to 2 mph., has a 129-gal. sprinkler tank, and sprinkler mats on each roll. Weight is 2,500 lb. when empty, 5,450 when water filled. The **Gledhill Road Machinery Co.** . . . *Circle No. 15*

Rubber-tired loader has 2,500-lb. capacity

The first rubber-tired, front-end loader, with a rated carrying capacity of 2,500 lb. is now in production by **The Frank G. Hough Co.** Although this new H-25 Payloader has more capacity and is larger and heavier than other rubber-tired tractor shovels, it has a shorter turning radius (6 ft. to the outside rear hub). Power-steering as a standard feature assists both ma-



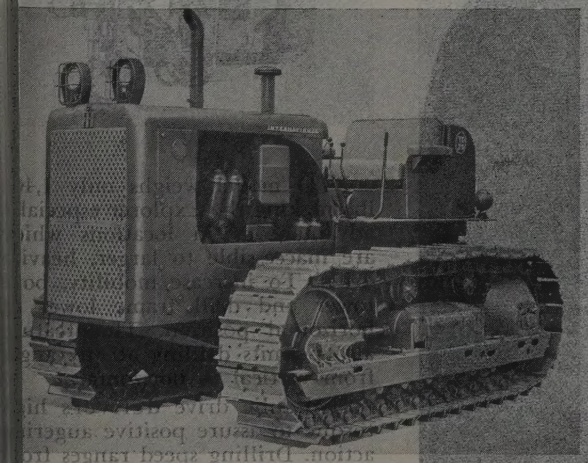
neuverability and ease of handling. A new power-shift transmission and torque-converter are matched to provide the maximum in speed of movement and eas-

of operation. The power-shift transmission is full-reversing and has two speeds. The new Payloader is being offered with a choice of gasoline, diesel, or LPG power. The 44-hp. gasoline engine is equipped with wet sleeve cylinder liners for easier maintenance. . . . *Circle No. 154*

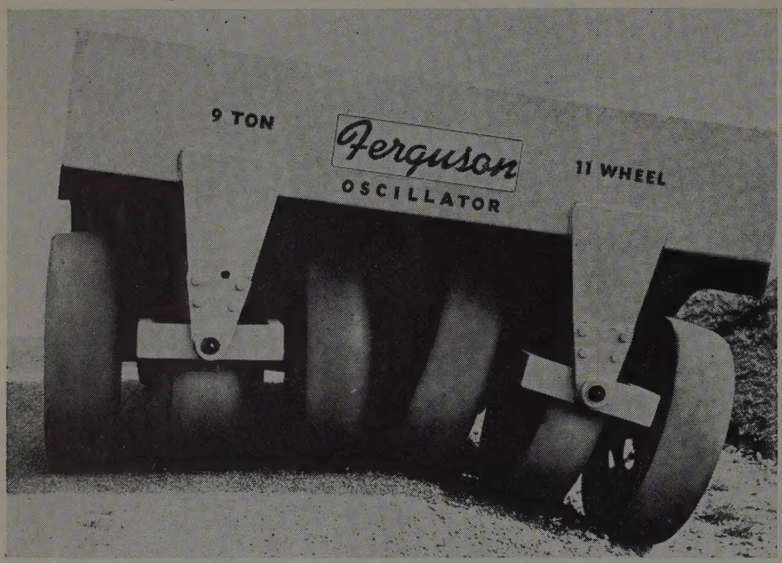
Crane features "pin on" outrigger boxes

The addition of a 70-ton capacity four-axle truck crane to its line of construction equipment is announced by **Baldwin-Lima-Hamilton Corp.** The new model, designated the Type 84-T, is available in 8 x 4 and 8 x 6 carrier drives. Noteworthy in the Lima crane carrier is the exclusive use of high strength T-1 steel

in the main frame and frame components. The frame consists of two full box section main members, joined by seven cross members, resulting in high strength and rigidity at reduced weight. Special features include easily removable "pin-on" type front and rear outrigger boxes, roller-mounted outrigger beams, full length combination deck-fender design, large full vision operator's cab and full frame width engine compartment. . . . *Circle No. 155*



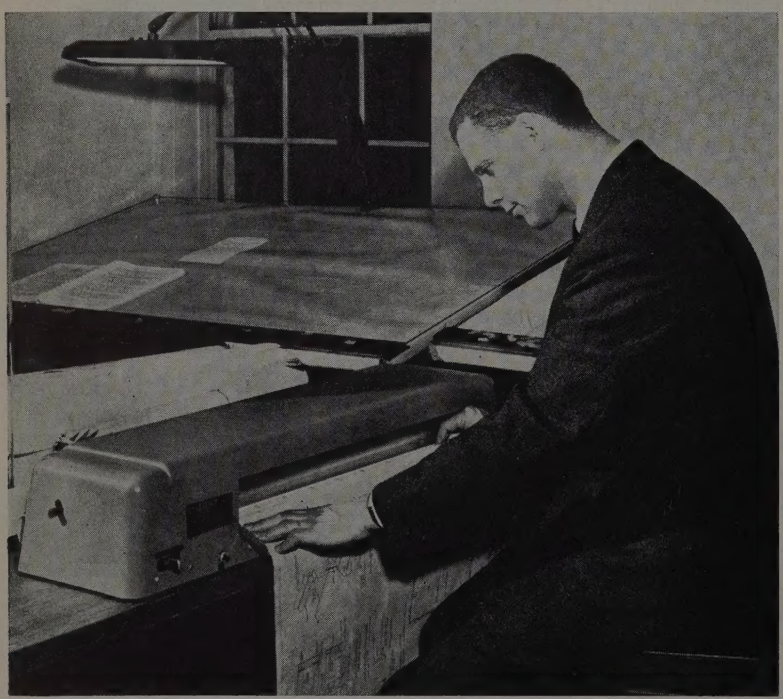
CTURED IS THE new 134-hp. International TD-20 diesel awler tractor just introduced by the Construction Equipment vision of the *International Harvester Co.* The new crawler fers a unique 6-speed full reverse transmission and "shuttle r" control, making the tractor operative in all 6 speeds, either ward or reverse. . . . *Circle No. 156*



Compactor features wheel oscillation

Shovel Supply Co. has added a new unit to its line of compaction equipment—Model RT-1100, an 11-wheel, towed-type rubber-tired roller. The outstanding feature of this machine is the specially-designed wheel oscillation, providing complete coverage on shoulder slopes as great as 2 to 1, as shown in the photograph. This 11-wheel oscillator, empty, weighs 3,630 lb. and, when fully ballasted, exerts ground pressure of 306 lb. per in. of tire width. Timken bearings with dustproof seals are used.

. . . Circle No. 157



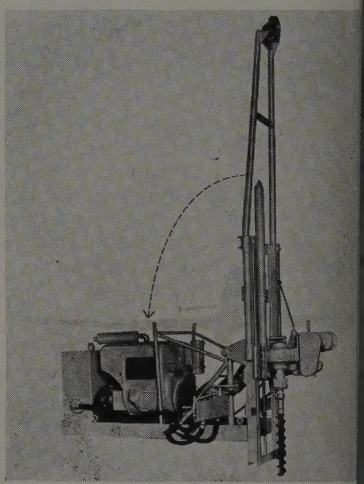
BLU-Ray, a budget-priced rotary diazo printer, makes blue and black line prints from translucent originals. It enables the contractor to reproduce a drawing in his office in seconds and thus eliminate the time and money required for reproduction by draftsmen or commercial blueprinters. The machine also reproduces charts, specifications and manuals. Desk-size BluRay shown costs $275.50. *. . . Circle No. 158*

Mobile drill lightweight, versatile

Specifically designed to do au gering, core drilling and large di ameter earth boring—all equall well—is the new Mobile Drill in troduced by **Mobile Drilling, Inc**

Called the B-40 Explorer, thi versatile unit is used for contin uous flight augering to 75 ft., fo coring to 500 ft. and for borin holes up to 24 in. in diameter Ideally suited to soil sampling both disturbed and undisturbed Quickly convertible from one typ of drilling to another.

The B-40 is self-powered by 4-cyl., 36-hp. air-cooled engine. I is also available without engine fo mounting on any PTO-equippe truck, barge or tractor. Compac size permits installation on ½-to carriers. Mounting dimensions fo drill assembly are: length 37½ in. width 26½ in., height 55 in. (towe down) and 86¼ in. (tower up); fo power assembly: length 45½ in. width 26½ in., height 40 in.



PTO model weighs only 1,40 lb., making the Explorer especiall advantageous in locations whic are inaccessible to larger, heavi drills. To increase mobility, bot tower and drill frame lower t horizontal position. This featu also permits drilling at any ang from vertical to horizontal.

Hydraulic drive delivers hig torque to assure positive augerin action. Drilling speed ranges fro 62 to 500 rpm. with maximu torque output of 1,740 ft. lb.

. . . Circle No. 1

(Turn to page 102 for more New Equipme
For best manuals on wire rope see page 9

WESTERN CONSTRUCTION

Oldest Material of Construction

EARTH IS THE OLDEST material of construction. Centuries of practical use and decades of scientific study have gradually cataloged many of its characteristics. Originally, earth was used by practical builders who learned by doing and advanced by trial and error. Science entered and began to lend its technical assistance in solving some of the recognized riddles. This meant research leading to the microscope and test tube.

At the same time, field developments were advancing to the use of quantities measured in millions of cubic yards and handled in corresponding units of size. Information on the what and the how of earth construction now stretches from particles of microscopic size to methods of compacting the load of a 20-yd. scraper. This represents a long line of communication. Knowledge has grown to an extent that a single individual cannot keep the ends pulled together.

Earth is a natural material. It lacks the uniformity common to man-made products. A pound of steel has an analysis with components specified to a fraction of one percent, but a million yards of earth fill may be defined by the term "Impervious Zone." In origin, earth is a geologic residue. Layers in the same pit may have come from sources hundreds of miles apart and ages apart in geologic background. The most precise chemical and physical tests cannot put all of these background factors in proper relation. Such analysis also fails to describe the earth's reluctance at being disturbed and put down again by man-methods.

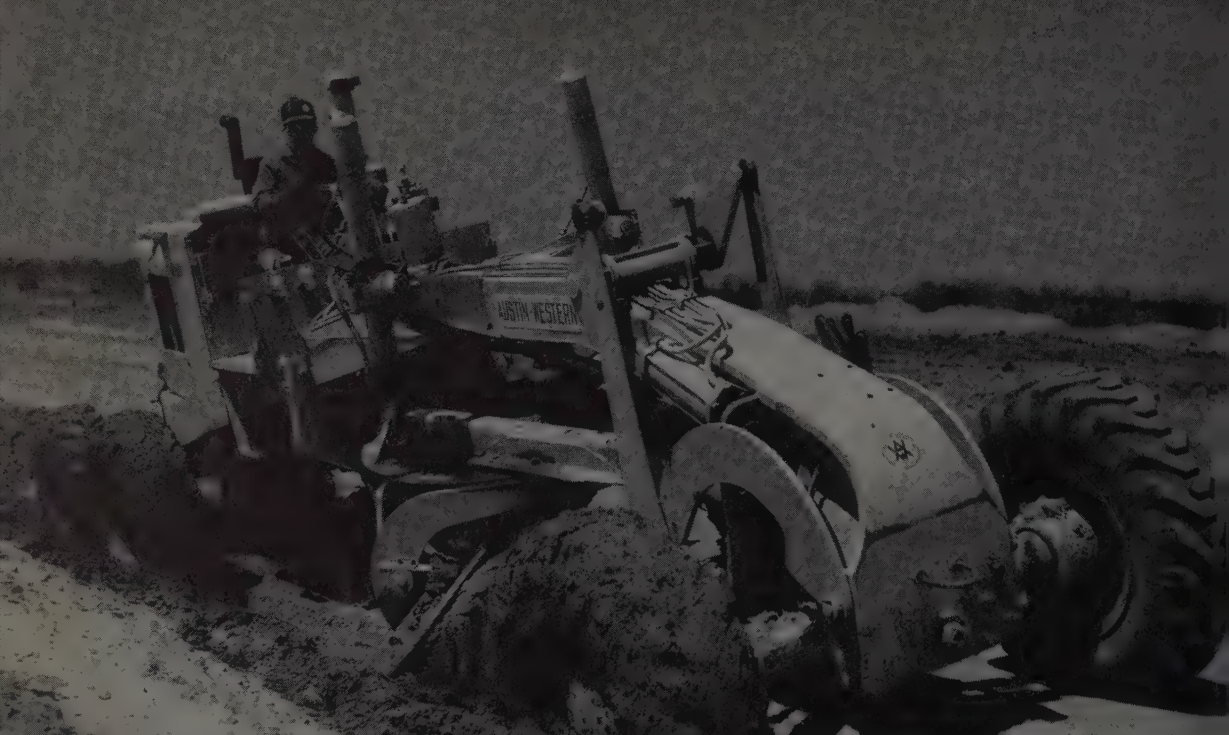
Science has done much to determine and predict behavior of earth in structures. It has given us an index for measuring a characteristic of plasticity. It has developed means for analyzing size and shape of particles too small for the eye and sieves. It has developed tests for determining proper moisture for compaction and explored the problem of overcompaction. Research today extends to the investigating of thixotropic characteristics, with no end in sight. So, we go further and further into smaller detail.

In the field the process has been reversed. When scientific study of earth was beginning, the units of construction were small, loads and quantities were limited and progress was slow. Today, the load of a 20-yd. scraper, which is scooped up in a few seconds, has become the unit of field output. This tonnage is densified by a tractor driver pulling a 50-ton roller. The operator with his modern machine is presumed to be duplicating the treatment of the sample in the laboratory. And at this point laboratory and field come very close to losing effective contact.

Use of earth as a material of construction is advancing fast in both highway and dam building. Knowledge must keep pace. Neither field nor laboratory can handle the problems alone. Each needs the findings and observations of the other. There must be an organized interchange of information with adequate interpretation. Too often this exchange becomes distorted by personal opinions, preferences and prejudices with regard to equipment and procedures. Progress in earth construction must have a two-way flow of ideas to solve the problems that still exist.

Jim Ballard

Western Construction was founded in January 1926 as Western Construction News. Western Highways Builder, founded in 1919, was consolidated with Western Construction News in April 1932 and subsequently became Western Construction News and Highways Builder, which title was later changed in April 1934 to Western Construction News and finally in July 1950 to Western Construction.



A-W Super 99 equipped with Torquematic Drive working in deep mud near Norfolk, Va. Machine is owned by Williams Paving Co., and is operated by Golden Barber.

"The Austin-Western works where other graders can't go" *says Ed. Williams, Williams Paving Co.*

"The Austin-Western's all-wheel drive and all-wheel steer give it a big advantage over other graders," says Ed. Williams, v-p of Williams Paving Co., Norfolk, Va. "With its extra traction and maneuverability, the A-W works where other graders can't go. It is especially good for grading steep slopes and for getting in and out of tight places—for example, working around the stakes during last-stage grading.

"Another feature that makes the A-W a superior machine is its ease of operation. I am an operator myself, and I appreciate the quick, positive action of the hydraulic controls. Furthermore, as an owner, I like A-W's low operation and maintenance costs."

Some big A-W features. One of the reasons the A-W outperforms ordinary graders is extreme blade reach. From any normal operating position, you can extend the blade hydraulically into position to handle almost any type of job. Precision sideshift and circle sideshift give you unusual reach and by using all-wheel steer to offset the rear truck, you can obtain several extra feet of sideshift more than with competitive types. And all-wheel drive keeps the power of the grader balanced against the load, regardless of blade position, for added efficiency.

With an A-W, you can do precise finishing operations never before possible with a motor grader, quickly and easily. Extra wide shoulders, as well as slopes of any kind, can be accurately finished without tire marks being left. Long slopes can be worked up from the bottom or down from the top with equal ease.

If you are a contractor that wants a long-term investment in efficiency, get the full story on Austin-Western today. Your nearby A-W distributor will be glad to arrange a convincing demonstration.

Austin-Western

Construction Equipment Division

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CALIFORNIA—
EDWARD R. BACON COMPANY ..... San Francisco 10
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KING PUBLICATION

WESTERN CONSTRUCTION

JULY 1958

Conveyor moves Trinity Dam dirt

ONE OF THE YEAR'S most spectacular pieces of construction machinery is being put to work this summer at Trinity Dam, near Redding, Calif. It's a 9,465-ft. long conveyor belt which will carry 9,000,000 cu. yd. of selected clay and gravel on a 42-in. wide rubber belt for the Zone 1 core material. The total volume of the huge rolled earth embankment is 33,180,000 cu. yd.

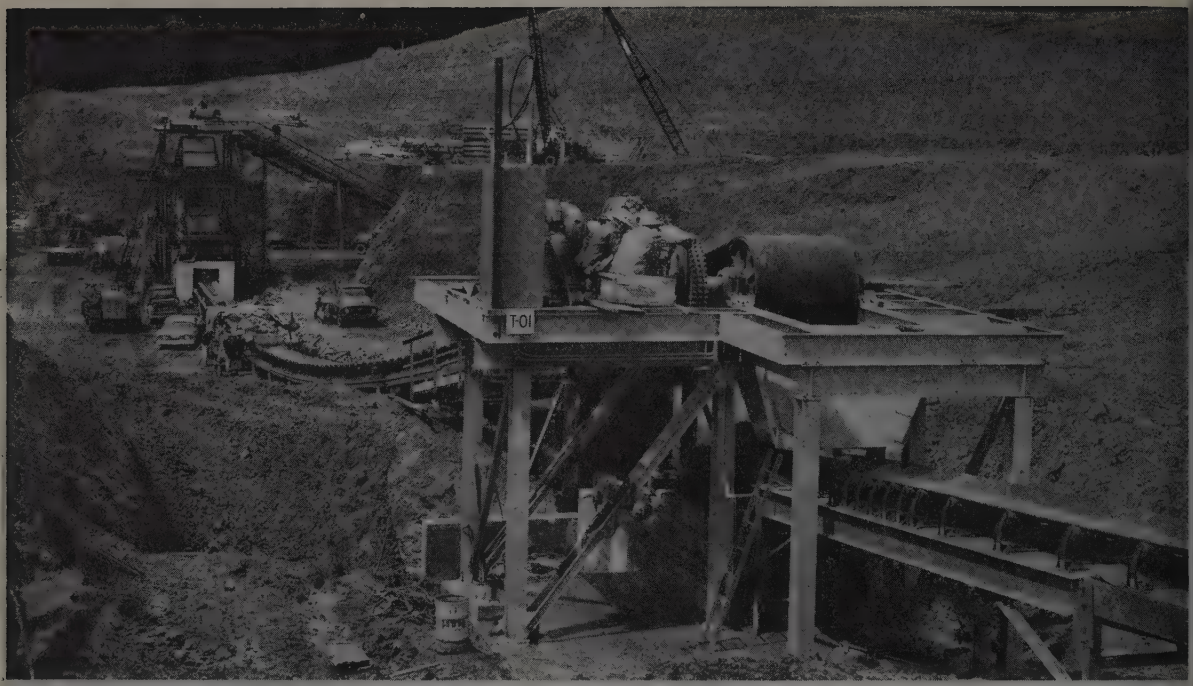
Builders of the dam are Trinity Dam Contractors, a joint venture headed by Guy F. Atkinson Co., and including M. J. Bevanda, Chas. L. Harney, Inc., Ostrander Construction Co., A. Teichert & Son, Inc., and Trepte Construction Co. The firms' low bid of $48,928,101 was submitted in February of 1957. A review of the overall job appeared in WESTERN CONSTRUCTION, April 1957.

The conveyor was designed by the Atkinson Co.'s engineering department, assisted by the San Francisco consulting firm of Jacobs Associates. Erection began in early April of 1958 and the first operational tests were made in mid-June. Initial speed of the belt will be about 650 ft. per min. The main line belt is 42 in. wide, but two short legs have 48-in. and 60-in. belts. There are nine transfer points along the line. Longest flight is 2,000 ft., the shortest 670 ft.

A conveyor belt was made economically feasible by the fact that Pit A, from which most of the core material is to be taken, lies 900 ft. above the damsite, with much of the intervening ground on grades up to 25%. Studies showed that a conveyor belt operating for about 2½ yr. would be the best way to transport the material.

At the pit a fleet of Caterpillar scrapers will carry material to an unloading platform where pan feeders will carry it to a collecting belt which will carry it to the top of a screening and crushing plant. Oversize material will be scalped off and passed through the crusher.

On the steep grade sections, belt



TRANSFER POINT No. 1, with crushing and screening plant in the background. The average depth of material to be removed from this borrow area, called Pit A, is between 30 and 50 ft.

SCRAPERS dump loads into hoppers over steel-plate type feeders, visible in the photograph above, which pour material on the beginning of the conveyor which carries it to top of crusher.

and material will be held back by 300-hp. electric motors. They will act as generators and throw current back into the line on five of the nine flights of the conveyor.

Suppliers for parts and equipment for the conveyor include: belt, B. F. Goodrich, No. 52 R and 75 RS; rollers, Barber-Greene; structural steel and pit loading hopper, Willamette Steel; 30 to 300-hp. motors, General Electric; stringer sections, trusses, and pan feeders, Link-Belt Speeder; gear reducers, Western Gear; screens, Tyler.

At the discharge end of the conveyor the material will be deposited in elevated discharge bins which will feed into another fleet of scrapers for transportation to the fill.

Trinity Dam, part of the Bureau of Reclamation's Central Valley Project, will rise 465 ft. above streambed when completed to take its place among the world's largest earthfill dams.

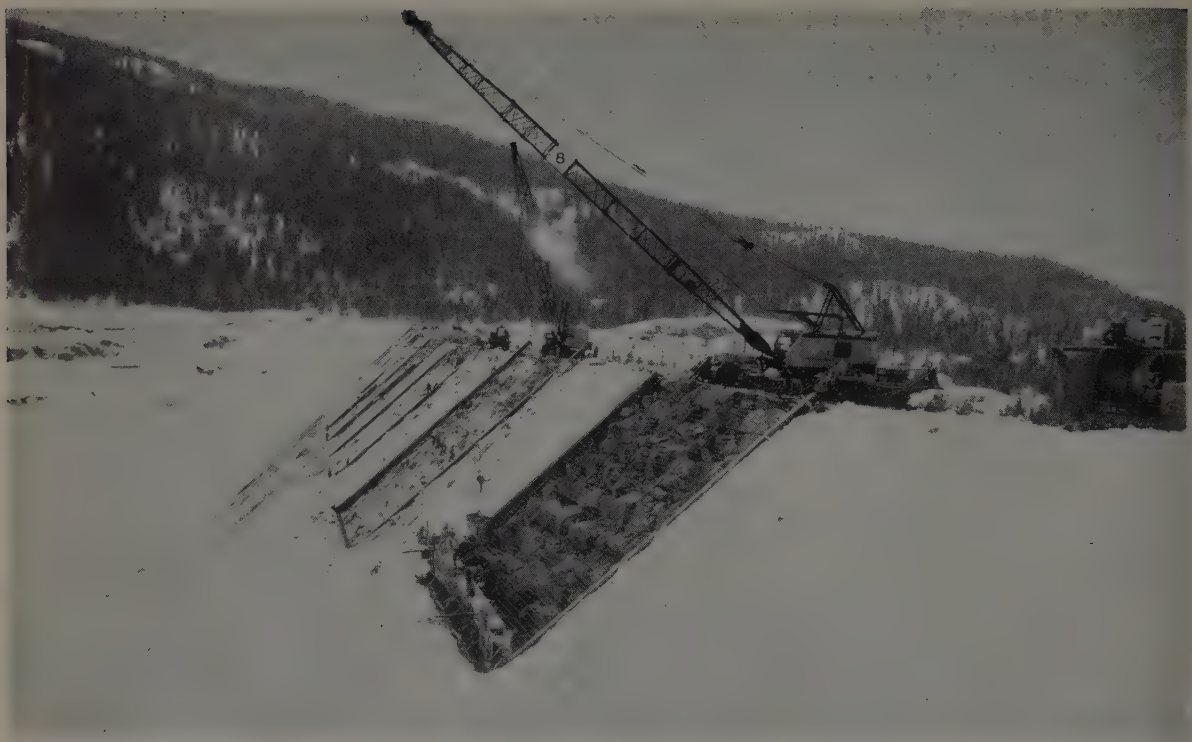
Gross storage of 2,500,000 ac. ft. is provided with active storage capacity of 2,160,000 ac. ft. Area of the reservoir when filled will be about 16,400 ac.

Also under construction in connection with the project is the $36,644,556 Clear Creek Tunnel, being done by a joint venture sponsored by the Shea Co.

(This article is illustrated by official U.S. Bureau of Reclamation photos.)

SPLICING the 42-in. wide belt takes skill and patience. A portable electric cookstand which completely covers the belt does the final vulcanizing. Working in a temporary canvas shelter, a team of men can complete a splice in about 5 hr. B. F. Goodrich made the belt.

BIG OBSTACLES were a county road and Roycroft Gulch. The photo shows how road was relocated and how the gulch was crossed by means of a trestle. Erection of the entire 9,465-ft. line took from early April to mid-June. The system is composed of 30-ft. long sections.



Winter concreting at Wishon Dam

The last-minute decision to extend concrete operations at isolated Wishon Dam through the winter months, through freezing temperatures and 9 ft. of snow, created a host of problems for both the engineer and the contractor. The methods and machines devised to solve these problems are described in detail in this article. Finishing the project early under the severest Western conditions took both persistence and ingenuity. **THE EDITORS**

By OTTO EHRENBURG
Concrete Technologist
Kings River Project
Pacific Gas & Electric Co.

WISHON DAM, now under construction in the high Sierra east of Fresno, California, is one of the key structures of Pacific Gas and Electric Co.'s Kings River Project, reviewed in the Nov. 1957 issue of WESTERN CONSTRUCTION. The cold weather concrete operations during the winter of 1957-58 were carried out under conditions typical of the mountainous Western states and therefore may be of practical importance to many of the readers of this magazine.

The dam is a dumped-rock embankment faced with a layer of crane-placed rock on the upstream side. The placed rock is in turn surfaced with an impervious concrete slab. The volume of the dam is 3,725,000 cu. yd. The crest is at elev. 6,550 ft. and is 3,350 ft. long.

Construction began early in 1956 by Morrison-Walsh-Perini, a joint venture sponsored by Morrison-Knudsen Co., Inc. Major work was completed in May of 1958, six months ahead of schedule. On May 28 the reservoir was filled to its design capacity of 128,000 ac. ft.

The face slab

The face slab is made up of reinforced concrete panels connected to each other by copper waterstops at mid-thickness. The panels are 60 ft. wide, have a slope length from 31 ft. 2 in. at the toe to 77 ft. 8 in. at the crest, and a theoretical thickness from 2 ft. 7 in. at the toe to 1 ft. at the crest. Each panel is supported on all four sides by concrete ribs.

The concrete for the face slab is designed for a 28-day strength of 3,000 psi. The concrete for the supporting ribs is required to have only half that strength.

Placement of concrete for the face slab was done with a Gar-Bro 1½-cu. yd. low-slump bucket and a Northwest 95 crane. The concrete was mixed next to the crane in a Koehring 34 E Twinbatch paver which was supplied by dry-batch trucks.

The larger panels were constructed with the aid of a 4 x 60-ft. slip form, designed by the contractor and built by the Clark Welding Works of Perkins, Calif. The rig, powered by two Tulsa electric winches, traveled on rubber wheels on adjacent slabs or on wooden bulkheads. However, no concrete was placed while the rig traveled from one operating position to another.

Concrete mix design

The design of concrete mixes for Wishon Dam was based on the employment of mixed (natural and crushed) granitoid coarse aggregate, natural sand, portland-pozzolan cement, a water-reducing agent, and an air-entraining agent.

SLIPFORM is sharply outlined against the snow in this view from the dam's crest. The rig rolls on rubber wheels, is pulled up slope by winches through cables attached at top of slope. No concrete was added while slipform moved up to next operating position.

The actual materials used were as follows: Coolidge Meadow aggregates, Type II cement, Airox pozzolan, Pozzolith 3 (calcium lignosulphonate), and Dresinate XX (AEA).

Certain features of the mix design had a definite bearing on concrete operations during cold weather. For instance, the use of pozzolan and a water-reducing agent means less heat of hydration (per cu. yd. of concrete per hr.) than in the case of a conventional mix. On the other hand, the use of an admixture of the ligno-sulphonate type generally permits heating the mixing water to a higher temperature than would be feasible with conventional concrete.

Basically, the same mix proportions were used throughout the seasons of the year. Only minor adjustments were required as the weather ranged from hot to cold or from dry to wet.

Employment of calcium chloride was limited to that portion of the dam which lies below the drawdown level of the reservoir. The reason for this is as follows: The Pacific Gas and Electric Co.'s long-range experience with concrete structures in high altitude indicates that incorporation of calcium chloride in the mix lessens the resistance of concrete to alternate freezing and thawing. Calcium chloride was used on a limited scale in the winter of 1956-57. Cold-weather concrete operations during this season presented no challenging problems and are not given detailed coverage in this paper.

October-November 1957

In October 1957, construction of the concrete face slab was completed to elev. 6495. Below freezing weather was anticipated and considerable apprehension was felt about extending large-scale concrete operations into the second half of October. However, the contractor desired to go ahead with construction of the face slab above elev. 6,495.

Approval was granted with the understanding that specifications would not be relaxed—that is, temperatures favorable for the curing of concrete would have to be maintained through the use of covering, heaters, etc. The following conditions were set down: (1) Concrete must be placed at a minimum temperature of 50 deg. F. (2) During the first night, the temperature of the concrete must be kept above freezing. (3) Beginning with an age of 15 hr. and until an age of 4 to 7 days (depending on mean ambient temperature), the daily mean of the average temperature of the structure must be maintained at 50 deg. F. or higher.

It was felt that these conditions could be met by using equipment already on the jobsite or easily available to the contractor.

The following special equipment was either employed or kept on a stand-by basis during the concrete operations carried on from October 16 to November 22, inclusive:

- Mobile water heater (Air Force surplus).
- Hermon-Nelson hot-air blower, cap. 125,000 btu. per hr.
- Muller-Climatrol hot-air blower, cap. 216,000 btu. per hr.
- Several 50 x 60-ft. 15-oz. (finished) tarpaulins.
- Several rolls of Sisalcraft.
- A number of 300-watt infra-red lamps.

The most serious of the various difficulties encountered was operation of the batch plant. Through judicious manipulation of the aggregate stockpiles it was generally possible to avoid the presence of ice lumps in the dry batches. However, it was necessary to empty all plant bunkers at the close of a day's work to prevent ice forming.

Mixing water for the Koehring 34 E Twinbatch paver was heated to a temperature from 100 to 140 deg. F. in a mobile water heater. The concrete was generally placed at a temperature from 50 to 58 deg.

Protective measures after placement were specifically designed for each operation on the basis of: (1) severest weather conditions anticipated over a span of 7 days, and (2) the size and shape of the structure. It was assumed, on the basis of available data, that green concrete would generate 540 btu. per hr. per cu. yd.

(Continued on next page)

CONTRACTOR'S CAMP in April of 1958. The snowpack reached a maximum depth of 10 ft. 3 in. Snow removal from dam face was done with Intelligiant water monitors.

Protective measures for the face slab were extremely simple. In the first place, it was required that in sub-freezing weather the blade of the slip-form be heated with a dozen or more 300-watt infra-red lamps. In the second place, each panel had to be covered with a tarpaulin for a period from 4 to 7 days, depending on anticipated temperatures.

On November 1, the ambient temperature began plunging downward. On the next workday, the contractor decided to suspend work for the face slab and to concentrate on the spillway structure and saddle dams. Concrete operations for these structures were carried on during the first three weeks of November.

Protective measures taken during this final phase of the year's work were primarily based on utilization of concrete forms and tarpaulins. Exposed surfaces of the green concrete were first covered with Sisalcraft paper. Then, a tarpaulin was either draped directly over the forms or suspended as a shelter enclosing the entire structure, with a 3-ft. deep dead-air space. On especially cold nights, hot air was blown through the air space.

During this period, the mean daily temperature fell below 32 deg. F. and the minimum temperature below 20 deg. in several instances.

Concrete operations were suspended on November 22.

March-May 1958

Early in March, the contractor began preparation for re-opening concrete work for Wishon Dam.

The contractor's plan provided for snow removal by water jets, the heating of mixing water to a temperature of 160 deg. F. or higher, and protection of the green concrete with insulating blankets. Three steam generators (cap. 50 to 65 hp.) and a number of specially designed 6 x 85-ft. fiberglass blankets were acquired for this cold-weather concrete operation.

There was unusually heavy snow fall throughout the month of March. The night after St. Patrick's Day (March 17) the temperature dropped to 19 deg. F.; sub-freezing weather continued for more than 60 hr. The upstream face of the dam was covered with a 4-ft. layer of heavily packed snow. At this moment, the most difficult problem facing the contractor was removal of snow from the worksite.

Snow removal was accomplished as follows. A Chiksan Intelligiant monitor, mounted on a Caterpillar D8 tractor, was connected to two Stang D pumps installed at the downstream toe of the dam. With a 2-in. nozzle and a flow of 1,000 gal. per min. under a head of 100 psi., a sufficiently strong jet was obtained for effective washing-away of the bulk of the snow from the upstream face. Because of the craggy nature of the surface, it was necessary to sluice each area twice, working from opposite ends.

Although this procedure for snow removal was in itself entirely satisfactory, little progress was made during the first week because of continuing snowfall. No concrete operations were undertaken until March 26. On that date, construction of face slab joint support ribs was begun.

Prior to placement of concrete for the ribs, the contractor was required to remove all traces of snow and ice from the rock subgrade. This was effected by playing hot water from a hose on snow patches and iced-over areas. The hot water was obtained by injecting into the water lines live steam produced by two Clayton 50-hp. steam generators.

Mixing water for the Koehing 34 E Twinbatch paver was heated in a Littleford 65-hp. Kwik-Steam vapor generator, located in the immediate vicinity of the paver. All hot water lines were heavily insulated. The water batcher, Pozzolith tank and AEA drum mounted on the paver were also insulated.

It had been originally intended to keep the temperature of the mixing water below 165 deg. F. in order to avoid flash set during the initial contact of the cement with the hot water. However, it was later decided that at temperatures above 100 deg. the Pozzolith 3 should act as a set retarder (see above, under heading Concrete mix design). Consequently, 180 deg. was specified as the limiting temperature of the mixing water. No stiffening of the cement paste during mixing was observed at any time.

No concrete was placed during the first week in April because of especially inclement weather. The snowpack was gauged at 9 ft. 6 in. on the morning of April 3. Minimum temperature recorded during the week was 14 deg.

On April 8, placement of concrete was begun for the face slab. Construction of the first panel was effected in daytime, with the air temperature above freezing. In the early evening, the green concrete was covered with 6-ft. wide strips of 1-in. fiberglass blanketing contained between two sheets of 30-30-30 tarred paper. Installation of the blankets was found to be slow and extremely difficult. Although reasonable precautions had been taken, the wind blowing from up-canyon tore or displaced most of the blankets during the night.

The contractor was now confronted with the necessity of making a difficult decision. Only 2 or 3 tarpaulins were available as a substitute for the firberglass blanketing. Procurement of a sufficient number of additional tarpaulins would not only be costly but probably would cause a delay in the construction schedule. The outlook for early flood flows put more emphasis on the importance of early completion of the work.

On April 11, with a favorable weather outlook, however, it was agreed that no covering would be required while ambient tempera-

(Continued on page 59)

Asphalt panels used for channel wall

By LOUIS R. HOVATER
Chief Engineer
Globe Linings, Inc.
Long Beach, Calif.

THE SOUTHWEST portion of the County of San Bernardino in California consists in large part of valley area situated on the alluvial cones of precipitous mountains. Even though yearly rainfall within the county is such as to provide a semi-arid region, flood control channels must be provided to carry off high peak flood flows from the mountains to prevent loss of life and minimize property damage.

Like the rest of California, the residential, commercial and industrial areas of the county are increasing at a rapid rate. With limited funds to construct or improve the many miles of flood channels needed in these areas, engineers of the San Bernardino County Flood Control District, a few years ago, employed an interim type of channel construction for use in some locations.

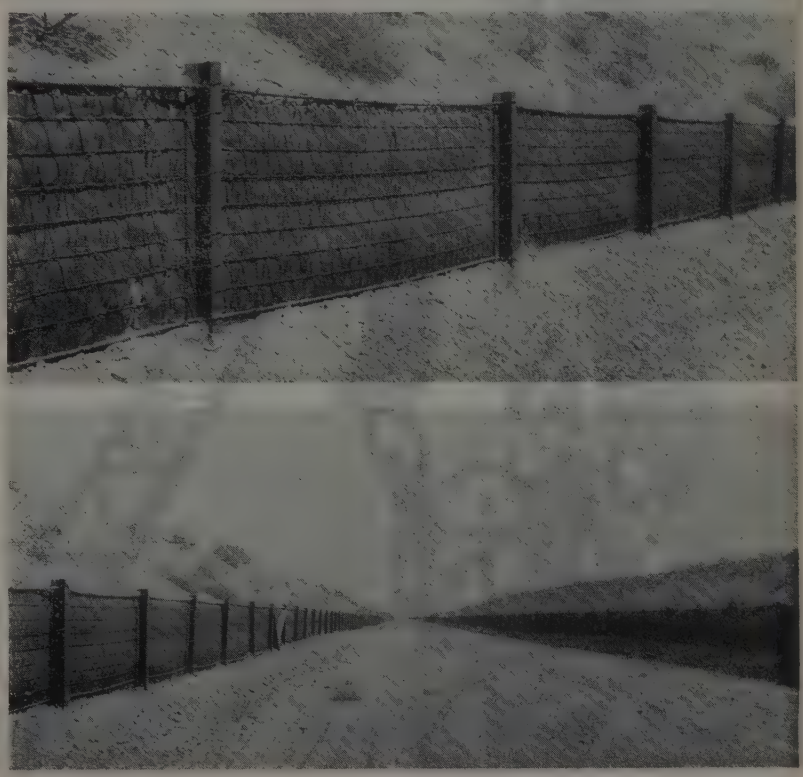
A typical section of the excavated channel consists of an earth bottom, "built-up" retaining walls, and abutting earth berms or levees with a rail fence type bank protection. The bank protection on each side of the channel is "built up" of railroad rail posts, cables, fencing and backing material. Many types of materials have been used in backing, such as airfield landing mats or galvanized metal sheets. Because of the unavailability of some backing materials and increasing costs of others, Panelcraft asphalt panels have been employed as replacements in several channel reaches with satisfactory performance so far exhibited.

