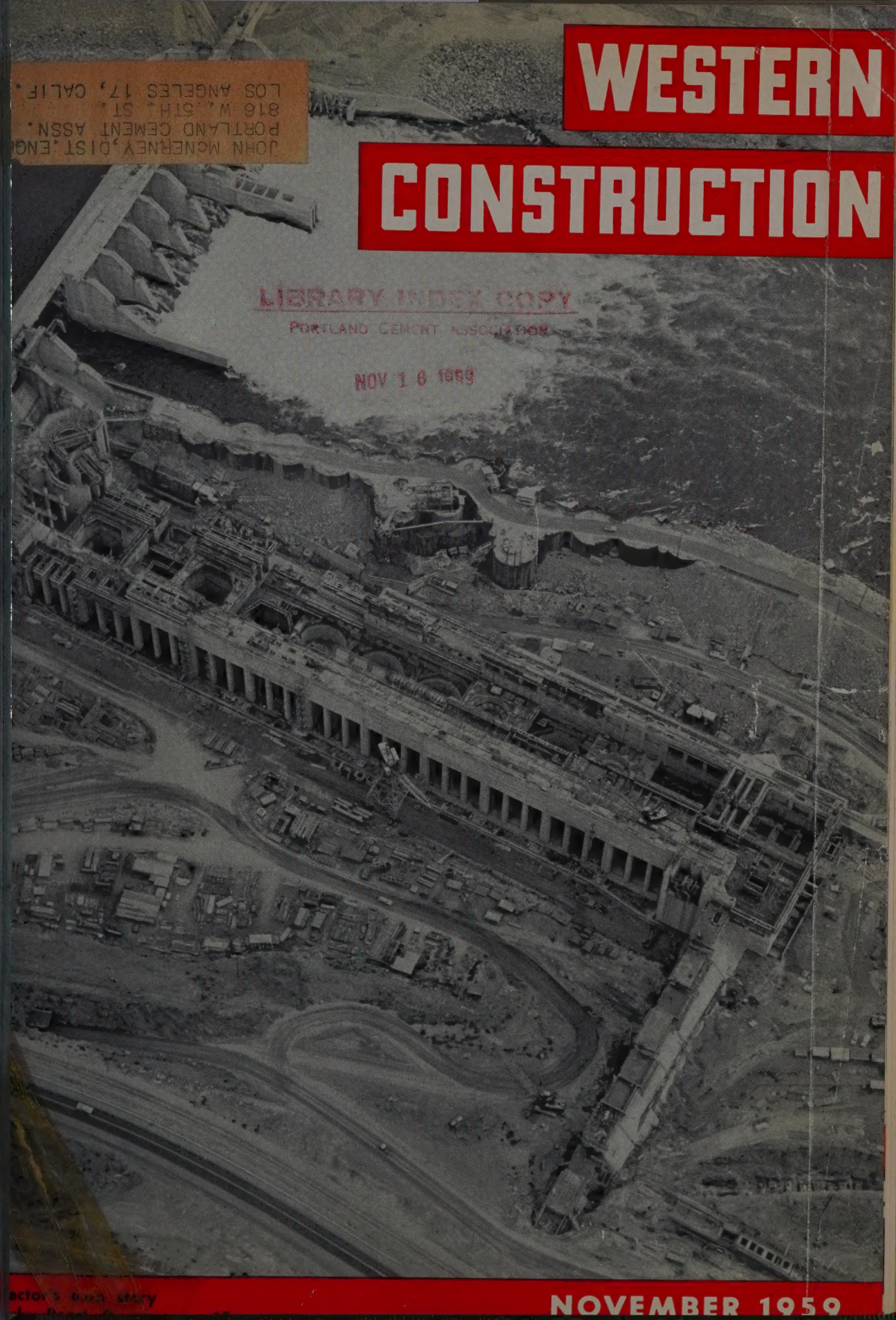
WESTERN CONSTRUCTION



actor's own story

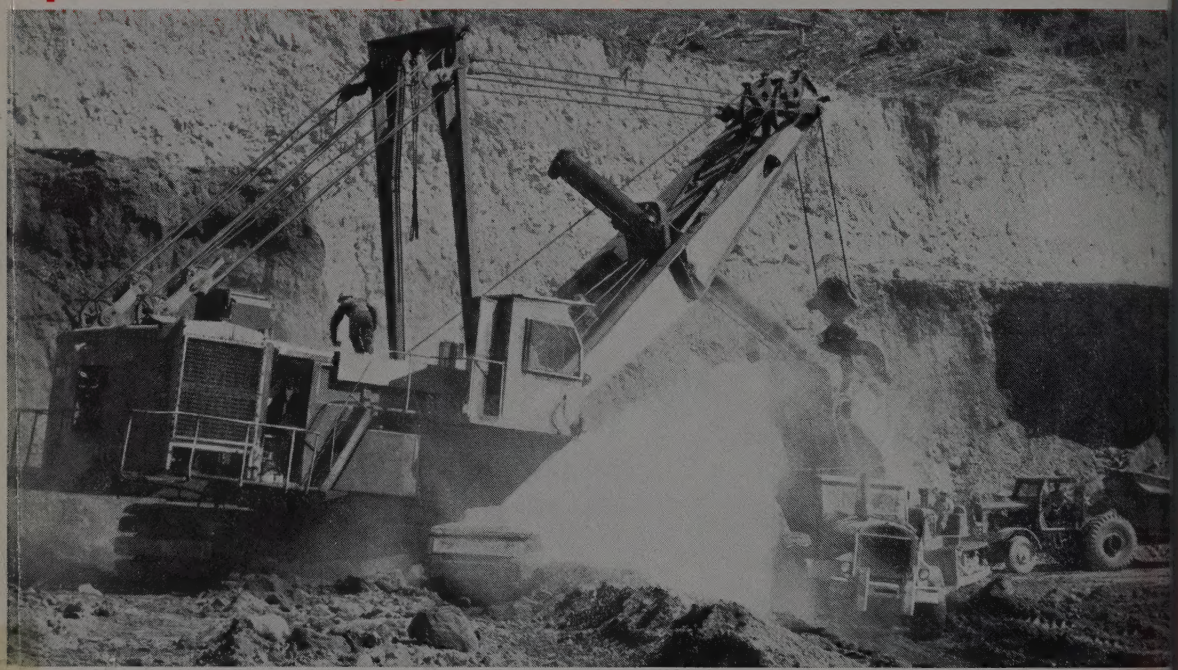
NOVEMBER 1959

ENGINEER'S FIELD REPORT

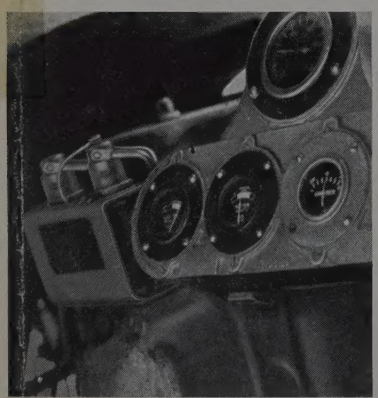
PRODUCT: CHEVRON PRESSURE PRIMER SYSTEM

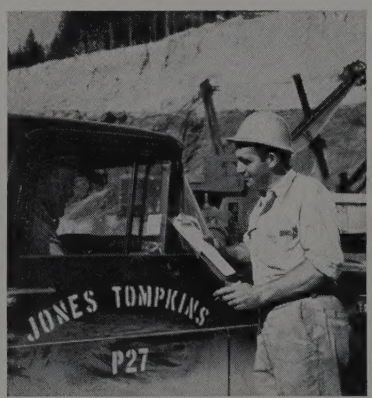
FIRM: JONES-TOMKINS CO
Cougar, Washington

Special cartridge fires giant diesel in seconds



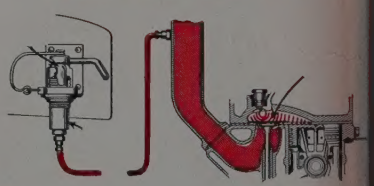
At world's highest earth-filled dam construction site near Woodland, Washington, three giant diesel shovels get immediate starts from Chevron Pressure Primer System, reports Jones-Tomkins, general contractors. System helps speed shovel's fill-borrowing operations for this $51,000,000 project. Five-year-old 4500 Manitowoc Speed Crane (above) powered by Caterpillar 350 h.p. V-12 D397 engine operates 18 hours a day, six days a week, loading 21-yard dump trucks in just 70 seconds. Jones-Tomkins uses Standard fuels and lubricants exclusively on this job.