A channel improved with this type of section is usually a natural meandering one in low flows. It is first rough graded to a definite horizontal and vertical alignment. Then the rail posts are driven at 8-or 10-ft. intervals in the bottom along each side of the channel. The posts have an over-all depth of 16 ft. or greater and project about 4 ft. above the channel invert. Three strands of steel cable are threaded through holes in the web of the post. One cable is located near the top of the post, another 4 ft. from the top, and the third one in between. Metal fencing, 6 ft. wide, it attached to the cables and posts. The fencing provides over-all support for the asphalt panels used as backing. The panels are secured by wire to the fencing using all butt joints and no attempt is made to seal the joints so as to permit drainage. Afterwards the entire wall is sprayed with an asphaltic emulsion to prevent rusting of the metal parts. Gravel type backfills are then placed against the built-up walls to complete the channel. The earth levees may be constructed higher than the top of the retaining walls to provide a degree of freeboard for the channel. This additional height is accomplished by building the levees on a 1½:1 or 2:1 slope away from the top of the wall.

The actual effective height of the built-up wall is 6 ft., but the exposed portion is only 4 ft. The lower 2-ft. part inside the channel below invert is backfilled with earth to resist effects of scour of the wall by flowing water.

Being a part of a built-up retaining wall is a unique use for the panels. Developed as a lining for reservoirs, ponds, lagoons, canals and ditches, the panels used as backing material on the walls are ½ in. thick, 10 ft. long, and 2 ft. and 4 ft. wide. The standard width is 4 ft., but since the height of the walls is 6 ft., a 2-ft. additional width is required. The panels consist primarily of asphalt and are made up of five fully protective water-proofing components, consisting of an outside coating each side of hot-applied asphalt, a layer of asphalt-impregnated felt each side, and a core of asphalt, minerals and fibers. The panels are made under pressure and heat into a long-lasting impervious material to the desired thickness and length.

Panelcraft asphalt panels are manufactured by Envoy Petroleum Co. of Long Beach, Calif. Globe Linings, Inc. of Long Beach act as sales agents, engineers, and installation contractors. Martin A. Nicholas is chief engineer for the San Bernardino County Flood Control District, and W. A. Sidler is flood control engineer.



TYPICAL channel wall is simply asphalt panels behind a wire fence supported by steel rail posts and cables. A spray of asphaltic emulsion is applied at the finish to prevent rusting.

Building cableways at Glen Canyon

Largest of two cableways being used for construction of huge steel arch bridge features tilting towers, 25-ton capacity, 10,000 ft. of cable. Cableways for the dam will be among largest ever built.

TWO OF the largest single track cableways built in this country will be erected at the Glen Canyon damsite in northern Arizona this year for construction of the dam and powerhouse.

These workhorses — traveling on narrow gauge railroad tracks — will be capable of delivering a 50-ton payload every 4 min. To handle loads at this speed a 4-in. steel cable, one of the largest ever fabricated commercially, is now being spun at the Trenton, New Jersey, plant of United States Steel Corp.'s American Steel and Wire Division for Merritt-Chapman and Scott Corp., prime contractor for the dam and powerhouse.

More than a mile of the big cable will eventually be suspended 700 ft. above the Colorado River for lowering 12-yd. concrete buckets to the canyon floor.

The largest of the highline towers will rise 190 ft. from the rim of the canyon with the smaller 45-ft. matching tower to travel underneath. The outside towers will be 2,072 ft. apart with 2,050 ft. of main gut cable suspended from a series of blocks reaved to the head of each tower. The second cableway span will be 1,800 ft. in length.

The 4-in. lock coil track strand is specially designed to give a smooth continuous surface for the load carrying carriage. The cable itself is made of a core of regular round wire, a concentric layer of key wires, and a Z-shaped layer of lock wire forming the smooth outer cover. A total of 312 individual steel wires, including 48 lock wires, will go into the manufacturing of the big line which will weigh 38 lb. per ft. when complete.

Fabrication and erection of the four cableway towers was subcontracted by Merritt-Chapman to Kiewit-Judson Pacific Murphy Co. of Emeryville, Calif., veteran West Coast bridge builders and contractor for the $4,250,000 Colorado River Bridge at Glen Canyon. Steel for the towers will be fabricated in Los Angeles, Calif., for shipment to the damsite. The towers themselves will be truck mounted on railroad type wheels, running along a 910-ft. back and 800-ft. front track located along the axis of the dam. Two 750 to 1,000-hp. electrically operated engines will power the two highlines.

UNDER CONSTRUCTION—A Lorain Moto-Crane lowers a 6-ton counterweight into place at the base of the tilting headtower of the main cableway. The weight is composed of steel punchings.

Bridge cableway

Already in operation at Glen Canyon is a 25-ton tilting cableway to be used in the erection of the Colorado River Bridge, the nation's highest and second longest steel arch span.

Designed and built by Kiewit-Judson Pacific Murphy, the highline will hang arch trusses, columns, and horizontal floor steel for the 1,028-ft. bridge. The towers for this unique cableway are located on the exact centerline of the 40-ft. wide bridge, 865 ft. downstream from the axis of the dam. Each tower is designed to be tilted or luffed 20 ft. from the centerline of boom putting the payload over each cord of the arch and thus eliminating the need for traveling towers.

The nearly 100 tons of structural steel used in the two towers was fabricated in the Emeryville, Calif., yards of the contractor and shipped by rail to Flagstaff, Ariz. From the railhead the dismantled parts were trucked by flatbed Trailmobile and Freuhauf trailers 135 mi. to the damsite for erection on the job. Trailers used by the contractor were reinforced for a 20-ton concentrated load.

The 172-ft. head tower and smaller 157-ft. tail tower were as-

sembled from 25-ft. wooden bents with the foot of each tower anchored to heavy steel shoes. The jib-like masts work off a double 6-in. luffing and 8-in. base pin allowing them to swivel freely for luffing or to rock slightly with the loading and unloading of the cableway.

An auxiliary highline 30 ft. upstream from the bridge cableway was used as a mast in hoisting the two towers into place. This same 12-ton highline was also used in snaking across a 1¼-in. messenger cable for the 3-in. main gut which was mounted from the messenger cable on hangers spaced on 50-ft. centers. Take-up blocks reaved to the tops of the towers and connected to the jeweled ends of the track cable by I-bars were used in hoisting the gut into place. The track cable was pulled to a 67-ft. unloaded sag giving the cableway a 25-ton safe working load capacity.

The more than 10,000 ft. of steel cable that went into the building of the highline ranged in size from the 3-in. track strand to a ⅝-in. high strength purple strand cable used in luffing the towers.

The main gut itself is a lock coil track strand manufactured by U. S. Steel and similar in all respects except size to the 4-in. lock coil cable to be used in the 50-ton highlines. The 3-in. cable is 1,490 ft. in length and with jewels weighs about 22 tons. Also used in the highline was 4,200 ft. of endless in-and-out-haul cable fed from a two-drum Ledgerwood Hoist powered by a Waukesha Diesel delivering 250 hp. at 1,500 rpm. Other cable included 4,800 ft. of ⅞-in. load line and 2,527 ft. of 1⅞-in cable for back and side guys. Both load line and endless were manufactured by John A. Roebling's Sons Corp.

The luffing cables were made up of a 12-part reaved-up line coupled to the side guys by 3-in. pins. All socket connections including those for the guy and track cables were made before arrival in the field. Other safety features included two limiting pennants on each tower. These cables are bridled from the head of the main side guys to the heads of each tower to prevent luffing beyond the maximum 20 ft. Both towers lie into the pennants when luffed to the maximum.

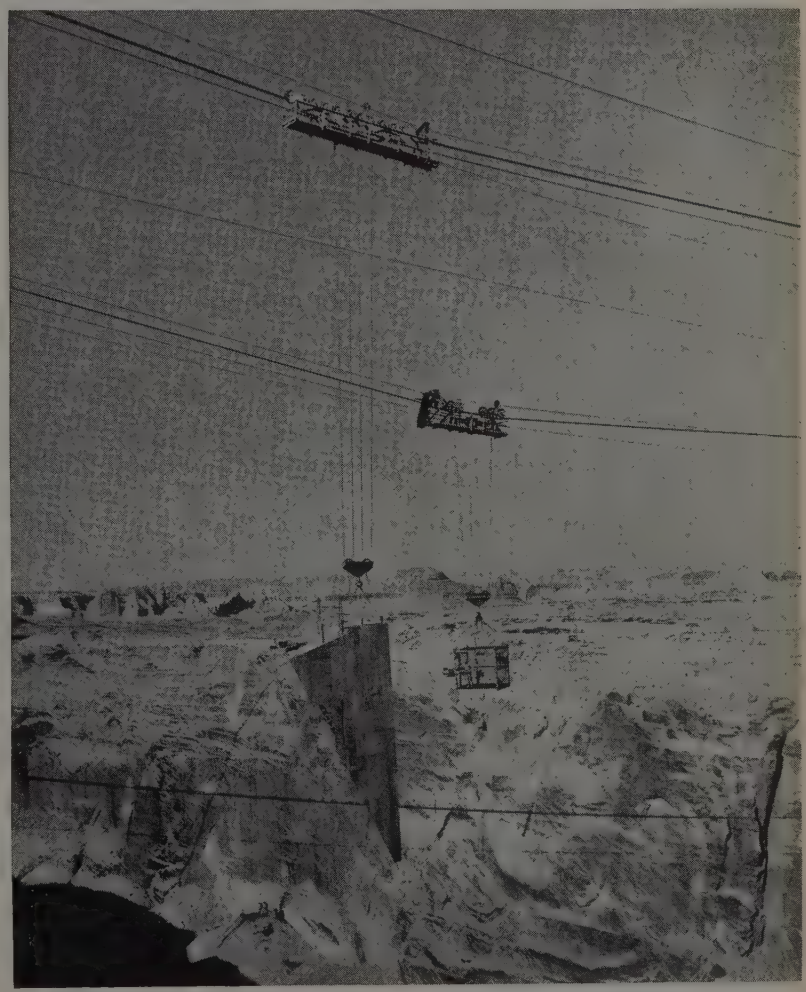
Nearly the entire weight of the cableway forward of the towers is carried by back anchors — heavy blocks of reinforced concrete embedded into the sandstone at the back of each tower. These deadmen measure 14 ft. 6 in. x 14 ft. across and have a minimum depth of 12 ft. of concrete. The structural steel frames for bolting the back guys to the anchor were made up of two 18-in. channels weighing 42.7 lb. apiece. The side guys were anchored from an 8-in. wide flange beam weighing 24 lb. per ft. with two 10-in. channels laid across the back to form a T. Concrete for both back and side guy anchors was poured to a minimum depth of 1 ft. below the surface to compensate for the easily fractured native sandstone of the Glen Canyon area. The four back guys were anchored to the tower by equalizer sheaves having a 100-ton maximum load strain. Each tower was mounted to a 3-in. steel base plate, anchored to 8 x 8-ft. concrete footings by 3-in. anchor bolts.

The four 26-ton skewback bearings to be used in anchoring the arch truss to the footings were hung from the wall of the canyon by the bridge cableway during April. In the next 10 months this highline will handle more than 8,000,000 lb. of steel including 4,000 tons of structural and 125 tons of reinforcing steel used in the construction of the bridge.

Steel erection began the first week in May on the east side of the canyon. The plan calls for steel placement on one side until the supporting cables must be moved ahead, at which time the erection operation is switched to the other side. In early June about 700 tons of steel arch elements were in place, hanging on the tie-back cables high above the river.

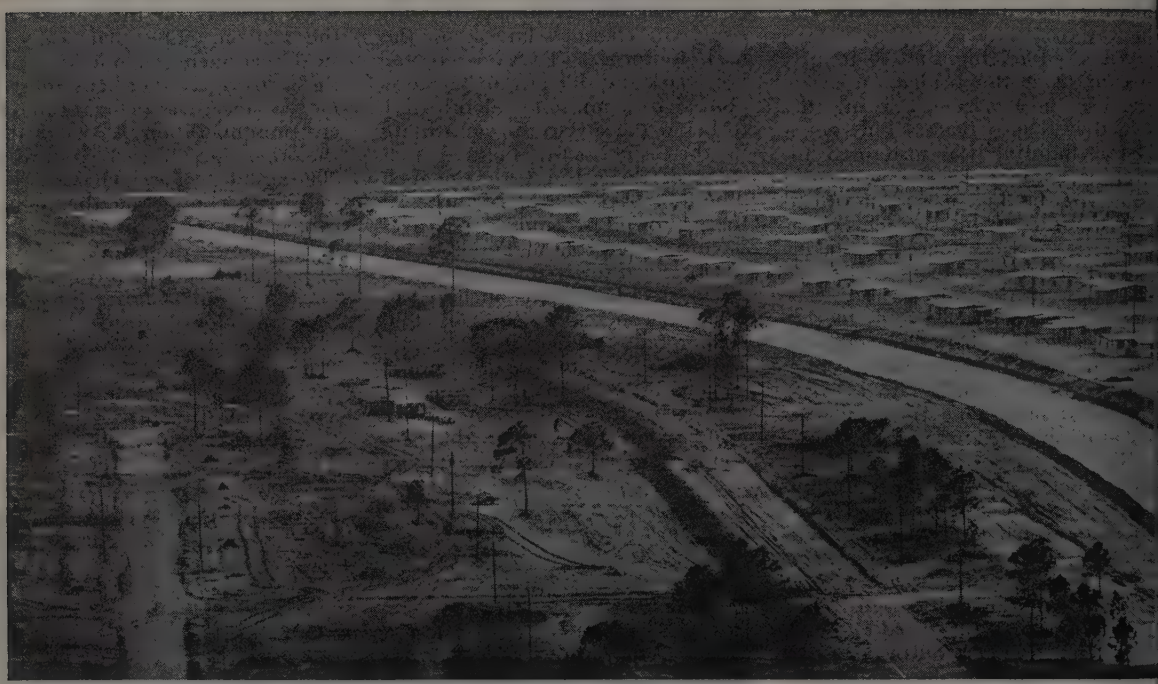
For Kiewit-Judson Pacific Murphy, Francis J. Murphy is project manager. Bill Choate is project superintendent, assisted by James McKeown.

The cableways for the bridge were designed by the San Francisco consulting firm of Earl and Wright, represented on the job by Al Tokola and Eero Hekkanen.



IN OPERATION—A 4-ton plywood form for the concrete right skewback is lowered into place by the main cableway. The auxiliary cableway is carrying a cage for personnel.

The Mackle Company
Brings Big Building



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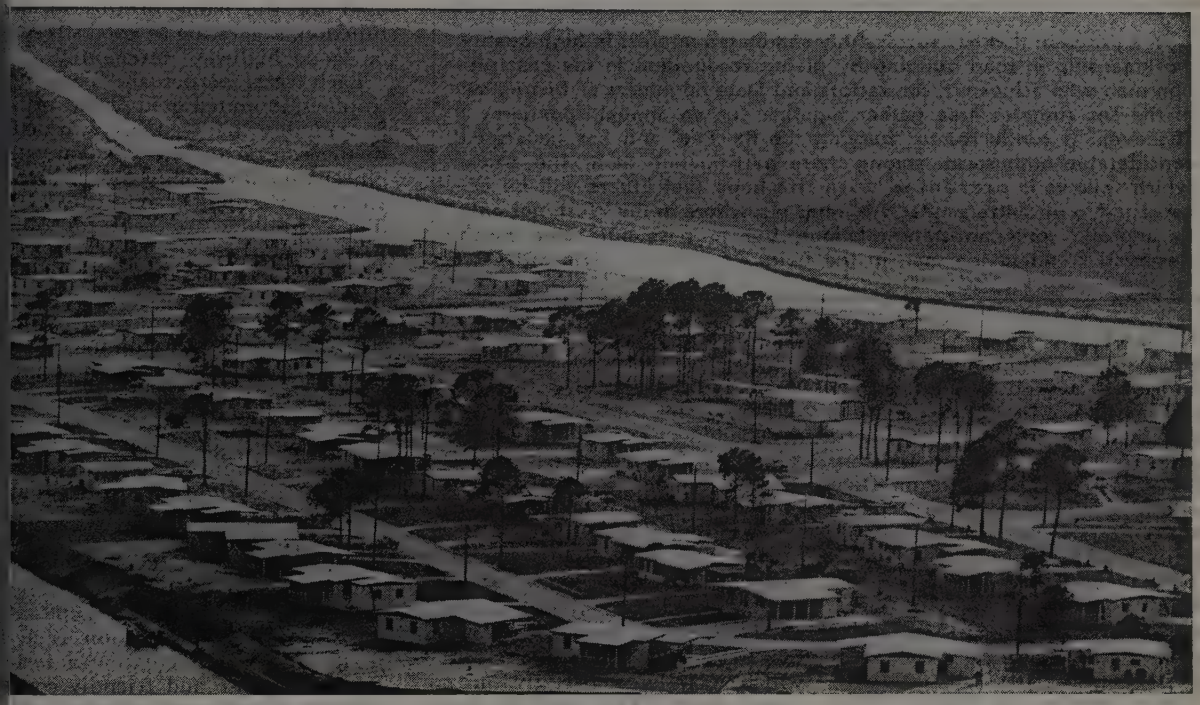

avy tractors like this play an important part in clearing high, pine land. The Mackle Company has a complete t including scrapers, cranes, dredges and low-bed ilers to move equipment where needed.

Mr. Elliott J. Mackle, President of The Mackle Company, discusses progress on the big, self-contained community with C.I.T. Corporation representative Jack Ebert. The job will continue into the 1960's.

In Southern California—

Best highway builders are honored

In a program that has successfully stimulated interest in high-quality workmanship in road building by giving recognition to the construction men who achieve it, contractors and State engineers of District VII in the Los Angeles area gather together for an annual "Bonneroo." The event is conducive to "burying the hatchet" and has generated considerable enthusiasm among those participating in it. The article which follows is presented with the hope that others will be encouraged to organize similar programs elsewhere in the West, not only to improve contractor-state relations, but to pass out some much deserved credit to the men in the field. THE EDITORS

ON MAY 16, 1958, over 700 highway construction men were assembled in the Rodger Young Auditorium in Los Angeles. The occasion was the Seventh Annual Bonneroo, a program sponsored by District VII of the California Division of Highways to reward engineers and contractors for high quality workmanship.

C. M. Gilliss, Director of Public Works for the State of California, presented the "Topper" trophy to Peter Kiewit Sons' Co. for having completed the best highway contract in District VII during 1957. The winning contract was a section of the Pacific Coast Freeway located southerly of the city of Oxnard. The winning project was completed on November 15, 1957.

Thomas L. Patterson, state resident engineer in charge of construction on the winning project, was presented with a similar award by Edward T. Telford, assistant state highway engineer. Certificates of merit were presented by A. L. Himelhoch, district engineer, to Lonnie Lawler, Cliff Kinsey, and Zel Mullican, the superintendents on the job for the Kiewit organization. Similar certificates were also presented to all subcontractors and state personnel who participated in the construction.

The practice of rating the different projects began more or less as an internal affair in the District VII Construction Department in 1949. The one man mainly responsible for setting up this program is Frank B. Cressy, assistant district engineer in charge of construction. It was felt that some effort should be made to let contractors and resident engineers know how they were doing in relation to each other on their highway projects. The idea grew rapidly until 1951, when it was decided to stage an event each year to give due recognition to the contractor and resident engineer for a job well done. Thus was born the District VII Annual Bonneroo, where contractors and engineers gather to pay tribute to the best job completed during the preceding calendar year.

The word "bonneroo" is a slang and colloquial pronunciation of the French words "bonne rue," which, translated literally, mean "good street." The word has been commonly used by laborers and others to express their satisfaction as to their job assignment; i.e., a soft job is "bonneroo." However, the word takes on a more significant and expressive meaning as used for the name of this social function, suggesting a "good street" or "good highway" ceremonial.

Each year, perpetual "Topper" trophies, mounted gold-plated rollers, suitably engraved, are awarded to the contractor and resident engineer who have completed the previous year's number one contract. These trophies are kept for one year; then they are returned for presentation to the next year's winning team. Permanent miniature trophies are then presented to replace the perpetual trophies. The Galion Iron Works donates the gold-plated rollers for all of the trophies.

The annual affair has now blossomed forth into one of the highlights of the highway construction industry in Southern California. This year the event was attended by over 700 contractors, suppliers, and state highway personnel. The award winning project is kept secret until the presentation is actually made, thus creating a feeling of suspense and friendly competition. Contractor and state personnel alike look upon the award as a real goal at which to aim.

The program is no longer strictly local in nature. The State of Washington is currently consider-

(Continued on page 37)

AT THE SEVENTH annual Bonneroo are (front row, l. to r.) H. E. Belford, Construction Engineer; T. L. Patterson, Resident Engineer (with winning trophy); Al Galbreath, Peter Kiewit Sons' (winning contractor); and two superintendents from Kiewit's winning job, Lonnie Lawler and Z. Mullican. In the back row (l. to r.) are A. L. Himelhoch, District Engineer; Edward T. Telford, Asst. State Highway Engineer; C. "Max" Gilliss, Director of Public Works; Frank Cressy, Asst. District Engineer; and Lyman Gillis, District VII Engineer. Over 700 attended this year's gathering in Los Angeles.

Bonneroo . . .

(Continued from page 34)

ing a similar program for awarding high quality workmanship.

Rating method

All highway contracts completed during the preceding year in District VII, comprising Los Angeles, Orange, and Ventura counties in Southern California, are rated primarily on the basis of workmanship and excellence of the various major items of work. During the course of the contract and at its conclusion, the various types of work are rated according to the superiority of the work done against an accepted standard. The various phases are individually rated as excellent, good, fair, or poor, and the ratings are given a numerical value. Each of the items of work is then assigned a weight according to its relative importance in the construction of the highway. The actual points which the contract has received are then totalled and divided by the maximum possible number of points, thereby obtaining a percentage with which a job can be compared to all others.

Those items of work which are currently rated by District VII are:

√Pavement smoothness
Drainage
Earthwork
Subgrade
P. C. C. pavement
P. M. S. pavement
Roadway finish
Safety
Traffic control
Curbs and gutters
Prosecution
Special features
Complexity
Engineering cost

TROPHIES for the best 1957 job were awarded to Resident Engineer T. L. Patterson (left) and Al Galbreath, superintendent for the construction firm of Peter Kiewit Sons' Co.

To illustrate the method of rating, let us suppose we had a project on which there was only earthwork, subgrade preparation, and P. M. S. pavement. Let us further suppose that these three items were rated as excellent, good, and good, respectively, and that the ratings were assigned numerical values as shown below:

Excellent	4
Good	3
Fair	2
Poor	1

Assuming we have given all three of these phases of work a relative weight of four, we would obtain the following percentage:

	Actual	Possible
Earthwork	4 x 4 = 16	4 x 4 = 16
Subgrade	4 x 3 = 12	4 x 4 = 16
PMS Pavement	4 x 3 = 12	4 x 4 = 16
Totals	40	48

$$\text{Percentage} = \frac{40}{48} = 83\%$$

Added to this percentage is a rated number based on the complexity of the job and the engineering cost. The total obtained is a measure of the quality of the job as a whole.

The growth of this event leaves no doubt as to the value of such a program. The sense of competition which has resulted is a step in the right direction in the everlasting endeavor to obtain high quality workmanship.

AWARD WINNERS FOR 1957

Ranking	Firm	Project	Resident Engineer
1	Peter Kiewit Sons' Co.	Pacific Coast Freeway, near Oxnard, between Date St. and Calleguas Creek.	T. L. Patterson
2	Winston Bros. Const. Co.	San Bernardino Freeway between Citrus Ave. and Ganesha Blvd.	R. M. Innis
3	Wonderly Const. Co.	Chambersburg Rd. near Fillmore, between Guiberson Rd. and Santa Clara River.	D. Frischer
4	Sully-Miller Contr. Co.	Riverside Freeway, Orange County, between Santiago Blvd. and Mohler Drive.	J. D. Hetherington
5	J. E. Haddock, Ltd.	Lakewood Blvd. between Gardendale St. and Hall Rd.	R. D. Siefried
6	Winston Bros. Const. Co.	San Bernardino Freeway between West Covina and Citrus Ave.	N. C. Brinkmeyer
7	Guy F. Atkinson Co.	Harbor Freeway between 92nd St. and Gage Ave.	R. A. Collins M. L. Gould J. E. Kenan
8	Griffith Co.	Santa Ana Freeway between Lewis St. and Broadway.	J. Needham
9	Ukropina, Polich, Kral and Ukropina	Long Beach Freeway between Southern Ave. and Atlantic Blvd.	C. C. French
10	J. E. Haddock, Ltd.	Whittier Blvd. between Washington Blvd. and Orange County line.	L. W. Sixt

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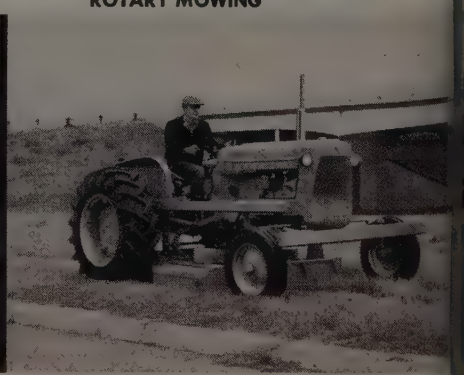

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D-14 35 hp, 4,200-lb weight, 129-in. over-all tractor length.

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INVERT CONCRETE was shaped by a 3-ton screed running on 60-lb. rails mounted on brackets clamped to the steel sets. Air hoists on each side of the screed caused the slick line to slide across the planks as needed. Two other air hoists moved screed forward.

Driving and lining Oregon tunnel

Lining soft-ground tunnel for Portland General Electric requires a 3-ton screed pulled by air hoists, and three rubber-tired gantries for the arch. Two Pumpcretes carry concrete.

By A. W. ALLEN

Engineer
Northwood, Inc.
Engineers and Contractors
Vancouver, British Columbia

ALONG THE CLACKAMAS River 30 mi. southeast of Portland, Ore., a wood flume built in 1906 is being replaced by a concrete-lined tunnel. Northwood, Inc., subcontractor to the Guy F. Atkinson Co., has driven this 24-ft. diameter tunnel to its 2,400-ft. length and is presently finishing the lining of the horseshoe-shaped bore with concrete. As part of the $26,000,000 Portland General Electric North Fork Project, the tunnel will divert water along a portion of the Clackamas River between the North Fork Arch Dam and the Faraday powerhouse. At the present time a wooden flume is serving this purpose. However, due to the expanded generating facilities being installed at Faraday and the high maintenance requirements of the flume a large diversion tunnel was required.

Preliminary investigation by surface geology and core drill samples indicated the nature of the ground in the tunnel would vary from unconsolidated overburden, through sandy tuff and volcanic agglomerate to a dense basalt. It was felt that a major portion of this tunnel could be driven with little or no support during excavation and the only full support that would be required would be at the portals. Actual conditions later proved that steel supports would be necessary throughout the entire length. The spacing of the steel sets varied with the condition of the ground.

The steel sets designed for this support are 8-in. H-beams varying in weight from 35 to 46 lb. per ft. Each set has two 12-ft. posts and two arch ring segments to complete the 24-ft. diameter ring section. Due to the nature of the ground at the downstream portal these sets were placed on 12 to 18-in. centers. Some 90 steel sets were installed in the first 166 ft. of the tunnel near the outlet portal. The spacing was extended until a maximum of 6-ft. centers was used in the most solid rock encountered. A total of 515 steel sets have been used to complete the excavation of the tunnel.

The Faraday tunnel has been driven almost entirely from the downstream portal. The intake portal was driven only 16 ft. and was left alone until the entire intake structure, gates and hoist were installed. The tunnel was then driven to within 25 ft. of the upstream heading. This "plug" was left in place pending completion of the intake structures to prevent possible flooding of the operation by high water in the Clackamas River.

Actual excavation of the tunnel itself begun in May of 1957. The area immediately in from the downstream portal was unconsolidated overburden and breastboards were needed to hold the ground during timbering and mucking operations.

A three-deck gantry jumbo was built for drilling and installing the steel sets and timber. Drilling was done with 12 jackleg rock drills, Gardner-Denver Model S58F and six Atlas Copco Model BBC22W Lions. Drill steel employed was entirely Atlas Copco Sandvik Cor

nant integral chisel bit steel. Both ypes of rock drills and the drill teel performed very satisfactorily. No abrasive rock was encountered n the tunnel so bit sharpening vas unnecessary. Using the air leg nachines the time involved for set- ing up for drilling was reduced o a minimum. It was therefore pos- ible to move the jumbo to the ace, drill, load and shoot a 105- ole round in an average of 2½ ours.

Two Eimco model 105 muckers vere used. One in operation and he other on standby. Haulage was lone by six 10-yd. dump trucks and wo Euclid S-7 rocker dumps. Ap- roximately 140 cu. yd. of rock ould be moved in 2 hours. All iesel engines used underground vere equipped with exhaust scrub- ers. Ventilation was supplied by nree Gardner-Denver compressors, one RP 900 rotary, one RP 600 otary, and one WH 500 two-stage).

Excavation to the 25-ft. plug was ompleted in early December of 957. The remainder of the month as devoted to cleaning the floor f the tunnel and installing con- ete pump equipment required to our the invert. The first section f the invert was actually poured ecember 30 and progressed eadily downstream when the por- l was reached on March 1. This ortion of the invert consumed ap- roximately 7,200 cu. yd. of con- ete. The concrete was pumped to place with a Rex 200 Single mpcrete machine and through n 8-in. line. The pump was spot- d inside the tunnel about 500 ft. om the start of the pour. Concrete as then trucked in 6-yd. loads th standard ready-mix concrete ucks from a nearby batch plant. om these trucks the concrete was scharged into a 4-yd. truck type pper and carried to the Pump- ete remixer by a 30-ft. conveyor lt. When the concrete invert ur reached the pump all equip- ent was then moved another 500 down the tunnel and operations umed. The maximum length for y pour was 700 ft. at which time e pump was stationed near the wnstream portal.

The problem of handling the in- t pour and maintaining the cor- t curved shape was successfully ved by use of a large 3-ton steel eed. Fabricated for this particu- project this screed was mounted 60-lb. steel rails which in turn re mounted on steel brackets t were clamped directly to the n. steel sets. Four Gardner-Den- air tuggers were installed on the

DUMP-TRUCK BED was installed in the tunnel to feed conveyor belt leading 30 ft. to Rex Pumpcrete machine. Dump bed is fed by transit mix trucks from ramp at right.

screed. Two in the shell served to pull the screed forward during the pour and two were mounted on the deck to pull the slick line from one side of the invert to the other.

Despite continual difficulties encountered such as, caving ground, water springs in the floor and in the back, and bent steel sets, a pouring schedule of approximately 70 ft. per day was maintained.

On March 3 excavation operations were again resumed to remove the remaining 25-ft. "plug" in the tunnel. After standing three more steel sets and cleaning out the floor the Pumpcrete, slick line, and screed were installed and the remainder of the invert was poured.

The present production schedule, according to Howard Foster, project superintendent for Northwood, Inc., calls for lining the remaining arch section with a minimum of 1 ft. of concrete.

Three arch form jumbos will be used for this purpose. Each unit is 25 ft. in length which will allow a maximum of 37.5 ft. of arch to be placed each working day. These forms, fabricated by Blaw-Knox Co., were constructed specifically for the Faraday tunnel. Each 25 ft. unit consists of a gantry type jumbo mounted on eight solid rubber wheels which are offset from the vertical in order to ride correctly on the curved invert. Curved arch forms constructed to meet the required radii of the horseshoe shaped arch hang on these jumbos. The forms are raised into place by means of four 20-ton hydraulic jacks mounted on each of the four corners of the jumbo.

The arch forms will be placed in three different spots within the tunnel which will allow two forms to be poured in one day, the third form the second, and so forth. Two forms will work towards the downstream portal while the third will pour towards the intake. In order to accomplish this an additional Pumpcrete machine has been installed at the intake portal while the other rubber tire mounted Pumpcrete will be placed in the tunnel.

Grout holes will be drilled on 5-ft. centers through the arch concrete and into the rock after the concrete has set. This will be the final operation towards completion of this project. Both Howard Foster and George Foster, general superintendent for Northwood, have estimated that this work will be completed around the middle of June.

Guy F. Atkinson Co. of South Francisco, California, is the prime contractor on the North Fork project and is completing the arch dam, the addition to the Faraday powerhouse, as well as a fish ladder nearly two miles in length.

Northwood, Inc., headed by Jerry Wood, has two tunnel contracts on the Glen Canyon project in northern Arizona and another tunnel project near Concrete, Washington. One of the Glen Canyon projects constituted one of the largest bores to be driven in the United States. This 46.5-ft. tunnel has been completed with one of the best safety records achieved with no lost time accidents and no fatalities.

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Testing Glen Canyon aggregate pit

Bucket-type drill used by contractor to secure detail information on the source of the 10,000,000 tons of concrete materials required for this record dam project.

By STEVEN J. ROSE
Executive Vice President
Calweld, Inc.
Los Angeles, Calif.

INTERESTED in operating Glen Canyon Dam's aggregate production plant at maximum efficiency, Merritt-Chapman & Scott Corp. has completed one of the most complete aggregate investigations ever made on such a job. The company will use the results of the study both in the design and operation of the aggregate plant, which is expected to produce about 10,000,000 tons of concrete material in the next few years.

The study called for extensive aerial photo mapping, which tied the aggregate deposit down to known points. A seismic profile also was run over the aggregate deposit to locate bedrock exactly, so that MC&S could determine the extent and thickness of the pit-run material. These preliminary studies then were coupled with a detailed sampling program, made by drilling 40 large-diameter holes to a maximum depth of 45 ft. The work was done by modern heavy-duty bucket-type drills, so that the actual physical content of material in the holes could be carefully analyzed and screened. All this data was finally correlated to make an unusually complete aggregate sizing-depth chart. This was superimposed on the aerial map.

Extending Bur. of Recl. data

The work being done by MC&S does not conflict with the materials survey previously made by U. S. Bureau of Reclamation engineers. The government study, made chiefly with inspection pits and dragline excavations, had confirmed that a suitable supply of dam building aggregate lay in Wahweap Creek about 4½ mi. west of the damsite. But this information needed some enlargement, particularly to increase the rough input blending as draglines and hauling units supply the pit-run gravel to the complex aggregate plant now being designed.

Fairchild Aerial Surveys, Inc. did the aerial photograph mapping, which tied the deposit down to known triangulation points. Then Turner & Associates of Phoenix, a geophysical firm, ran a seismic profile to determine bedrock depth. The geophysical crew even made some attempt to classify the pit-run material, but the result was far too rough and incomplete to answer the contractor's need for precise data. Bedrock, however, was located with remarkable accuracy. This has been verified by comparing the geophysical plot with actual bedrock elevations as determined by the drill.

Drills make detailed study

The 40-hole exploration by rotary drilling equipment was a tough assignment. Pit-run materials containing sand, gravel and cobbles up to a foot in diameter are not easy to drill with such a machine. Chief criterion in settling on what machine to buy was the question of which rig would give higher percentage of productive working time in such a tough drilling formation.

After careful consideration MC&S purchased a Calweld 150-A earthboring machine. The rig was ordered with both rock digging and regular buckets. Truck mounting was out of the question because the production site was far too soft and sandy in many places, so the machine was mounted instead on a heavy steel H-beam skid frame which could be towed quite easily all around the site. The skid mounting was built at the Glen Canyon Dam shop.

In action, the Calweld machine justified the purchase. Some strengthening was done, but not much. Welded plates were added to the inside of the buckets to give them strength to handle the rock cobbles instead of the softer clay they usually dig. The ring gear set screw was also changed to

This Barber-Greene Finisher paves the upstream face of the dam. Bulletin showing many other jobs available on request.

Barber-Greenes Pave Face of Montgomery Dam

Barber-Greene Model 896 BatchOmatic working on Montgomery Dam project. Write for 16-page *Principles of the BatchOmatic.*

One of the most unusual paving jobs in history was the placing of a 12-inch layer of asphaltic concrete on the upstream face of Montgomery Dam in Colorado. San Ore Construction Co., of McPherson, Kan., used a Barber-Greene BatchOmatic Plant and Finisher for the job.

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MATERIAL BROUGHT up by the bucket drill was moved by belt conveyor to an Overstrom double-deck screen. Four sizes were chuted directly into wheelbarrows and weighed. Weights of fractions were obtained for each foot of hole. The minus ¾-in. size was analyzed further.

give a little better action, and the machine's derrick was stiffened with extra braces to handle heavy casing on multiple part lines. A heavy 4 x 6-in. steel ram with a steel driving head also was devised to drive casing. It was handled by the second drum of the machine's two-drum hoist without disturbing the load line which carries the kelly bar and rotary bucket from the other drum.

The exploration holes averaged 35 ft. deep; greatest depth was 45 ft. They were spaced on a 400-ft. grid. This spacing permitted detailed sampling to be done, and yet covered the area adequately and economically. Hole excavation was done by a 30-in. diameter bucket, over-excavating slightly to permit installation of a 36-in. casing.

Drilled in single pass

The holes were all drilled in a single pass without adding extra kelly stems. This was possible because the standard machine has a 44-ft. telescoping kelly, which is driven by a powerful ring gear on the drill table. Bucket drilling turned out to be better than dragline sampling, and it cost only 20% of what the same job would have been with hand labor. Actually, hand labor would have been impossible because the water-table lay only a few feet below ground surface. But the Calweld machine drilled and sampled a hole a shift, completing the job in only 2½ months in spite of heavy rains which shut down work for several weeks.

Careful analysis made

Material excavated by the drill rig is being carefully analyzed, particularly since it appears that heavy media separation is a certainty to remove deleterious light stone in the 1½-¾-in., ¾-3/16-in., and the No. 4 - No. 8 ranges.