Chevron Pressure Primer Discharger mounted on instrument panel (left) operates satisfactorily despite heavy vibration, reports shovel foreman Henry Watson (right). "We've had absolutely no trouble with this system. The Chevron Pressure Primer System eliminates dust clogging and allows fluid to reach the cylinders quickly. It's the practical way we've found to get these rigs going."

Why Chevron Pressure Primer System assures fast starts



- Volatile Chevron Priming Fuel atomizes in induction system at all temperatures even at –65°F; no hand-pumping required.
- Pressure or weakest spark fires engine fires mixture.
- Simple rugged air-tight discharger prevents Priming Fuel leakage.
- Small, fireproof, pressurized steel cartridges protect Priming Fuel from water and dirt.

For More Information on the name of your nearest distributor, write or call any of the companies listed

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unds like double-talk, but it's so! Precast wall sections were loped for fast erection, and a Northwest Truck Crane brings speed and control that reduces the time required for placement ie minimum.

the Feather-Touch Clutch Control that brings the true feel of the the smooth jerk-free swing of Uniform Pressure Swing Clutches, er Load Lowering that permits inching the load down against the e along with many other advantages and the Northwest Independent Speed Boom Hoist, you have a combination that makes possible andling of heavy loads in wall erection, or on any other crane , with a speed and accuracy not found in the ordinary Truck e Equipment.

job is in Reno, Nevada. The Northwest is a Model 41, 35-ton k Crane — one of the over 40 Northwests that the Isbell truction Co. of Reno has bought.

out of every three Northwests sold is a repeat order in the s of a successful contractor. This is a condition that has ed for years and can only be the result of a high degree achine performance and low maintainance costs.

nwests are doing the kind of job you want. Let us tell more about the latest Northwest developments. for details on the size machine you need.

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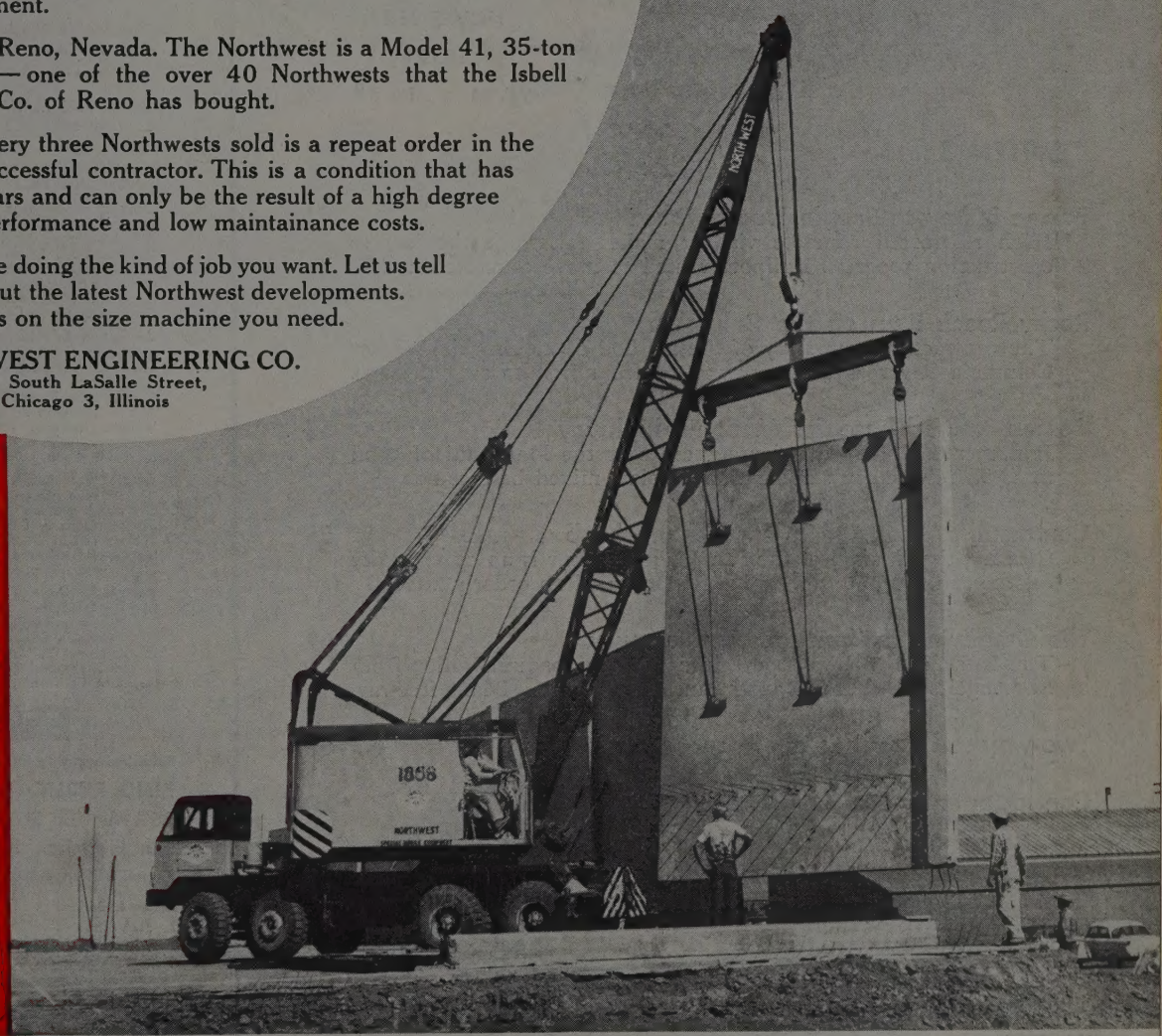

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WESTERN CONSTRUCTION

NOVEMBER
1959
Vol. 34 No. 11

CONTENTS

COVER — Recent view of Rocky Reach project with the river turned through the completed section on the east bank while the powerhouse section is underway behind the Stage 2 cofferdam. The sequence developed by the contractor for handling the Columbia River is reviewed in detail, starting on page 45.

Published monthly by
KING PUBLICATIONS
609 Mission Street
San Francisco 5, California
Phone: YUkon 2-4343

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★

Subscription rate is $10.00 per year; $12.50 in foreign countries. Cost per single copy is $1.00. Cost per single copy of Construction Equipment Directory, published each January, is $5.00. Every regular qualified recipient of Western Construction receives a copy of the Construction Equipment Directory bound into the January issue.

Accepted as Controlled Circulation, publication at Portland, Oregon. Postmaster: Please send Notice 3579 to Western Construction, 609 Mission Street, San Francisco 5, California.

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For 33 years serving the construction needs of the Western States

Spotty, as a digger, you just ain't got it!"

Without realizing it, Billy has hit upon a basic truth in the excavating business. To come out on top, you've got to use the best equipment for the job.

With many factors beyond a contractor's control, choosing the right equipment becomes especially important. For this is one thing a man *can* control.

That's why so many contractors choose Bucyrus-Erie. They have learned . . . as their fathers did before them . . . that B-E machines are built for more than ordinary digging. They are built to handle the toughest jobs — and still perform better.

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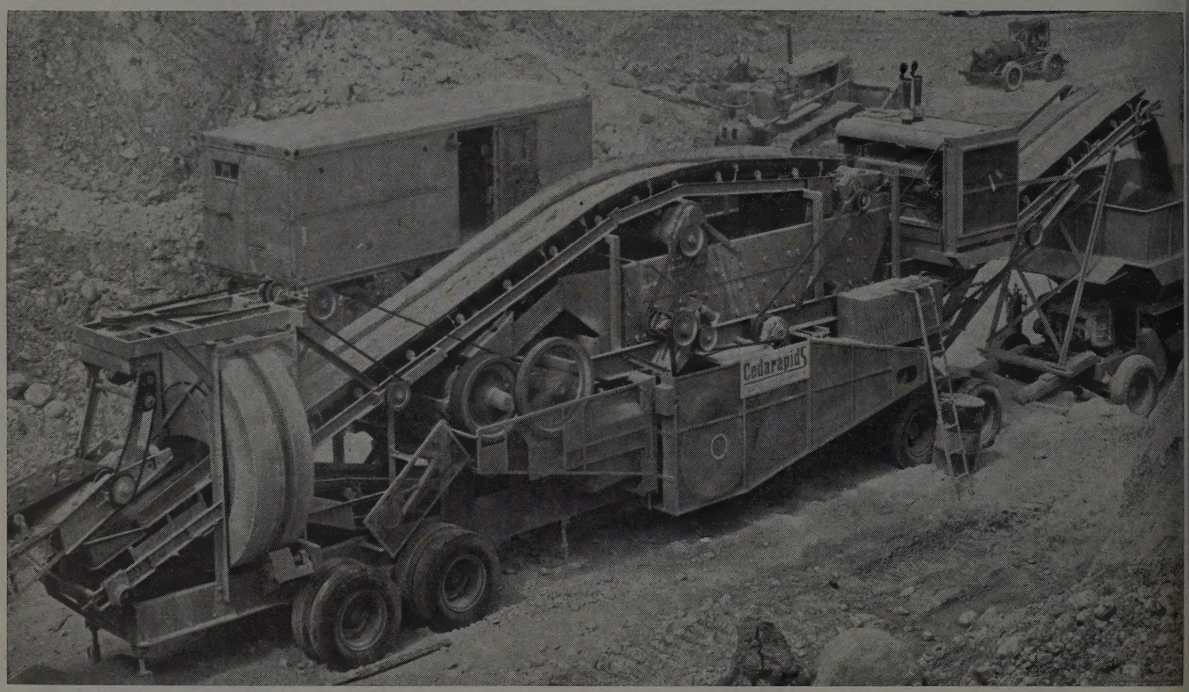
Obtain more information on these new developments in construction equipment by circling the corresponding numbers on reply postcard.



Cedarapids plant with increased capacity

Increase in capacity by enlarging several features, including a 12 x 36-in. twin-jaw crusher, changes this plant's name to "Super Commander"

By enlarging many of its component parts, **Iowa Manufacturing Co.** has stepped up the capacity of its Commander Plant to 500 tons per hour and named it the Super Commander. After extensive field testing, this new Cedarapids Tandem Crushing and Screening Plant is now available. General design characteristics follow those of the successful Commander Plant.

The most important change in plant elements is the introduction of a 12 x 36-in. twin jaw crusher which steps up the primary crushing capacity from 40% to as much as 100%. This Super Commander has a 48-in. x 14-ft. horizontal triple deck vibrating screen that provides about 40% more screening capacity. Also, the elevating return wheel is 12 in. larger in diameter and 5 in. wider, while the conveyors are 36 in., or 6 in. wider to enable the plant to handle the greater load under circulation.

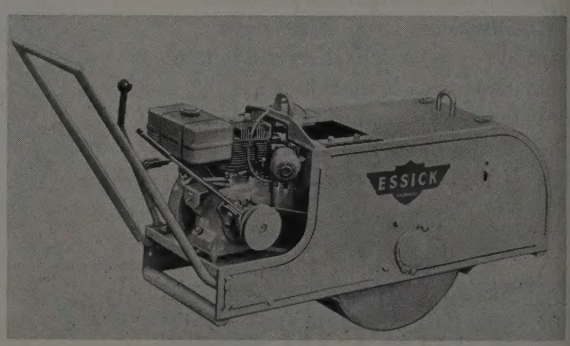
This increase in capacity does not sacrifice portability. When required by highway loading restrictions, the plant can be fitted with a third air-suspension axle that will carry a load equal to the tandem axles and reduce axle load to less than 18,000 lb. With the feeder and hopper removed, weight on each of the three axles is under 16,000 lb.

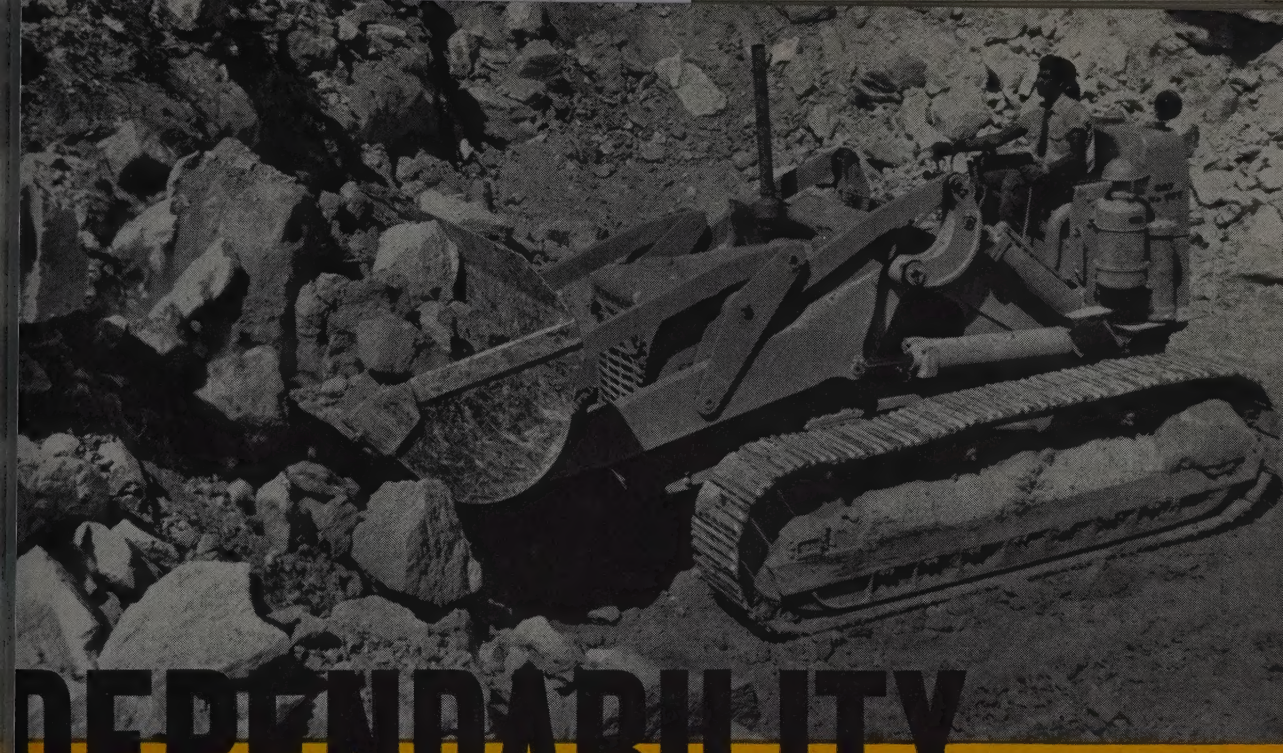
The plant can be fed either by a plant-mounted feeder and hopper, or by a ground level feeder and hopper driven by a swivel drive. Drives have been simplified and an optional 48-in. x 10-ft. pre-screening attachment allows the plant to produce 100% crushed material. The unit is also fitted with a spray bar washing attachment (optional) and a 12-in. x 4½-ft. sand ejector screw handles either wet or dry sand.