Passing through the analyzing process, the material moves from the drill bucket over a Henco conveyor to a power-driven double-deck Overstrom screen, manufactured to the contractor's special specifications.

The Overstrom screens separate the gravel into 6-3-in., 3-1½-in., 1½-¾-in., and ¾-in. minus sizes. Wheelbarrows of each size material fed by chutes from the small plant are weighed on Howe beam scales, which record the actual percentage of pounds of each size material per foot of test hole. The ¾-in. minus product is analyzed separately, breaking it down into accurate fine components. The detailed study will be especially valuable.

DRILLING operations at the pit were directed by V. O. Stone (left), foreman. J. M. Wells is concrete and materials engineer for MC&S.

The study by MC&S has proved several things, most of them beneficial. It has been clearly determined that the supply of pit-run aggregates is adequate to build the dam. The concrete mix will use screened gravel without crushed particles, chiefly because crushing would add to the problem of heavy media removal of deleterious light rock. It appears that a general deficiency in No. 30 sand fines will cause some blending to get proper sand gradation. The aggregate plant now being designed probably will emphasize high screening and washing capacity.

According to Bureau of Reclamation engineers, the 5,500,000-cu. yd. dam will have such added ingredients in its concrete mix as alkali resistant cement, pozzolanic materials, and air-entraining agents. Specifications call for summer concrete cooling and winter heating, if necessary. Circulating water coils are also to be imbedded in the monolithic blocks to help long-term cooling.

Personnel

Operational heads at Glen Canyon include L. F. Wylie, project construction engineer for the Bureau of Reclamation. MC&S field work is under the general supervision of Project Manager A. R. Bacon, assisted by A. H. Griffin, project engineer. The aggregate exploration program was under the supervision of J. M. Wells, concrete and materials engineer, with V. O. Stone directly in charge of drilling.

●

COMPARED to the engineer's estimate of $25,889,667, a low bid of $29,602,000 was submitted to the Bureau of Reclamation for the construction of Flaming Gorge Dam by Arch Dam Constructors (Peter Kiewit Sons' Co., Morrison-Knudsen Co., Inc., Mid-Valley Utilities Co. and Coker Construction Co.). Second low bid of $31,754,000 was submitted jointly by Guy F. Atkinson Co., Arundel Corp., American Pipe Co., L. E. Dixon Co., and Hunkin-Conkey Construction Co.

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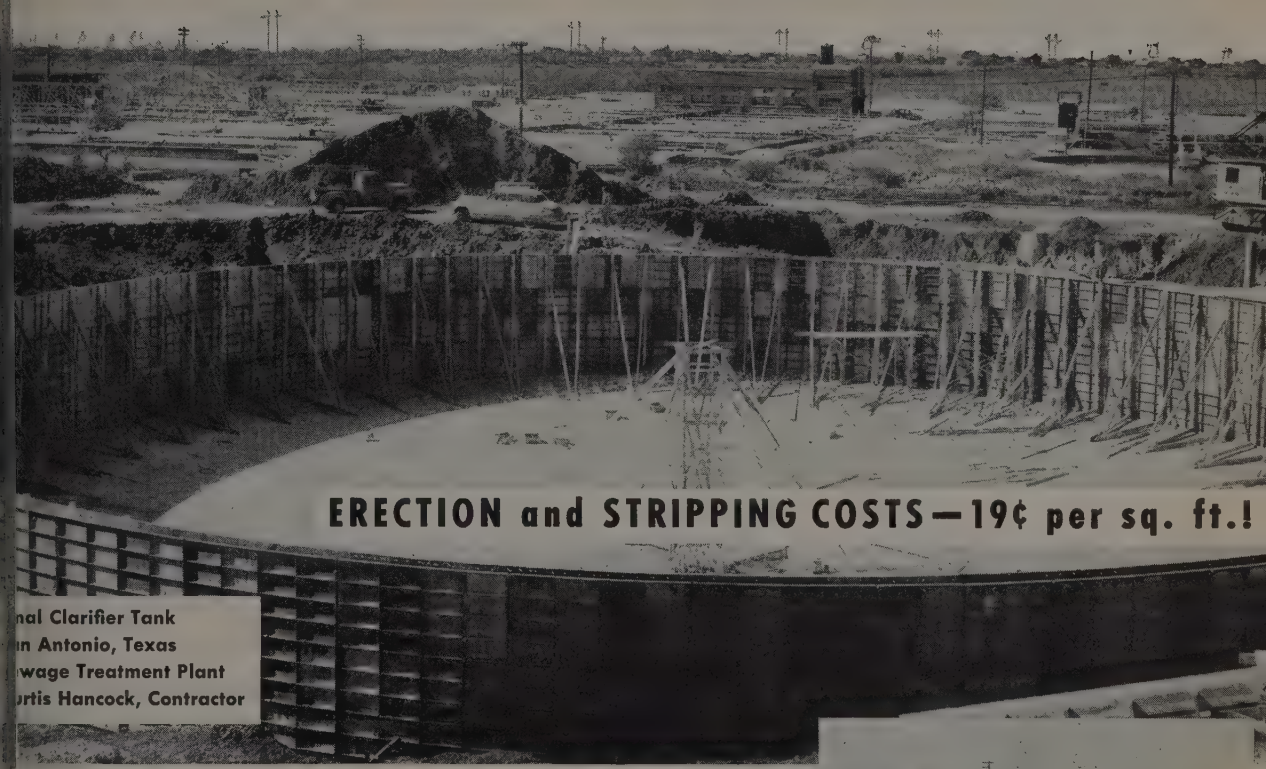

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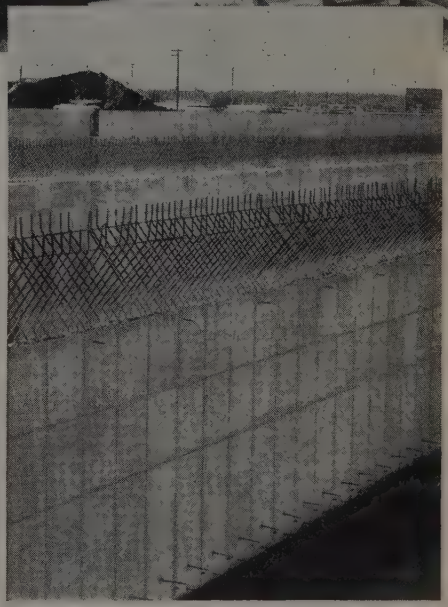

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WASHO holds conference

Western highway group has 37th annual meeting in Salt Lake City. Williams of Oregon elected president for coming year.

THE 37th ANNUAL WASHO Conference reflected the increasing tempo of the highway program both in registration and the attendance at the sessions. Utah was the host state for the conference which was held in Salt Lake City, June 3-6. Under the general chairmanship of Ellis L. Armstrong, director of highways, the delegates and engineers of these Western states were provided with a technical program and social activities which set a new high for WASHO. Relative size and importance of the meeting was indicated when the attendance at the annual banquet was announced at 521 which was considerably larger than the attendance at the last corresponding banquet session of WASHO.

Officers elected for the coming year are: President: W. C. Williams, state highway engineer, Oregon; Vice President: Homer Oxley, chairman, Wyoming Highway Commission; Sec.-Treas.: T. D. Sherard, deputy state highway engineer, Wyoming; Executive Committee: C. E. White, deputy state highway engineer, California; C. Taylor Burton, chairman, Utah Road Commission; R. C. Rich, chairman, Idaho Highway Commission.

Winner of the "Dr. L. I. Hewes Award," presented annually at the WASHO Conference and sponsored by WESTERN CONSTRUCTION, was Albert H. Pollard, supervising field engineer, Texas Highway Department. The Award was made on his outstanding work in adapting radiography to the non-destructive testing of welds in the field and in the shop. A list of the previous recipients since the Award was founded in 1952 appeared in the last issue of WESTERN CONSTRUCTION, page 36.

The impact of the current highway program was evident in almost every session. It was reflected in the talks relating to need for further efficiency in organizations, in references to problems concerning the securing of rights-of-way, in the modern design requirements for the Interstate System as compared to the usual state requirements, and particularly in the frequent references to the need for developing better public relations. On this point speakers agreed that the matter of supplying the public with more and better information is being improved each year, but pressures of the accelerating highway program throughout these Western states is outstripping the current advance in improved relations both with the general public and with motorists.

The opening session, presided over by William E. Willey, state highway engineer of Arizona and president of WASHO, heard the customary greetings from city and state officials and was followed by the roll call of WASHO members. The roll call showed that all member states were present as well as representatives from Alaska, Hawaii and all federal agencies concerned with roads and highways in this region.

In the afternoon session of the first day, the national impact on the highway program was presented by authorities from Washington, D. C., including Bertram D. Tallamy, federal highway administrator, A. E. Johnson, executive secretary, AASHO, and C. D. Curtiss, special consultant with the American Road Builders Association. The remarks of Johnson emphasized the need for uniformity among all of the states for the Interstate System, with the alternative of federal legislation which would require uniformity in design and signing.

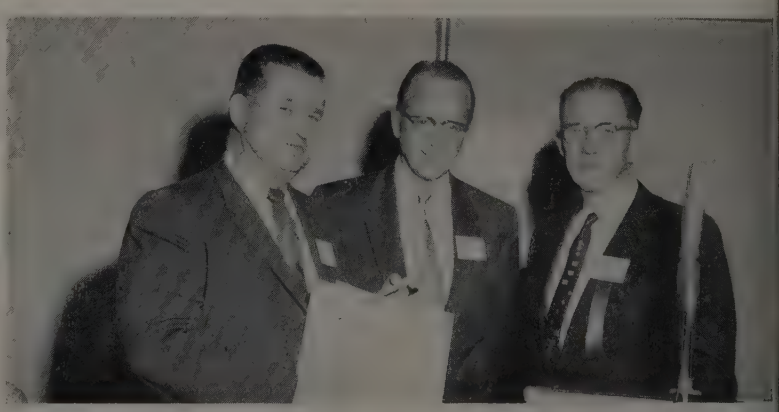
Those attending the conference were the guests of the Portland Cement Association at an openhouse following the close of the sessions on the first day.

At another general session the relations between state highway departments and the BPR in the rules and regulations for securing rights-of-way was the feature of a well received presentation by Leonard I. Lindas, chief counsel, Oregon Highway Department.

On the third day the delegates and guests were taken on an all day excursion to points of interest around Salt Lake City and the recreational area at Brighton. The day ended with a Western barbecue.

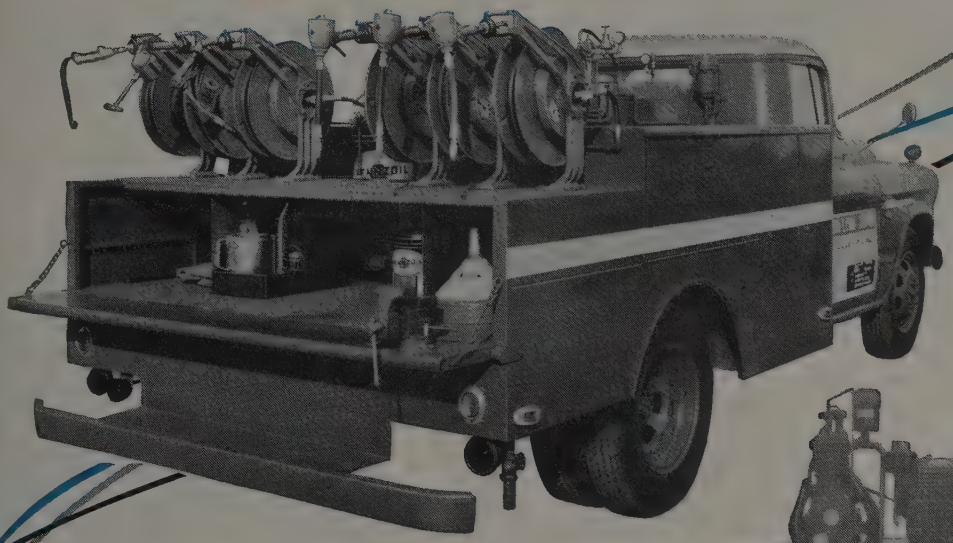
Resolutions passed by WASHO during the concluding business session included: A request that AASHO petition the Federal Communication Commission to make available immediately certain radio frequencies to highway departments which would not otherwise become available until 1963. Another resolution recognized the fact that the Territory of Hawaii was not included in the Interstate Highway System and urged that the request of that territory for the creation of a Defense Highway System be given thorough review and appropriate consideration by Congress.

A final resolution expressed the recommendation that each state of the West place a 10-ft. width limit on house trailers moved over public highways or freeways. At the present time most of the Western states are issuing special permits for the movements of such trailers.



WINNER of the "Dr. L. I. Hewes Award" for 1958 was Albert H. Pollard, supervising field engineer, Texas Highway Department. The award was accepted by Marshall Formby, chairman, Texas Highway Commission (left). Announcement of the winner was made by William E. Willey (right), state highway engineer of Arizona and president of WASHO at the annual dinner. Presentation was made by James I. Ballard (center), editorial director of Western Construction, which sponsors the annual award.

Increase job profits 3 ways with Lincoln Lubmobiles*



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CHARLES MacCLOSKEY CO. is building a 270-ft. concrete arch bridge for Los Angeles County to close the final gap in the new Angeles Crest Highway. With the deck 150 ft. above the canyon floor, the falsework system was the key to the contractor's construction plan.

STEEL TRUSSES were supported on two steel towers. Fabricated i pairs, they were centered under the arch rib. This falsework desig was selected to reduce hazard from brush fires and keep the chann open for floods. Pacific Iron & Steel Co. supplied falsework

Arch bridge job features centering

STEEL FALSEWORK on the ground ready for lifting into position shows the 3 x 12-in. planks bolted to the top flange. Planking 14 ft. long was placed transversely and then covered with ⅝-in. plywood to form the soffit of the concrete arch rib. The planking was made up with a railing to provide a prefabricated walkway for the form crew. Two ribs and the falsework weighed 1,600 tons. Arch has a rise of 65 ft.

IN POSITION the steel truss falsework was supported on jacks be cause the contract required the decentering to be simultaneous. A the ends the falsework thrust was carried through the jacks to stee beams directly into the rock of the canyon. A vertical steel plat at the ends of each steel truss was separated from the concrete skew back by 1-in. steel rods to prevent wedging during decentering

CH ribs are 4 ft. 3 in. wide and vary in ckness from 4 ft. 6 in. at the crown to ft. 6 in. at the skewback. Pouring of each was carried out in a required sequence t included concurrent placing of concrete four different locations.

Only five weeks were required between ction of the falsework and the pouring the arch ribs and struts. Decentering took y 4 hr.

Arch ribs are 27 ft. 3 in. c. to c. and support 28-ft. roadway with a sidewalk on each e.

The skewbacks extend 25 ft. into the nite rock of Big Tujunga Canyon. Location about 8 mi. northeast of Sunland.

SETTLEMENT of the steel-truss supports from the load of the concrete arch rib was about ½ in. before decentering. Total settlement of the ribs after decentering was about 1 in. including steel deflection. Settlement after girders and deck were in place was about 1½ in.

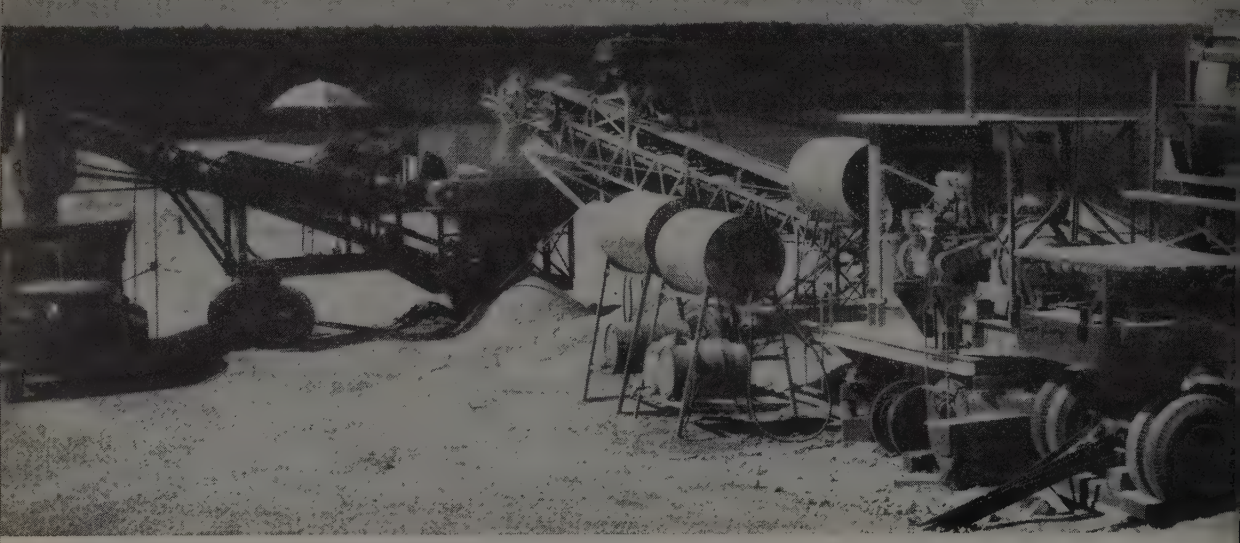
Support for the two 80-ft. high towers was carried down 20 ft. below streambed level to bedrock. Towers were 10 x 40 ft. in plan.

To handle the high lifts the boom of the P & H 50-ton crawler crane was lengthened to 175 ft. and 25,000 lb. of counterweights were added. Other equipment units included an American 395 truck crane with 125-ft. boom and a Northwest 6 crawler crane with 100-ft. boom.

project is being carried out under the neral direction of Sam R. Kennedy, Com- sioner, Los Angeles County Road Depart- nt. Thomas E. Noonan (center) is resident ineer.

d Surufka (left) is superintendent for the rles MacClosky Co. of Los Angeles. Reuben was excavating foreman, Martin Cornelius, penter foreman, and Amos Dixon, master chanic.

On a visit to the job was Gaetan Zucco ht), sales manager, Bethlehem Pacific st Steel Corp.



On this portable crushing operation, producing materials for use on a grading and drainage contract for the Missouri Freeway construction project near Joplin, Mo., the W. J. Menefee C struction Co. uses 3 Cat Engines to power this crusher.

He staked his (business) life

This big 100% Cat fleet owner says: "The *dependability* of engine power by Caterpillar has always made it possible to anticipate *true* costs—takes the guesswork out of bidding."

From a modest beginning as a small contractor, the highly successful W. J. Menefee Construction Company of Sedalia, Mo., has bet its business life on Caterpillar Engines and machines across the board.

"Experience has shown us that we can always rely on Cat Engine power," says Mr. E. W. Menefee, president.

Recently this big spread was responsible for 9 miles of grading and drainage, including the interchange, to join the Missouri Freeway with Oklahoma's Northeastern Turnpike. Besides a variety of modern, heavy-duty Cat Engines to power crusher, shovels and compressors, Menefee is getting this big, tough job done on time with a large fleet Caterpillar equipment, including DW21s a DW-10s, D9s and D8s (with No. 28 Rippers) a No. 12 Motor Graders.

This contractor's policy of always specifying C Engine power and machines—coupled with sou management practices—has paid off in profits. Li other successful contractors, this spread gains so advantages by relying all the way on Cat equipme Its reputation and preference by contractors me pride of ownership, high trade-ins, and an orga zation that stands behind the product.

Reliably rated Cat Diesel Engines and Elect Sets give more work for each dollar spent for p chase, repairs and operation. Production is ma tained at an even level because there is no app ciable letdown in power as equipment ages.

Cat DW21 Wheel Tractors pushloaded by a big D9 work in tough chert conglomerate on Menefee's Freeway job.

Cat Diesel drives a pneumatic compressor drilling blast hole rock quarry for materials used on the Freeway job.

on Caterpillar

Cat Engines mean minimum down time, permitting closer bidding of every job, and their well-known durability can handle the harsh materials and severe job conditions the contractor faces. All of these factors result in lower operating costs than other diesel power plants; and the market value of Cat equipment stays high after normal amortization.

Get in touch with your Caterpillar Dealer today for details—he knows his business, and understands your problems, too.

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A Cat D337 Engine powers this Lorain shovel feeding rock to Pioneer portable crushing plant — part of the W. J. Menefee Construction Company's big Missouri Freeway linkage project.

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hy we are a 100% Cat fleet owner today

When *buying machinery* or *preparing a bid* we n't take unnecessary chances. Cat units will y for themselves in savings alone. Elimination excessive down time really pays off, and our erating costs are low. Cat Engines are real rk horses, producing as rated, day in and day t. Add excellent dealer service and parts availility—even on the old ones—and you have the ason why we are a 100% Cat fleet owner today. e look for realistic value when we buy, and get it when we specify Caterpillar!"

—E. W. Menefee, president

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Send me more information about Cat Engines and Electric Sets for original power and repowering.

☐ Have your dealer call for an appointment, as I may be in the market. I understand that I am under no obligation.

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BASEMENT WALL PANELS were lowered into place after being cast on adjacent parking lot. Pipe supports held them in position temporarily while 2-ft. 2-in. spaces between panels were cast in place. The largest of the 23 basement panels weighed 20 tons.

Tilt-down walls poured on plastic

Pouring basement wall panels on plastic sheets resting directly on asphalt parking lot is time-saver for building project.

A BUILDING with a number of unusual features is now under construction for Pioneer Title Insurance Co., in San Francisco, Calif. The 2-story structure is 145 x 187 ft. with a basement area of 145 x 42 ft. Twaits-Wittenburg Construction Co. began the project late in 1957 after submitting a low bid of just under $1,000,000.

Superintendent for T-W is Chet Umbarger, back from Alaska after an 8-year stint with Morrison-Knudsen, S. S. Mullen, and J. B. Warrack. One of his first problems was the construction and placement of 23 precast concrete panels for the basement walls, each 19 ft. wide by 15 ft. high and 10 in. thick. The way he solved it is startlingly simple. Part of the site is located on an old parking lot which has a fairly good asphalt surface. The basement panels were cast directly against the asphalt with plastic film as a bond breaker. The only form work needed was around the edges of the panel.

The panels were poured in two groups, 10 on one side of the basement excavation and 13 on the other. Before pouring, the asphalt surface was swept clean and covered with Visqueen plastic film 6 mils thick. Each panel contains two curtains of reinforcing steel.

The upper side of each panel is hand finished because it will face the interior of the basement, but the lower side was left untouched because it is placed against the backfill material, out of sight.

A P&H truck crane placed all the panels, making reaches so long that at times the front wheels would rise off the ground. Cast into each panel are interior threaded bolts which receive three brackets. The pick-up points were engineered by Thomas Concrete Accessories Co., using Superior accessories.

The walls are set on 1 in. of grout and placed in position temporarily with pipe supports bearing against lugs cast into the floor. There is a 2-ft. 2-in. space cast in place between each wall panel. The largest panels weighed about 20 tons.

Foundation for the building consists of 100 cast-in-place concrete piles about 15 ft. deep. About 3,000 cu. yd. of concrete is required for the entire building of which 857 cu. yd. is lightweight aggregate used for the floor slabs.

After the basement excavation was completed, final grade was made with a 2-in. layer of sand.

The floor slab was cast in 2 layers with Visqueen in between to serve as waterproofing. To facilitate finishing the upper 3-in. layer, 2 x 4's cut exactly 3 in. thick were placed about 10 ft. apart. Finishing was done by hand screeding working off the 2 x 4's, bull floats, and circular power troweling.

The structure will require 27 post-tensioned girders which are being cast on the site in lengths varying from 42 ft. to 50 ft., 4 in. The girders are 2 ft. wide x 4 ft. high. Prescon furnishes the prestressing tendons and supervises the stressing. Hale Steel Co. places the steel and operates the equipment. The forms for the girders were built on the job by T-W carpenters. Each girder contains a set of seven tendons with 12 cables in each tendon. The tendons are wrapped with paper to eliminate bonding.

The building will require about 400 precast joists resting on the girders and supporting the floor. The joists are 10 in. wide, 24 in. deep and 35 ft. long. They are being cast by Wailes Precast Concrete Corp. 50 mi. away, and trucked to the job. The floor slabs will be suspended from the joists on steel joist hangers.

Columns are 18 in. square and are cast on the site and lifted into place.

(Continued on page 59)

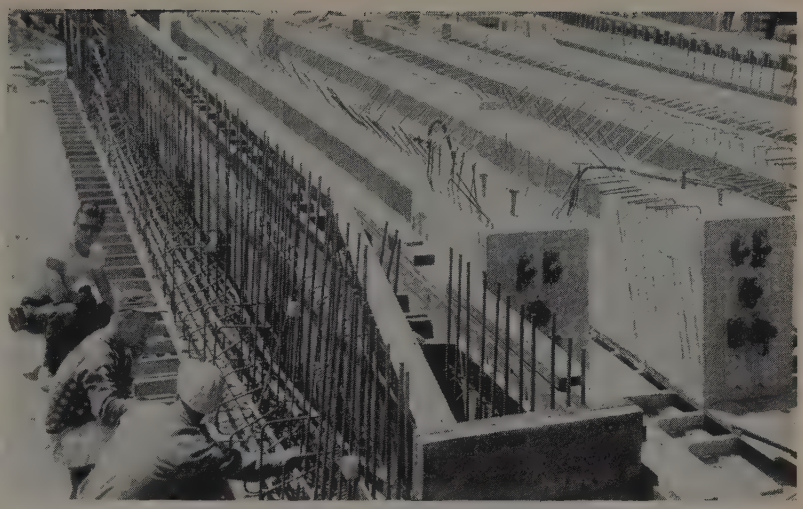
For the 2-story, above-ground section the tilt-up system will be used with panels 33 ft. high. The panels will be cast on a concrete floor using Techkote as a separating compound.

Pacific Materials Laboratory tests all the concrete. For the girders and joists 4,500-lb. concrete is used, for the tilt-up panels, 3,000-lb. concrete, and for the slabe 2,500-lb. concrete. Cal-Lite lightweight aggregate is used for the floor slabs.

The project is expected to be ready for occupancy in December of 1958.

Chet Umbarger is superintendent for Twaits-Wittenburg, and Lee Adair is job engineer. General carpenter foreman is Star Corbelius.

Culver Heaton is architect, and B. Hoagan is structural engineer.



POST-TENSIONED girders were constructed on the site. During erection a 45-ton crane set them on basement floor. Final placement was done with two cranes handling each girder, the 45-ton crane on one side of the basement and a 35 ton on the other.

WINTER CONCRETE

(Continued from page 28)

tures were above freezing and provided that the concrete was placed at a minimum temperature of 60 deg. F.

On April 22, the contractor began operating around the clock, with the men working in two 12-hr. shifts. Although the strain on equipment and personnel was quite appreciable, no serious difficulties were encountered. Construction of the face slab was completed on May 1, ahead of the most optimistic estimates made by the planners.

Protective measures

The reducing of cold-weather protective measures through utilization of accumulated technical information was dramatically illustrated in the work for Wishon Dam.

Early investigations brought out two important facts concerning the thermal characteristics of green concrete placed in the face slab. (The term green concrete should be understood to mean concrete less than 4 days old.) First, the average temperature of the green concrete in the face slab was always at least 9 deg. F. higher than the temperature at the outside surface of the slab. Second, when the slab was covered with a 15-oz. (finished) tarpaulin, the temperature at the surface of the green concrete was at least 9 deg. above the ambient temperature.

It was concluded that as long as the mean ambient temperature remained above 32 deg. and the minimum ambient temperature above 24 deg., it would be unnecessary to heat the green concrete in the face slab. It would be sufficient to cover the concrete with a 15-oz. tarpaulin for a period from 4 to 7 days. This would not only keep the concrete from freezing but would also provide the conditions required for proper curing (daily mean of average temperature of the slab must be 50 deg. or higher).

Later in the season, it was established (on the basis of graphically recorded temperature data) that during the coldest part of the night the air next to the concrete in the upstream face was from 8 to 9 deg. warmer than the air at the crest of the dam. The temperatures at the crest were known to correlate rather closely with those recorded at the official weather station located near Wishon Dam. By putting together these two facts, one could further simplify the protective measures needed to keep the green concrete from freezing and to provide satisfactory curing.

At this point, the contractor decided to avoid purchasing additional tarpaulins. The requirements for protective measures follow: (1) The concrete must be placed at a minimum temperature of 50 deg. (and in certain cases 60 deg.). (2) No covering is required when the minimum temperature of the air next to the face slab is 32 deg. F. (corresponding to 24 deg. F. at the weather station) or higher. Otherwise, all concrete less than 4 days old should be covered with 15-oz. tarpaulins.

The employment of this simplified procedure resulted in significant savings to the contractor without any adverse effect on the concrete. Measurements made with Foxboro recorders indicate that the temperature at the surface of the green concrete was at all times above 32 deg.

In the final analysis, the cold-weather concrete operations for Wishon Dam were entirely satisfactory from the viewpoint of concrete technology and economics.

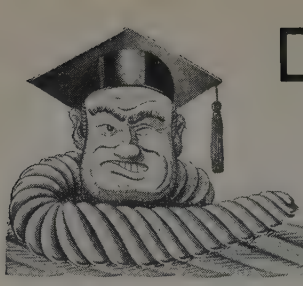
Key personnel

Wishon Dam was designed under the supervision of Walter Dreyer, vice president and chief engineer, Pacific Gas and Electric Co.; H. V. Lutge, then chief civil engineer; and J. B. Cooke, supervising civil engineer.

Construction was directed by A. J. Swank, vice president in charge of general construction; H. W. Haberkorn, manager of hydroelectric construction; and Joseph Pirtz, Jr., superintendent.

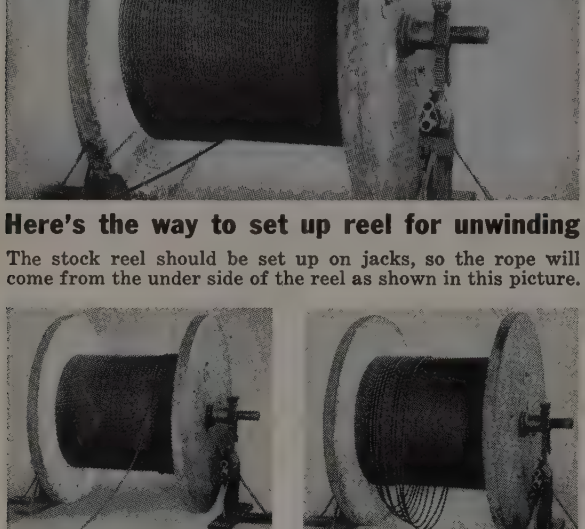
George B. Thacher is project engineer for the Kings River Project. P. J. Helbert is resident engineer for Wishon and Courtright dams. Lyle H. Smith is in charge of concrete control on the Wishon job under the author's supervision.

Mike Krumpotic is project manager for the contractor, Morrison-Walsh-Perini. Max Daley is job engineer. The work is supervised by J. N. Wells, vice president and district manager, Morrison-Knudsen Co., Inc., Los Angeles, California; and B. L. Perkins, district supervisor (formerly project manager for Wishon and Courtright dams).



Tuffy® Wire Ro

How to Get Longer Service from Wire Rope: Proper Unwinding, Socketing, Seizing, Clipping



Here's the way to set up reel for unwinding

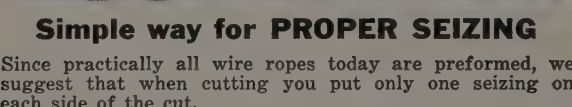
The stock reel should be set up on jacks, so the rope will come from the under side of the reel as shown in this picture.

Reel set up WRONG

The rope is coming from the top of the reel and forming loops as the reel over-runs. These loops are likely to form kinks and dog-legs, which can be ruinous to rope life.

Reel set up RIGHT

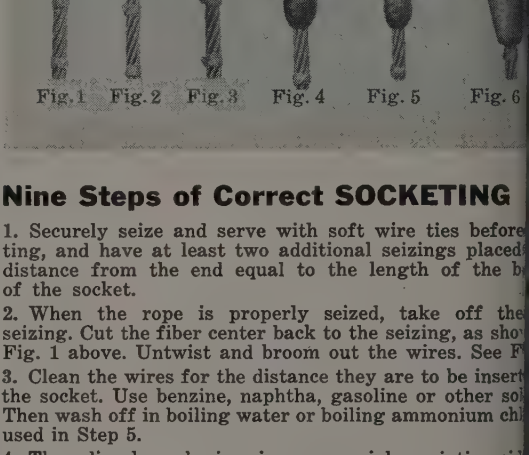
Unwinding has started, and the reel is spinning faster than the rope is being pulled off. But because it's coming from the under side of the reel, the rope is simply loosening on the reel, with no damage.



Simple way for PROPER SEIZING

Since practically all wire ropes today are preformed, we suggest that when cutting you put only one seizing on each side of the cut.

For ropes other than preformed, *three* seizings should be used on each side of the cut so there will be no misplacement or relative movement of strands. *Four* seizings on each side are required for a lang lay rope, or any rope having an independent wire rope core or a wire strand core. *Four* seizings are also needed for all 18x7 ropes, and all ropes larger than 1" diameter.



Nine Steps of Correct SOCKETING

1. Securely seize and serve with soft wire ties before ting, and have at least two additional seizings placed distance from the end equal to the length of the b of the socket.

2. When the rope is properly seized, take off the seizing. Cut the fiber center back to the seizing, as sho Fig. 1 above. Untwist and broom out the wires. See F

3. Clean the wires for the distance they are to be insert the socket. Use benzine, naphtha, gasoline or other so Then wash off in boiling water or boiling ammonium ch used in Step 5.

4. Then dip cleaned wires in commercial muriatic acid depth not greater than ¾ of the cleaned length of Keep the wires immersed for 3 minutes, or until the has thoroughly etched each wire. Be sure acid doe contact any other portion of rope.

5. Immerse wires into boiling ammonium chloride. A coating will be left on the wires.

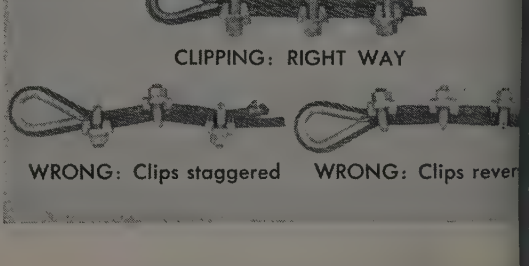
6. Place a temporary tie wire over the ends of the cl wire (see Fig. 3). Be careful not to get the cleaned greasy or oily.

7. Insert the rope end into bottom of socket. Remove porary tie wire.

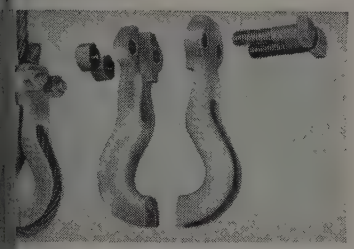
8. Holding the rope vertically in a vise, set the sock that the wires are flush with top of the socket baske seal the bottom with putty or clay (Fig. 4). Pour in a the wires about ½ teaspoon of sal ammoniac crystals.

9. Pour molten zinc into the basket to fill (Fig. 5). zinc is solidified, remove seal. Socketing is comple shown in Fig. 6.

58-3



Tips

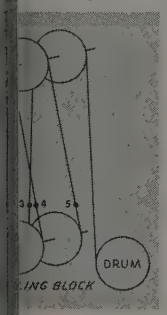


ure to use right FITTINGS

itting you use on wire rope can cap it or enable it to work at full ency. Fittings which derive holdower from crimping action are ful to the rope.

n here is a clamp that has no side—can be put on either way. gly saddles the rope, grips larger ce area in such a way that loads arried almost solely by friction than by crimping action. Com- in its two parts is a thimble and arts are interlocking to prevent se of the thimble and to eliminate ear on the bolts.

to figure REEVING loads



Reeving ropes through the sheaves multiplies the number of parts supporting the load. The lead line to the drum carries the weight of the load lifted, divided by the number of parts of line supporting load, plus the accumulation of friction on all sheaves.

s how to count the number of supporting the load. Draw an nary line across the parts of the supporting the load.

fficiency of reeving systems rangom one to eight parts is shown in which Union Wire Rope engimake available to users.

Tuffy distributor will help with any wire rope problem

ou aren't acquainted with him, under "Wire Rope" or "Slings" e classified pages of your tele- e directory. And ask him to put on the mailing list for free "Rope " educational bulletins. They're ed with boiled-down, useful in- ation on the selection and care ire rope for greatest service.

EARTHMOVING . . .

Tenth of a series—Elevating graders

By **RICHARD BENNETT**
Construction Consultant
Saratoga, California

THE last article of this series dealt with "Cycle Analysis" of elevating grader operations. For this important machine we cannot ignore the impact of delays on job production and profit. Studies made by the Bureau of Public Roads Production Cost Unit reveal that delays accounted for 69% of total available working time on the three jobs studied as shown in the table.

The impact of these losses is so great on most jobs that contractors must make every effort to determine their nature and extent—then set up job controls to minimize them. Actual loading time was 31% of total available working time, but was also 51% of NET available working time. Both comparisons should be made for job estimating and control. The contractor who pays for an 8-hr. shift and gets only 2½ hr. (0.31 x 8) suffers a direct loss which will appear as a corresponding reduction in output and perhaps little or no job profit.

Accurate performance data should be compiled and charted for all job conditions. In the hands of a competent job manager they are invaluable. They enable him to keep such firm control over production that a simple check of few minutes duration enables him to know if the job profit is being maintained or not.

There is no rule-of-thumb method for determining the percentage of idle time of elevating graders, therefore the job manager oftentimes overlooks such losses—at increased job cost expense. They are clear enough however, when charted and analyzed as shown in the May article of this series.

Time losses occur at many points and in many ways. They fall into three principal headings: repairs, servicing and personal.

Time losses with elevating graders are not recoverable. If the bite is too small there is a loss of time and output because too much time is used in loading the haulers. If the speed of the grader is too slow there is the same effect. If time is lost in hauler waits or delays, output is reduced because fewer loads can be taken out. In all these cases the losses are positive and cumulative, for the men employed must be paid as much when production is low as when it is high. This also applies to lax managerial practices.