. . . Circle No. 150

13-inch vibrating roller

Fast compaction of backfill material in narrow trenches and other confined areas is now possible with the new VR-13-W vibrating compactor announced by **Essick Mfg. Co.** The roller on this unit is only 13 in. wide. The self-propelled high frequency vibrating compactor delivers compaction ef-





DEPENDABILITY

IN A TRAXCAVATOR

WHATEVER THE JOB . . . whatever the conditions . . . there's a Caterpillar-built Traxcavator to take charge. Advance design has given this machine a reputation for speed . . . efficiency . . . low operating and maintenance costs. For this is a digging and loading tool; not a tractor attachment.

The line is complete. You get top production from three Traxcavators . . . the No. 933—52 HP, 1⅛ cu. yd. bucket; the No. 955—70 HP, 1½ cu. yd. bucket; the No. 977—100 HP, 2¼ cu. yd. bucket. And there's a complete range of quick-change attachments . . . special buckets, bulldozers, forks, the exclusive side dump bucket and the rear-mounted ripper.

Traxcavators are built to last. They have a heavy steel main frame, welded into a one-piece unit. Box construction track roller frame absorbs the loads and stresses of tough treatment. Lift arms are made to stand up under the strain of heaviest digging conditions.

Traxcavators give you fast action and ease of operation. Excellent stability and balance give better control of the machine. A fast hydraulic system cuts cycle time and increases maneuverability even in close quarters. Visibility is excellent. The high seat puts the operator on "top" of the work. Operator's compartment is uncluttered. Tractor controls are conveniently located for handling ease. Bucket controls are at the right armrest . . . closely spaced for dual operation with one hand.

The reliable Caterpillar Diesel Engine has a fuel-saving injection system and ability for hard lugging. Each engine is matched to the machine for power and bucket size.

All of these features pay off in top production. Let your Caterpillar Dealer help you choose the Traxcavator best suited for your job. Get production facts and figures. And ask for a demonstration.

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

CATERPILLAR

BOOST PRODUCTION AND LOWER COSTS WITH A VERSATILE TRAXCAVATOR

fort equivalent to a 16-ton static weight roller. Powered by a 4.8-hp. air-cooled engine and equipped with a separate clutch to allow operation with or without the vibrating mechanism engaged, the VR-13-W propels itself at up to 1-mile per hour in either forward or reverse. Overall dimensions of the unit are 16½ in. wide, 73 in. long and 37 in. high. It weighs 630 lb. For asphalt use the machine can be ordered with a sprinkler tank, spray bars and cocoa mat. The new unit is the smallest of the Essick line of vibrating rollers and is designed for both asphalt and soil compaction in confined areas or inaccessible spots.

. . . Circle No. 151

World's largest paver

A half-mile of highway, 24 ft. wide and 9 in. deep, can be mixed and poured by the new Koehring 34-E Tribatch paver, the largest paver ever built. The new machine announced by **Koehring Co.** produces better than 40% more concrete than the largest pavers now in use, pouring about 250 lineal feet of standard 2-lane highway every hour. It uses a 3-compartment

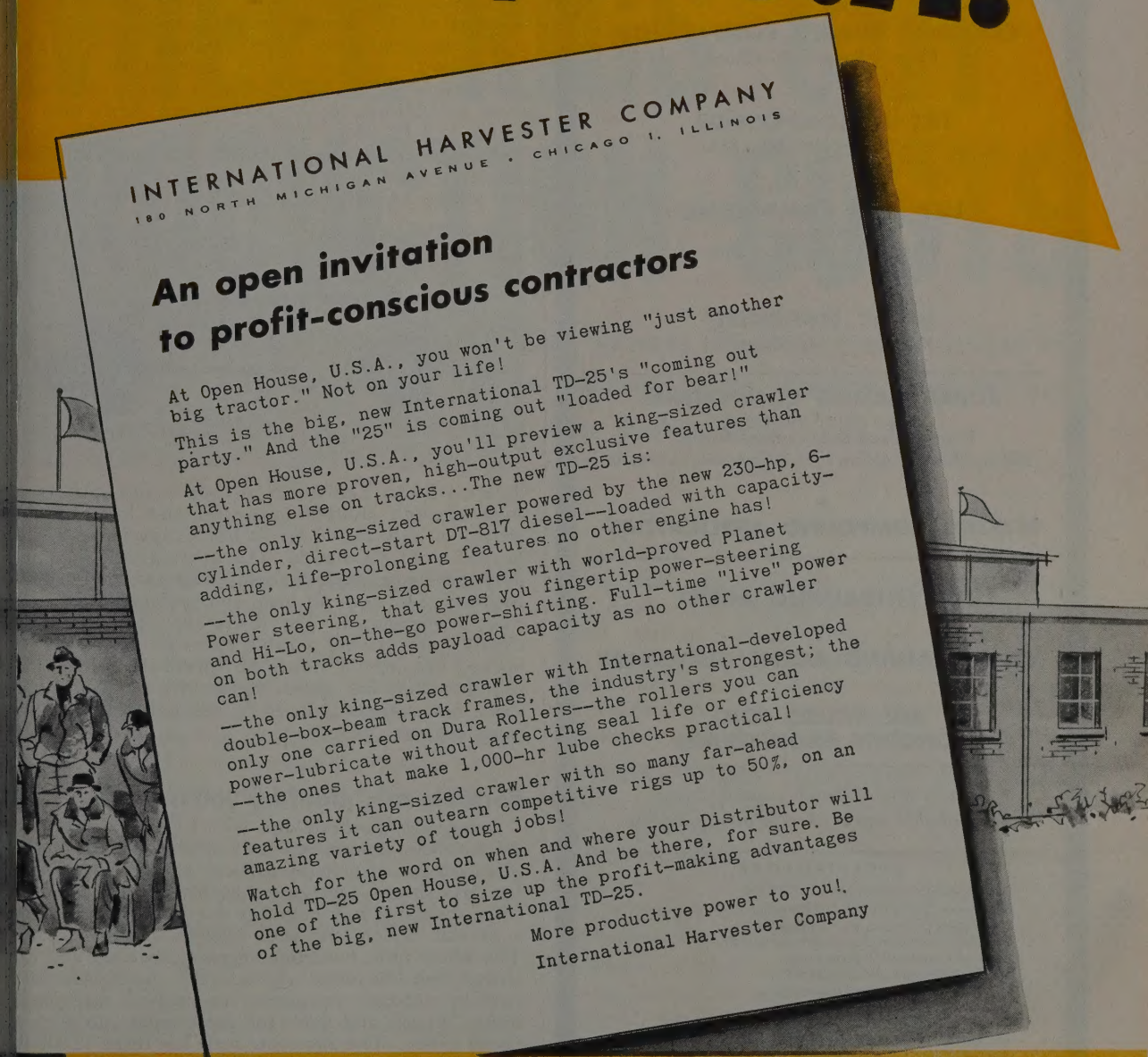
drum and has a cycle time of 29 sec. The big paver features an electric automatic control of all mixing cycle functions including raising the skip, introduction of water and operations of the transfer clutches and discharge chute. The machine is also equipped with a new pressure injection water system which meters the water accurately and cuts the time required to introduce it into the mixing drum.