Many industries today make their profit out of the use of materials formerly wasted. This situation is analagous to elevating grader work, in that as the work is now conducted avoidable delays eat up most of the job's potential profit. Salvaging this value will prove profitable to any contractor who will attack it seriously and methodically.

Delays occur from many and varied reasons — they fall principally under the three headings of: weather, maintenance and repairs. However, some jobs show personal delays to be of far greater magnitude than they have any right to be.

Only a first-class preventive-maintenance program will keep equipment delays at a minimum. The economic possibilities of such programs are so well understood yet it is strange how few contractors take advantage of the enormous savings to be realized. "I'm sure going to do that, but just now I don't have time," is the stock answer. Construction consultants specialize in such systems, and install them quickly and economically.

Minor delays are of much importance in elevating grader work. The table shows their impact on three jobs studied.

Individual minor delays average only a few seconds each in duration, yet they constituted 15% of total available working time — or almost 25% of NET available working time.

Minor delays, when expressed as a percentage of total available working time, may not reflect true conditions. A job having frequent and extensive major delays, such as bad weather, tends to show a less percentage of minor delays than a job having few major delays.

Balancing haul spread to elevating grader capacity will be the subject for the next article of this series.

Nature of major delay	Percentage of total available working time
Rain	12
Wet grade	5
Maintenance and repairs	19
Other	3
Total	39

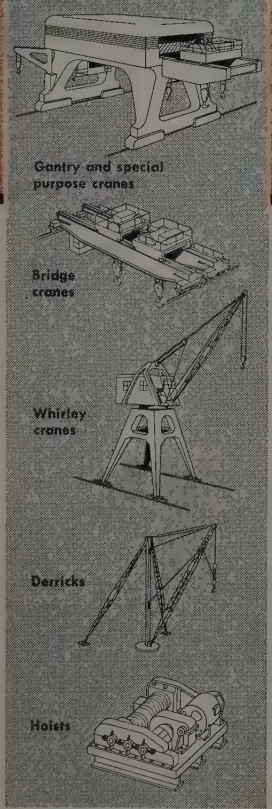
Nature of minor delays	Percentage of net available working time
Shortage of hauling units at loader	17
Other hauling unit delays	1
Maintenance and repairs	2
Deadheading	1
Special handling of rock	1
Starting up and closing down	1
Other	2
Total	25

Time Element	Percentage of total available working time	
Total available working time (scheduled)	100	
Major delays (15 min. or more)	39	
Net available working time (100 - 39)	61	
Minor delays (less than 15 min.)	15	10% min. - 29% max.
Productive time (61 - 15)	46	
Turning and exchanging time	15	
Actual loading time (46 - 15)	31	

BIG CRANES

BY YUBA

HEAVY LIFTING EQUIPMENT FOR EVERY CAPACITY AND USE



When specialized lifting equipment is needed, industry and prime contractors have found they may profitably turn these problems over to Yuba—from custom design through machining, fabrication, testing and erection—a complete service with a single responsibility. Whenever you need custom lifting equipment—any size, any kind, anywhere—it will pay you to talk with Yuba Engineers. Or write for Bulletins MA-61 and HY-51, discussing Yuba facilities, cranes and allied equipment.

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WESTERN CONSTRUCTION NEWS

Western firm gets Australia job

A UTAH Construction Co. sponsored joint venture has been named to build a $14,500,000 unit of Australia's big Snowy Mountains hydroelectic development.

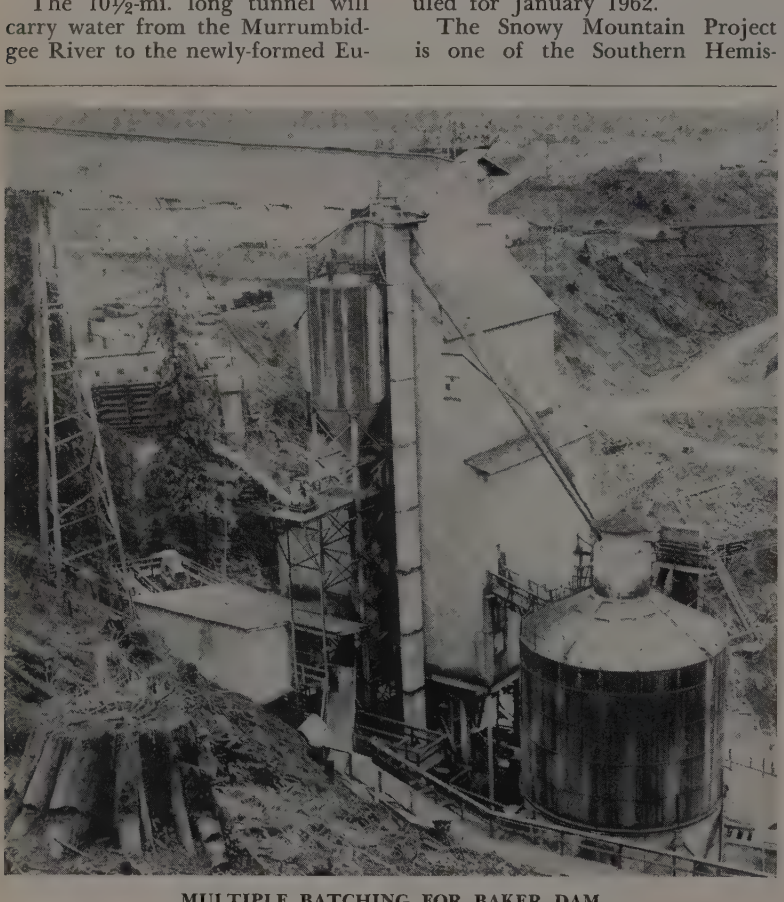
Utah Construction Co. of San Francisco and Brown and Root, Inc., of Houston have been awarded a contract for construction of the Murrumbidgee-Eucumbene Tunnel and the Tatangara Dam near Cooma, New South Wales.

The 10½-mi. long tunnel will carry water from the Murrumbidgee River to the newly-formed Eucumbene Reservoir in the next watershed. The tunnel will be driven from only two headings and will be partially lined with concrete.

The Tantangara Dam will be a 150-ft. high concrete structure on the Murrumbidgee River and will create diversion storage for the tunnel.

Construction is to begin immediately with completion scheduled for January 1962.

The Snowy Mountain Project is one of the Southern Hemisphere's largest construction unde takings. The work is being carri out by the Snowy Mountains H dro-Electric Commission, an At tralian Government agency simil to the TVA in this country. Th main purpose of the project is t development of hydroelectric po er which will augment the pow systems of the states of Victor and New South Wales, and the d version of much needed water f irrigation from the Snowy Riv system into the Murray River.



MULTIPLE BATCHING FOR BAKER DAM

BATCHING plant with eight separate weigh batchers for individual aggregates, cement and water supplies concrete for construction of Baker Dam Hydroelectric Project, Puget Sound Power and Light Co., Washington. About 640,000 cu. yd. of concrete is being produced in the 2½-year project at an average of 150 yd. per hr. Plant has three 4-yd. tilting mixers and an 8-yd. wet-mix holding hopper. Eight-cu. yd. buckets carry concrete on cableways to the pouring site. Plant has 500 tons of overhead aggregate storage in six compartments, 500 barrels overhead cement storage and 5,000 barrels ground storage. Batching and recording of each material is fully automatic with mix selector for six different batch formulas. Plant is manufactured by The Noble Co., Oakland, Calif.

Felix Kahn dies at 76

FELIX KAHN, well-known Sa Francisco construction figure, die of a heart attack on June 4. H was 76. He and Alan MacDona formed the construction firm MacDonald and Kahn, Inc., whi introduced reinforced concrete the Western states. One of his fir important projects was the post Treasurer for Six Companies, In builders of Hoover Dam in th early 1930's. Other projects he pa ticipated in were the San Francis Bay Bridge, Parker and Bonnevil dams, and San Francisco's Unio Square Garage, the nation's fir underground parking facility. H was a frequent visitor to the Pe tagon to serve as a consultant engineering and financial matter He died while traveling to Ne York on a vacation.

Permit asked for Packwood hydro project

WASHINGTON Public Pow Supply System, of Kennewic Wash., has filed an applicati with the Federal Power Comm sion requesting a preliminary pe mit for a proposed hydroelectr project on Lake Creek, Hall Cre and Packwood Lake in Lew County, Wash.

The project, designated th Packwood Lake Hydroelectric Pr ject, would include a low rock da on Lake Creek at the outlet Packwood Lake, intake structur a 24,500-ft. pipeline, penstoc about 7,400 ft. long, and a powe house containing three 10,000-h turbines each connected to a 6,00 kw. generator.

CONTINUOUS RESEARCH AT CATERPILLAR LABORATORIES IS EXTENDING ENGINE LIFE THOUSANDS OF HOURS

EXAMPLE: Lube oil filter elements that give greater protection for longer periods at less cost

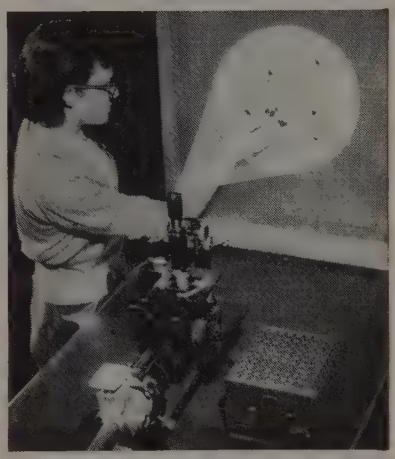
The development of new, additive lubricating oils has reduced oil change requirements. Cat filters have kept pace with these improvements. Cat filters have greater *dirt-holding capacity* to filter efficiently over the entire *extended* periods. This means a big saving to every owner of Caterpillar equipment.

FILTER TEST STAND adds controlled amounts of dirt to lube oil to check how much dirt an element can hold before clogging. Unless this is determined, replacement recommendations cannot be made. Of all the filter makes tested, only Cat filters completely met Cat Engine requirements.

Most oil filters of other makes fall far short of meeting Cat filter replacement recommendations—usually because they have *insufficient* dirt-holding capacity (not enough filtering paper) or they filter harmless, too-fine particles which quickly load up the element, opening the safety bypass. As a result, unfiltered oil is allowed to circulate, causing rapid, premature wear.

You can't get maximum engine life unless you filter *full time*. The best way to insure long engine life, peak performance and operating economy is to standardize on Caterpillar oil filters. They are the only filters you can count on to give full-time protection over the entire filter change period that is recommended for your Caterpillar Engine. See your nearby Caterpillar Dealer today.

Caterpillar Tractor Co., San Francisco, Cal.; Peoria, Ill., U. S. A.



PROJECTION MICROSCOPE magnifies 500 times particles that pass through filter paper so they can be measured. Since precision bearings ride on an oil film, particles smaller than the oil film can cause no measurable wear even after thousands of operating hours. Too-fine filtering shortens filter life needlessly.

CATERPILLAR

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This contractor saved $1,822.24 in one year in oil changes

SERVICE TIP

Complete information on oil changes is provided in Form 32421-1, *Crankcase Lubricating Oil Change Period Recommendations,* available from your Caterpillar Dealer. These recommendations are tested and proven. When used with Cat filter elements, you'll get maximum protection for your equipment at the lowest cost.

Many Caterpillar owners tend to play it safe by changing lube oil and filter elements far more frequently than recommended; thus they are willing to gamble on lower-priced, small-capacity filter elements. This is false economy. Here is an actual experience of a contractor, owner of eight Caterpillar D8 Tractors, who followed recommended procedure with Cat filters:

Past Procedure — Oil changed every 80 hours		**Cat Recommended Procedure — Oil changed every 150 hours**	
Lube oil @ $1.25 per gal.		Lube oil @ $1.25 per gal.	
9 gal. per change	$11.25	9 gal. per change	$11.25
═══ filters @ $1.00 ea.		Caterpillar filters @ $1.14 ea.	
3 per oil change	3.00	3 per oil change	3.42
Labor cost	2.50	Labor cost	2.50
Total cost per change	$16.75	Total cost per change	$17.17
• • •		• • •	
Ave. operating hours per year	2,400	Ave. operating hours per year	2,400
Ave. oil changes per year	30	Ave. oil changes per year	16
Total cost per machine per year	$502.50	Total cost per machine per year	$274.72
Total cost for eight D8s	$4,020.00	Total cost for eight D8s	$2,197.76

D8s — 2U, 14A and 15A Series Tractors • Lubricating oil used: Series III • Fuel sulphur content: .4% to 1.0%

. . . for more details, circle No. 30 on Reader Service Postcard

ALASKA Newsletter

By CLIFFORD S. CERNICK, Anchorage

CONSTRUCTION AND STATEHOOD—The attention of all Alaskans—and of many in the United States—is focussed these days on the possibility of statehood for the Territory. By the time this reaches print, it will probably be determined whether or not the senate will follow the house action in granting approval for the 49th state of Alaska. In the construction industry, the question immediately arises: how would statehood status for Alaska affect the tempo of Alaskan construction? Whether or not congress sees fit to grant statehood in this session, the question is of vital importance to every contractor and construction man in Alaska. A part of my space this month will be devoted to this vital question and a few possible answers.

BOOM OR SLUMP?—Pro-statehood boosters insist that under statehood status new industries and population would be attracted to Alaska, thus insuring a gradual increase in the volume of construction. Anti-statehood Alaskans have warned that the opposite set of circumstances may develop—that the infant territory could in no way match the tremendous outlays for construction which the federal government has been pouring into the territory. Statehooders declare that even under state status, federal expenditures for construction of roads and defense installations would continue undiminished. In the event statehood is granted, only time, of course, will tell which faction's views will actually prevail. Views of Alaska construction men, contractors and federal officials on this matter are fairly consistent and are worthy of a brief summary here.

NEW ALASKAN ERA—Most of those I talked with believe statehood would usher in a new era of development similar to that which swept the American West at the turn of the century. In general, construction men were optimistic concerning the immediate and long-range effects of statehood. In no single instance was the opinion expressed from construction quarters that statehood would adversely affect the Alaskan construction industry. Many of those I talked with expressed the opinion that nothing could be lost by having the seat of power centered at Juneau instead of in Washington, D. C., as at present. In general, then, there are no grounds for apprehension—and good grounds for optimism—in the event another star is added to the American flag.

NIKE WALKOUT—Biggest cloud on the Alaska construction scene late this spring was the jurisdictional walkout of 50 carpenters on two vital Nike defense projects in the Anchorage area. The walkout flared up early in May when a new clause in the by-laws of Anchorage Carpenters Local 1281 stipulated that carpenters were prohibited from assigning duties to carpenter "helpers." The helpers in the past have been members of the laborers union. This was interpreted by contractors as an attempt by the carpenters to give more employment to their own craft at the expense of Anchorage laborers who previously were allowed to work as carpenter's helpers. The dispute threatened to throw a monkey wrench into every construction job in Alaska on which carpenters were employed. The dispute was settled after almost a week of shutdown on the vital jobs following negotiations carried out by the Associated General Contractors, a representative of the carpenters' international union, officials of the Alaska union and contractor representatives. Although exact details of the settlement were not announced, it was reported to me unofficially that the union had not been able to make its demand "stick" and carpenters returned to work in accordance with the union's earlier agreement with the Associated General Contractors.

NEW HOUSING JOB—The U. S. Army Engineer District, Alaska, has announced plans for a large new military housing construction contract. A total of 275 Army family housing units will be constructed at various Alaskan and Canadian points, including Anchorage, Ladd Air Force Base, Eielson Air Force Base and points along the Haines-Fairbanks oil pipeline.

ROAD PROGRAM—An ambitious road construction program based on money available to Alaska under the Highway Act of 1958 was announced recently by Frank A. Metcalf, commissioner of the Alaska Highway and Public Works Department. Total construction under this program will amount to $6,796,459. The Third Division of Alaska, which includes the Anchorage area, will get $2,954,000. The Fourth Division, which includes Fairbanks, will get $1,810,000. The Second Division (Nome) will receive $534,000 and the First Division (Juneau) will be given $870,000.

PREVENTIVE MAINTENANCE—A Los Angeles engineering firm is conducting a 60-day study at Ladd Air Force base to determine whether preventive maintenance work on the base should be performed by contract labor instead of by military and civil service personnel. Preventive maintenance as defined by military officials involves minor maintenance to prevent major breakdowns. Included are such categories as plumbing, electrical repairs, minor repairs on doors and windows, painting and the like. At present, 120 persons do this type of work at Ladd. Some union officials feel that if preventive maintenance work on military bases in Alaska is placed on a contract basis approximately 500 new jobs will be created in the Fairbanks area alone. A similar study is being carried out in the Anchorage area by an Anchorage firm.

TOP SAFETY RECORD—Peter Kiewit Sons' Co., Seattle contractors, have been awarded the coveted Division Engineer's safety plaque for the year 1957. Kiewit's award was based on seven Alaska District contracts totaling more than $24,000,000 at Ladd and Eielson Air Force bases, Galena, Fort Greely and Nike sites in the Fairbanks area. During 1957, work on these contracts totaled 553,824 man-hours without a single lost-time accident.

COMMAND CONSTRUCTION—Construction for the Alaskan Air Command will carry a $11,000,000 price tag in 1958, an upward revision from the $7,000,000 originally estimated for Command work. The announcement concerning the Air Command's expanded construction program was made by Brig. Gen. Kenneth H. Gibson, Air Command commander.

HAWAII Report

ALAN GOODFADER

Honolulu, Hawaii

MPLOYMENT GAINS — Oahu's oming construction industry has l the way to increased employ- nt on the Island, according to est hiring figures. Hiring of ne 300 workers for Capehart using and road construction dur- April made construction the ggest employment gainer of any lustry on the Island, it was re- rted recently. The building trade ing was the biggest factor in a p of more than 200 of Oahu's al unemployment figure. Dur- April, Oahu had an estimated % of its labor force unem- yed, the Territory as a whole l 4.1% and the Mainland had re than 7%.

ATERIALS PROFITS UP—And pliers of construction materials e every bit as much reason for isfaction as the families of the vly hired workers, according to Bank of Hawaii. The bank's earch department reported that construction material industry e was roughly twice as profit- e last year as in 1954. The in- try's cash dividends climbed m $329,000 in 1954 to $573,000 1957, while its profits rose from 5,000 to $1,500,000.

UEEZE COMING? — But the k also cautioned the construc- industry that it will face in- sing pressure during the rest his year for a speedup in con- ction. The pressure will come n a combination of a boost in backlog of construction pro- s here and a falling off of ac- construction during winter ths because of rain and stormy ther, the bank said. Research noted plans for $90,200,000 th of governmental, industrial, rtment and other construction , "most of which is to be started year."

ITARY ASKS FOR MORE— Defense Department has d Congress to authorize $5,- 000 worth of construction here, uding a $2,925,000 housing pro- at Ft. Shafter. Other Hawaii ects included in the depart- t's $1,684,361,000 request for construction throughout the world included: $240,000 for operational and training facilities at Kawaihae Harbor; $593,000 for housing and community facilities at Schofield Barracks; $1,271,000 for berthing facilities at the Ford Island Naval Air Station; $159,000 for storage facilities at the Pearl Harbor submarine base; and $144,000 for airfield and training facilities at Hickam Air Force Base.

WACHTER, BURNS CLASH — The Territory's attempts to promote a multi-million dollar federal defense highway system here brought a clash between William M. Wachter, Territorial highway engineer, and Jack A. Burns, delegate to Congress. Wachter said progress toward getting a federally aided defense highway system here was "awaiting introduction of a bill by Delegate Burns." But Burns saw no prospect of passage for such a bill.

FEDERAL FUNDS ALLOTTED —The Territory has been given a U. S. loan of $101,460 to draw up plans for four Oahu schools costing an estimated $2,148,190. And $5,323,653 in federal funds has been pledged to a downtown Honolulu slum clearance project. Earlier this spring, the federal government promised $3,999,597 in aid for a smaller downtown clearance project.

HIGHWAY BUILDING GOING UP—Hawaiian Dredging and Construction Co., Ltd., has started work on a new Territorial Highway Department headquarters in Honolulu. The construction contract is for $960,000, but total costs will run more than $1,000,000. Money for the project comes from the Territory's highway fund, which is what the Territory puts up to match federal aid grants for highways.

U. S. ENGINEERS HAPPY—C. K. Buckert, Ltd., brought pleased smiles to the faces of U. S. Army Engineers officials here with a bid of $30,967 on emergency flood work at Wailupe and Niu Streams on Oahu. The engineers had figured the work would cost more than $47,000. Buckert, whose bid was the lowest of four submitted, got the job.

SCRUTINY STRICTER— Honolulu City building and fire department officials set up tighter checks on plans for multi-story buildings here after it was discovered that construction of eight such structures was allowed even though they did not meet the building code fire safety provisions concerning emergency fire hoses. City Building Superintendent Ralph S. Inouye said his department was to blame for the slips, which, he said, resulted from confusion after the adoption of the uniform building code here in 1956. He recommended that the omission of the hose systems be legalized through variances issued by the Board of Supervisors. But Fire Chief H. C. Pate recommended against the variances. And he promised supervisors a longer list of buildings without the required hoses. In the meantime, supervisors ordered city attorneys to see if they could straighten out unclear passages of the building code.

HAYASHI IS BUILDER — Ben Hayashi, Ltd., is contractor on a six-story $800,000 office building being constructed by the Alakea Development Corp. at Beretania and Alakea Sts., Honolulu. The Hawaiian Telephone Co. will use four of the floors.

SCHUSTER PROMOTED — Charles L. Schuster, Territorial Highway Department project engineer for the Nuuanu Pali Highway, has been upped to assistant Oahu district engineer. He is replaced as project engineer by Alfred C. Klahre.

JOBS GO BEGGING—Territorial Highway Department officials are looking for engineers to fill 19 vacancies in its 23-job planning division. Officials said low salaries left those inquiring about the jobs cold. But the Territory hopes the current recession will have a bright side in this situation. A department spokesman thinks slowdowns of hiring here by engineering firms from the Mainland may leave more job seekers for the Territory. In the meantime, the Territory has had to farm out much of its design work to private engineering firms. Even this measure has not prevented a delay on planning for future projects.

Low bids and contract awards

ARIZONA

Western Constructors, Inc., of Phoenix submitted a low bid of $399,696 for 5.3 mi. of grading and draining the Coolidge-Mesa highway in Pinal County. A low bid of $299,717 was submitted by **L. M. White Contracting Co.**, Tucson, for 2½ mi. of grading and surfacing the Douglas-Safford highway in Graham County. A low bid of $257,625 was submitted by **Western Constructors, Inc.**, Phoenix, for 5 mi. of grading and surfacing the Wickenburg-Kingman highway in Yavapai County. **F. H. Antrim Construction Co.**, Phoenix, submitted a low bid of $125,729 for 5 mi. of grading and surfacing on the Perkinsville-Williams highway in Coconino County. **Southwestern Engineering & Contracting C** Phoenix, submitted a low bid $178,318 for 12 mi. of grading a surfacing portions of the Flagsta Valle Airport highway in Coconi County. **Tanner Bros. Contracti Co., Inc.**, of Phoenix received $256,398 contract for grading a surfacing 22.7 mi. of Route 9, To to National Forest in Gila Coun

CALIFORNIA

A $5,634,596 contract was ceived by **Dale Benz, Inc., T. Wells** and **B. H. Oates**, Phoeni Ariz. Work consists of constru tion of central repair shop, ma buildings, outside utilities, roa railroad track and site improv ments for the Eleventh Naval D trict, Barstow. **L. C. Smith Co.** San Mateo submitted a low bid $735,782 for 3.2 mi. of gradi surfacing and construction of o bridge south of Pigeon Point San Mateo County. **Peter Kiew Sons' Co.**, Arcadia, received a $ 410,310 contract for construction an elevated section of the San Monica Freeway in East Los A geles. **Cory & Longworth**, San D ego, received a $1,940,000 contra for general work at San Diego Sta College. Work consists of five story brick and concrete residen halls and site development. **M. Golden Construction Co.** of S Diego received a $1,594,000 c tract for construction of sch building and auditorium at the N val Amphibious Base, Coronad **Mercer Fraser Co., Inc.**, & **Merc Fraser Gas Co., Inc.**, Eureka, ceived a $759,065 contract for gr ing, surfacing and construction one bridge north of Big Lagoon Humboldt County. A $1,587,4 contract was received by **Peter K wit Sons' Co.** of San Francisco construct 6.7 mi. of 4-lane expr way, west of Sears Point in Ma and Sonoma counties. **A. J. Rais Paving Co.**, San Jose, received $1,051,034 contract to construct 4-lane divided highway on St Route 9 in Sunnyvale, Santa Cl County. **Commercial Transi Inc.**, Fresno, received a $594,2 contract for 3.1 mi. of widen Sign Rte. 168 in and near Fres Fresno County. **Jesse J. Harri & San Ardo Construction, Inc.**, San Ardo received a $438,536 c tract for reconstruction of 7.5 of the Santa Rosa Road in Sa Barbara County. **Dorman C struction Co.**, Vancouver, Was received a $299,074 contract

(Continued on page 76)

FIVE...

onstruction Task Force

Today, everyone works against time—watches cost with an eagle eye! . . . Try putting a stopwatch on every step in your present handling of bulk materials. You'll probably agree that performance could be improved . . . Then, prove to yourself what could be done with modern, efficient equipment — call your Trojan* distributor . . . He'll show you Trojan's rugged construction and famous, exclusive operating benefits (reverse curve safety arms, straight-line horizontal thrust, independent bucket action and low load carrying position) . . . Then, he will gladly arrange a demonstration on your own job with whichever of the 5 Trojan models that best suits your particular problem . . . Check your stopwatch again and note the difference!

*Reg. U. S. Pat. Off.

MODEL T-18: 18 cu. ft. cap. — 2 wheel drive with torque converter. For light to medium bulk materials handling work in close quarters.

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CONTRACT AWARDS

(Continued from page 72)

widening a curve south of Dorris in Siskiyou County. **Dicco, Inc.,** Bakersfield, received a $276,069 contract to construct 2.8 mi. of highway east of Porterville in Tulare County. A $226,555 contract was received by **Sondgroth Bros. Construction Co.,** Mountain View, for grading and surfacing various locations on State Highway Routes 42, 44, and 107 in Santa Clara and San Mateo counties. A low bid of $187,878 was submitted by **Granite Construction Co.,** Watsonville, for grading and surfacing various locations in Monterey and San Benito counties. **Lester L. Rice & Sons, Inc.,** Yuba City, received a $163,597 contract for grading and surfacing in Mendocino and Lake counties. A low bid of $166,174 was submitted by **Valley Paving & Construction Co.** and **Anton Deko,** Pismo Beach, for grading and surfacing various locations in Santa Barbara and San Luis Obispo counties. **Rice Brothers, Inc.,** Lodi, submitted a low bid of $173,830 for grading and surfacing in Inyo County. A $1,413,989 contract was received by **L. F. Stilwell & Co., Inc.,** of Los Angeles for construction of Regulus II Facilities, Naval Air Missile Test Center, Point Mugu.

COLORADO

H. E. Lowdermilk Co., Englewood, received a $400,000 contract for 3.3 mi. of grading and surfacing the Nederland-Raymond route in Roosevelt National Forest, Boulder County. **Colorado Constructors** of Denver submitted a low bid of $1,480,701 for 2.8 mi. of grading, draining and paving on the Valley Highway in city of Denver. **Brannan Sand Gravel Co.,** Denver, submitted a low bid of $219,817 for street improvement in city of Denver. A low bid of $465,239 was submitted by **Siegrist Construction Co.,** Denver, for grading, surfacing and structures on 3.2 mi. of the Montrose East highway in Montrose County. **Schmidt Construction, Inc.,** Arvada, submitted a low bid of $684,549 for 6.4 mi. of grading and surfacing north of Meeker on State Highway 13, Rio Blanco County. **Northwestern Engineering Co.,** Denver, submitted a low bid of $384,884 for 4.2 mi. of grading, surfacing and structures between Cortez and Dove Creek in Montezuma County. **Shore-Bailey Construction Co.,** Littleton, submitted a low bid of $398,025 for 1.2 mi. of grading, surfacing and structures north of Commercial Street in city of Trinidad, Las Animas County.

IDAHO

United Paving Co., Spokane, Wash., received a $524,624 contract for grading and surfacing on 28.2 mi. of U. S. Highway No. 95 in Latah and Benewah counties. **W. R. Cahoon** of Pocatello received a $435,811 contract for bridge construction over the Snake River on Interstate Highway No. 82 in Cassia and Minidoka counties. **Arrington Construction Co., Inc.,** Idaho Falls, received a $466,380 contract to construct the Process Improvement Facility at the National Reactor Testing Station. A $316,019 contract was received by **Watkins Construction Co.** of Boise for modifications, Aircraft Nuclear Propulsion Project, NRTS. **Eagle Construction Co., Inc.,** Boise, received a $113,400 contract for grading, stockpiling and production at the NRTS. A $107,666 contract was received by **Allington Construction** of Boise for grading and drainage structures on 2.5 mi. of the Montour-Ola road in Gem County.

MONTANA

Albert Lalonde Co., Sidney, received a $1,537,336 contract for 4 mi. of grading and surfacing the Livingston-Big Timber highway in Park County. **Cherf Bros., Inc., & Sandkay Contracting Co., Inc.,** of Ephrata, Wash., received a $442,096 contract for bridge construction on the Billings Southside-east and west highway in Yellowstone County. **Frank E. Olson,** Williston, N. D., received a $653,237 contract for 9 mi. of grading and surfacing on the Circle-Sidney highway in Dawson County. **Cherf Bros., Inc., & Sandkay Contracting Co., Inc.,** Ephrata, Wash., received a $487,470 contract for 2.5 mi. of grading and surfacing, Grass Range-Malta highway in Phillips County. **P. J. Anderson & Sons** and **Stoen Construction Co.,** Seattle, Wash., received a $451,099 contract for 4.5 mi. of grading and surfacing on Grass Range-Malta highway in Fergus County. A $131,106 contract was received by **Sterhan Construction Co.,** Glendive, for bridge construction on the Terry-Glendive highway in Dawson County. **R. J. Sundling,** Livingston, received a $146,290 contract for 10.1 mi. of grading and surfacing on Wilsall-Northeast highway in Park County.

NEVADA

Silver State Construction Co., Fallon, received two contracts for roadwork in Mineral and Churchill counties: a $650,268 contract for 9.4 mi. of grading and surfacing a portion of the state highway northwest of Babbitt in Mineral County, and $288,635 contract for grading and surfacing in Churchill County. **Wells Cargo, Inc.,** Las Vegas, received a $645,509 contract for constructing a portion of the State Highway System in White Pine County. A $135,130 contract was received by **Pyramid Construction Co.,** Reno, for grading and surfacing near the California-Nevada state line in Douglas County.

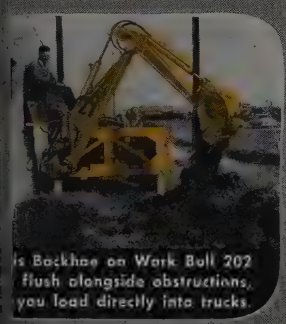
NEW MEXICO

Adams Construction Co., Santa Fe, received a $981,744 contract for 4.8 mi. of grading and surfacing the Socorro-Valencia county line-south in Socorro County. A $594,702 contract was received by **J. H. Ryan & son, Inc.,** Albuquerque, for 1.3 mi. of grading and surfacing Grants Connection to Route 93 in Valencia County. **O. D. Cowart** of Albuquerque received a $157,817 contract for 5 mi. of grading and surfacing the El Cerro-Los Lunas road in Valencia County.

OREGON

Roy L. Houck & Sons & Roy L. Houck Sons Corp., Salem, received a $582,868 contract for 6.5 mi. of grading and surfacing Lebanon Road-Saddle Butte section of Pacific Highway, south of Albany in Linn County. A $531,058 contract was received by **Rogers Construction Co.,** Portland, for 2.4 mi. of grading, paving and structure on the Columbia River Highway in Wasco County. **C. J. Montag & Sons** of Portland received a $172,934 contract for grading, paving and structure on Holladay connection to Banfield Expressway in Multnomah County. A $952,65 contract was received by **Hansen & Parr Construction Co.,** Spokane, Wash., for construction of bridge over Snake River, south of Ontario on Old Oregon Trail Highway in Malheur County. **R. A. Heintz Construction Co.,** Portland, received

(Continued on page 100)



s Backhoe on Work Bull 202 flush alongside obstructions, you load directly into trucks.

ork Bull 202 is the only indus- al tractor with Ferguson 3-point ok-up for rear end attachments.

Stretch Dollars – Save Manpower with equipment that does more . . .

WORK BULL 202

DOES MORE JOBS THAN ANY OTHER RIG IN THE UTILITY CLASS!

The Work Bull 202 with its many quick-change attachments is designed to increase production and save you money on all types of construction jobs! It enables you to handle stockpiling, loading, materials handling, digging, trenching, clean-up, backfilling, scraping, scarifying, leveling, cable-laying, mowing – even wood cutting – with one efficient power unit.

New Work Bull Industrial Styling features a low silhouette for better over-the-hood visibility. Distinctive bumper-grille facilitates the mounting of a Davis Loader-Backhoe, so the entire rig will operate as a single integrated unit. Built-in hydraulic pump lets you reach farther by eliminating the necessity for a bumper.

High-torque, 40-h. p. engine delivers more lugging power at low speeds than any other tractor in the utility class! Dual range transmission has in-line shifting through six forward and two reverse speeds. Full-time power steering and left-right turning brakes speed time-cycle jobs. Brakes may be interlocked for simultaneous use. These are just a few of the years-ahead features that make the Work Bull 202 the best industrial tractor buy that you have ever seen!

Other Power-Matched Massey-Ferguson Rigs are the Work Bull 1001 Multi-Purpose Tractor-Loader (60.3 h. p.), Work Bull 303 Tractor (54.5 h. p.), Work Bull Fork Lift, and Davis Loader and Backhoe . . . plus a multitude of integrated attachments for each basic unit.

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STARLINE EQUIPMENT CO.
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YORK'S SHOP
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LUND MACHINERY CO.
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THOMPSON LUMBER & HARDWARE CO.
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1101 River St., Canon City, Colo.

MODERN FARM SERVICE, INC.
357 Mountain Avenue, Berthound, Colo.

ENGINEERS and CONTRACTORS

Establishment of a new regional office in Denver, Colo., is announced by G. Donald Kennedy, president of the Portland Cement Association. The Rocky Mountain regional office will enable the association to improve its services to

Edward W. Thorson

cement users in Colorado, Wyoming, Montana, Utah and New Mexico. **Edward W. Thorson,** in charge of PCA's district office in Denver since 1946, was appointed regional manager-district engineer and in this position he will supervise district offices in Salt Lake City, Utah, and Helena, Mont., in addition to Denver.

* * *

Walter L. Huber has been reelected chairman of the Secretary of the Interior's Advisory Board on National Parks, Historic Sites, Buildings and Monuments. Huber, partner in Huber & Knapik, engineering consultants, makes his headquarters in San Francisco.

* * *

Appointment of **Joseph Pirtz, Jr.,** a 21-yr. veteran of Pacific Gas and Electric Co., as manager of hydroelectric construction, is announced

Joseph Pirtz, Jr.

by **H. W. Haberkorn,** newly appointed vice president in charge of general construction. Currently Pirtz is in charge of PG&E's $80,000,000 Kings River hydroelectric development which includes Haas Powerhouse, first major underground installation of its type in the nation. Pirtz succeeds to Haberkorn's previous post July 1.

* * *

Recent engineering personnel promotions in the Oregon State Highway Department include the following. **Alfred A. Rear,** assistant resident bridge engineer, has been promoted to resident bridge engineer in Portland. At Division 4 in Bend, **Robert H. Clark,** office engineer, has been promoted to district maintenance superintendent, and **George W. Martin** has been upped to division office engineer. **Howard C. Johnson,** assistant resident engineer in La Grande has advanced to district maintenance superintendent in Corvallis.

* * *

Ernest R. Schultz, supervisory civil engineer with the Bureau of Reclamation in Denver, has been appointed head of the Concrete Dams Section. In his new position he will direct preparation of designs and specifications, and construction drawings. Dams currently being designed by this Section include Glen Canyon on the Colorado River in Arizona, and Flaming Gorge on the Green in Utah. A member of the U. S. Committee of the International Commission on Large Dams, and the American Society of Civil Engineers, Schultz has been with the Bureau since 1930 except for four years' service during World War II.

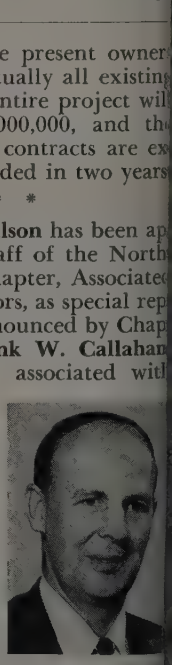
* * *

Charles A. McMahon, well known Western project superintendent and engineer, is currently connected with the Community Redevelopment Agency of the City of Los Angeles. He is in charge of the engineering phases of the Bunker Hill project and others in Los Angeles. To be developed under private capital, the planners expect to build 15- to 25-story buildings on the site of the present run-down Bunker Hill section of Los Angeles. Before that takes place the CRA must acquire the property from the present owners and demolish virtually all existing structures. The entire project will cost about $250,000,000, and the first construction contracts are expected to be awarded in two years.

AT A NEW ALASKAN POST, ***Major Joseph A. Bacci*** **as resident engineer for the recently established Remote Facilities Field Projects Office of the U. S. Army Engineer District, Alaska, will supervise millions of dollars worth of construction at isolated sites throughout the Territory. Major Bacci headquarters in Anchorage**

* * *

C. W. "Syd" Wilson has been appointed to the staff of the Northern California Chapter, Associated General Contractors, as special representative, as announced by Chapter Manager **Frank W. Callahan.** Wilson has been associated with



C. W. (Syd) Wilson

the highway and heavy construction industry for many years, most recently in Alaska, Washington and Utah, for Morrison-Knudsen Co., Inc. For several years he was with the Washington State Highway Department, and at one time was with the Institute of Transportation and Traffic Engineering at the University of California, Berkeley.

* * *

Frank Roodman, civil engineer has been transferred to the general offices of The Austin Company, Cleveland, Ohio, following two years in Seattle, Wash., where

LIMA

Users across the nation find LIMA Cranes tops in flexibility, speed and dependability

Two Lima Type 703-SC Cranes, equipped with 70′ booms and 20′ jibs, hoisting 110′ long steel girder weighing 76 tons on the construction of a bridge over the Calumet River.

your job calls for lifting a hefty girder, placing concrete, handling loose material or what have you, you'll find that LIMA's advanced features give you the swift, smooth, dependable operation that spells profit.

Here are some of the quality-plus features that help to make LIMA the outstanding crane for big and little jobs alike: *air-controlled clutches provide finger-tip control of all major operations; anti-friction bearings used at all important bearing points reduce wear and lessen lubrication problems; all gears, smaller parts and shafts which are subject to extra wear are flame or induction-hardened for longer life; big capacity drums and sheaves are easy on cables. There is a choice of three mountings, too—crawler, truck and wagon. Mounted on rubber for maximum mobility, LIMAs are available on 6 x 4, 6 x 6, 8 x 4 and 8 x 6 carriers with capacities up to 70 tons. If mobility is not a factor in your operation, you can get LIMA crawler-mounted cranes that will handle loads up to 110 tons.

Get the complete LIMA story from your nearby LIMA distributor, or write Construction Equipment Division, Baldwin-Lima-Hamilton Corporation, Lima, Ohio.

Optional on smaller types.

Lima Type 54-T truck cranes, equipped with 40′ and 50′ booms, 31-ton, 50,000 gallon capacity tank.

Lima Type 44-T Truck Crane pouring concrete into bridge pier form on the West Coast's largest freeway at Oakland, California.

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5816

SUPERVISING the jobs

he was project superintendent on the $26,000,000 development center recently completed by Austin for Boeing Airplane Co.

* * *

Richard F. Marken announces the organization of Baymar Pacific Co., 1011 Industrial Way, Burlingame, Calif., to specialize in the design and construction of mill, storage and processing plants. Both Marken and **Worth Bayles,** organizers of the new company, combine many years of engineering and construction experience.

* * *

Fred Parr Cox, president of Parr Industrial Corp., San Francisco, recently made known the formation of a new general contracting firm under the name of Parr-Cox Construction Co., which has been in operation since last year. Contracts totaling some $3,500,000 have been completed, with other projects under way in Portland, Ore., and elsewhere.

* * *

After three years in Anchorage, **Capt. N. R. Rosen,** executive for the U. S. Army Engineer District, Alaska, has been assigned to Fort Leavenworth, Kans.

* * *

Fisher Contracting Co. of Phoenix recently observed its 21st anniversary and marked the occasion with a party at which long-service employees were honored. The event included 300 company founders and old-time employees who have worked for Fisher on such major Arizona projects as the Mohawk-Welton irrigation project; the Arizona Portland Cement plant at Rillito; various tunnels, bridges, runway facilities, city water lines, canals, as well as railroad and road jobs throughout Arizona and the Southwest. The welcoming address was given by President **Del Fisher. John Fisher,** vice president, reported on the company's operations in Central America.

* * *

Thomas J. O'Hara, Jr., McNeil Construction Co. executive, has been named vice president of the Los Angeles construction firm. Formerly manager of operations, O'Hara now assumes new responsibilities in staff administration.

* * *

Lt. Col. James B. Newman III, deputy district engineer, U. S. Army Engineer District, Seattle, has concluded his duties in this District. His replacement is **Col. Robert P. Young.**

Cecil B. Welton and **A. J. Simoneaux** have been appointed project manager and engineer respectively for Utah Construction Co., recently named by Southern California Edison Co. to build the 8-mi. Mammoth Pool power tunnel in California's High Sierra. Part of the utility company's $50,000,000 Mammoth Pool hydroelectric development, this $12,500,000 contract is the largest ever awarded by Southern California Edison on a competitive bid. The two veteran Utah tunnel men were previously on the Poe Tunnel, a similar bore recently completed on the Feather River power development near Oroville, Calif., for the Pacific Gas and Electric Co.

With construction just getting under way, the 20-ft. Mammoth Pool tunnel will be drilled through solid granite and will cut through the west slope of the Sierra Nevada in Madera County to carry water from the diversion dam on the San Joaquin River to the site of generating facilities downstream. Completion is scheduled in the fall of 1959.

This large project, which will include the tunnel, an earth-filled diversion dam and powerhouse, is part of Southern California Edison Co.'s Big Creek-San Joaquin River hydroelectric development which now includes seven powerhouses and five reservoirs.

* * *

Floyd A. Collins is in charge of construction job recently awarded to Summit Construction Co. for grading, surfacing and other work on 27.8 mi. of Medicine Bow road in Carbon County, Wyo. Assisting the general superintendent on this $728,248 contract are **H. M. Kaiser,** gravel superintendent, and **Jesse Dockrey,** asphalt superintendent. Job started in June and will be finished some time in October.

* * *

Wayne Affleck, project manager, **Jack Guthrie,** project engineer, **D. J. Taylor,** general foreman, and **Fred Diaz,** office manager, are head men for Pacific Bridge Co. on a $1,176,625 contract at the U. S. Naval Station, Long Beach 2, Calif. Job started in May, and consists of construction of permanent cyclopean concrete type wharves, raising of existing pier and other work on the dry dock. According to Affleck, the job will probably run until April next year.

* * *

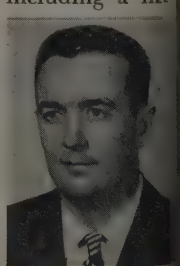
J. V. Beach is supervising a $264,904 job for Silver State Construction Co. consisting of 6 mi. of grading and surfacing on U. S. 50 in Churchill County, Nev. Superintendent Beach is assisted by **J. J. Montrose** and **Joe Solaegui,** foremen.

* * *

Gail Loop, superintendent in the employ of Big Horn Construction Co., is in charge of a highway contract on the Glenrock road in Converse County, Wyo., on which Big Horn was low bidder at $709,351. Other key men on the grading and surfacing contract which includes cement stabilized gravel base course with hot-mix asphalt surface, are **Dave Barker,** asphalt superintendent, **John Squier,** office manager, and **Stan Mitchell,** plant foreman. Earmarked for mid-September conclusion, work got under way May 15.

* * *

Fran Murphy of Judson-Pacific Murphy Corp. is acting as project manager for his firm on construction of a bridge including a lift-



Francis J. Murphy

span across the Sacramento River at Rio Vista, Calif. Other important personnel on erection of this superstructure are **Bill Ziegler,** project superintendent, **Rod Chisholm,** project engineer, and **Jay Murphy,** field office engineer. Work got

Cat No. 12 Motor Graders!

BEST BUY FOR 20 YEARS—BEST BUY TODAY!

Here's why: When the No. 12 was introduced in 1938, it set new performance standards to become the leader in this type of equipment. Today it *still* is the leader, because Caterpillar has constantly built improvements into it.

Shown here are *some* of the many changes that have been made in the No. 12 to keep it the unquestioned leader. Its exceptional dependability and high resale value are common knowledge. Dollar for dollar, the No. 12 is the most valuable motor grader that you can own.

Compare today's No. 12 with any other motor grader—compare it with older No. 12s, too. By any measure you'll find it has grown in work ability, matched to meet today's exacting construction and road maintenance needs. For complete information about this modern, heavy-duty machine, see your Caterpillar Dealer!

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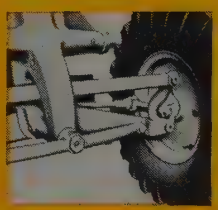
NO. 12 MOTOR GRADERS—BEST BUY BY ANY YARDSTICK!

Longer main frame adds extra clearance between the toe of the blade and the front tire for all blade positions. There's ample blade maneuvering space whether the No. 12 is equipped with 13.00-24 or 14.00-24 front tires. Curved side shift rack permits fast, easy blade positioning—all common blade positions are available to the operator without leaving the cab.

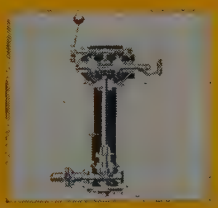
Exclusive oil clutch, the most advanced clutch design ever offered in a motor grader, provides up to 2,000 hours without adjustment. This is equivalent to about 12 months of "adjustment-free" operation. And because wear rate of clutch facings is so slight, down time for clutch repair is virtually eliminated. The oil clutch accounts for a large part of the No. 12's reputation of dependability.

Unequalled visibility results from the No. 12's dash-mounted lift gears and low frame design. While seated, the operator has an unobstructed view of the critical areas at the front wheels, toe of the blade and circle. In-cab starting and easy-to-reach controls are other No. 12 features that help the operator work more efficiently.

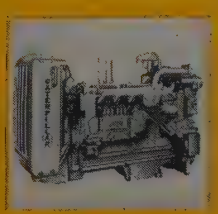
Optional Preco Automatic Blade Control, available only on Cat Motor Graders, controls blade slope to an accuracy of within ⅛" in 10', regardless of position of grader. Operator merely dials the required slope on the control, then follows the guide lines. Preco-equipped No. 12s cut conventional grading time as much as 50%.



Improved service life is built into the No. 12 with larger king pins and bushings, larger inboard spindle bearing, new steering arm pivot block with seals, improved steering booster with outboard bearing. No other motor grader can surpass the No. 12 for rugged construction—another important factor in the machine's dependability story.



Mechanical controls, standard on the No. 12, offer positive action, make blade adjustments precise. Powered right from the engine, they give a speed and range of blade movements no other unit can match. More than one lever can be operated at a time, without slowing blade movement. "Anti-creep" braking mechanism makes the blade "stay put" while under load.



Modern heavy-duty Cat No. 12 Engine features, among other advantages, the exclusive Caterpillar fuel injection system. This permits the use of economy-type fuels without fouling. The long-life reputation of Cat Diesels is well known—no other engine can match them for dependability!

under way on this $2,146,870 contract in May, and Murphy expects to be finished the end of next year.

* * *

Ralph A. Powers is superintendent on a plate girder railway bridge being built by Richard L. Martin, contractor. The job, which is at Lakeview, Wash., is being done at a cost of $225,605. Under way since May, it will be finished this October.

* * *

On the site at Fort Richardson when the first shovelful of earth went into the loading truck at the groundbreaking for construction of a heavy support shop for NIKE installations in the Anchorage area were **Lloyd Peterson,** inspector for

Peterson *Michlig*

the U. S. Army Engineer District, Alaska, and **Ray Michlig,** foreman for Lease Co., Inc. Contract for the work, which includes heavy support shop with concrete tilt-up walls, electrical and mechanical systems, asphalt concrete paving and other requirements, was awarded to Lease last February. Completion date is Oct. 31, 1958.

* * *

Carl Hartley, superintendent for Robert E. McKee, Inc., is directing an Air Force Academy award which McKee received on a low bid of $1,500,570. It embraces lighting and communications, aggregate walkway paving, bituminous surfaced tennis courts and miscellaneous work. Other key contractor men on this project are **Joe Schultz,** engineer, **Bob Phillips,** carpenter foreman, and **"Rusty" Hust,** labor foreman. Job started in March and will be finished about January.

* * *

Larry Neal is construction superintendent, and **Wendell H. Foster** is project engineer on a junior high school now under construction at Canoga Park, Calif. Contractor Paul W. Speer won the award on a $2,228,000 low bid, started the job Mar. 3, and will have it finished probably May 1, 1959.

* * *

Jack Coleman is supervising a grading and surfacing job, including concrete structures, near Casa Grande in Pinal County, Ariz., a $145,383 contract. Heiskell Construction Co. was the low bidder. Assisting Coleman is **Tom Burns,** with **Bill Howell,** road foreman, and **Jack Cast,** concrete foreman. Under way since April, the job will be finished in August.

* * *

Robert A. Millard (joint venturer with J. F. England's Sons', Inc.) is in charge of 12.6-mi. stretch of grading and surfacing on Armells Creek-Hays-Harlem highway in Blaine County, Mont., an award which was recently won by the joint venture firm on a low bid of $437,338. Grading superintendent is **Joe M. Huston,** and gravel superintendent is **Maurice Boggess.** Work started in May and is expected to be finished in September.

* * *

Philip J. Dunn is superintending a large highway contract recently awarded to the joint venture of Piombo Construction Co., M & K Corp. and Connolly-Pacific Co. Work consists of grading, paving, bridge construction, and widening of bridge in Alameda and Contra Costa counties, near Richmond, Calif. Other top men on this $5,169,810 project are **C. J. Clayton,** assistant superintendent, **M. H. Griggs,** concrete superintendent, and **H. D. P. Thomas,** who is the office manager. The job started the 1st of May, and will be finished about June 1, 1960.

* * *

K. E. Poss, project manager, and **R. P. Brodie,** superintendent, are the top men on a $1,374,930 award to Fredrickson & Watson Construction Co. and Ransome Company for grading and surfacing 8.4 mi. of Rt. 89 and construction of one bridge, north of Tahoe City, Calif. Master mechanic is **C. W. Stephenson;** grade foreman, **C. H. Strickland;** timekeeper, **F. W. King.** Under construction since May, the work will be finished some time in 1959.

* * *

Gary Brimhall is superintendent, with **Dennis Nelson** his assistant, for Nelson Brothers, successful bidder at $134,244 to construct access roads, parking areas and surfacing of a recreation area at Wanship Reservoir, Utah. Scheduled for completion in October, the work has been going since May.

* * *

"Hank" Carder, superintendent **Milton Gracia,** project engineer **Les Johnson,** bridge superintendent, **Bob Pate,** equipment superintendent, and **Dan Borradori,** master mechanic, are Madonna Construction Co.'s head men on a $3,267,177 recent award for 8 mi. of grading and surfacing and bridges on Route 166, Cuyama highway west of Huasna River in San Luis Obispo and Santa Barbara counties, Calif. A 350-day project, work here started in April.

Madonna started on another grading and paving job in San Luis Obispo County. This one covers reconstructing 3 mi. of 4-lane expressway between Camp Freemont and Guesta Overhead. **Fred Franklin** is doing the superintending and **Robert Osborne** is project engineer. **Dan Borradori** is master mechanic also on this $506,321 contract, which will run 105 days.

* * *

Lon R. McDermott, project superintendent for Fisher Contracting Co., is supervising a grading, surfacing and drainage job located in Coconino County, Ariz., recently awarded Fisher on a low bid of $915,272. Other key men on this 4.7-mi. construction lying north of the Yavapai-Coconino County Line are **Chris Hulls, Jr.,** grade foreman, **Dan Broderick,** drilling foreman, **Eugene C. Pierce,** field office manager, and **August Zarka,** heavy-duty mechanic foreman. Job started on April 21, and according to **Walt Eldridge,** field office coordinator, will be finished about May 1959.

* * *

Dick Sumsion acting as general superintendent is in charge of a recent award in the amount of $174,454 to J. M. Sumsion & Sons for 8.8 mi. of grading and surfacing at junction of State Roads 47 and 262 in San Juan County, Utah. Scheduled for completion in August, the job has been going since April, with **Lawrence Clark** as grade - oil - surfacing foreman, and **B. J. Obye,** gravel plant foreman.

* * *

James N. Leinbach is superintending Fred Slate Co.'s recent award at $330,495 for 4.7 mi. of grading and surfacing from Snake River to Rattlesnake Hill in Elmore County, Idaho. Foremen for Slate are **James Huckaba** and **Vel**

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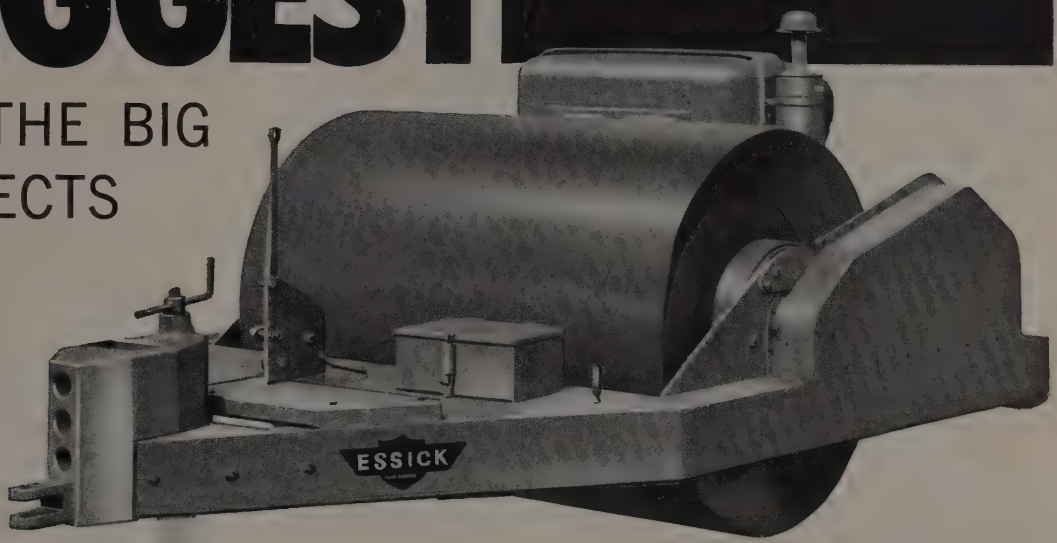
FOR THE BIG PROJECTS



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Compacting Beach Sand For Fuel Tank Foundations

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WALTER RADKOVICH COMPANY, CONTRACTORS, SANTA MONICA STORM DRAIN PROJECT, SANTA MONICA, CALIFORNIA
Re-fill And Compacting Over Concrete Drain Pipe System

RADCO CONSTRUCTION INCORPORATED, ALTADENA STORM DRAIN PROJECT, ALTADENA, CALIFORNIA
Re-fill And Compacting Over Concrete Drain Pipe System

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With the tremendous compaction of 580 tons of kinetic energy developed each second, the Essick 72″ vibrating compactor has proven it can cut more than 50% from spreading and rolling time required by any other methods now used for compacting earth fills.

High frequency vibrations, (*in contrast to low frequency vibration of other makes*), together with the 580 tons of kinetic energy per second move an extra large pool of earth particles, keying them together into a dense mass ...meeting the most rigid compaction requirements in record time.

The Essick Model VR-72-T has successfully compacted lifts up to 7 feet of granular material and lifts from 2 to 5 feet of heavy soils having a clay content of more than 45%.

The VR-72-T produces maximum compaction through *high frequency vibrations* utilizing a scientifically engineered power transmission system. Where other equipment has failed, Essick vibrating rollers provide continuous production year after year.

The Model VR-72-T is designed for the contractor whose present equipment cannot achieve required densities...whose compaction costs are too high... whose equipment investment, operation, maintenance, haulage, and storage costs are excessive—anywhere in the compaction field where present equipment and methods are costing precious dollars, the Essick Model VR-72-T vibrating roller will do the job better at a greater profit.

OTHER VIBRATING ROLLERS 13″, 28″, 32″ AND 54″ WIDE. ALSO A COMPLETE LINE OF STATIC WEIGHT ROLLERS.

(Many Engineers are writing new specifications calling for more stringent compaction requirements. ESSICK Vibrating Rollers are consistently exceeding these requirements with fewer passes and higher lifts.)

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ton Case, with **George Edwards** in the shop-foreman spot. Under way since April, the construction will probably be finished in September.

* * *

R. A. Stewart is supervising a recent award for resurfacing with asphaltic concrete which went to Asphalt Paving & Engineering Co. on a low bid of $111,048. Plant superintendent is **J. C. Tharp.** This grading and surfacing work is on portions of State Highway 21 south of Bremerton, Wash. Work started in May and will be finished in July.

* * *

John W. Rumsey, Jr., and **Robert P. Nesser,** project manager and job superintendent respectively, head the construction crew working for Morrison-Knudsen Co., Inc., and Rumsey & Company on construction of Alaskan Way Viaduct in the city of Seattle, Wash. Other key supervisors on this $2,987,878 project, which started last Mar. 21 earmarked for completion August 1959, are **Ernest Still,** carpenter superintendent; **Frank Wilkinson,** piledriver superintendent, and **Jess W. Coppedge,** office manager.

* * *

Mike Stratton, field superintendent, **Sid Whitworth,** chief estimator, **Jack Dingman,** project superintendent, and **Jim Neal,** project office manager, comprise the chief personnel on construction of a $1,000,000 home for the aged by Albert Vik & Son Construction Co. Of frame, masonry and prestressed concrete construction, the structure is located in Eugene, Ore. Under way since Mar. 10 the building is expected to be ready for occupancy early in 1959.

* * *

Mike Saporetti is superintending a $992,137 award to R. R. Hensler for reconstructing and widening 10.6 mi. of State Highway, Route 115 east of Brawley to north of Holtville, Calif. **Everett Beaver** is office manager, and **Theodore Bruhn** is master mechanic on this job.

* * *

W. B. Berry, superintendent, **R. N. Harrington,** foreman, **T. C. Latham,** manager, **B. W. Weekes,** administrator, and **C. S. Christenson,** expeditor, key men for Dicco, Inc., are employed on freeway construction in Tulare County, Calif. Project is for 7.9 mi. of grading and surfacing at Lindsay, and Dicco successfully bid the job at $778,348. With an allowable 265 working days, work started Feb. 15.

Glen Ramsour and **Fred Ramsour** are handling structures supervision on a $463,342 recent award to Domenic Leone Construction Co., while **George J. Gahm** is supervising grading, and **Bert Grassino** is office manager. This grading, structures and asphalt paving work lies from west city limits of Swink northwest in Otero County, Colo., and has been under way since April.

* * *

Clint Miller, project manager, and **Thomas Gorton,** project engineer, are head men on a recent award to Pacific Bridge Co., Inc., for replacing timber dock with a reinforced concrete structure at the Naval Air Station, North Island, San Diego, Calif. This $426,967 contract got under way in April and will probably come to an end this December.

* * *

William V. Tayce, project manager, and **L. B. Westfall,** superintendent, head the job personnel on James I. Barnes Construction Co.'s contract covering a 2-story reinforced concrete and reinforced block masonry building at the University of California campus at Santa Barbara. Purchasing agent for this $1,148,700 project is **W. M. Flinders. W. D. Hawthorne** is key foreman on the job, which started in April and will probably be finished July 1959.

* * *

Charles P. Finnerty, Jr., and **Hugh A. Scott,** project manager and superintendent respectively, are in charge of a $1,126,000 construction contract for Wm. C. Crowell Co. Job consists of erection of 11 concrete block buildings at Bonita Union High School at La Verne, Calif. Carpenter foremen are **Charles Smith** and **Robert Bennett,** while **Jess Ortega** is labor foreman. Scheduled for completion February 1959, work has been under way since April.

* * *

William Hurt and **Al Bittenbender,** project manager and superintendent respectively, head the construction personnel of Evert & Payton, successful bidder at $1,034,889 for construction of ten concrete, frame and stucco one-story buildings for school project in Oxnard, Calif. Under way since March, construction will be finished early in 1959.

* * *

Walter J. Durbin, partner in the contracting firm of Durbin Brothers, is serving as superintendent on a recent award to the company f grading, surfacing and bridge c struction on the Perry-Oro Dell s tion of the Old Oregon Trail hig way northwest of La Grande, O Assisting as foremen are **Lewis B ler** and **Richard Schradle.** Wo started in February and will pr ably be finished the end of t year.

* * *

W. R. Heinke, Ed Pound, a **Tom Bosley** have been appoint by Fisher Contracting Co. as p ject superintendent, project en neer, and field office manager spectively on construction of a $1 000,000 cement plant near Cla dale, Ariz. The design of the n plant, which is being built Riverside Arizona Cement Co., subcontracted to the Fluor Corp ation. Construction is expected start in early June and the proj will be finished some time in 19

* * *

Bill Lassetter, superintendent, heading construction of a 4-st reinforced concrete hospital str ture at Redondo Beach, Calif. sistant superintendent is **Bill G bert.** According to **Jack Harryma** general superintendent for the c tractors M. J. Brock & Sons, I and R. J. Daum Construction C the $2,359,000 structure will be f ished about June next year. Wo started in April.

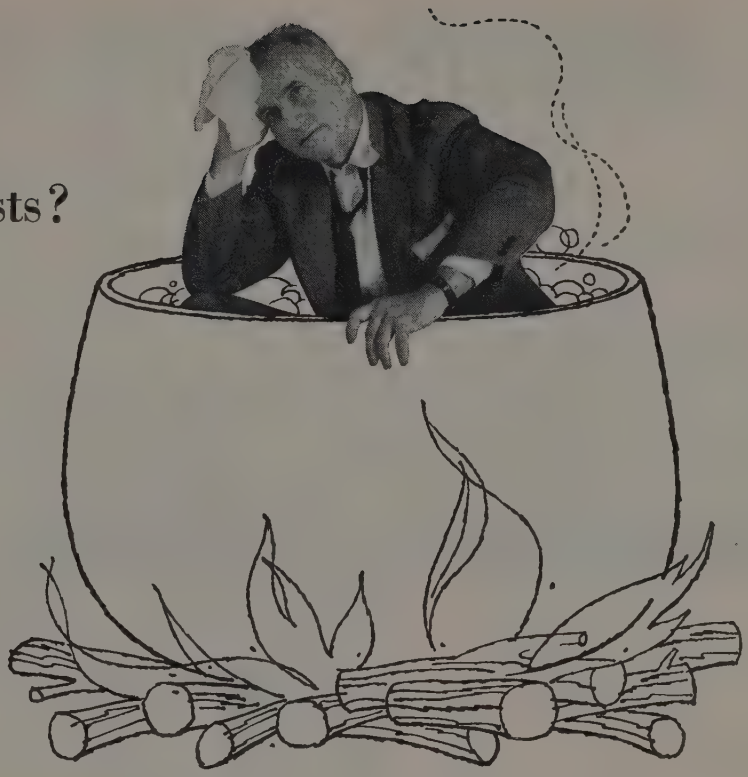
* * *

Vido Artukovich is acting as own project manager on a $3,14 505 recent award to the firm Vido Artukovich & Son, Inc., wh **A. P. Artukovich** is project sup intendent. **A. L. Madera** is mast mechanic, and **Leo A. Majich** purchasing agent. Contract is a 75-in. water line, portion of S ond San Diego Aqueduct bei built in Riverside and San Die counties by the Metropolitan Wa District of Southern California. start in June, the job is expect to be finished about March 19

* * *

Andrew "Ole" Ekre, project perintendent for Sather & Sons, in charge of a crushing and pavi job which Sather recently won a low bid of $1,793,019. Work on State Highway 2 near Hyak a along Lake Keechelus, Snoqualm Pass Highway, Kittitas Coun Wash. Additional key person are **Bill Groves,** crusher superint dent; **Allen Anderson, Jay Hens** and **Gilbert "Dutch" Wagner,** fo men; **Pete Bina,** master mechan and **George Palmer,** timekeep

Stewing over high costs?



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hell Rimula Oil was developed to counteract wear heavy duty engines under *both* extremes: heavy ads and light loads.

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- **developed by lubricant specialists at Shell research laboratories**

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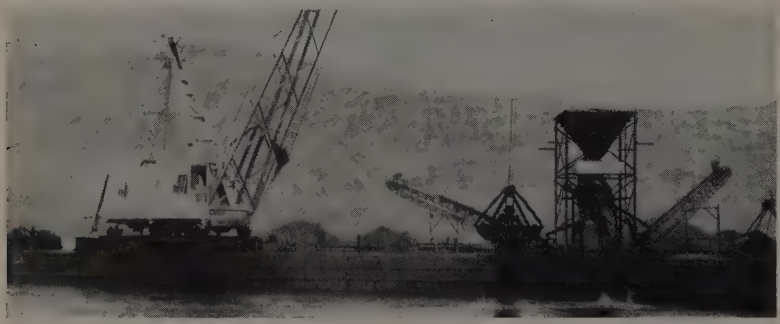
CONSTRUCTION BRIEFS



Gravel plant works in river

THE CELILO GRAVEL CO. may be the first in the West to set up complete dredging and screening facilities to process submarine gravel deposits. The operation is anchored in midstream of the Columbia River a short distance below the location of now-submerged Celilo Falls, and about 6 mi. above The Dalles Dam.

It is working a gravel bar of about 200 ac. in extent and unknown depth, in depths of water ranging from 5 to 25 feet.

The plant consists of a Pioneer screening plant with Telsmith feeder which is supplied with material dredged up from the bottom by a 3-yd. clamshell on a Washington crane with 110-ft. boom. The screens take out over and undersize and reject it while the two grades being produced, 1½ in. ¾ in. and ¾ in. to pea, are c ried out by conveyors and piled a barge which lies alongside.

The plant runs about 50 tons hour of finished product and c erates on an eight-hour day sch ule. The 1,000-ton barge-load taken by tug, when full, downriv to Vancouver where it is unload at the company's yard there f distribution.

The operation represents an i vestment of approximately $25 000, including the 80-ft. diesel t "Peggy Belle Russell" which tends the floating plant and mov the gravel barges.

A 1,000-cu. yd. capacity crushi plant is projected to be set up a site along the river about 2½ n downstream from the gravel ba on the Oregon side, in the ne future which will enable great and more versatile production a stockpiling at a central location serve future construction nee both up and down the river.

John Herb is president of t new company and Robert Herb vice president. Capt. Lew Russe Jr., of Portland, is secretary-trea urer. The Herbs have long bee operators of the Estacada Sand Gravel Co., at Estacada, Ore., whi has most recently been principal occupied in supplying aggrega for Portland General Electric Co North Fork Dam on the Clackam River.

Construction films available

POWER SHOVEL PRODUCTIVITY is a new motion picture produced by the Bureau of Public Roads. Based on extensive studies, the film highlights the job conditions that determine the yardage output of power shovels on highway grading work, and demonstrates how production is affected by the speed of dipper cycle, size of load, and frequency and duration of minor delays. Prints of the 16-mm, sound and color, 30-min. film may be purchased by contractors and other responsible organizations from Visual Education, *Bureau of Public Roads,* Washington 25, D. C. If desired, prints may be purchased at $111.88 per copy.

CONCRETE 57, a film on outstanding concrete construction projects in the country during the past year, is now available for showing in the Southern California area. Filmed in both color and sound, this 17-min. film is suitable for engineering and architectural groups. It was prepared with the non-technical viewer as well as technical groups in mind. The film is available for showing without charge by contacting the *Portland Cement Association,* 816 West Fifth St., Los Angeles 17, Calif.

IN ORDER TO SHOW HOW finish grading can be done faster, easier and with greater economy, Caterpillar Tractor Co. has produced a new sound and color motion picture. Entitled "The Preco Automatic Blade Control," the 16-mm, 5-min. film describes a versatile attachment for No. 12 and No. 112 motor graders. Photographed under actual job conditions, the film illustrates the advantages of the control. Showing may be arranged through Caterpillar dealers, or by writing the Advertising Division, *Caterpillar Tractor Co.,* Peoria, Ill.

A NEW 16mm sound and color motion picture on the Hyster D4 Hydraulic Backhoe is now available for viewing. This film explains the exclusive design and performance features of the backhoe that make it an ideal excavating machine for contractors and others interested in utility digging jobs down to 13 ft. below grade. Contact your Caterpillar-Hyster dealer, or write to *Hyster Company,* 2902 N. E. Clackamas St., Portland 8, Ore., to arrange a free showing.

PERLITE INSTITUTE has produced a new color sound movie on the design and construction of perlite concrete roof decks. The 20-min, 16-mm film, "Roof Decks Unlimited — With Perlite," is available without charge for showings to contractors, engineers, and other interested groups the building industry. Write *Perlite I stitute,* 45 West 45th St., New York N. Y.

A LEADER in its field for more than years, the *Koehring Company* has a su cess story to tell. It does this by mea of a new color, motion picture, "This Koehring." In less than 20 minutes, a yet with proper emphasis on the key fa tors in the company's success, the fil gives a profile of the units that ma up the Koehring organization: employe plants, research and development, testin plus use of equipment on the job. Of i terest to general construction groups a college students seeking new careers, i formation on showing may be obtain from The Jam Handy Organization, 28 E. Grand Blvd., Detroit 11, Mich.

STEEL IN CONCRETE is a 16-m sound and color, 38-min. film whi covers the theory and use of steel inforcing bars in concrete structures, leased by *Bethlehem Steel Corp.* Actu laboratory demonstrations are conduct to show the effects of stresses and stra upon un-reinforced structures, interpret and applied by the designing engine and architect. This technical film m be secured free for group showings writing Modern Talking Picture Servi 3 East 54th St., New York 22, N. Y.

MASTER MECHANIC®

Equipment Maintenance Supervisors—

New chapter officers

DESPITE A bus strike which jammed traffic on the San Francisco Bay Bridge, despite an incorrect address on the announcement, and despite the dryness of election day, the third meeting of the Equipment Maintenance Supervisors Association, Bay Area chapter, was a satisfying success. Thirty-one men attended, as compared to 13 last month and 6 the month before. Growth of the new chapter seems to be paralleling that of the original Los Angeles chapter which since its inception several years ago now numbers 110 members and draws 70 or 80 to its monthly meetings. (A review of the development and goals of the new organization, with pictures of the Southern California officers, appeared last month on page 136.)

NEW OFFICERS OF BAY AREA CHAPTER

NAMED to head the Bay Area chapter for the remainder of 1958 are (back row, l. to r.): *Bill Sorenson*, Bassco Drayage, Secretary; *Ed Halm*, Peterson Tractor Co., President; *Bill Halloway*, McGuire and Hester, Treasurer. Front row (l. to r.): *M. J. Walker*, Peter Kiewit Sons' Co., 1st Vice-president; *Jack Sneed*, Stolte, Inc., 2nd Vice-president.

The Bay Area meeting was held June 3 at Onstad's in San Leandro. Four men from the Southern California chapter were present: Leo Ryser, Peter Kiewit Sons' Co.; Paul Fertig, Macco Corp.; Dave Moodie, J. A. Thompson & Son; and Jim Miller, Shepherd Machinery Co.

The following officers were named to serve the Bay Area Chapter for the remainder of 1958: Ed Halm, Peterson Tractor, President; M. J. Walker, Peter Kiewit Sons' Co., 1st Vice President; John Sneed, Stolte, Inc., 2nd Vice President; Bill Sorenson, Bassco Drayage, Secretary; and Bill Halloway, McGuire and Hester, Treasurer.

The program for the evening concerned lubrication and fuels and resulted in a practical, detailed, and very worthwhile discussion, with most of the members participating by contributing questions and answers. The speakers were Warren Brown, research engineer for Caterpillar Tractor Co., and J. M. Plantfeber, of the Products Application Department of Shell Oil Co. The speakers were introduced by L. C. Holland, district representative for Shell.

Information about joining this rapidly growing association can be obtained from any of the men named above or by writing to the organization's president, T. I. Gibson of Griffith Co., at the Association's central office at P. O. Box 548, Alhambra, California.

Replacing anti-friction bearings

By C. V. BORHO
Service Engineer
Caterpillar Tractor Co.

THERE ARE FIVE basic types of anti-friction bearings. Each has a specific application although uses often overlap. The choice of a bearing used in original equipment is, quite naturally, up to the designer of the assembly of which it is a part. When replacement becomes necessary, it's very risky to use any bearing just because it fits the shaft and bore. To guard against this possibility, consult the manufacturer's up-to-date Parts Catalog and install bearings by part numbers. Installing a "will fit" bearing is asking for trouble.

Foreign matter and lack of lubrication are the most frequent reasons why bearings fail. When installing a new bearing handle it with care. During manufacture and storage, bearings are protected with a coating of lubricant and packed inside a paper wrapper. This lubricant should not be washed from the bearing. It is virtually impossible to wash a bearing as clean as it was when the manufacturer lubricated it. After all, bearings are made in dirt free surroundings.

Keep bearings in their original packaging until you are ready to install them. Touch the bearing as little as possible because perspiration starts corrosion. Use clean lint-free rags. Never use cotton waste to wipe a bearing or its mating surfaces. Cleanliness counts.

Serviceable used bearings also require special handling. Take time to examine the assembly. Countless bearings have been ruined because someone didn't know how to take the assembly apart and put it back together. Bearing pullers or an arbor press are handy items to have when removing or installing bearings. Improvised tools will work, but it is essential that considerable care be taken to avoid damage. When a piece of equipment is taken apart, the bearings should stay with the member to which they are tightly fitted. In the case of bearings which are made with separable parts — inner ring, outer ring and ball or roller assembly—both rings may often fit

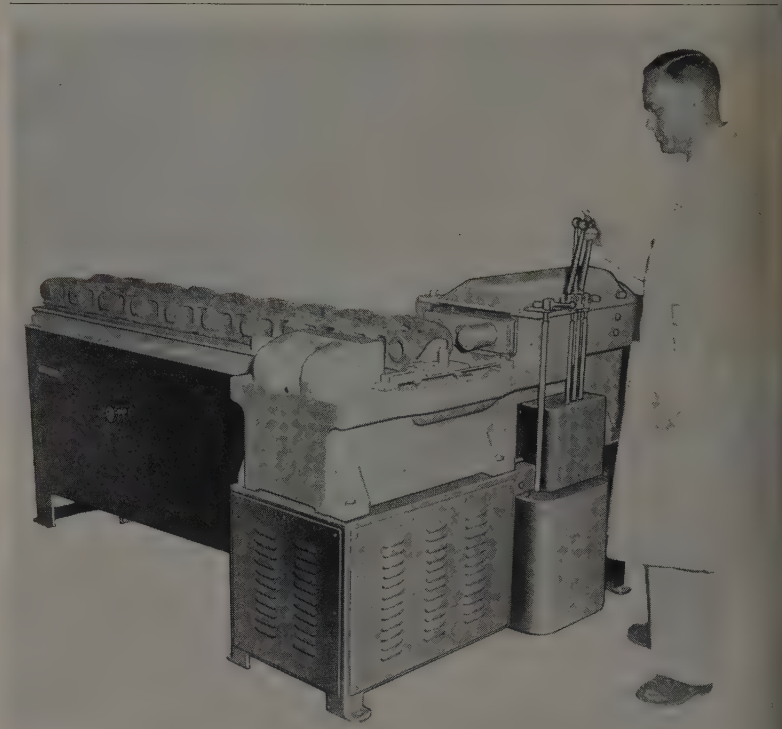
tightly. Always determine whether it is best to press or pull on the race or cup when the bearing is tight on the shaft or bore. Press or pull straight and square to keep the ring from cocking. A cocked bearing can easily score the shaft or housing or cause damage to the bearing itself. Never press or pull against bearing shields or separators. Remember that in most cases a bearing can be reused—if you remove it correctly.