. . . Circle No. 152

3-wheel roller has power steering

A 3-wheel roller with automotive type power steering is manufactured by the **Browning Mfg. Co.** in weight ranges of 6 to 8, 8 to 10 and 10 to 12 tons. Among the features of this line of steel wheeled rollers is steering wheel steering, a wide operator's platform

HOUSE, U.S.A.



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An open invitation to profit-conscious contractors

At Open House, U.S.A., you won't be viewing "just another big tractor." Not on your life!

This is the big, new International TD-25's "coming out party." And the "25" is coming out "loaded for bear!"

At Open House, U.S.A., you'll preview a king-sized crawler that has more proven, high-output exclusive features than anything else on tracks...The new TD-25 is:

--the only king-sized crawler powered by the new 230-hp, 6-cylinder, direct-start DT-817 diesel--loaded with capacity-adding, life-prolonging features no other engine has!

--the only king-sized crawler with world-proved Planet Power steering, that gives you fingertip power-steering and Hi-Lo, on-the-go power-shifting. Full-time "live" power on both tracks adds payload capacity as no other crawler can!

--the only king-sized crawler with International-developed double-box-beam track frames, the industry's strongest; the only one carried on Dura Rollers--the rollers you can power-lubricate without affecting seal life or efficiency --the ones that make 1,000-hr lube checks practical!

--the only king-sized crawler with so many far-ahead features it can outearn competitive rigs up to 50%, on an amazing variety of tough jobs!

Watch for the word on when and where your Distributor will hold TD-25 Open House, U.S.A. And be there, for sure. Be one of the first to size up the profit-making advantages of the big, new International TD-25.

More productive power to you!

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Sacramento

STEVENSON Equipment Co., Inc.
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BROWN-BEVIS INDUSTRIAL Equipment Co., Los Angeles

HANSON Equipment Company
Santa Maria

KERN COUNTY Equipment Co., Inc.
Bakersfield

MAULHARDT Equipment Co., Oxnard

GEO. M. BELL & SON
El Centro

SOUTHERN Equipment & Supply Co.
San Diego

WASHINGTON

CARRINGTON Company
Anchorage, Fairbanks, Alaska; Seattle, Washington

HOWARD COOPER Corporation, Seattle

MODERN MACHINERY Company, Spokane

OREGON

HOWARD COOPER Corporation
Central Point, Coquille, Roseburg, Portland, Eugene

PENDLETON Grain Growers, Inc.
Pendleton

IDAHO

LANG Construction Equipment Co.
Idaho Falls

UTAH

LANG Construction Equipment Co.
Salt Lake City

WYOMING

KEREMI Tractor & Equipment Co.
Cheyenne and Casper

NEVADA

CLARK COUNTY Wholesale Merc. Co.
Las Vegas

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Reno

MONTANA

INDUSTRIAL Equipment Company
Billings

POWER Equipment Co.
Great Falls

NEW MEXICO

J. D. COGGINS Company
Albuquerque, Farmington

COLORADO

H. W. MOORE Equipment Co.
Denver, Grand Junction Durango

ARIZONA

COPPER STATE Tractor Co.
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Tucson

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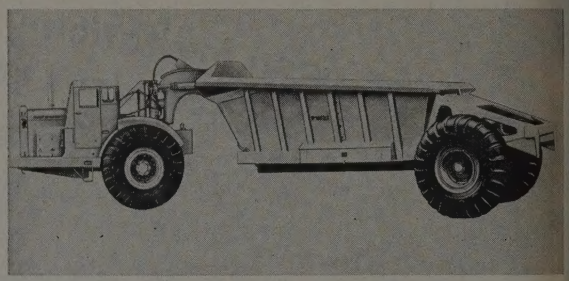
with safety guard rail and well grouped controls and instruments. The BMCO rollers are equipped with torque converter Revers-O-Matic drive. They have multiple speeds, anti-friction bearings throughout; and easy accessibility to all components. Low silhouette offers the greatest operator visibility possible.

. . . Circle No. 153

Bottom dump features quick discharge

Fast dumping, high clearance and big payloads are features of the new 35-ton capacity, bottom-dump trailer announced by **Athey Products Corp.** Designated PW21, the new unit is designed for use with the Caterpillar DW 21 tractor. It has a third rear door in addition to the two bottom doors each of which is 3 ft. wide. The third door, together with steep side plate angles and a high 5-ft. rear clearance, permits the PW 21 to dump instantly with no hang-up and allows the unit to ride out over, not through, the



dumped load. The trailer is constructed entirely of high strength (100,000 psi) steel and has a trailer weight of only 21,700 lb. It has a capacity of 27 yd. heaped or 23 yd. struck. The hydraulically actuated door mechanism includes door locks which relieve the hydraulic system of all load, and spillage on the haul road is eliminated. The doors are closed by a hydraulic ram driving a cable take-up. Doors can be opened instantly or slowly for spread dumping. The complete unit has speeds up to 27.9 mph. and will make non-stop turns in 40 ft. which is less than the complete unit's length. *. . . Circle No. 154*

Portable mix plant by Johnson

Completely portable and with high capacity, **C. S. Johnson Co.** announces the "Gopher". This complete plant consists of a 40-ton capacity storage bin divided for three sizes of aggregate, a 6-yd. weigh batcher with 24-in. discharge belt bolted to the hopper frame, and a 285-bbl. cement silo with 4,000-lb. cement batcher. The whole unit, including aggregate batcher and discharge belt, includes wheels, axles, and pneumatic tires as standard equipment to provide easy portability. Wheels and axles for the cement silo are optional extras. The aggregate scale has three 12,000-lb. weigh beams. The discharge belt is powered by a 7½-hp. electric motor. The silo, which is 8 ft. in diameter, has a built-in elevator powered by a 5-hp. electric motor with a capacity of 180 bbl. per hour. Standard equipment for the plant includes a 2-in. automatic water meter, a 24-ft. compressor, electric panel board with master switches and starter. *. . . Circle No. 155*

(Turn to page 120 for more New Equipment. New Literature can be found on page 116.)

BIG NEW CAT WHEEL RIGS CUT PRODUCTION COSTS

ou name the job...these new Cat Wheel Tractors and matching OWBOWL Scrapers can do it better with faster cycles and eater production, at lower cost. For example:

/20-DW21 Series G Tractors and matching LOWBOWL apers Now these big wheel tractors develop 345 HP n increase of 8% over former units. Both tractors e 12% more rimpull than before—the DW20 de- ops 39,565 lb. (maximum) rimpull, and the DW21 49,100 lb. (maximum) rimpull. As a result, the rigs travel faster (up to 20%) under similar haul d conditions. To accommodate this greater power l capacity, improvements have also been made in nsmission and final drive.

Matching the increased horsepower and productivity he Series G Wheel Tractors are the new No. 456 and 470 Series B LOWBOWL Scrapers. Rating is in- ased 8% to 19.5 cu. yd. struck and 27 cu. yd. heaped. ating on the No. 482 is 24 cu. yd. struck and 34 yd. heaped.) Bowl, draft frame and apron are ngthened for greater resistance to tough materials l rugged loading—withstand higher loading stresses.