After the bearing has been removed, wash it in a solvent until it is absolutely clean. Next, determine if it is still serviceable. Here are the reasons for replacing a bearing.

1. Broken or cracked rings
2. Dented seals or shields
3. Cracked or broken separators, balls or rollers
4. Flaked areas on balls, rollers or raceways
5. Bearings which have been overheated (Overheated bearings are generally darkened to brownish blue or blue black)
6. Bearings with dented or "brinelled" raceways

If the bearing is determined to be serviceable, apply a coating of light grease or other protective lubricant. Rotate the bearing slowly to make sure all surfaces are completely lubricated. Wrap in clean paper with the bearing's identification clearly marked on it. This practice will eliminate unnecessary handling.

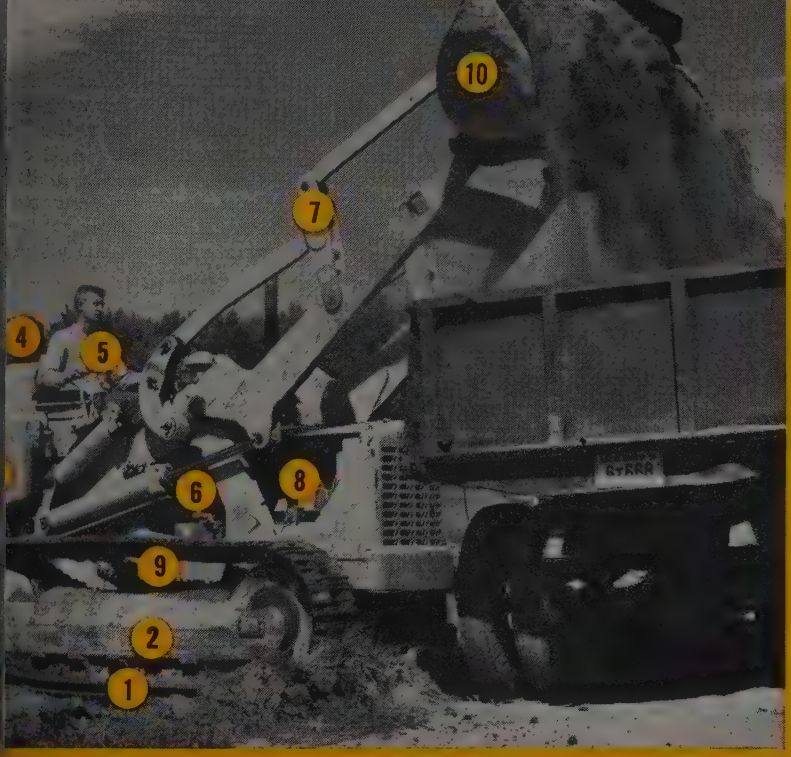
In summary, remember these key points. Don't throw away serviceable bearings. Use the right bearing as listed in the manufacturer's current Parts Catalog if replacement is necessary. Keep bearings clean, exercising care during installation and removal to avoid damage.



Track overhaul time cut in half

Crawler-track overhaul time can be cut in half with a new track press that is being produced by **Owatonna Tool Co.** This new press, the OTC Trackmaster model Y7000, pushes both pin and bushing simultaneously without broaching or damaging sidelinks. Trackmaster features a 2-in. workstroke for faster and safer pressing, and can handle all makes and all sizes of track, even the largest, with grousers removed or left on (two bolts removed). A powerful hydraulic winch (5,800-lb. line pull) draws the track along a conveyor to a hydraulic-powered indexer, which aligns the track line in the Trackmaster saddle. Then, in one stroke, hydraulic pressure (to 125 tons) eases even the most stubborn pins and bushings out of the sidelink.

. . . for more details, circle No. 160 on Reader Service Postcard



Caterpillar No. 955 Traxcavator works 10 hr. a day loading sandy loam into 6-yd. trucks for Brookings Excavating Co., Brookings, S. D. Two blocks of a street on the outskirts of town are being widened. Traxcavator is leveling bank. "One of the features we like best about it," says owner Lyle Stewart, "is the 40-degree tilt-back. It's especially useful tearing up old roads and sidewalks. You can get the bucket under a slab and use the tilt-back to tear up larger slabs at a time." This No. 955 is used for backfilling, too, and for digging basements, as well as for finish grading.

NOW AVAILABLE! NEW SIDE DUMP BUCKET!

Directly interchangeable with standard bucket . . . same pins, bolts, nuts. Easy to operate. Dumps to the left as well as forward. 1⅛ cu. yd.

WHAT TO LOOK FOR WHEN YOUR CATERPILLAR DEALER DEMONSTRATES A No. 955 TRAXCAVATOR ON YOUR JOB

1. Notice the *triple-grouser* track shoes, designed specifically for this machine.
2. See the *5-roller track frame and larger idlers,* for better stability.
3. Check the *spool-type valves,* for smooth, positive bucket control.
4. Try the *padded seat made of foam rubber and raised* for good visibility.
5. Learn how convenient the *one-hand lift and bucket control levers* are.
6. Start the *all-weather gasoline starting engine*—so easy from the operator's seat.
7. Examine the *lift and bucket control arm linkage*—permits *40° tilt-back* at ground level.
8. Get the whole quality story behind the *CAT 70 HP Diesel Engine.*
9. Hear the amazing economy and convenience facts behind the *exclusive oil clutch.*
10. Watch the big 1½-*cu.-yd. bucket* in action (it's the widest part of the machine).

And this is *only the beginning* of your demonstration. Call your Caterpillar Dealer today.

Caterpillar Tractor Co., San Francisco, Cal.; Peoria, Ill., U.S.A.

CATERPILLAR

HARD-WORKING, LONG-LASTING LOADER VERSATILITY

HANDY TRUCK JACK

AN AIR-operated Truck Jack which enables the user to position jack and lift and lower axle without crawling under the truck body is available from *Branick Products Co.* Handle adjusts in a jiffy to wheel jack to work area and folds up to occupy only 14 x 25 in. of floor space when not in use. The Truck Jack lifts 9 tons on 160 lb. of air line pressure.

. . . Circle No. 161

Tips on reconditioning

RECONDITIONING isn't just the disassembly, replacement of worn parts and reassembly. Prelubrication of shafts, bearings or any other part requiring lubrication during operation is a very necessary part of the reconditioning procedure.

According to Service Training Instructors at Caterpiller Tractor Co., it should be assumed that when an assembly with pressure lubricated components is reconditioned, the oil in the lubricant passages has either drained out or has been washed out.

To safeguard against damaging lubricant starvation which can occur during the critical first few seconds of operation after the reconditioned assembly is placed back into service, those parts receiving their lubrication through passages or by splash should be prelubricated.

The right choice of lubricant is also important. In general, the lubricant should be the same as the one recommended for normal lubrication. Crankshafts or camshafts, for example, and their bearings should be lubricated, just prior to installation, with a thin coating of crankcase oil. Before prelubricating, all dust and dirt should be removed. Never prelubricate a car shaft, crankshaft or similar shaft their bearings with heavy grea (hard oil). Heavy greases will eith totally or partially plug lubrica holes. According to Caterpilla even under normal oil pressure t grease will continue to plug the c passages and may ultimately resu in shaft or bearing failure fro lack of lubrication. Don't let pr mature failures occur; make pr lubrication a standard practice i your reconditioning procedure.

Lubriplate cartridge eliminates hand filling

An easy-to-use cartridge th saves time and eliminates was has been introduced by **The Lu briplate Division** of **Fiske Brothe Refining Co.** The cartridge, d signed to prevent the waste an mess of hand filling, contains Lu briplate No. 630-2, a high tempera ture, extreme pressure, water repe lent, grease type lubricant, adap able for practically all general pu pose lubrication. Designed to fi all standard cartridge guns, the ca tridge can be inserted quickly an easily without touching the greas in any way. A standard packag contains 10 cartridges in a hand carrying carton. *. . . Circle No. 16*

ot weather changes for ngine cooling systems

PERATORS of fleets of trucks, ıses, and heavy construction ma- ıinery who fail to properly ser- ce engine cooling systems for hot eather may find their mainte- ınce costs running considerably gher.

To avoid expensive repairs and eakdowns of valuable equipment, oling system experts strongly rec- nmend draining out last winter's ıti-freeze solution, including the -called "permanent" types. As ap- ied to anti-freeze, "permanent" eans "for the entire season," not ar after year.

It is a well known and proven ct that acids may form in all anti- eezes after one season. Corrosive lutions attack the vital parts of e cooling system, producing rust, hich can clog up the radiator and e narrow water passages of the ngine block. When the flow of olant is cut, the engine quickly verheats. Overheating can cause linders, warped cylinder heads, d burned valves.

Many fleet operators are under e wrong impression that hydrom- er readings, in addition to indi- ting whether the winter-worn so- tion provides adequate protec- on against freezing, also show hether it has turned acid and is rrosive.

There are two ways to show hether or not a solution is corro- ve. One is an expensive labora- ry test. The other and cheaper ethod is using the analyzer kit r Zerex anti-freeze made by Du ont. If the analyzer is not used, is far more economical in the ng run to drain out and discard e worn solution in the spring and stall fresh anti-freeze in the fall.

heck list

To assure efficient operation uring hot weather, here is a pro- am for fleet maintenance men:

1. Drain out and discard winter- orn anti-freeze solutions from the adiator and engine block.
2. Clean and flush the cooling stem, using a chemical cleaner, necessary.
3. Check hoses and other cooling stem parts for leaks or wear; re- lace or repair where necessary.
4. Refill radiator with fresh ater, and add a chemical rust hibitor.

. . . *Circle No. 163*

The best manuals on wire rope

To get an education on the proper care and use of wire rope and slings, the contractor can choose from a large number of excellent manuals published by the leading manufacturers. Following are short reviews of the best booklets and manuals. All available on request.

U. S. Steel

An excellent 180-page manual entitled "U.S.S. Tiger Brand Handbook for Western Wire Rope Users" has been published by Columbia-Geneva Steel Div. of **U. S. Steel.** The stiff-cover spiral-bound publication is divided into 20 sections covering such subjects as selection, ordering, care and use, splicing and fitting, engineering data, etc. Taking a closer look at just one section, care and use, thorough descriptions are given of uncoiling and unreeling, shipping, storing, care of idle rope, fastening, flagging, seizings, kinking, fleet angle, sheave alignment, sheave and drum grooves, radial pressures, dead-ends, left and right lays, breaking in a new rope, suddenly applied loads, relubrication, common causes of failures, and many others. Large illustrations and detailed drawings are used whenever necessary to supplement the clearly written and easy to read text. The section on splicing and fitting contains 9 pages of step-by-step drawings and photographs.

This manual is a storehouse of valuable information on all phases of wire rope, well-edited and well-illustrated. *. . . Circle No. 164*

Roebling

Hybrid is the name for the publication available from **John A. Roebling's Sons Corp.** Entitled "Wire Rope Recommendations and Catalog", it combines the basic characteristics of a catalog with the recommendations of a handbook. As pointed out in the foreword, any manufacturer of reasonable size can make 40,000 different sizes and kinds of wire rope without inventing a new kind. Few catalogs tell you where to use any of them. This book is an attempt to combine proven engineering recommendations, practical usages, and catalog data in a single easy-to-read volume.

The manual is divided into 16 sections, each for a different type of work, such as excavating, dredging, mining, logging, etc. Each section lists in large tables all the information needed to order the right rope, such as strength, weight, construction of the rope, catalog number, and diameter. *. . . Circle No. 165*

Bethlehem

Bethlehem Pacific Coast Steel Corp. has a group of three fine manuals available covering its products in the wire rope field. One covers in 100 pages wire rope for general purposes, one covers in 150 pages Purple Strand slings and fittings, and the other devotes 160 pages to Bethlehem wire rope for bridges, towers, and aerial tramways. The three manuals are well illustrated with shop and job photographs with large line drawings. Information is presented in tabular form whenever possible. The books are more than merely catalogs for each section is introduced by a detailed discussion of the subject with practical information included on such subjects as drum winding, lubrication, seizing, etc. *. . . Circle No. 166*

Macwhyte

"Inspection of Wire Rope", "Methods of Lubricating Wire Rope", "Use and Abuse of Wire Rope", and "Sheave Maintenance" are but a few of the features covered in a manual prepared by **Macwhyte Co.** In addition, sections are devoted to strengths and the weights of wire rope, cable assemblies, and capacity of slings. The handbook is 180 pages long, is fully illustrated with photographs and drawings, and has plenty of useful information for the man in the field who has to select, order, and maintain wire rope. An unusual feature of the handbook is a glossary of wire rope terms. *. . . Circle No. 167*

Wickwire

Wickwire Spencer Steel Div., **Colorado Fuel & Iron Corp.,** has a handbook available entitled "Know Your Ropes" devoted to selection, application and usage enable users to make wire rope la longer. The manual is 84 pag long, written in down-to-earth sty slanted directly to the man in t field. Basically, the manual is series of over 100 short article each one on a tip or trick whic will extend life of wire rope. Fu use of drawings and photograp explain such topics as bendin stresses, vibration, overloadin kinks, sheave alignment, lays, se ing, shock loads, sockets, splicin stretch, tension and unreeling. *. . . Circle No. 1*

Leschen

Leschen Wire Rope Div. of H. K **Porter Co., Inc.,** has published 74-page pocket manual of practic information on the use and care wire rope. Numerous drawings an photographs help to explain th proper methods for making variou types of splices. Practical problem with their calculations are pr sented showing how stresses can b found when certain job condition and loads are given.

A complete index makes the us ful information in this bookle readily accessible.

The company has also begun t publish short one page bulletin giving the latest practical sugge tions for various wire rope prob lems. *. . . Circle No. 1*

Union

"Rope Dope" is the title of edu cational bulletins sent out perio ically from **Union Wire Rope C** The 4-page bulletins are fully i lustrated and diagrammed and pe tain to practical suggestions o rope care and use. For instanc the subjects dealt with the last fe bulletins were: replacement of wi rope, lays, care, preventive mai tenance, abuses of wire rope i use. A folder will also be sent i which to file the data sheets. *. . . Circle No. 1*

Pacific

Two valuable manuals are avai able from **Pacific Wire Rope C**

BEATTY®
PECCO-SPAN
HORIZONTAL SHORING

SAVE up to 40% on shoring labor

- One man adjusts to any span by simple wedge-lock action. No bolts—a hammer does it. Wt. 8 lbs./ft.
- Economically priced — soon pays for itself in labor savings alone.
- Safety factor of 2.2 proven by U. S. Lab tests.
- Access to all working areas.
- Adjusts with only 3 standard sections to spans from 8'9" to 27'7". Advanced design. Built-in camber.
- Cost estimates, calculations, and layouts are offered to you at no obligation.

the latest development in ADJUSTABLE TELESCOPIC SUPPORT for all types of concrete construction

At last modern ingenuity has tackled excessive shoring costs and won! Beatty Scaffold, Inc. and its franchised Distributors throughout the West bring you BEATTY-PECCO SPAN, the revolutionary horizontal shore that completely outmodes the old wasteful maze of vertical supports heretofore necessary for concrete shoring. Can be used with your present scaffold or the new BEATTY HEAVY DUTY FRAMES.

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BOISE, IDAHO:
Beatty Scaffolds & Power Tool Co. • 2923 Idaho Street

U.S. Patent Ser. No. 574-765. Other patents in application U.S. & foreign countries.

. . . for more details, circle No. 44 on Reader Service Postcard

One is entitled "Rigging, Splicing & Socketing" and the other "Engineering Data for Wire Rope Users".

The rigging manual is 30 pages long, and is punched for notebook insertion. Very detailed information is given on such subjects as splicing an eye to the end of a rope, the logging splice, a quick method of making an eye splice, the long splice, splicing hemp to wire rope, splicing two ropes together, tying a rope onto a ring or hook, socketing, reeving for right and left lay rope, determining rope capacities of drums, and oth useful topics.

The engineering manual l data, tables, formulas, and instr tions on pressure of rope sheaves, fleet angle, stretch, ef ciencies of various riggings, ben ing stresses, stresses due to fluctu tions and load in starting and sto ping, stresses of acceleration, sta loads, rope stresses on inclin planes, suspended cables, guys, f tors of safety, and others.

. . . Circle No. 1

B & B

A 74-page catalog has been pu lished by **Broderick & Bascom Ro Co.** which shows all of the ro manufactured by the firm inclu ing the comparatively new ext high strength Yellow Strand Powe steel. The catalog includes t breaking strength recommende for safe working load, weight p foot, and a valuable section givi recommended wire rope to use o various pieces of constructio equipment. The manual also i cludes information on uncoilin seizing and splicing. An extensiv index adds to the usefulness of th publication. *. . . Circle No. 1*

Lowery

A sling order form has been d vised by **Lowery Bros. Inc.,** whic simplifies the ordering of wire rop slings. Six basic questions are a that is necessary. The form include pictures of several types of fitting To order a sling a line is draw from the picture of the fitting t the type of sling, ending lines a each point specific fittings are de sired. For the small sling user.

. . . Circle No. 17

American Chain & Cable

"Wire Rope Recommendation For General Contractors", is th title of a 16-page folder publishe by **American Chain & Cable Co. Inc.** The booklet describes the com pany's line of wire rope and make specific suggestions as to whic size and type to use on the man types of construction equipment

. . . Circle No. 17

LeT-Westinghouse

A pocket sized handbook has been published by **LeTourneau-Westinghouse** which in addition to

DIAMOND

STATIONARY PLANTS

low Diamond put a gravel deposit in business

tributors

nstruction Machinery Company
Diego, California

w Sales & Service
Los Angeles 22, California

Equipment Company
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kane 2, Washington
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dford, Oregon

Sawtooth Company
se, Idaho

z Machinery Company
ings and Great Falls, Montana

d Machinery Company
Lake City 12, Utah

D. Coggins Company
uquerque, New Mexico

Border Machinery Company
Paso, Texas

te Tractor & Equipment Co.
son, Arizona

per State Tractor Co.
enix, Arizona

The owner of a Northern Illinois gravel deposit had a problem. A ready market existed for finished aggregate products that could meet the rigid specifications of state and local highway programs. Could such materials be produced from his property in adequate quantity . . . and at a profit. He turned to Diamond . . . today he has a profitable operation.

Experienced engineers surveyed the site, checked the type of material in the pit, verified the finished products wanted, and determined the production capacity that would be needed. Then they submitted detailed sketches, specifications and costs for a complete plant layout. Approval was received and in a matter of weeks another Diamond engineered and built plant was making money for its owner.

Arranged in a space-conserving layout, the plant is producing four profitable materials at the rate of 70 to 150 cu. yds. per hour, depending upon the amount of each product desired; washed concrete sand, washed natural gravel in two sizes (1¼″ to ½″ and ½″ to #4 mesh), and 100% crushed, screened and washed gravel in either 1″ to #10 mesh or ⅜″ to #10 mesh. All meet state, county and township road specifications.

The entire plant is electrically driven with all wiring underground. It requires a minimum of supervision with one man handling the operation . . . typical of Diamond's thoroughness and ability to provide the best knowhow and equipment for any size job. It's a good example of how Diamond can tie-up high capacity, smooth operation and low production costs in one neat profit package for you. See your Diamond Distributor today.

DIAMOND IRON WORKS

DIVISION

GOODMAN MANUFACTURING COMPANY

Halsted Street and 48th Place • Chicago 9, Illinois

. . . for more details, circle No. 46 on Reader Service Postcard

being a catalog of the company's products contains basic principles and information to assist in making the proper selection of wire rope for a specific job as well as tips on maintenance and care. Information is given on rope lays, handling wire rope, drum winding, fleet angle, sheaves and drums, safety factors, lubrication, wire rope construction, etc. Also available is a wall chart showing cable requirements for LeTourneau-Westinghouse equipment.

. . . Circle No. 175

Handbook of Rigging

A complete textbook of all phases of rigging practice is "Handbook of Rigging," published by **McGraw-Hill Book Co., Inc.** for $6.50. The 345-page book shows how to handle every step in any rigging operation, from swinging scaffolds to hydraulic jacks. It includes simple formulas used in calculating the strength of hoisting tackle, beams, and posts. Full data are given on fibre rope and wire rope, safe loads on cable and chain, effect of defects, reference codes, laws, and standards, hoist signals, safety practice, and first aid.

Information added to the second edition includes loading heavy equipment on trucks, methods of attaching slings to loads which are to be rotated, Flemish eye splices, new safety belts, new types of scaffolds, etc.

The author is W. E. Rossnagel, who has 15 years of rigging experience with Consolidated Edison of New York.

For your copy send $6.50 to McGraw-Hill Book Co., Inc., 330 West 42nd St., New York 36, N. Y.

NEW LITERATURE

Demolition tool bulletin

Ingersoll-Rand has published a new bulletin entitled "Accessories for Demolition and Digging Tools" to serve as a comprehensive catalog of the company's complete line of digging tools and accessories. The 24-page bulletin includes a useful page on reforging, sharpening and the proper method of hardening these tools. This full-page guide can be removed from the pamphlet and tacked up as a wall chart for quick reference in the reconditioning shop. A special section of the bulletin tells about the company's safety tools of forged beryllium copper to be used where sparks can't be tolerated.

. . . Circle No. 176

Road building from clearing to ribbon cutting

"The Power to Build America's Roads Profitably" is the title of a timely, 16-page booklet just released by **International Harvester Co.** The booklet describes editorially and pictorially the entire job of road building from clearing to ribbon cutting. Diesel crawler tractors, wheel tractors, shovels, scraper, motor graders, cranes, rollers, pavers, and other equipment are all illustrated in this colorful piece of literature. *. . . Circle No. 177*

Handbook for wire rope users

Now available as an information piece for everyone who buys, sells, or uses wire rope, is a 36-page handbook put out by **Wire Rope Corp. of America.** Comprehensively illustrated, the book explains how to select the right rope for your specific needs, methods of socketing, splicing and installation, and important points on safety.

. . . Circle No. 178

Oliver improves OC-4 crawler

A bulletin describing the newest improvements in the OC-4 crawler tractor has been released by **The Oliver Corp.** Stressing the varied uses of this compact tractor powered by a 28-hp. gasoline engine, it points up the four different versions available with track gauge widths ranging from 31 in. to 68 in. It also covers the OC-46 loader, a matched-design unit completely factory-built with extra-rugged frame and equipped with a 5/8-yd. bucket hydraulically controlled for fast, low-cost operation.

. . . Circle No. 179

Details on IH Turbotorque diesel power unit

Full details on the new 250 i termittent load hp. Internation UDT-1091 Turbotorque dies power unit are revealed in a 6-pa folder now available. The new un which delivers up to 300 hp. ideal for drill rigs, deep well ir gation pumps, and rock crushi plants. Using less fuel per hors power hour, this new engine w maintain rated hp. up to 10,000 altitude. **International Harvest Co.** *. . . Circle No. 1*

Rock ripper specs given

Complete specifications and a plication data for a new rock ri per are given in a 4-page, 2-col brochure just released by th **Double J Breaker Co.** A speci section explains the unique op ation of the tool's breaker plat a new type of ripping device whi works on the same principle as log-splitting wedge, as it helps t ripper point break up tough ro formations. Included are drawin and action photos of the item wor ing in various rock formations.

. . . Circle No. 1

20-page concrete equipment catalog

Stow Mfg. Co. has issued a ne 20-page catalog, on their comple line of concrete equipment. Th covers Stow's universal electric v brators, 60-cycle motor-in-head v brators, power midget vibrato gasoline operated vibrators, rota trowels, portable concrete grinde ceiling grinders, and vibrati screeds. Also, shown are comple directions for building your ow prestressed screed beam.

. . . Circle No. 1

Barber-Greene bulletin describes Transfer Conveyors

Barber-Greene's newly expand line of Model 375 Transfer Co veyors, a series of completely pr engineered and prefabricated b conveyors ranging in length fro 9 to 102 ft., are described in 8-page, 2-color bulletin. Applic tions for the versatile conveyc are described in diagrams and ph tographs. Engineering features i clude a telescoping head end f length adjustment; a screw-typ takeup end with built-in loadi hopper; a return belt scraper; a an especially rugged compact driv The belts are offered in widths 18, 24, and 30 in. Two pages the folder are devoted to a uniq

THE TAKE-CHARGE D9

—built big and tough for the big, tough jobs

- 320 HP at flywheel.
- 30-ton weight.
- Exclusive Caterpillar oil clutch — plates cooled and lubricated with oil, rarely need adjustment.
- Optional heavy-duty torque converter transmission.
- Heavy-duty steering clutches with finger-tip steering. Power-boosted controls.
- Extra-rugged frame and final drive.
- Massive 7-roller track frame.

These are just the bare facts. No words and pictures can begin to describe the Caterpillar D9 Tractor. Engineered and built to take charge of any job, it's big, tough — and economical in the long run. See what it'll do on *your* job. Have your Caterpillar Dealer put it through its paces. That's all it asks.

Caterpillar Tractor Co., San Francisco, Cal.; Peoria, Ill., U.S.A.

CATERPILLAR

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FIND YOUR CATERPILLAR DEALER IN THE YELLOW PAGES

KING OF THE CRAWLERS

and simplified presentation whi makes it possible for the prospe tive user to select the correct be width and horsepower for h application. *. . . Circle No. 1*

The new Tiger

Atlas Copco Co. describes the new lightweight rock drill, t BBD-50 Tiger, in a recently pu lished leaflet. The Tiger's high ra of penetration is particularly suite to drifting and tunneling as we as general stopping operation The machine is provided with BMT-50 integral type of push leg, which incorporates a retra table piston rod. Illustrations an principal data are included in th folder. *. . . Circle No. 1*

Bridges of steel

"Highway Bridges of Steel," 32-page, 2-color, profusely illu trated brochure designed as an a in structural steel bridge desig has been issued by the **America Institute of Steel Construction, In** and is available free on reque The booklet is divided into tw sections. The first discusses th economy of steel, aesthetics, wel ing, high-strength bolting, stru tural low alloy steels, erection, ste decking and composite design. A these subjects are illustrated wi photographs and spot drawing The second part is devoted to e amples of selected typical deta showing solutions that have bee used for some of the more troubl some problems encountered in ste bridge design. *. . . Circle No. 1*

Diesel power units

A nicely done 32-page public tion by **American M.A.R.C. In** outlines the company's line of di sel power units. Thumb-indexe for quick reference, the bookl contains illustrations, specific tions, and features on air- an water-cooled diesels, marine di sels, diesel electric plants, and di sel pumping units. A price list an shipping data are included. *. . . Circle No.*

Aluminum highway and bridge railing

Michael Flynn Manufacturi Co. has prepared a 40-page bi chure for the consulting engine and purchasing agent engaged the design and procurement bridge and highway railings. Giv

84-page pocket guide on welding wire

Quick and easy answers to almost every question that can be asked about welding wire for use with Airco's gas-shielded metal arc welding process are answered in an 84-page thumb-indexed pocket guide. The Aircomatic Welding Wire Pocket Guide presents the varieties of wire types, wire diameters, and packaging data. It contains technical information such as chemical composition, mechanical properties, and operating procedures. Conformances and approvals are shown for each wire where applicable. **Air Reduction Pacific Co.**

. . . Circle No. 187

re complete specifications, design ata, and isometric and ortho-raphic dimension drawings for 43 zes and types of cast aluminum iling posts. In addition, similar ecifications and design informa-on on standard aluminum pipe nd panel type railings, round, el-ptical, square, and rectangular iling, structural channels, balus-rs, H-beam post caps, bases, rail ats, and hand railings are given. ables of allowable unit stresses r structural aluminum alloys, lus typical problems in stress nalysis, are also included.

. . . Circle No. 188

2-page Eagle catalog

Just off the press is **Eagle Iron Works'** 42-page catalog on aggre-ate washing and classifying equip-ent. An exceptionally comprehen-ve manual, the booklet pictures nd gives specifications for all of he company's processing equip-ent for sand, gravel, crushed tone and ore. In addition, back-round information on Eagle's en-ineering and research facilities are iven

. . . Circle No. 189

arge induction motor ulletin from Louis Allis

Large induction motors are the ubject of a new 16-page bulletin ublished by **The Louis Allis Co.** his bulletin presents detailed in-rmation on a full line of motors h ratings from 150 to 1,250 hp. utaway drawings and illustrations ow the protection offered by the

open drip-proof, splash-proof, enclosed and explosion-proof enclosures in which these motors are built. Construction features emphasized in the bulletin are reliable bearing design and insulation. A wide range of optional features available to match individual job requirements are also described. *. . . Circle No. 190*

The clean, fast way to beam forming

Details on the Luderjak T-Head, a falsework accessory which provides a newer, cleaner way to form concrete beams up to 32 in. in width, are available on request. The well illustrated folder stresses the fact that the Luderjak accessory will fit any existing prop type in stock, whether timber or steel. Nailing of kicker blocks is eliminated with use of the T-head, and stripping is extremely fast. Cost sheets are also available. **Luderjak Co., Inc.** *. . . Circle No. 191*

Choosing, inspecting and ordering belt

Designed as a complete information-and-record source for choosing, inspecting and ordering the proper type of conveyor belting is **Hamilton Rubber Manufacturing Corp.'s** 16-page "check-up" brochure. Information on each type of belting is arranged so that the reader can quickly locate the type of belt needed by material conveyed, determine whether the proper belting is now being used, check it for serviceability, and write in essential details for efficient reordering of replacements. For the convenience of operators faced with the problem of ordering belting for a new application, a complete worksheet is included, along with detailed information. *. . . Circle No. 192*

64-page power drive catalog

Sterling Electric Motors, Inc. has tripled its line of power drives to include over 8,000 ratings. This expanded line is show-cased in a new 64-page catalog which simplifies drive selection through the use of color coded sections and a simplified numbering system. It is a convenient time saver for anyone charged with the responsibility of selecting and specifying electric power drives. Included are prices, modifications, and dimensions on the company's cage motors, gear motors, speed reducers, and variable speed drives. *. . . Circle No. 193*

CONTRACT AWARDS

(Continued from page 76)

$1,037,844 contract for grading and surfacing Saddle Butte-Twin Buttes section of Pacific Highway south of Albany in Linn County. **C. R. O'Neil,** Cresswell, submitted a low bid of $300,483 for structure, grading and paving Shady-Roberts Creek section of the Pacific Highway in Douglas County. A low bid of $137,575 was submitted by **Porter W. Yett, Oreg. Ltd.,** Portland, for stone base and oiling the Agency Plains section of Routes Nos. 687, 546 and 688 in Jefferson County. **Peter Kiewit Sons' Co.,** Medford, submitted a low bid of $1,318,441 for grading and surfacing the Burnt Hill-Hoosakanaden Creek section of the Oregon Coast Highway in Curry County. **C. H. Strong Engineering & Construction Co.,** Eugene, submitted a low bid of $231,270 for the Juniper Division, Wapinitia Project, Wasco Dam. **Goodfellow Brothers, Inc.,** Wenatchee, Wash., received an $878,796 contract for relocating U. S. Forest west side road from Packard Creek to Hills Creek on the Middle Fork, Willamette River near Oakridge.

UTAH

Hilton & Carr Construction Co., Ogden, submitted a low bid of $983,662 for earthwork and structures, Uintah Bench Laterals, Weber Basin Project. **Wheelwright Construction Co.,** Ogden, received a $217,089 contract for grading, surfacing and overpass structure on Highway 56, Iron County. A low bid of $449,201 was submitted by **Bettilyon Construction Co.,** Salt Lake City, for bridge construction on Highway 82 in Box Elder County. **L. A. Young Construction Co.** and **Vernal Sand & Gravel Co.,** Salt Lake City, submitted a low bid of $415,770 for 12.1 mi. of grading and surfacing Highway 89 in Garfield and Kane counties. A low bid of $394,860 was submitted by **Morrison-Knudsen Co., Inc.,** Salt Lake City, for 8 mi. of grading and surfacing Highway 46 in San Juan County. **L. T. Johnson Construction Co.,** Ogden, submitted a low bid of $236,007 for 2.6 mi. of grading and surfacing Highway 204 in Weber County. A low bid of $168,762 was submitted by **Pritchertt Construction Co.,** Farmington, for bridge construction over Kanab Creek in Kane County.

WASHINGTON

Bocek Brothers, Hoquiam, received a $774,642 contract for 3.8 mi. of grading and surfacing, Summit Lake road to Hilltop in Thurston County. **Harry H. Hawkins** of Seattle received a $522,307 contract for constructing the Chehalis River Bridge at Montesano in Grays Harbor County. A $450,734 contract was received by **J. N. Conley** of Portland, Ore., for 6.4 mi. of grading and surfacing from Ariel to Rock Creek in Cowlitz County. **J. D. Shotwell Co.** of Tacoma received a $369,315 contract for 4.2 mi. of grading and surfacing near Auburn in King County. A $247,941 contract was received by **Acme Construction Co.,** Redmond, for 2.6 mi. of grading and surfacing in King County. **Woodworth & Co., Inc.,** of Tacoma received a $232,060 contract for construction of undercrossing in city of Tacoma, Pierce County. **Kirkman & Strand** of Seaview received a $267,596 contract for construction of two bridges, North River to Smith Creek in Pacific County. **John E. Alexander, Inc.,** Seattle, received a $324,982 contract to construct the Salmon Creek bridge in Clark County. A $132,561 contract was received by **Asphalt Paving & Engineering Co.,** Tacoma, for 5.2 mi. of grading and surfacing in Pierce County. **Bocek Brothers,** Hoquiam, received a $314,582 contract for 3.6 mi. of grading and surfacing, New London north in Grays County.

WYOMING

A $305,666 contract was received by **Riedesel-Lowe Co.,** Cheyenne, for bridge construction on 4-lane highway on the Laramie-Cheyenne road near Otto in Laramie County. **J. H. Beckman Construction Co.** of Sioux Falls, So. Dak., received a $296,759 contract for grading, structures and surfacing on the Wheatland-Cheyenne road in Laramie County. **Lichty Construction Co.,** Casper, received a $277,649 contract for grading and surfacing on 3.5 mi. of the Lander-Sinks Canyon road in Fremont County. A $164,638 contract was received by **Wilbur Christensen Construction Co.** of Rapid City, So. Dak., for grading, surfacing and structures on 4-lane highway in Laramie County. A $161,261 contract was received by **Charles M. Smith,** Thermopolis, for bridge construction over Green River in Sublette County.

TOMORROWS BULLDOZER—TODAY!

"THE BULLDOZER OF THE FUTURE" this is the way one Road Dept. official described the Eimco 105 when he saw it operate on competitive tractor tests. Here, once again, the Eimco 105 Dozer has demonstrated superiority over conventional type tractors. In job after job, the 105 consistently proves that its simplicity of operation, smooth power flow, visibility, maneuverability and reduction in operator fatigue is the difference between marginal production and profitable production.

The work site consisted of a steep incline with rock outcropping in big slabs. The bottom ends of the rocks were deeply embedded and required maximum tractor effort to remove them.

Bulldozing down the slopes, the torque converter drive of the 105 enabled it to pick up a capacity load and move down the slope ahead of the competitive tractors with their outmoded conventional type drives.

Throughout the test — straight bulldozing, removing rocks and maneuvering — the 105 managed everything that came its way and did it with the least amount of operator effort. In direct contrast, the competitive tractor operators were constantly clutching, changing gears and braking to accomplish their tasks.

Eimco's Unidrive constant mesh transmission gives variable speed independent track control without clutching and shifting. Let us demonstrate this tractor.

THE EIMCO CORPORATION

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B 330

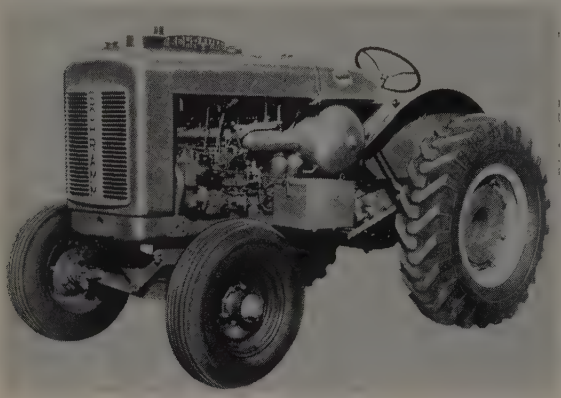
. . . for more details, circle No. 50 on Reader Service Postcard

NEW EQUIPMENT

Obtain more information on these new developments in construction equipment by circling the corresponding numbers on reply postcard.