619 Series B Wheel Tractor and No. 442 Series B WBOWL Scraper Here is the latest addition to the erpillar line of high-speed earthmoving equipment. s brand-new earthmover is a 14 cu. yd. struck (18 yd. heaped) unit featuring ground-hugging road- lity, "years ahead" service-accessibility, and high ductivity. The No. 619 has a turbocharged 225 HP engine (and high torque rise), planetary final drives, unit construction, tubeless tires, a swing-away dash, 2-jack steering, and a dry-type air cleaner, providing the design and performance features that insure superior workability on a broad range of applications. All this in the new No. 619-No. 442 unit—plus proved economy over any earthmover of comparable size.

DW15 Series F Wheel Tractor and No. 428 LOWBOWL Scraper Greater strength and productivity in the well-known four-wheel DW15-No. 428. Bevel gear and pinion, differential and front wheel spindles offer increased service life. Machine delivers 200 HP. The big LOWBOWL Scraper handles 13 cu. yd. struck, 18 cu. yd. heaped. Can be unhitched to haul other units.

Plan your work around these new Cat Wheel Rigs for top production at lowest cost: The DW20-DW21 Series G, the new No. 619 and the DW15 Series F. The complete facts are at your Caterpillar Dealer. Call him today for a demonstration.

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

CATERPILLAR

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BORN OF RESEARCH
PROVED IN THE FIELD

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The WEST from WASHINGTON

By E. E. HALMOS, JR., Washington, D. C.

Legal matters of major importance to Western construction, as well as to the industry on a national basis, were a prominent part of the lengthy docket that faced the U. S. Supreme Court as it opened its fall term this month.

Possibly of greatest importance was a case involving the status of engineering employees of a Los Angeles consulting firm. A number of other cases concerned water rights, taxation of construction operations.

The question of engineer status centered around the contention of a group of engineering employees that, since they were paid on an hourly basis, they are entitled to overtime pay. Their employer has argued that the men were engaged in "engineering, creative and supervisory" work, and that therefore they are exempt from overtime pay provisions, regardless of the basis of their actual compensation.

The matter involves ten former employees of Far West Engineering Co. of Los Angeles—a firm which does consulting work in mechanical, electrical and atomic energy fields. The company contended in lower courts that the ten men employed were all graduate engineers, and all did work involving use of their professional skills and supervisory abilities. It said that the average $3.75 an hour wage paid to the men was in the nature of a "guarantee," rather than a maximum salary. Nevertheless, lower courts decided that the employees were being paid on hourly rates, and therefore were entitled to overtime pay, regardless of how the employer chose to consider their talents were utilized. In a circuit court decision, the ten were awarded overtime and other payments ranging up to $3,000 for one of the group.

Water right cases before the court include: a suit by the state of Nebraska, seeking an injunction against Colorado and Wyoming in order to protect rights to waters of the North Platte River; a suit by Arizona against California seeking to obtain "quiet title" to certain waters of the Colorado River (Arizona argues that California agreed to limiting its "take" from the river to 4.4 million ac.-ft. annually, but has approved contracts for annual delivery of 5.6 ac. ft.).

And other matters include:

A suit brought by the U. S. Department of Labor against the H. B. Zachry Construction Co., where Labor contends that construction men working on a dam near Corpus Christi, Tex., were in fact "engaged in production of goods for commerce" and thus came under the Fair Labor Standards Act. The company was successful in a lower court in its contention that construction work of this type is not covered by the act.

* * *

Other cases before the high court—not originating directly from the Western states, but of prime interest to them—include a series of actions by Indian tribes against the Power Authority of New York State and the Federal Power Commission over taking of tribal lands for reservoirs and other purposes involved in the development of St. Lawrence River hydropower.

Lower courts have upheld the Indians' contention that they hold their lands by direct treaty with the U. S. Government, and these lands cannot be taken from them by action of a Federal commission. FPC contends that, when Congress authorized the power development, it thereby gave FPC the right to take the land.

The status of materials—for state tax purposes—shipped and stored for future use on a construction project—is the crux of a case referred from Kansas courts. In this matter, the Kansas Supreme Court upheld the right of the state to tax the "use, storage and consumption" of tangible property which consisted of prefabricated house sections, before these sections were actually included in any house. The builder took the matter to the high court on the ground that the prefabricated sections were "in continuous interstate journeys," until they were actually incorporated in a house.

* * *

One labor case, involving a Seattle construction firm and a Carpenter Union local, concerns something that would be academic under the new labor law.

Disputants are Cisco Construction Co. and Carpenters Union Local 131. The U. S. Court of Appeals had upheld a judgment of $75,000 against the union for damages suffered by Cisco through secondary-boycott activities. In appealing the case, union attorneys contend that Cisco's premises were "lawfully" picketed, and that secondary boycott activities away from the premises do not "taint" the validity of the on-site picketing, thus the union shouldn't be liable for damages.

* * *

In looking for future business trends, keep a close eye on the water-pollution control bill (HR 3610) that came within a whisker of getting through Congress this past session, and will certainly go through when the lawmakers reconvene in January. (You'll recall that the bill, providing for an increase in grants-in-aid for sewage disposal plant construction, got through the House and also passed the Senate, but didn't get to conference because the session ended. It's among the first items for consideration next year.)

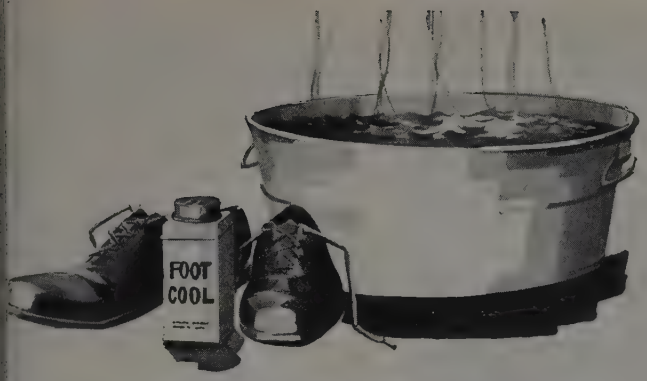
The money involved is a deceptive figure: The House version provides grants of $100 million a year, the Senate, $80 million.

But the Department of Health, Education and Welfare figures that you can multiply the Federal contribution by four, in order to get a true figure of how much construction the program generates. The Federal contribution can't exceed 30% of the total costs involved.

Thus, a total of $131 million in Federal funds had been committed on the program (as of June 30) in the three years that the existing $50-million-a-year program has been running. But actual expenditures, so far, for construction and equipment run to an estimated $685.2 million. When you know that that total covers 1,583 projects, you can figure how much goes into local construction hands. And the HEW figures that there's a backlog of something like $1.75 billion worth of this work—over the next 8 years—if the U. S. is to catch up with its current needs.

Western states' share of this huge market, so far, has been sizeable, and their plans for future work are sizeable too. For instance, HEW figures show that as of June 30 here was the picture in the 11 Western areas:

Approved projects—290, for a to



HOW ARMCO SERVES YOU

SALESMAN WITH SORE FEET

Would you walk an entire highway construction job—13 miles as the crow flies, through the rugged terrain pictured in this page—just as a favor to a contractor? Well, we know an Armco Sales Engineer who did.

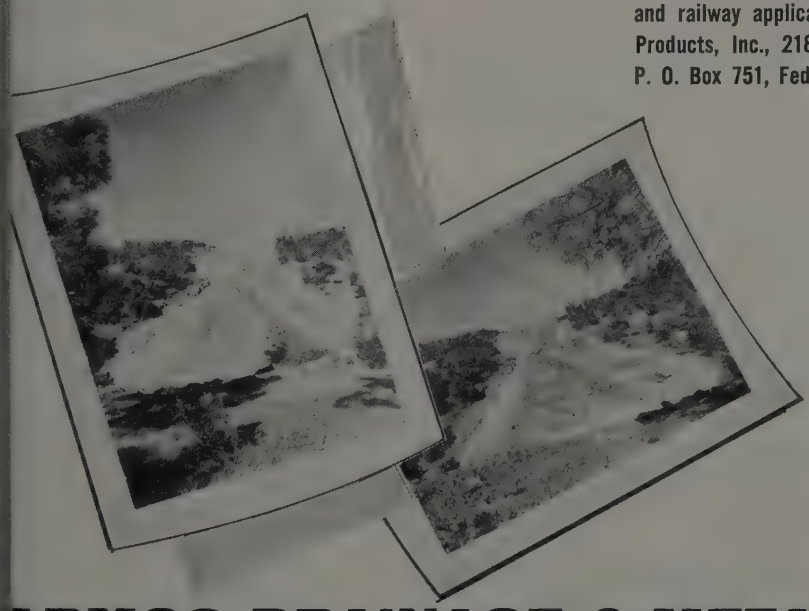
It happened this way. Phone rang in an Armco office, and the Sales Engineer who answered heard: "Hey, Joe, you know that 13-mile stretch of highway that's up for bidding? Well, I'm going to bid on it, but I need some help. With all that rough ground, there are sure to be a lot of problems. And I would like to have someone along who would be able to make recommendations. What do you say—will you go along with me?"

Before the conversation ended, the Armco man told the contractor, "Yes, I'll help you out." And he did.

Two facts are emphasized by this true story. One . . . the contractor respected the Armco Engineer's ability. Two . . . an Armco Sales Engineer is ready to assist whenever possible. This contractor was one of many entering a bid on the job and there was no assurance of an order.

Cross-country hiking certainly isn't the strong point of the typical Armco Sales Engineer, but we're sure you will find him well qualified and willing to help solve your drainage and engineering construction problems. Why not give him a try?

For technical details on Armco Corrugated Metal Drainage Structures and other construction for highway, industrial, municipal and railway applications—write us. Armco Drainage & Metal Products, Inc., 2180 Milvia Street, Berkeley 4, California or P. O. Box 751, Federal Station, Portland 7, Oregon.



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tal estimated cost of $105.8 million; projects under construction—100, for a total cost of $48.05 million; projects completed—131, for a total cost of $37.3 million. Not surprisingly, the states with the biggest number of projects approved, under construction and completed were Texas and California, with (surprisingly) Wyoming next in line. By far the largest number of projects are in communities of less than 7,000 population.

There is no doubt that HR 3610 will get through the next session quickly—though there's considerable doubt that President Eisenhower will sign any bill that raises existing expenditures. (Administration spokesmen fought the bill this year, on the ground that the Federal government ought to get out of the sewage works business, leave the problem to the states.)

* * *

Don't be misled by the somewhat inflated reports coming out of Washington about investigations into the highway program by two House committees. Here's the situation:

Both the House Ways and Means and Public Works committees have named special subcommittees to look into the highway program. Ways and Means won't make any investigation—there's a question of jurisdiction, and anyway, this tax-writing group has scheduled so many hearings on taxes, small business problems, and the like that it is happily leaving the probe to Public Works.

The Public Works subcommittee is headed by Minnesota's John A. Blatnik (an old public-works advocate, who, incidentally, is author of the sewage-works aid bill) and he says he's interested in showing how well the program is being carried out (for its size and scope) rather than in scandal.

However, note that Blatnik is building a staff of ex-FBI men. And 1960 will be a political year. So you can expect a close look for irregularities that can be publicized.

Western skirts seem to be pretty clean in this matter. So far, the only real scandals (most of them at state levels) that have turned up in the highway program have been in the Midwest and East.

* * *

Though Congress is out of session for the next two months, it's a long way from being out of busi

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Look at the plant shown. Note the clean, rugged, unit-type construction. Basic design provides a drive-through-way in either of two directions, with a choice of location for cement silo and feed conveyor. The mixed material hopper is located in the center of this drive-through-area. Material feed can be brought to the mixer from either side or the end. The twin-shaft, continuous-type pugmill mixer is designed for producing 600 tons per hour of stabilized mix. A unique push-pull gate controls the mixing pressure by maintaining a constant depth of material in the mixer. Main mixer drive may be electric or diesel, with electric motor on cement feeding.

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ness.

For Westerners, probably most significant continuing activity is that of the Senate's Select Committee on National Water Resources, which has been holding preliminary hearings around the country all through the fall, with a final Western swing this month. Meetings will be held at Wichita, Kans., Nov. 18; Des Moines, Ia., Nov. 19; Santa Fe, N. M., Nov. 20, and Salt Lake City, Nov. 23. Other sessions have already been held at Bismarck, Laramie, Billings, Boise, Los Angeles and Sacramento. And further hearings will be held in Washington in the spring.

You may remember that the committee was set up this spring, under chairmanship of Oklahoma's Bob Kerr, to look into the needs for a consolidated water policy for the nation, and consolidation of responsibility for water legislation in the Senate itself (four committees now handle water matters). Membership includes representatives of the entire Western Congressional delegation: Chavez of New Mexico; Magnuson and Jackson of Washington; Kuchel and Engle of California; McGee of Wyoming; Moss of Utah, and Murray of Montana.

The committee has been given until January of 1961 to bring in a report—so hearings held this year are in the nature of gathering background. What'll come out of the study, however, will be a showing of what national water resources needs are; what should be developed; how much demand now exists, and the like.

And, according to California's Engle, legislation might also be forthcoming setting up a single water-development agency, to take over functions now handled by the Corps of Engineers, Bureau of Reclamation, and other agencies.

* * *

A new market for aerial mappers may be developing in, of all places, the Census Bureau.

The bureau asked bids in October for aerial mapping of four test areas (in the East and South) to see if a correlation can be drawn between new construction starts as shown in photos, and actual population figures. If it proves out, Census plans to supplement normal 10-year population counts with estimates from such photography.

Photographs will be required to show all construction sites, down to those measuring 100 feet square.

WESTERN
CONSTRUCTION

Trade-ins are a plague on construction

REPRESENTING an important segment of the construction industry in this Western region, the distributors of equipment have peculiar problems. They stand between the manufacturers of machinery, and the purchasers of this machinery. Thus, they represent the one element of the trio situated between a ceiling and a floor.

Further, the majority of manufacturers are located in another region of the country and have a national outlook, whereas their Western customers have a different approach based on an intimate knowledge of peculiar Western construction problems. This adds an element of complexity, when the distributor is recognized as the channel for passing information and suggestions between user and producer of equipment.

Assuming that a group of representative Western distributors were to assemble and discuss current and common problems as the new year of 1960 approaches, what would be some of their points of discussion and concern. Of course, much of such a conference would be devoted to talking about details which are common to the running of a selling and merchandising operation. As these considerations related to the problems common to any retail business enterprise they have little immediate interest to the buyers and users of construction equipment here in our Western region.

On the other hand, as the discussion would get into the matter of sales, compounded with the factor of trade-ins, it has a direct impact on the contractor and other equipment purchasers.