Schramm Pneumatractor now has full diesel

Rounding out **Schramm, Inc.'s** line of self-propelled air compressors is a full diesel-powered 125 Pneumatractor which utilizes the Pneumadiesel en bloc construction. New features of the diesel 125 Pneumatractor include a fuel pump of the distributor type, and



the use of 12-volt starting equipment, using the well-known principle of starting on gasoline, preheating the entire engine and then switching to full diesel. The use of diesel fuel makes for economy of operation, giving lower cost per gallon as well as more power per gallon. It permits the use of the same fuel as other equipment on the job and minimizes theft of fuel on the job. In addition, diesel fuel is a safer bet. Another advantage is, of course, the mobility of the unit—it can be driven to its next job by one man and put to work immediately. . . . *Circle No. 194*

Ottawa backhoe for Chev truck changes jobsites quickly

To meet the growing demand for a trench-digging machine to work in one area in the morning and get to work at another jobsite miles away in the

afternoon, **Ottawa Steel Division of Young Spring & Wire Corp.** has designed a truck-mounted backhoe for Chevrolet ¾-ton trucks (and larger). A quick on-and-off feature of the backhoe leaves the truck free for other work when not needed for digging. When a trench has been completed in one area the backhoe is hydraulically shifted up and over the rear axle of the truck, and is driven at regular road speeds to the next jobsite, where it is again readied for operation in seconds. The new truck-mounted unit digs 12½ ft. deep in any position of its 190-deg. swing. Swing is continuous without changing pins or moving cylinders. Complete information available. . . . *Circle No. 195*

Heavy-duty transmissions for Worthington mixers

Worthington Corp. has announced two new lines of concrete truck mixers. Both models will feature heavy-duty transmission designs. The Fleetbuilder model of the line is driven through a heavy-duty sliding gear transmission in conjunction with a master clutch to control forward and reverse rotation of the mixer drum. Standard twin disc clutches are used in the Fleetmaster model for controlling forward and reverse rotation of the drum. The multiple discs in these clutches are of steel and bronze construction, running in a bath of oil. Spiral bevel gears in both the Fleetmaster and Fleetbuilder transmissions are oversized and placed at the input end of the transmission for most efficient operation at normal engine speed. The Fleetbuilder and Fleetmaster lines are each available in eight sizes ranging in capacities from 4 cu. yd. to 9 cu. yd. . . . *Circle No. 196*

Platform trailer model added to Hobbs line

The Hobbs Fabricated Centerbeam Platform model (F.C.B.P.M. 3000) combines lightweight steel with strong construction to produce trailers weighing only 8,860 lb. (in the 35-ft. length) with rated payload capacities up to 65,000 lb. Feature of the new model

is the two fabricated "I" beam centerbeams that run the full length of the trailer. They are 18 in. deep. The centerbeams extend through and are flush with the top of the floor. They take much of the direct pressure of the load. The customer will have a choice of three stake pocket styles with the new platforms. Available are the Hobbs Standard outside stake pocket and rub rail, the Hobbs, or the A. J. Bayer integral

laking Dirt Fly for
n Wisconsin #94

g 40 miles of Wisconsin Interstate Highway between Menomonie and Hudson, high-speed nmovers are making the grade for what will nately be part of the Chicago-Twin Cities way.

St. Croix County, S. J. Groves & Sons Co., neapolis, is highballing a 2.92-mile stretch $416,000 prime contract for grading, drain- and sub-base with more than 70% rnational equipment. Groves' "75" Payscraper push-loaded by TD-24 Torque Converter lers, is moving 605,000 cu yd of unclassified vation and 115,000 cu yd of borrow on 0-ft average hauls.

wenty-cu-yd loads of Wisconsin clay are ed into "75" Payscraper bowls by TD-24 ers that shorten the loading cycle from con- to kick-out. The TD-24 foot-operated engine lerator makes "feather-touch" pusher contact ible. Exclusive TD-24 Planetary Hi-Lo range er-shifting supplies full power in the cut and speeds scraper kick-outs a gear higher in many cases. And TD-24 pushers save additional cycle time by using exclusive Planet Power steering for faster repositioning and scraper pick-ups.

Payscraper power gets the rigs in and out of cuts fast, provides travel speeds up to 24 mph that rolls paydirt to fills in shorter cycle times. High power-to-weight ratio, load-heaping bowl design, exclusive Hydro-Steer—all help give the Payscraper production-boosting operating ease and safety.

Prove to yourself that an all-International matched scraper-crawler fleet is your best bet to back up your low bids. See how International Payscraper units help get the job done faster at less cost. See how International TD-24 Planet Power steering gives you pusher performance unmatched on your pans. See your International Construction Equipment Distributor for an on-the-job demonstration!

. . . for more details, circle No. 52 on Reader Service Postcard

stake pocket rub rail designs which allow full advantage of the 8-ft. width of the trailer bed. The new model is available with square nose, or 16-in. radius nose. The square nose has stake pockets across the front for better booming of payloads. Standard model lengths are 35 ft. and 40 ft. **Hobbs Trailers.**

. . . Circle No. 197

Mass produced trailer sells at low price

Mass production on a new, low-cost, 6-ton tilt-bed trailer is announced by **Spencer-Safford Loadcraft, Inc.** The easy loading, high quality tilt-bed trailer

sells for $1,170 plus tax, F.O.B., Augusta, Kan. The 12-deg. tilt of the 79½-in. x 16-ft. platform of the trailer makes it easy to drive equipment onto the bed which pivots and self-locks into a level transport position. The double-pivot rocker beam tandem assembly with individual suspension on each side of the trailer eliminates springs and axles, and permits maximum under-bed clearance. Easy-grip steel ramps, a low 21-in. deck and many other features have been incorporated.

. . . Circle No. 19

Three axles drive ready-mix truck

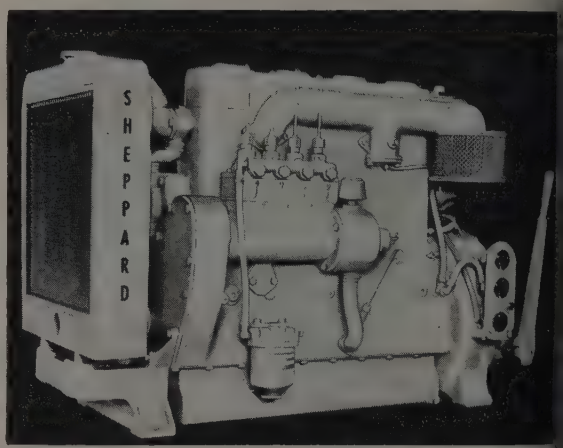
This new FWD Model C86-707 ready-mix concrete truck, first commercial four-axle 8x6 truck designed

with driving power to the front axle of a front tandem and to both axles of a rear tandem, is being premiered by the **Four Wheel Drive Co.** Equipped with a separate engine type 8½-cu. yd. mixer, the new tilt cab truck can carry concrete loads as great as 10 cu

yd. The six-wheel-drive truck utilizes FWD's patented torque-proportioning center differential to distribute one-fifth of the drive-line torque to the forward axle of the front tandem and the remaining four-fifths of the torque equally to the two driving axles of the rear tandem. The double-tandem vehicle has a non-powered steering axle behind the foremost driving and steering axle for additional load capacity and flotation. *. . . Circle No. 199*

Two new Sheppard diesels in 25 and 50-hp. class

Users of engines in the lower power range will be interested in two new models just announced by **Sheppard Diesels.** The new diesel engines are designated as Model 17B, rated at 25 hp. at 2,000 rpm., and Model 19B, rated at 50 hp. at 2,000 rpm. Both



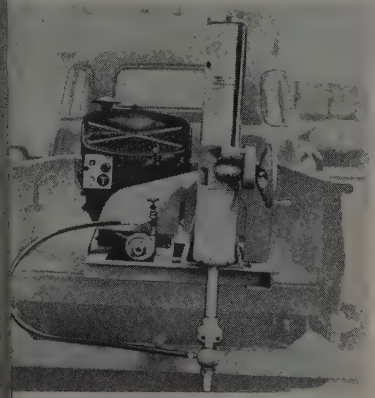
engines are improved models of previous models. In addition to the 25% increase in horsepower, refinement of the simplified Sheppard fuel injection system and combustion chamber in both models results in smoother, cleaner running engines that operate with a clean exhaust at all loads. Both models incorporate "big engine" construction features — replaceable wet type liners, main bearings, between each throw and at both ends of the crankshaft, full pressure lubrication, including rocker arms and camshaft, oil bath air cleaner, oil-cooled pistons and a 22 to 1 compression ratio. *. . . Circle No. 20*

The Scotsman is here

The 1958 Studebaker Scotsman half-ton pickup now rolling off the assembly line at South Bend, Indiana. The new trucks soon will be available in **Studebaker-Packard Corp.** dealerships across the nation. Thus, economy of operation and purchase, hitherto available only to passenger car buyers, has been expanded to include private and commercial truck users. The simplified metal grille is designed for lowest replacement cost and is protected by a curved heavy channel bumper. The advertised delivered price of the Scotsman is $1,595 at South Bend. Transportation costs and local taxes will be extra. It is powered by the Studebaker Work Star 185 six-cylinder engine and is rated at a maximum gross vehicle weight of 4,800 lb. The new pick-up is offered in three standard colors — light blue, light gray and light green. *. . . Circle No. 2*

Mole drilling machine has diamond head

By using diamond bits the Mole Model V drilling machine can drill holes up to 14 in. in diameter



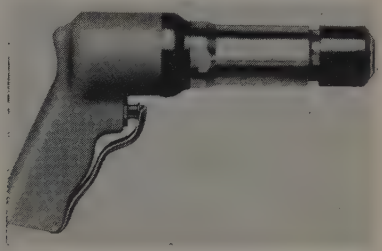
through the hardest reinforced concrete at the rate of 4 in. per min. A product of **Molco Drilling Machines, Inc.**, Model V is completely portable, being mounted on a truck or weighted vehicle for use on highways, runways and parking areas to obtain accurate cores or for cutting tie-down holes. Gasoline powered, the Mole is equipped with a 15-hp. engine, a 12-volt generator, starter, clutch and governor, all mounted on a steel base. A two-speed drill bit feed mechanism cuts drilling time one third, and the special thin-wall diamond core bits make the drilling more economical than other types of drilling as only a small amount of material is removed. *. . . Circle No. 202*

First aid at a glance

A more convenient unit system of first aid, the C-Thru Unit System with inspection window, has been developed by **Davis Emergency Equipment Co.** The new system features units with plastic windows that permit the contents of the kit to be seen and checked at a glance without removing the units. Each unit is wrapped in air-tight cellophane with an easy-to-open pull tab, and the continuous red line that signals an open package. Antiseptics and burn ointments are contained in "one shot" transparent plastic tubes which flow readily with slight squeeze pressure. *. . . Circle No. 203*

Heavy-duty air hammer

The Superior Model SP500 heavy-duty air hammer is designed for heavy cutting, chipping, chiseling, or grooving. Weighing in at only 4 lb. and measuring 9½ in. the new hammer is so easy to handle that it keeps operator fatigue



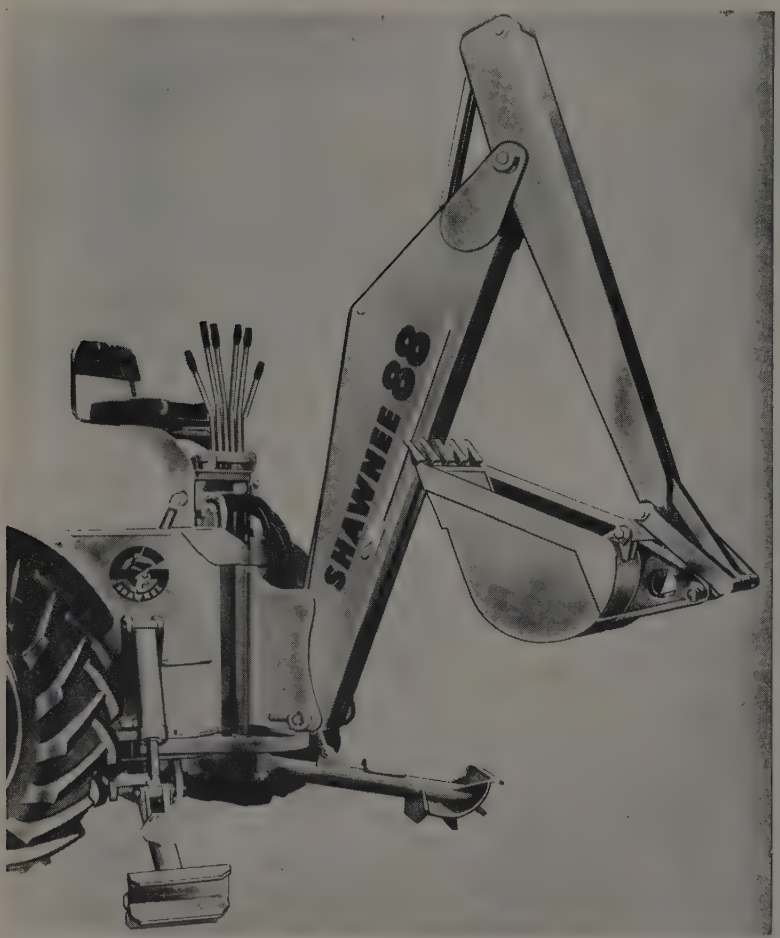
at a minimum. The SP500 has a metering trigger that controls blows from 0 to 2,200 per min. A patented safety chuck locks the various tools used with the hammer in six different positions. Selling price is $109.50, complete with one chisel. **Superior Pneumatic Manufacturing, Inc.** *... Circle No. 204*

One-man vibratory compactor announced by Master

Self-propelled vibratory compactors are now being produced by **Master Vibrator Co.** The one-man units will handle many soils including most silts, sand, gravel, rock and hot or cold asphaltic mixes. On tests they produce 90-100% standard or modified Proctor densities, meeting the most rigid requirements. The new models are easy to maneuver and reduce operator fatigue. They permit compacting against abutments, in trenches, and in other working areas where space is limited. Two sizes are available. The Master C-12 is easily portable, weighing only 236 lb. It is powered by a Wisconsin ACN engine developing

3.5 hp. and has a compacting force of 2,300 one-ton blows per min. The Master C-36 is a larger unit weighing 435 lb., with a forward speed of 20 to 70 ft. per min. and delivering a compacting force of 2,300 one-and-a-half ton blows per min. It is powered by a Wisconsin BKN developing 4.2 hp.

... Circle No. 20



Shawnee features lifetime factor

Full-cycle speed and a new "lifetime factor" in the 180-deg. uninterrupted swing are two important features of the Shawnee 88, recently introduced by the **Shawnee Mfg. Co.** The 88's double-cylinder swing incorporates a heavy duty chain and sprocket. The cylinders are designed to afford lifetime automatic compensation for any wear in the swing mechanism. As a result, there is never any play in the swing mechanism, and it never requires adjusting. Cleanness of design is achieved by gathering hydraulic hoses out of the way and by Shawnee's unique hidden cylinders. All cylinders are enclosed, with the rods covered and protected. The quick-detachable bucket is an innovation on the 88. A new linkage design enables one bucket to handle all types of jobs, including straight-down spot digging and truck loading. Buckets are available in widths from 16 in. to 36 in. They can be changed quickly and without use of tools.

... Circle No. 221

Pacific Mercury introduces generator line

Pacific Mercury has introduced a complete line of generators which include a.c., d.c., and diesel-powered electric plants. As a result of a pre-production market study to determine needed improvements, PM has included special built-in

features in the new units. Among these are rpm. meters, triple-dipped mildew and fungus-proofed windings, automatic spark advance and ball bearings, built-in carrying handles, extra plug-in receptacles, built-in electric starter and trickle charge. Four-cycle air-cooled engines have been used, with the engines matched to the generator as to capacity. *... Circle No. 206*

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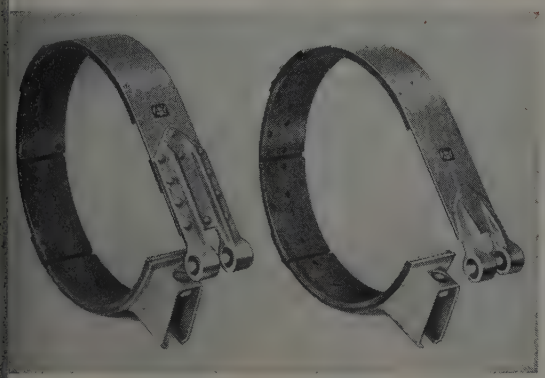

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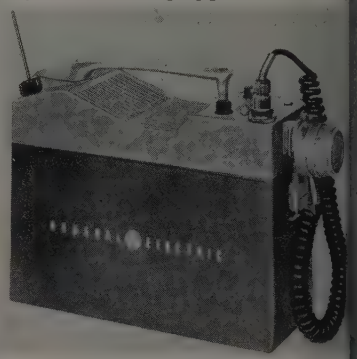
... for more details, circle No. 59 on Reader Service Postcard

Safe, fast pendant connection with new clevis

Fast, safe pendant connection on crane booms is facilitated by a new clevis fitting, product of **Crosby-Laughlin Division of American Hoist & Derrick Co.** Called the Boom Pendant Clevis, it is quickly and easily installed by placing through one thimble, and joining with pin to a solid thimble on the next pendant section. This new lightweight connection reduces pendant vibration and rope flexing. Reduced rope fatigue and wear means safer operating and fewer pendant replacements. A catalog containing full details is available on request. *. . . Circle No. 207*

GE two-way radio completely transistorized

General Electric Co. has produced a hand-carried portable transistorized transmitter-receiver said to be the country's first tubeless receiver for use in VHF mobile communications. The new unit is said to approach the sensitivity and quality of mobile radios usually installed on cars and trucks. Powered by GE Transistor No. 3N36, the unit will operate on frequencies up to 100 mc., which permits its use in construction. Unit designed for high band (144-174 mc) will be equipped with GE



Transistor No. 3N37, engineered for use up to 200 mc. While the receiver drains less power than a small household-type flashlight when on stand-by, it is supplied with large industrial-type batteries as standard equipment to permit operation for long periods of time without battery replacement.
. . . Circle No. 20

35-lb. pump

Designed for low head pumping operations is the new, compact 5T sump pump developed by the

Contractors Tools Division of Thor Power Tool Co. Weighing 35¾ lb. the pump drains 200 gal. a min from tanks, excavations, ditches and other shallow operations. Non-clogging design makes the pump ideal for removing clean or dirty water, sewage, oil, sludge, and other fluids. *. . . Circle No. 20*

These typical comments tell you why contractors prefer

CEDARAPIDS BITUMINOUS PAVERS

It's what *paver owners* . . . not manufacturers . . . say about their machines that concerns you!

When an experienced contractor tells you he has operated every make on the market, and explains why the Cedarapids Paver was the only one that could handle his job of paving over expansion joints without excessive hand work, *you* can be sure of handling the toughest jobs successfully.

When an enthusiastic operator shows you how the Cedarapids Paver can roll along at 102 ft. per minute laying a high density mat without tears, voids, or segregation, *you* know that faster completion of the job permits a lower bid.

When State Highway Inspectors say, "At this high speed, it lays the finest mat we've seen," you're *sure* of acceptable work on every job.

When a paving contractor tells you his Cedarapids Paver handles the full output of the biggest mixing plant without extending itself to its greatest capacity potential, you know that's profitable production.

Don't take *our* word about Cedarapids superiority in paver design, construction and performance! Cedarapids Pavers are operating in practically every State . . . there's sure to be one working near you, so take time to go see it . . . get the facts from contractors who *demand the best* in equipment, *and get it* in Cedarapids Bituminous Pavers.

Cedarapids
Built by IOWA

IOWA MANUFACTURING COMPANY | Cedar Rapids, Iowa, U.S.A.

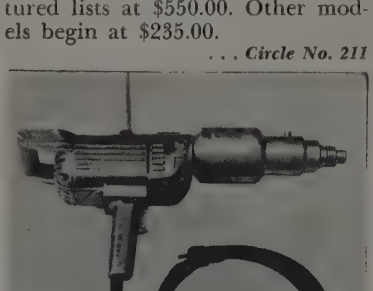
THE BATCHKING, new dump truck of *Cook Bros. Equipment Co.*, is the first unit specifically designed for batch work and has physical capacity to haul six batches. For over-highway work, it will easily haul four batches. Powered by a 235-hp. V-8 valve-in-head engine, the heavy-duty dump will easily keep up with today's highway traffic. It has a five-speed main transmission and a three-speed auxiliary transmission. Front axle is rated for 18,000-lb. capacity, and large 14:00x2 construction tires give better floatation for off-highway work. The single passenger Vision-Air cab has extensive window area, extra width for more driver comfort, and an air tunnel built into the top of the cab providing continuous flow of fresh air which creates an insulation space over the driver. . . . *Circle No. 210*

Low cost rotary hammers

Low-priced portable rotary hammers are now being produced by **Demo-Haines Tool Corp.** in air, gas and electric-powered models that are about two-thirds the weight of conventional hammers of equal performance ratings. Utilizing a unique rotary shock wave principle, the hammers are built for vertical, horizontal or overhead drilling, capable of producing long or short holes ½ in. through 8 in. in diameter. Features include a built-in air or water swivel, self-cleaning holes, interchangeable adapters and core bits with all models, and a hole-in guide that prevents "walking" and "wobble."

The DE-600 heavy duty model pictured lists at $550.00. Other models begin at $235.00.

. . . *Circle No. 211*



Transistor pipe locator

Only four flashlight batteries two in the transmitter and two in the receiver, are used in the new Model 162 transistor pipe locator and metal detector recently put on the market by **Gardiner Electronics Co.** The batteries in the receiver will last 3,000 hours, and those in the transmitter 350 hours, making this unit highly economical to operate. Model 162 will detect metal under fresh water. It can be used on walls, bluffs or steep hillsides. Very simple to operate, it can be tuned in seconds, with only one control. Comes equipped with headphones and an indicating meter. . . . *Circle No. 212*

JOB TAILORED

There's a superior performing Permanente cement to meet any Western construction need. All standard types are immediately available, and Permanente's research and development facilities can meet any special needs for custom cements. Right-now service and modern plants have made Permanente the West's largest and most reliable source for cement.

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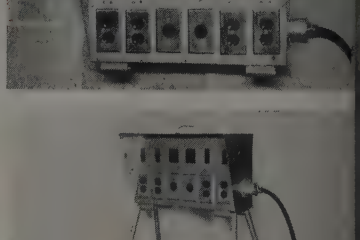
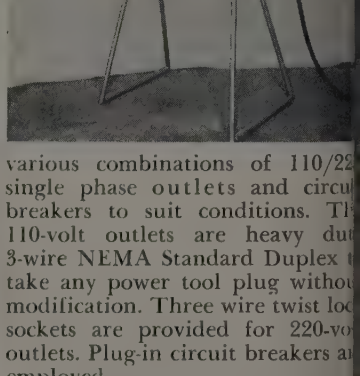
Portable power panels

To provide a safe and conve ient means of temporarily hookin up electric power tools, light space heaters, etc., **Engineere Equipment, Inc.** is now offerin several models of a new portab power panel for temporary on-th spot power connections.

With a total capacity from 50 t 100 amp., the panel may be had i





various combinations of 110/22 single phase outlets and circu breakers to suit conditions. Th 110-volt outlets are heavy du 3-wire NEMA Standard Duplex t take any power tool plug witho modification. Three wire twist lo sockets are provided for 220-vo outlets. Plug-in circuit breakers a employed.

A unique feature is a neon te tale safety light that glows as lo as hook-up is correct and ever thing okay. This precludes the po sibility of incorrectly wiring t power source. *. . . Circle No. 2*

Compression tester has 125-ton capacity

Forney's Inc. announce the ne Model QC - 100 - SLD compressio and flexure tester. Equipped wi 12-in. diameter spring mounte high and low pressure gages, tw stage manual pump, and a co stant flow non-pulsating electr pump, it has a range of 0 to 30,0 lb. low pressure and 0 to 250,0 lb. high pressure. Standardly equi ped for testing 6 x 12-in. cylinde in compression and 6 x 6 x 40-i beams in flexure, optional ext equipment is available for testi 2 x 2-in., 4 x 4-in., 6 x 6-in. cube and 8 x 8 x 16-in. blocks. Capaci can be increased to 400,000 lb. c special order. *. . . Circle No. 2*

eliarc torch
eatures integral cooling

An important feature of Linde o.'s new Heliarc hand-welding rch, the HW-18, is that the cool- g water passages are molded in e torch head, giving complete eedom from leakage. Light, (7 oz.) nall, and rugged, the torch body

made of Fiberglas-reinforced henolic with exceptional heat re- tance. New gas cups for the torch ve improved thermal shock and at resistance, with impact ength four times greater than ual ceramic cups. For exception- ly hard use, metal sleeved cups e available. *. . . Circle No. 215*

6,000-lb. positive extrusion force elimi- tes clogging in the BMCO curbing achine introduced by the *Browning nufacturing Co.* It easily lays up to 0 ft. of 6-in. asphalt curb per hour and uires no sand packing. Three stand- l forms may be easily interchanged d this machine is self-propelled requir- only steering by the operator.
. . . Circle No. 216

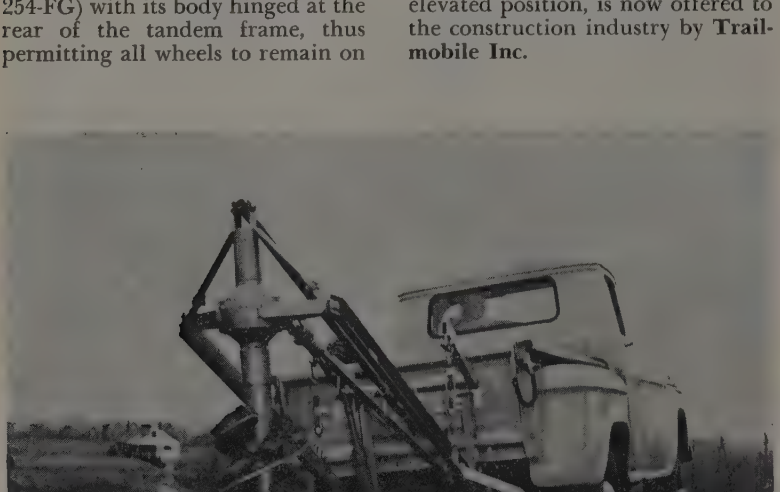
Frameless dump is 3,000 lb. lighter

A frameless dump trailer (Model 254-FG) with its body hinged at the rear of the tandem frame, thus permitting all wheels to remain on the ground when the body is in an elevated position, is now offered to the construction industry by **Trailmobile Inc.**

With the new Trailmobile de sign, the trailer frame is an integ ral part of the body and makes th unit up to 3,000 lb. lighter than conventional dump trailers. Thi weight saving, plus an allowable longer wheelbase, assures greate payload. The choice of inside length ranges from 21 to 32 ft Over-all width is 95½ in.; inside width is 88 in. Other plus features of the Trailmobile frameless dump are tapered running boards and tailgate crossmembers which shed spilled material at the loading sit and prevent highway litter.

The use of the bail or lifting hoop allows the hoist hinge point to be located at the bottom of the body, and in the dumping operation the noise is completely outside the body, thus doing away with the need for a "dog house" inside when used with single axle tractors. This saves cubic capacity and assures an uninterrupted flow of material during dumping.

Since the body is hinged at the rear of the tandem frame, a floor height of 43½ in. is maintained when the trailer is in full elevated position. This allows higher stock piling, almost twice as high as other frameless dumps. . . . *Circle No. 21*



THE ROPER Highway Digger has been adapted to the Chevrolet four-wheel drive trucks. The truck need only be equipped with a rear power take-off for the digger is complete with a power plant and universal attaching kit. Ideal for the setting of posts and guard rails, the unit digs to a depth of 48 in. and is available with augers up to 14 in. in diameter. ***Roper Manufacturing Co.*** **. . .** ***Circle No. 218***

'58 Ditch Witch on the marke

The 1958 Model M-2 Ditch Witch, product of **The Charle**

Machine Works, Inc., is now avai able. Features include new 8-i width trencher to 30-in. dept Also available in 6 x 36 in., 4½ 36 in. and 3 x 48 in. A new spee reduction unit with Select-O-Mat shift from digging speed to mobi speed provides four speeds forwar and reverse. Among the option

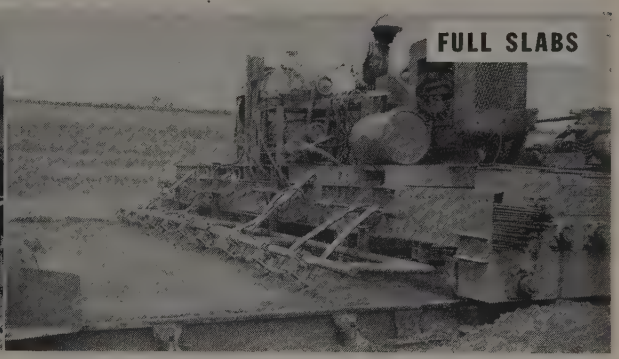
Vibrate your way to higher profits with...

Maginniss Hi-Lectric Concrete Vibrators

STRUCTURES

MAGINNISS CONCRETE VIBRATORS speed up pours, cut labor costs, produce blemish-free concrete. Two 180 cycle, 120 volt models; HCV-3 for bridge, pavement and building work; HCV-6 for massive structures. Powered by choice of nine different gasoline or electric driven generators. (Uni-lectric 110 volt universal motor vibrators for smaller jobs, too.)

FULL SLABS



MAGINNISS SIDE FORM VIBRATOR ATTACHMENT fits all makes of paving machines. Prevents honeycomb, eliminates hand labor, speeds production. 180 cycle induction motor-in-head vibrators, fully adjustable for depth and spacing, choice of instant manual or hydraulic retraction. Generator also powers floodlights and service tools.

SIDE FORMS

MAGINNISS SIDE FORM VIBRATOR ATTACHMENT fits all makes of paving machines. Prevents honeycomb, eliminates hand labor, speeds production. 180 cycle induction motor-in-head vibrators, fully adjustable for depth and spacing, choice of instant manual or hydraulic retraction. Generator also powers floodlights and service tools.

PAVEMENT WIDENING

MAGINNISS PAVEMENT WIDENING VIBRATOR ATTACHMENT fits any widener, eliminates need for accessory vibrating screed or for hand finishing. 180 cycle induction motor-in-head vibrators in hopper plasticize stiffest concrete . . . permit production rates up to 25 fpm on slip-form paving. Generator also powers service tools, floodlights.

On jobs where profit-conscious contractors are at work, you'll find Maginniss Hi-lectric vibrators in action!

That's because powerful Hi-lectric vibrators with induction motor-in-head design, produce up to 10,500 VPM . . . cut placing time . . . produce sounder, better looking concrete at lower cost.

Whether you're pouring footers, building structures, paving highways or airports, it'll pay you to investigate—and use—the profit-boosting features of Maginniss Hi-lectrics. You'll find that Hi-lectric vibrators offer true one-man operation . . . that they have no cumbersome, hard-to-maintain flexible shafts . . . that they provide plenty of power to handle stiffest concrete mixes with ease.

Whatever your concrete vibrating needs may be, your nearby Maginniss distributor can recommend . . . and supply . . . Hi-lectric vibrators and generators exactly suited to your requirements. Get all the facts today!

AA-4522

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Maginniss HI-LECTRIC POWER TOOLS

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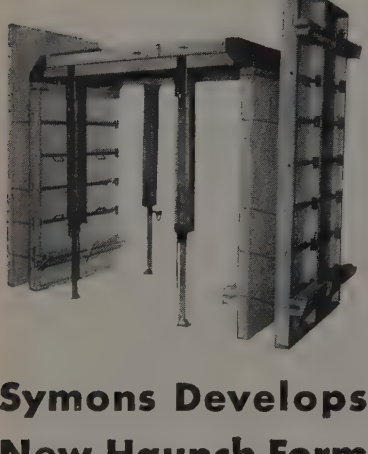
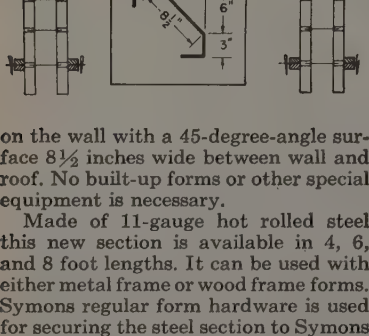
Culvert Forming



Symons Develops New Haunch Form for Culverts

Symons Safety Shores Used to Support Slab

Symons now has a new 9 x 9 inch steel haunch section designed to connect Symons standard wall panels and slab panels for the monolithic pouring of culverts. This new section provides for a 3-inch face on the roof slab and



on the wall with a 45-degree-angle surface 8½ inches wide between wall and roof. No built-up forms or other special equipment is necessary.

Made of 11-gauge hot rolled steel this new section is available in 4, 6, and 8 foot lengths. It can be used with either metal frame or wood frame forms. Symons regular form hardware is used for securing the steel section to Symons standard forms. No special fittings are required.

Symons forms, shores and column clamps may be rented with purchase option. FREE literature on Symons products is available upon request.

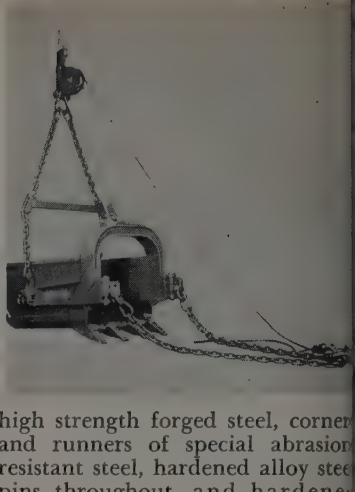
Symons

SYMONS CLAMP & MFG. CO.
634 Williams Street Ph. Lockhaven 9-9159
San Leandro, California
. . . for more details, circle No. 67

features available is a sod cutting attachment. This attachment can be mounted on the trencher in minutes, cuts an 8-in. sod strip at speeds up to 40 ft. per min. After trenching and backfilling sod can be replaced, leaving turf with an untouched look. An illustrated specifications folder is available on request. *. . . Circle No. 222*

Dragline bucket for rough jobs

The Young Dragline Bucket, a new product of **Young Iron Works,** is designed for hard digging, full loads, long service. Teeth are angled for maximum penetration. Outside teeth at the extreme corner of the bucket (the point of maximum resistance) increase digging power by loosening the ground ahead of the bucket cutting edge. The buckets are ruggedly constructed, with bucket cutting edge of



high strength forged steel, corner and runners of special abrasion resistant steel, hardened alloy steel pins throughout, and hardened bushings at all pin connections. The arch is of box section design for maximum rigidity.
. . . Circle No. 21

Twin-spinner spreader

Mounting or dismounting of the new Shunk-Torwel Spreader for dump-truck can be accomplished approximately in the same amount of time required for a tire change.

Manufactured by **Shunk Manufacturing Co.,** the new spreader is designed for sanding, cindering or salting for winter ice control work, and for spreading stone, chips, calcium, chloride, ag lime and other materials to meet a wide variety of applications.

The machine is of twin-spinner design, and the spinner shafts may be adjusted to the most efficient length for any given dump-truck body. The spinner shafts extend through sealed tubular housings and operate in oil. Bearings at both ends of the shafts and a specially designed housing casting eliminate any spinner shaft whip which might distort the spread pattern.

Other features include one-man operation, from the cab; a wide spread area, which can cover a three-lane highway in a single pass; arrangements for spreading to one side without windrowing; even spread density; heavy-duty construction throughout; and chain type conveyor with rugged cross bars assuring long, trouble-free operation.

The new spreader is available in capacities of 5, 6 and 7 cu. yd. Larger capacities may be specified on order. *. . . Circle No. 22*

"We're buying GMC's because they stay on the job!"

—says S. L. Baird of State Contracting & Stone, Hartford, Ky., in reporting on his GMC stone-quarry haulers.

Roy Schlinkert, GMC District Manager, discusses the purchase of new GMC trucks with State Contracting's Secretary, S. L. Baird, and President Robert Hudson (l. to r.).

"Our GMC's take less time-out for repairs and maintenance than any other trucks we've used," Baird says. That's the dollars-and-cents reason he gives for adding new GMC's year after year—ever since their first eleven in '52.

This GMC brand of dependability is especially important to State Contracting & Stone. "We have a relatively short road-building season in Kentucky," Baird explains. "So our trucks have to go all-out all season long."

Naturally, they have to keep costs in line, too. And according to their books, GMC's again come out in front with maintenance costs about half that of their other-make trucks doing the same job.

Remember, too—the newest GMC's are engineered to outperform even these fine records. Engines are more powerful and time- and moneysaving Allison TORQMATIC Transmissions* are now available.

They're typical of the never-ending improvements you get in GMC trucks—made by the world's largest manufacturer of commercial vehicles exclusively.

**Optional at extra cost*

GMC TRUCK & COACH—*A General Motors Division*

Tough pulls like this are no problem to State Contracting's GMC's—even though they already have more than 4 years of rugged stone hauling to their credit. After 300,000 miles of grueling service, they still outperform other trucks on this job.

GMC-America's Ablest Trucks

. . . for more details, circle No. 68 on Reader Service Postcard

Payloaders moving West

DISTRIBUTORS from all over the West attended the event and most of them found out how the machine handles by trying it themselves. Various attachments were also demonstrated.

DEMONSTRATION AREA was provided by Lang Construction Equipment Co. of Salt Lake City. Canvas covered bleachers with the Wasatch Range in the background were a perfect vantage point.

"YOU AUTO sell now" hit th construction equipment industr when the Frank G. Hough C rolled into Salt Lake City with ten-mile-long motor truck caravan of Payloader tractor-shovels. Tra eling practically the same rou that the founders of Salt Lake Ci took almost 100 years ago, the ca avan included almost 100 rubbe tired and crawler tractor-shove worth more than $1,000,000. Wai ing to greet the largest known m tor truck convoy to leave the Ch cago area, were civic dignitarie Hough Co. officials, some 200 di tributor executives from the 1 Western states, and a WESTER CONSTRUCTION reporter.

According to G. A. Gilbertso president of the Frank G. Houg Co., the program was designed t stimulate and aid the economi picture in the construction, earth moving, and bulk materials han dling equipment fields. As a resul of the wholehearted cooperatio and enthusiasm generated amon the distributors, just about all o the machines had already been sol to customers. The others were dis posed of before the final depart ure from Salt Lake City to cus tomer and distributor destinations

Most of the meeting was devoted to actual on-the-job demonstra tions of new models and machines Lang Construction Equipment Co of Salt Lake City provided the dem onstration area. Some of the new equipment included the HOD Pay loader with pipe boom and back hoe attachments. Attachment man ufacturers in attendance include Ram Equipment Co., The Super ior Equipment Co., and the Wai Roy Corp. Merle Fate and Don Ross, district managers for the Frank G. Hough Co., were among the narrators of the program.

The entire program proved quite a success among the distribu tors, who traveled hundreds of miles for the two-day event.

AMONG those attending were (l. to r.) Merle Fate, District Representative, Hough Co.; Paul Hershman, Brown-Bevis Industrial Equipment Co.; G. A. Gilbertson, President, Hough Co.; and Vic Bailey, Brown-Bevis, Sales Manager.



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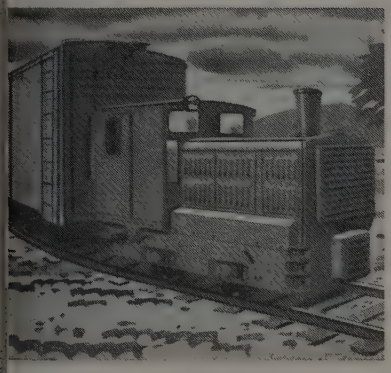
SPECIFY THE



ALLISON CRT-3331

When it comes to front-end loaders, small mining trucks and king-size fork lifts, there seems to be one answer: the Allison TORQMATIC CRT-3331.

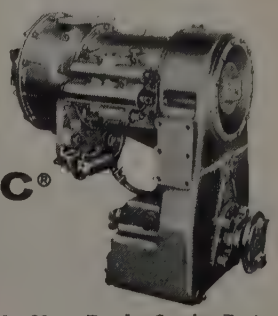
This versatile, full-power shift transmission has proved it is a "must" in the 70 to 140 horsepower field—up to 300 foot pounds net torque input. A completely integral torque-converter-full-power shift package provides engine torque multiplication in the converter up to 350%, plus three forward and three reverse gear selections that were particularly designed to give maximum performance for these types of service.

Specially controlled forward-reverse oil-cooled clutch plates provide the smoothest shift available on the market today.

The proved Allison planetary design allows the transmission to be provided either in a straight-through or drop-box version depending upon the manufacturer's requirement.

The CRT-3331 is an engineered power train combining the best thinking of our manufacturing customers plus our own ten years' experience in the field.

For detailed specifications of the Allison TORQMATIC CRT-3331, for the full TORQMATIC DRIVE story, see your equipment dealer, or write:



ALLISON DIVISION OF GENERAL MOTORS, Indianapolis 6, Indiana

Allison TORQMATIC® DRIVES

. . . for more details, circle No. 38 on Reader Service Postcard

News of DISTRIBUTORS

THE LOS ANGELES CHAPTER of Associated Equipment Distributors honored its founders at a recent meeting. The "old-timers" had some sage advice for the younger men on combating the current slump with good, old "hard sell." Shown here, (l. to r.): *John Beynon, George Thatro, H. S. Warnock, Al Garlinghouse,* and *Charles Weinberg.*

Western appointments by Heltzel

New distributors were recently appointed to handle the construction equipment products manufactured by Heltzel Steel Form & Iron Co., and the FlexPlane and other machines produced by the Flexible Road Joint Machine Co. In California, Buran Equipment Co., Oakland, was named for the northern portion of the state, and Brown-Bevis Industrial Equipment Co. of Los Angeles, to cover the southern area. Montana Powder & Equipment Co., Helena, received the distributorship for Montana.

To represent the FlexPlane line in the Arizona area is Superior Equipment Co. of Phoenix. Headed by John M. Hazelett as president and manager, Superior maintains a branch office at Tucson where Homer Butcher is in charge.

Head offices of Heltzel Steel Form & Iron Co., and Flexible Road Joint Machine Co. are in Warren, Ohio. Ken Simpson, the Western regional representative, is located at Redondo Beach, Calif.

News from Billings, Mont.

Russell L. Mills, manager of Miller Machinery Co., Billings, Mont., reports that Frank Sparlin is salesman, and Harlon Goddard, serviceman, in the Billings area. Doubling as parts manager and office manager is Vernon C. Hoff. Miller Machinery Co., with headquarters in Missoula, is statewide distributor for Clark Equipment Co., Iowa Manufacturing Co., and the Worthington Corporation.

Clifford Carlson heads latest Cox division yard

Announcement is made by Kyle Hesse, manager of Rental Machinery Co., division of A. H. Cox & Co., and vice president of the Cox company, of the appointment of Clifford Carlson as manager of the newest branch rental yard and plant located at 15655 Pacific Highway South, Seattle. Carlson has been with the Cox organization for seven years in parts, machinery, and in the sales rental division.

Distributor has answer to rough terrain

A definite swing to the use of extra heavy duty tractor tracks in the Pacific Northwest is noted by Gerald A. "Jerry" Butcher, special

Gerald Butcher

ales representative of Interstate Tractor & Equipment Co., Portland, Ore., machinery distributor. The Northwest's rugged terrain makes short work out of tracks that would last for years in the Midwest and East, Butcher believes. He says, "From the standpoint of traction, long life, and, most important, wear hours per dollar, we have proven to ourselves that the answer is a special alloy-steel, high-center grouser in our area." In his opinion the Utility Track produced by The Utility Steel Foundry is just such a track. Distributed by Interstate Tractor & Equipment Co., in Portland and Eugene, Ore., it is now being used by contractors with success under the most severe conditions.

Fray sets up logging division

Fray Equipment Co., Seattle distributor of logging and construction equipment, has established a logging division to handle business in the logging industry of the Olympic Peninsula, according to Manager Steve Joseph. The new logging division, which will be headquartered at Port Angeles, will be under the managership of Jim Paul, who is currently in the process of reorganizing the new enterprise and setting up his sales staff.

A new line; a new address

Standard Machinery Co., 450 Bayshore Blvd., San Francisco, recently acquired the HECO truck excavator line manufactured by Hardwicke-Etter Co., Sherman,

Tex. Standard Machinery will soon have a new address at 470 Bayshore Blvd., with enlarged facilities for showroom, parts department, shop and office.

Albuquerque firm expands

Harry Cornelius Co., Albuquerque, N. Mex., has added two men to its sales department. One is Lucien Pigott, formerly a field service man, and the other is Ray Lauterbach who is doubling as company pilot and in sales promotion. Announcement is also made by Neal Wiggans, sales manager at Albuquerque, of the addition of new territory for Allis-Chalmers equipment as well as Shield-Bantam, now making a total of seven counties in the southeastern part of New Mexico. Cornelius recently acquired 30,000 additional square feet of equipment storage area, and 10,000 more square feet of shop space, giving them approximately 150,000 sq. ft. of working area and storage area.

Teletype joins Clark distributors

Speed, Service and Economy are effected in nationwide marketing operation.

A COMPREHENSIVE teletype network linking 95 Clark Equipment Co. distributors over the country and tying them in to a central control at Clark headquarters in Buchanan, Mich., has been put into operation. The system connects both the distributors of the construction machinery division and the industrial truck division. It is a new application of the leased wire teletype system to use in an extensive industrial distribution organization, such as Clark's. It has been received with enthusiasm in the West, where distances from sources of supply are great and the problem of distributor service to Western equipment users is increased by remoteness of location. Distances to factory headquarters as well as the vastness of Western market areas served by distributors are extreme when compared with those in eastern regions.

Of the distributors in the West which are on the new Clark network, twelve are of the industrial truck division and seven are construction machinery distributors. Four of each are located in the Pacific Northwest with one from each division in Portland, Seattle, Spokane and Vancouver, British Columbia. Each of these distributors is connected with transmitting and receiving equipment located in all of the 95 dealerships, as well as at Clark sales offices in Chicago, Ne York and San Francisco and th Richmond, California, parts depo the Chicago Central Parts Divisio and in Clark plants. Any statio on the network can communica with any other station or any con bination of stations but all me sages must first be received at th relay center in Buchanan and di patched from there. A message ca be sent to all stations on the ne work at one time.

A WESTERN CONSTRUCTION surve of some of the Pacific Northwe distributors revealed an enthusias characterized by one of them wh said, "This system represents one c the biggest forward steps in distri utor organization and about th finest thing Clark has ever done. All of the Northwest distributo interviewed said that reductions i their monthly telephone costs ha been effected in some cases by a much as 50%. The dealers shar the cost of the system with the com pany and each dealer pays a rat which is predicated on the com parative traffic volume in his loca tion. One dealer in Seattle, for ex ample, pays $71.00 a month and h may send an unlimited number o messages and use the facilities as h wishes.

In its service to customers th communications system has it greatest value. But it has man other uses which contribute towar the common goal. It ties in both construction machinery divisio and industrial truck division dea ers and any dealer on the networ can communicate with any other o with all of them. The system ha resulted in substantial savings i time and cost in writing up order and in maintaining order files be cause once an order is put on th wire it is handled automatically from that point on and recorde in the Clark control center. Th margin of error on parts and ser vice orders is greatly cut dow and the new facility has eliminate the need for much correspondenc which was formerly necessary.

A Portland dealer says that i saves three to four days in tim between placing an order for part and receiving the shipment. This he says, is on normal parts order in the course of every day opera tion, and even more time can b saved in emergency cases. In a cas where the local distributor is ou of that part he immediately broad casts to other distributors neares him the part number and descrip tion so that if another dealer nearer than the factory has such a

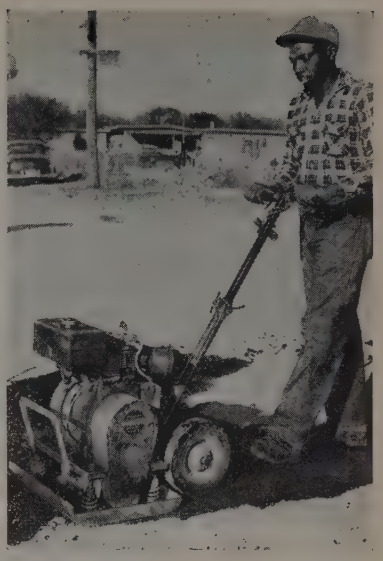
AN EMERGENCY parts order is sent to the factory over the new system from the Robert Dodd Co. in Portland, Ore. Office Manager Quay Wassam, Jr., gives the information to Nancy Abrahamson, parts department secretary, who operates the machine.

part in stock he can ship it at once. Otherwise, of course, it would come from the factory.

Distributors have used the system for communication between themselves on such matters as discount agreements in intra-organizational transactions. In a similar way the system is used by dealers to locate special models of machines that they might have calls for, or to dispose of models which they may have on hand.

In the first three months the Clark people foresee even further uses and application for the system. All the Northwest dealers interviewed by WESTERN CONSTRUCTION felt that throughout the first year of operation many advantages would develop in addition to those already obvious.

SHOWN here is the new Lang Construction Equipment Co. branch at Idaho Falls, Idaho. Conveniently located at the intersection of North Yellowstone Highway and Iona Road, the branch includes 4 ac. and a modern building with ample parts, storage, repair and service space. Lang sells and services the 17 counties in southeastern Idaho under the experienced direction of General Manager *T. Kevin Best.*



MANUFACTURERS

Top management changes at Universal Form Clamp

Universal Form Clamp Co. of Chicago announces that at a recent meeting of its board of directors E. L. Mayers was elected chairman of the board and president of the firm. J. I. McClelland was elected general manager and executive vice president. Universal has manufactured products for the construction industry for the past 46 years, including forms, form ties and accessories for concrete forming.

Cummins names general sales manager in Oregon

Cummins Diesel Sales of Oregon, Inc., has recently appointed Edward G. Bartlow to the newly created position of general sales manager of the company according to an announcement by J. S. Poulson, manager. Bartlow takes over the sales work for the Oregon corporation which had formerly been generally divided between J. S. Poulson and R. H. Wills, president. Bartlow was formerly with Freightliner Corp. in Portland.

Guptill succeeds Frank Trierweiler at Ryerson Steel

Joseph C. Guptill has been appointed national product manager for the reinforcing products division of Joseph T. Ryerson & Son, Inc., succeeding Frank F. Trierweiler, retired. Guptill's headquarters are in the company's general offices in Chicago. Guptill joined Ryerson in 1949 at its San Francisco plant. In 1951 he became manager of the reinforcing steel department, the post he held at the beginning of 1957 when he was transferred to the general offices in Chicago as assistant national product manager.

George Wolff named to ad post

George Wolff, Jr., succeeded Ed Botsford as advertising manager of John Deere Plow Co. in San Francisco when Botsford retired from the position recently.

(Continued on page 135)

NEW PLANT of Albin Manufacturing Co. at 4220 Twenty-second Ave. West, Seattle. Comprising an area of 70 x 100 ft., this modern facility is of steel, concrete and glass construction. Founded by the late *Albin Erickson* twelve years ago, the business is now owned by *Scott Jamison* who appears here in his new office which he has been occupying since the company moved into the plant on May 1. Jamison was for many years with A. H. Cox Machinery Co.

UNIT PRICES

elected abstracts for Western projects

IGHWAY—5.5 mi. of roadway in Arizona

Arizona—Pinal County—State. Heiskell Construction Co. has received $145,383 contract for 5½ mi. of roadway. Work consists of grading i draining portions of the roadway to eliminate dip sections, furnishing i placing select material and bituminous road mix, and furnishing and olying an emulsified asphalt seal coat.

) Heiskell Construction Co. $145,383
) Krumtum-Dewar Construction Co., Ltd. 145,520
D. M. Bradley & S. R. Dysart, Contractors 148,364
Western Constructors, Inc. 149,355

		(1)	(2)
75 cu. yd.	Drainage excavation	$ .65	$ .80
670 cu. yd.	Structural excavation	4.50	2.00
370 ton	Borrow (CIP)	.366	.40
000 cu. yd.	Stripping pits	.15	.10
Lump sum	Provide water supply	500.00	500.00
150 M gal.	Apply water	1.95	1.50
860 hr.	Rolling	8.60	8.00
000 ton	Select material (CIP)	.60	.65
885 ton	Cover material for seal coat (Type B, Special) (CIP)	5.50	5.50
100 ton	Bituminous mix (Cl. I-Rd. mix) (CIP except cost of liquid asphalt)	.74	.88
560 ton	Liquid asphalt for bituminous rd. mix (Gr. RC-2, RC-3 or RC-4) (CIP)	44.00	44.00
130 ton	Emulsified asphalt for seal coat (Gr. B) (CIP)	46.00	45.00
346 cu. yd.	Class A concrete (CIP)	38.00	38.00
950 lb.	Reinforcing steel (bars) (CIP)	.12	.12
150 lin. ft.	Road guard (Std. RG-1) (CIP)	4.00	5.00
26 ea.	Guide posts (Std. C-8) (Type BR) (CIP)	6.00	5.00
40 ea.	R/W markers (Std. C-1) (Type C) (CIP)	7.00	5.00

CANAL — Construction of a water distribution system extension of the Friant-Kern Canal in California

California—Southern San Joaquin Municipal Utility District—Bur. of Rec. A $698,165 contract has been awarded to Cen-Vi-Ro Pipe Corp. for earthwork, pipe lines, and structures, including pumping plants for the Friant-Kern Canal distributon system, Central Valley Project.

(1) Cen-Vi-Ro Pipe Corp. $698,165
(2) United Concrete Pipe Corp. 797,012
Donald C. Glanville, Glanville Plumbing Co. 831,040
Macco Corp. 865,724

		(1)	(2)
70,500 cu. yd.	Excav. for pipe trenches	$ .41	$ .55
1,820 cu. yd.	Excavation for structures	1.10	1.25
10,700 cu. yd.	Excavation for reservoirs	.40	.47
70,500 cu. yd.	Backfill in pipe trenches	.11	.30
1,840 cu. yd.	Backfill about structures	.55	2.00
1,050 cu. yd.	Comp. backfill in pipe trenches	2.74	2.50
770 cu. yd.	Comp. backfill about structures	2.74	2.75
7,700 cu. yd.	Comp. reservoir embankments	.33	.20
10 cu. yd.	Coarse gravel protection	11.00	7.00
150 sq. yd.	Oil surf. for cty. road crossings	2.95	3.00
86 cu. yd.	Reinf. concrete in structures	100.00	80.00
38 cu. yd.	Plain concrete in structures	55.00	55.00
2 cu. yd.	Concrete in precast covers	110.00	200.00
189 bbl.	Furnishing and handling cement	5.00	7.00
9,500 lb.	Furnishing and placing reinforcement bars	.19	.20
10 sq. ft.	Furn. and placing ½-in. elastic filler material in joints	3.30	5.00
285 lin. ft.	Furn. and laying 12-in. diameter HC50 concrete pressure pipe	3.408	3.44
4,000 lin. ft.	Furn. and laying 18-in. diameter HC50 concrete pressure pipe	4.669	6.80
6,910 lin. ft.	Furn. and laying 24-in. diameter HC50 concrete pressure pipe	6.584	8.07
5,160 lin. ft.	Furn. and laying 33-in. diameter HC50 concrete pressure pipe	10.412	10.82
2,750 lin. ft.	Furn. and laying 39-in. diameter HC50 concrete pressure pipe	14.288	13.19
7,965 lin. ft.	Furn. and laying 45-in. diameter HC50 concrete pressure pipe	18.210	17.62
4,745 lin. ft.	Furn. and laying 15-in. diameter HC75 concrete pressure pipe	4.855	4.92
1,645 lin. ft.	Furn. and laying 21-in. diameter HC75 concrete pressure pipe	5.743	7.34
2,100 lin. ft.	Furn. and laying 27-in. diameter HC75 concrete pressure pipe	8.031	8.96
3,000 lin. ft.	Furn. and laying 30 in. diameter HC75 concrete pressure pipe	9.385	10.04

180 lin. ft.	Furn. & erecting 10-in. diameter sewer pipe vertical in flowmeter stands	3.595	2.
120 lin. ft.	Furn. & erecting 12-in. diameter sewer pipe vertical in flowmeter stands	3.875	2.
20 lin. ft.	Furn. & erecting 12-in. diameter HC50 concrete pressure pipe vertically	5.464	5.
195 lin. ft.	Furn. & erecting 15-in. diameter pipe vertically	3.502	7.
10 lin. ft.	Furn. & erecting 18-in. diameter pipe vertically	6.537	8.
55 lin. ft.	Furn. & erecting 21-in. diameter pipe vertically	7.191	9.
30 lin. ft.	Furn. & erecting 24-in. diameter pipe vertically	8.218	11.
55 lin. ft.	Furn. & erecting 30-in. diameter HC50 concrete pressure pipe vertically	11.813	15.
425 lin. ft.	Furn. & erecting 36-in. diameter HC50 concrete pressure pipe vertically	14.661	19.
5 bend	Fabricating bends, group I....	33.00	248.
6 bend	Fabricating bends, group II....	82.00	292.
10 taper	Furn. & laying 8- to 12-in. HC75 manufactured tapers ..	120.00	189.
3 taper	Furn. & laying 12- to 15-in. HC75 manufactured tapers ..	33.00	209.
1 taper	Furn. & laying 12- to 18-in. HC75 manufactured tapers ..	143.00	214.
2 taper	Furn. & laying 15- to 18-in. HC75 manufactured tapers ..	141.00	220.
1 taper	Furn. & laying 18- to 21 in. HC75 manufactured tapers ..	108.00	231.
1 taper	Furn. & laying 24- to 27-in. HC75 manufactured tapers ..	118.00	242.
1 taper	Furn. & laying 27- to 30-in. HC75 manufactured tapers ..	146.00	263.
3 tee	Fabricating type E tees, group I.	194.00	150.
2 tee	Fabricating type E tees, group II	217.00	172.
2 tee	Fabricating type E tees, gr. III	230.00	248.
4 tee	Fabricating type E tees, gr. IV	284.00	259.
16 tee	Fabricating type B tees, group I.	39.00	251.
2 tee	Fabricating type B tees, group II	33.00	172.
5 tee	Fabricating type D tees, group I	215.00	151.
2 tee	Fabricating type D tees, group II	222.00	238.
10 assembly	Furn. and installing air-valve assemblies	118.00	112.
5 valve	Furn. & installing 8-in. F, 8-in. G, 12-in. B type GV5 gate valves	91.00	110.
17 valve	Furn. & installing 12-in B, 8-in. G, 12-in. B type GV5 gate valves	85.00	105.
2 valve	Furn. & installing 15-in F, 15-in. G, 15-in. H type GV5 gate valves.	192.00	300.
13 valve	Furn. & installing 8-in. diameter type GV6 gate valves	205.00	200.
4 valve	Furn. & installing 8-in. diameter type GV9 gate valves	112.00	175.
2 valve	Furn. & installing 12-in. diameter type GV9 gate valves	200.00	260.
6 valve	Furn. & installing 18-in. diameter type GV9 gate valves	690.00	700.
1 valve	Furn. & installing 20-in. diameter type GV9 gate valves	770.00	900.
3 connection	Furn. & installing 8-in. steel-pipe conn. with couplings & flanges from type E tees to GV6 gate valves	56.00	217.
10 connection	Furn. & installing 8-in. upstream steel conn. from manuf. tapers to GV6 gate valves with couplings and flanges	55.00	241.
1 connection	Furn. & installing 39-in. to 20-in. upstream tapered steel connection to GV9 gate valves	742.00	401.
1 connection	Furn. & installing 24-in. to 8-in. upstream tapered steel connection to GV9 gate valve with coupling and flanges	286.00	401.
2 connection	Furn. & installing 12-in. downstream steel connections with couplings and flanges from GV9 gate valves to 12-in. pressure pipe	146.00	260.
1 connection	Furn. & installing 18-in. downstream steel connection with coupling and flanges from GV9 gate valve to 18-in. pressure pipe	237.00	329.
3 connection	Furn. & installing 18- to 21-in. downstream steel taper conn. from GV9 gate valve with couplings and flanges	482.00	313.
2 connection	Furn. & installing 18- to 24-in. downstream steel taper conn. from GV9 gate valves with couplings and flanges	364.00	355.
1 connection	Furn. & installing 20- to 33-in. downstream steel taper conn. from GV9 gate valve with couplings and flanges	824.00	408.
1 connection	Furn. & installing 8- to 15-in. downstream steel taper conn. from GV9 gate valve	283.00	260.
2 handle	Furn. tee handles 8 ft. long for type GV9 gate valves	14.00	18.
3 handle	Furn. tee handles 8 ft. long for type GV5 gate valves	14.00	18.
3 handle	Furn. tee handles 8 ft. long for type GV6 gate valves	14.00	18.
30 flowmeter	Furn. & installing 10-in. diam. vertical flowmeters	146.00	200.
13 tee	Furn. & installing 14- by 14- by 11-in. tees with flanges in type T vertical flowmeter stands	176.00	260.

16 gage	Furn. & installing pressure gages and conn. in steel pipe and in GV5 gate valve bonnets	30.00	60.00
320 lin. ft.	Furn. & erect. chain-link fences	3.05	2.80
2 gates	Furn. & erecting 16-ft. chain-link fence gates	193.00	175.00
Lump sum	Furn. & installing steel discharge pipes & pipe stand ext..	2,207.00	L Sum
250 lb.	Furn. & installing misc. metalwork	.92	.75
100 lb.	Furn. & installing grounding systems	2.74	5.00
240 lin. ft.	Furn. & installing single-cond., No. 12 AWG, 600-volt-insul. electric wire or cable.....	.07	.20
250 lin. ft.	Furn. & installing single-cond., No. 6 AWG, 600-volt-insul. electric cable	.22	.30
270 lin. ft.	Furn. & installing 3-cond., No. 12 AWG, 600-volt-insulated, steel tape armored control cable	.90	1.50
160 lin. ft.	Furn. & installing electrical rigid metal conduit, ¾-in. in diam..	1.00	1.00
270 lin. ft.	Furn. & installing electrical rigid metal conduit, 1 & ¼-in. in diameter	1.50	2.00
2 switch	Furn. & installing float switches	186.00	300.00
2 structure	Furn. & installing service pole structures, inc. elec. control..	782.00	1,200.00

GHWAY—7.3 mi. of roadway in California

alifornia—Nevada—State. A $1,282,944 contract has been awarded sbell Construction Co. for 7.3 mi. of roadway to be graded and aced with plant mixed surface and cement treated base, and a re-rced concrete girder bridge to be constructed.

Isbell Construction Co.	$1,282,944
Edward Keeble	1,391,565
Gibbon & Reed Co.	1,395,801
I. L. Croft & Son, Inc. & F. W. Case Corp.	1,419,663

		(1)	(2)
mp sum	Clear and grub	$64,450.00	$55,000.00
mp sum	Remov. concrete (struct.)	3,500.00	1,820.00
mp sum	Remov. bridge (So. Wolf Cr.)	7,500.00	2,000.00
2,900 sq. yd.	Obliterate exist. road	.05	.10
mp sum	Dev. water supply and furnish water equipment	58,000.00	20,000.00
9,900 M gal.	Apply water	.10	.50
3,500 sq. yd.	Compact. original ground	.05	.05
2,500 cu. yd.	Roadway exc.	.57	.60
5,790 cu. yd.	Struct. exc.	3.00	3.50
4,500 cu. yd.	Struct. backfill	4.50	3.50
590 cu. yd.	Struct. exc. (br.)	4.00	4.00
3,920 cu. yd.	Ditch & channel exc.	1.10	1.00
0,000 sta. yd.	Overhaul	.004	.005
9,320 ton	Imported subbase material	1.27	1.50
0,100 ton	Untreated base	1.27	2.10
4,300 sq. yd.	Mix., spread & compact. CTB	.21	.20
5,820 bbl.	Portland cement	5.00	5.00
225 ton	Asph. emul. (curing sl., pt. bdr. & sl. ct.)	37.00	50.00
146 ton	Liquid asph., SC-2 (pr. ct. & pen. tr.)	35.00	45.00
1,742 ton	Paving asph. (PMS)	32.00	6.50
0,200 ton	Mineral aggr. (PMS, type B)	3.70	6.50
3,620 ton	Min. aggr. (PMS, open graded)	6.50	7.50
5,700 sq. yd.	Placing PMS ditch & spillway dndr.	2.00	1.75
4,960 lin. ft.	Placing PMS dikes	.25	.25
670 ton	Sand cover (curing sl., pr. ct. & pen. tr.)	5.00	5.50
127 cu. yd.	Cl. A. concrete (foot block)	35.00	40.00
793 cu. yd.	Cl. A. concrete (struct.)	60.00	75.00
nt. sum	Cl. A. concrete (br) (374 C. Y.)	35,000.00	33,000.00
5,500 lb.	Bar reinf. steel	.15	.15
nt. sum	Bar reinf. steel (br.) (98,000 lb.)	17,000.00	16,000.00
1,340 lb.	Misc. iron and steel	.30	.40
80 ea.	R/W monuments	10.00	10.00
57 ea.	Survey monuments (type R)	10.00	20.00
369 cu. yd.	Heavy stone riprap	6.00	10.00
60 cu. yd.	Sacked concrete riprap	50.00	45.00
1,159 lin. ft.	Metal plate guard railing	4.50	3.75
325 lin. ft.	Metal beam bridge railing	6.00	7.00
640 ea.	Guide posts and markers	7.00	7.00
3,470 lin. ft.	Freeway fence	.65	.60
5,600 lin. ft.	New property fence	.55	.50
30 ea.	Property fence gates (14-ft.)	70.00	60.00
2 ea.	Property fence walk gates (4-ft.)	40.00	35.00
170 lin. ft.	8 in. CMP (16 ga.)	2.00	2.35
230 lin. ft.	12 in. CMP (16 ga.)	3.00	3.20
352 lin. ft.	18 in. CMP (16 ga.)	4.00	4.25
1,198 lin. ft.	24 in. CMP (14 ga.)	6.00	6.00
408 lin. ft.	30 in. CMP (14 ga.)	7.00	7.50
232 lin. ft.	36 in. CMP (12 ga.)	11.00	12.00
382 lin. ft.	42 in. CMP (12 ga.)	13.50	15.00
188 lin. ft.	48 in. CMP (12 ga.)	15.50	17.00
174 lin. ft.	54 in. CMP (12 ga.)	20.00	20.00
234 lin. ft.	60 in. CMP (10 ga.)	27.00	28.00
102 lin. ft.	72 in. CMP (10 ga.)	31.50	33.00
96 lin. ft.	84 in. CMP (8 ga.)	43.00	44.00
8 ea.	Flared end sections for 18 in. metal pipe	34.00	30.00
23 ea.	Flared end sections for 24 in. metal pipe	58.00	45.00
2 ea.	Flared end sections for 30 in. metal pipe	85.00	68.00
1 ea.	Flared end sections for 36 in. metal pipe	136.00	111.00

3 ea.	Flared end sections for 42 in. metal pipe	210.00	175.00
926 lin. ft.	2 in. galv. steel pipe	2.00	1.25
447 lin. ft.	4 in. weld. steel pipe (dbl. dip & wrap.) (10 ga.)	4.00	3.00
210 lin. ft.	8 in. weld. steel pipe (dbl. dip & wrap) (10 ga.)	7.00	3.75
200 lin. ft.	18 in. weld. steel pipe (dbl. dip & wrap.) (10 ga.)	12.00	7.75
3,478 lin. ft.	8 in. perforated metal pipe underdrains	2.50	2.50
1,340 ton	Filter material	4.00	4.00
18 ea.	Entrance tapers for 8 in. downdrains	50.00	40.00
2 ea.	Downdrain slip joints	35.00	25.00
438 lin. ft.	8 in. CMP downdrain and vertical drains	3.00	3.00
16 ea.	Vertical drain slip joints	30.00	10.00
Lump sum	Finish roadway	6,000.00	7,500.00

HIGHWAY—Bridge and approaches in New Mex.

New Mexico—San Juan County—State. Imperial Paving Co. has received a $143,216 contract for Blanco bridge and approaches totaling .8 mile in length.

(1) Imperial Paving Co. $143,216
(2) Gardner Construction Co. 151,675
Allison & Haney, Inc. 197,413
J. H. Ryan & Son, Inc. 208,500

		(1)	(2)
Lump sum	Removal of old structures	$12,250.00	$10,000.00
48,825 cu. yd.	Excavation — unclassified	.65	1.10
2,575 M gal.	Watering	.50	.50
115 hr.	Rolling (tamping roller)	11.50	11.00
100 hr.	Rolling (pneumatic tired)	6.50	8.00
30 hr.	Rolling (steel tired)	14.00	10.00
140 hr.	Fifty (50) ton roller operation	12.50	15.00
145 hr.	Mechanical tamping	6.00	7.00
72,636 sta. yd.	Station yard overhaul	.02	.02
30,087 ¼ mi. yd.	Quarter mile yard haul	.06	.06
9,835 ton mi.	Ton mile haul	.10	.20
1 ea.	Cattle guard—24 ft. roadway	2,500.00	2,400.00
5,125 lin. ft.	Galv. barbed wire fence	.27	.30
5 ea.	Gates—Texas type	50.00	15.00
20 ea.	Bracing	25.00	12.00
24 ea.	Right of way markers	7.00	10.00
2 ea.	Stand. fed. aid project markers, type I	100.00	75.00
36 ea.	Treated tmbr. warn. posts, refl. (6 in. diam.)	6.50	8.00
7,415 ton	Controlled gradation sub-base	1.47	.90
2,420 ton	Base course	1.51	1.10

130 bbl.	Bituminous mat., type MC-1	8.75	10.
225 bbl.	Bit. mat., type 120-150	9.00	11.
495 ton	Cover material	5.00	6.
29 cu. yd.	Grouted rock retards	25.00	25.
44 lin. ft.	Culvert pipe—24 in. diam.	8.00	7.
290 cu. yd.	Excavation for riprap	2.00	5.
393.69 cu. yd.	Class "A" concrete-bridge superstructure	63.00	75
382.60 cu. yd.	Class "A" concrete-bridge substructure	65.00	80
133,417 lb.	Reinf. for concrete structures	.14	
299,415 lb.	Structural steel	.16	
960 lin. ft.	Metal bridge railing-steel	5.00	7
400 lin. ft.	Struc. steel piles in place	12.00	10
188 lin. ft.	Digging pile holes	4.00	10

HIGHWAY—5.3 mi. of highway and a concre bridge in Utah

Utah—Uintah and Duchesne Counties—State. Wheelwright Constru tion Co. has been awarded a $212,486 contract for putting a 2½-in. ro mixed bituminous surface on 5.3 mi. of road and constructing a concre bridge.

(1) Wheelwright Construction Co. $212,486
(2) Roberts & Anderson Construction 225,790
L. A. Young Construction Co. and Vernal Sand & Gravel Co. 231,739
W. W. Clyde & Co. 264,552

		(1)	(2)
697 ton	Bit. mat., type MC-3	$ 38.00	$ 40.0
123 ton	Bit. mat., type MC-1 or MC-2	38.00	40.0
80 ton	Bit. mat., type RC-4	40.00	45.0
184 gal.	Bit. additive (commercial grade)	2.25	2.5
925 ton	Cover material, type "A"	4.50	5.0
925 ton	Cover material, type "A" (in stockpile)	3.00	3.0
31,800 ton	Gravel surface, type "B"	1.00	1.0
23,100 ton	Gravel base course	.95	.9
5,331 mi.	Scarifying and mixing	800.00	900.0
4,000 cu. yd.	Unclassified roadway excavation	.50	.4
103,000 cu. yd.	Imported borrow	.30	.3
515,000 sta. yd.	Class "A" overhaul	.01	.0
79,000 yd. mi.	Class "B" overhaul	.12	.1
3,400 M gal.	Watering	1.00	1.0
1,190 hr.	Rolling, tamping roller	10.00	10.0
110 hr.	Rolling, pneumatic tire or power roller	7.00	8.0
100 hr.	Self propelled pneumatic tired roller	8.00	12.0
46 lin. ft.	15 in. C.M. pipe	3.35	3.7
790 lin. ft.	18 in. C.M. pipe	4.05	4.1
657 lin. ft.	24 in. C.M. pipe	6.20	6.2
53 lin. ft.	30 in. C.M. pipe	7.70	10.0
73 lin. ft.	C.M. pipe-arches, 22 in. x 13 in.	4.20	5.5
138 lin. ft.	C.M. pipe-arches, 29 in. x 18 in.	6.50	7.0
62 lin. ft.	C.M. pipe-arches, 36 in. x 22 in.	7.85	8.0
106 lin. ft.	C.M. pipe-arches, 50 in. x 31 in.	14.45	16.0
60 lin. ft.	C.M. pipe arches, 65 in. x 40 in.	19.60	21.0
7 cu. yd.	Concrete, class "A"	85.00	100.0
7 cu. yd.	Concrete, class "AA"	100.00	110.0
1,200 lb.	Reinforcing steel	.20	.1
600 cu. yd.	Exc. for structures, unclassified	2.00	2.5
900 cu. yd.	Small ditch excavation	.50	1.0
75 hr.	Mechanical tamping	6.00	7.0
216 lin. ft.	Deep beam highway guard rail (concrete posts)	4.25	5.0
96 ea.	Guide posts	6.50	7.5
2 ea.	F. A. P. markers	35.00	40.0
Lump sum	Furnishing water equipment	2,000.00	3,000.0
Lump sum	Furnishing construction signs	2,000.00	1,000.0
	(1) Concrete Bridge—63.04 ft. 0. to 0. Sta. 91+85		
250 cu. yd.	Exc. for structures, unclassified	5.00	4.0
239 cu. yd.	Concrete class "A"	75.00	74.0
49,400 lb.	Reinforcing steel	.15	.1
Lump sum	Rem. of existing structure	300.00	1,000.0

MANUFACTURERS

(Continued from page 130)

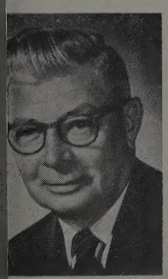
ales techniques polished up at nnual meeting

More than thirty Standard Steel orp. road machinery dealers and istributors recently met in Palm prings, Calif., for their annual t-together. New sales techniques ere discussed and a refresher urse in asphalt plant design and nstruction was given. In address- ng the meeting, M. B. Preeman, ce president, said that in the pre- ous four months Standard sold ore asphalt plants than in any ior four-month period in its his- ry and anticipate a continuing mand for their product.

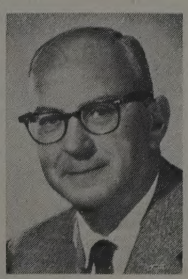
ersonnel changes in Goodyear's estern region

Clarence W. Thorp, Goodyear ire & Rubber Co. Western region anager since 1947, has been trans- rred to Akron as marketing man- er of the Tire Division. He has en succeeded by Carl Crafts, for e past five years manager of the s Angeles district. Elmer C. Hei- man, who had been Southern alifornia district manager, suc- eds Crafts. Bernard L. Lockridge om Kansas City, Mo., succeeds eideman.

Goodyear's Western sales region res) was recently reorganized to clude two new districts, with adquarters in El Paso, Tex., and Billings, Mont. R. N. "Nick" oore was named to manage the



Thorp



Crafts

Paso district which will serve ew Mexico, plus territory former- handled by the Phoenix district. . T. "Tom" Laughlin became anager of the Billings district, an ea formerly served by the Spo- ne, Wash., district. Moore has en with Goodyear for more than years, recently as assistant dis- ct manager-wholesale in San rancisco. Laughlin joined the mpany in 1943 and since last year had been manager at Spokane, where he is now succeeded by L. B. Freyer.

Clem Kiener named asst. sales mgr.

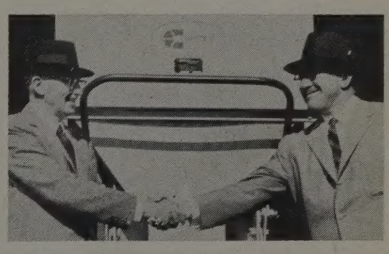
Clem A. Kiener, regional sales manager, Columbus, Ohio, has been named assistant general sales manager at the Hopkins, Minn., general offices of Minneapolis-Moline, reporting to Matt Carroll, general sales manager.

B-L-H service engineers up-to-date on LIMA models

A three-day conclave with twenty-two service engineers of Baldwin-Lima-Hamilton Corp., Construction Equipment Division, in attendance recently convened at the Lima Works Plant for an intensified parts and service school. The meeting was devoted to visual-aid material, demonstrations and discussions concerning the servicing and maintenance of LIMA shovels, cranes, draglines and vibratory compactors, including new design changes and new models.

DePolis named LeT-WesCo vice president of marketing

Louis A. DePolis has been named vice president in charge of marketing for LeTourneau-Westinghouse Co., Peoria, Ill. DePolis comes to LeT-WesCo from the Industrial Truck Division of Clark Equipment Co. where he had served as director of sales since 1953.



FRANK M. HOUSE (left), president of H. S. Watson Co., Emeryville, Calif., shakes hands with *Robert T. Nonken*, vice president—sales for Creative Metals Co., Emeryville, upon the occasion of Watson's taking over national sales for CMETCO construction equipment. The Watson-Cmetco sales program will be headed by *Richard S. Pershing*, Watson vice president and general manager.

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