The perennial problem of the trade-in represents the core of a vicious circle which rotates at an ever faster speed. Manufacturers within their own realm of competition, and with opportunity to use technical advances in design and production, introduce better and bigger machines at a dizzy pace. Each machine is intended to place the manufacturer in a better competitive position, since he has produced a unit which can do more for less. While these improvements are fresh, the manufacturer must take advantage of this jump ahead of competition and sell as many machines as possible. This represents the pressure of one force against the distributor in the urge or demand for the selling of more units.

Contractors are vitally interested in securing the advantages of these new machines. They must, if they are to remain competitive. However, each transaction involves a trade-in, and that creates the problem for all parties, from contractor to manufacturer. Determining its value—actual or negotiated—is only the first step for the distributor. Something must be done with it; sell it as-is, painted or rebuilt. In any case it pops up again in the field to disturb the economic balance of the contracting business. As it continues to remain in service it is also a minor irritation for the manufacturers of the new machines. On its progress down to the junk pile the trade-in remains a disturbing factor.

Even though the purchaser of the new machine can contend it is not his problem, the trade-in has an indirect impact and could produce an undesirable low bidder on the next job. So, when the distributor explains his trade-in problems, he deserves attention because he is talking about a common, and very real construction industry problem.

Jim Ballard

WESTERN CONSTRUCTION was founded in January 1926 as *Western Construction News. Western Highway 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.*

When is a 2-yd Loader *Not a 2-yd Loader?*

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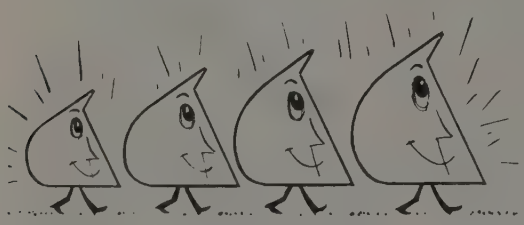
That's why Allis-Chalmers offers a wide selection of buckets for each of the TL-14, TL-16 and TL-20 TRACTOLOADERS. You choose the size that's just right for the weight of materials you handle and your job operating conditions.

Some buckets are too big . . . others too small

Using a bucket that's too big for the material you handle can cause excessive repairs and downtime . . . using one that's too small costs you money because you're not getting all you can out of your loader. That's why you should select your bucket/loader by carry capacity. For example, with the TL-20 which has a 9,000-lb carry capacity, you could use a 3-yd bucket in materials that weigh 3,000 lb. You could use a 5-yd bucket with materials that weigh 1,800 lb.



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Whether you're working good, level terrain, swampy ground or hilly country, there's a right loader and bucket combination for your material needs . . . your operating conditions. Choose from 17 bucket/loader combinations.

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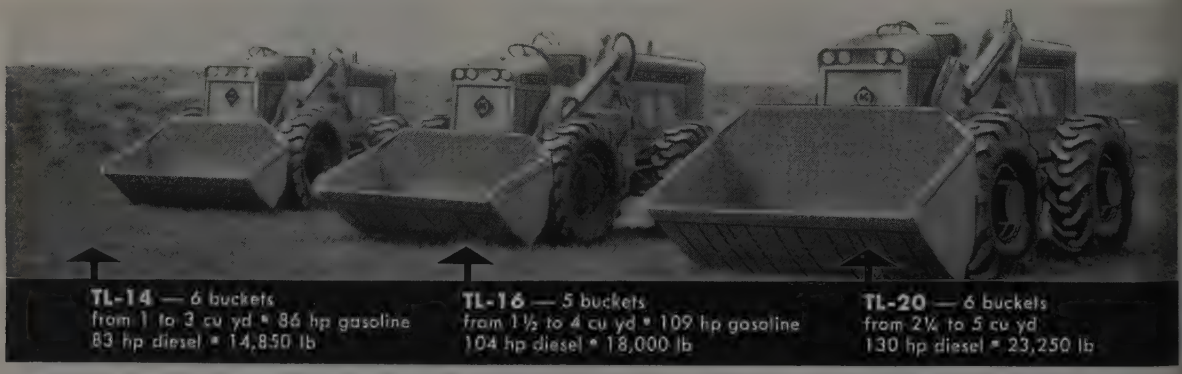

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KING PUBLICATION

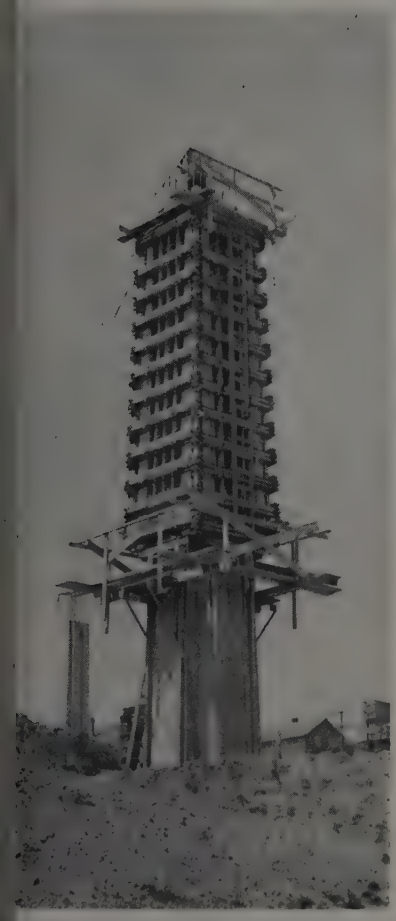
WESTERN CONSTRUCTION

NOVEMBER, 1959

Bridge work paces Seattle freeway

North Approach features high and wide double-deck concrete structures requiring extensive falsework. Cranes lift concrete to the deck where it is moved out on the slab by Railporters.

By R. W. Finke
Project Manager
MacRae Bros. Construction Co.
Seattle, Washington



COLUMN forms in place for pouring second lift. Forms were assembled on special assembly platform and lifted into place in one piece.

THE NORTH APPROACH to the Lake Washington Ship Canal Bridge is moving ahead toward completion despite a delay of four weeks due to a strike in the early stages of construction and some handicaps due to the current steel strike.

This project, consisting of a series of reinforced concrete box girder spans, adjoins and attaches to the most northerly of the piers for the steel structure previously completed under another contract. It has a total length of 980 ft., the first 330 ft. of which has two decks to match those on the steel spans. The lower deck, designed to carry four lanes of traffic, is 60 ft. wide at its junction with the steel span and widens to a maximum of 78 ft. where it joins a ramp of 22-ft. width for off-bound traffic.

The upper deck is designed to carry eight lanes of traffic divided by a central mall and is 116 ft. wide where it joins the steel span. This deck splits into two separate structures approximately 230 ft. north of the steel spans, each half carrying four lanes of through traffic plus an additional lane for the approaches to on-and-off ramps. The lower deck has a maximum height of 64 ft. above ground and the upper deck varies in height from about 16 ft. at the north end to 102 ft. at the south end.

The foundations for the 43 pier columns are spread footings on extremely hard glacial till and vary in depth from about 8 ft. to 20 ft. No shoring was required in any of the excavations because the earth was sufficiently hard to stand on an almost vertical face. Practically no water was encountered.

The piers, of a cruciform cross section, vary both in size and height so that the only constant dimension is the batter of ¼ in. per foot of height. For this reason a wide variety of forms were required and the use of wood for this purpose was deemed most practical. By careful scheduling, however, a considerable number of re-uses of form components was achieved.

The box girders comprising the superstructures are arranged in 3-span units except for one 2-span unit at the north end of the approach. Span lengths are 100 ft., 130 ft., 100 ft. in the 3-span double-deck unit, and 75 ft., 100 ft., and 75 ft. in the other 3-span units. In the double-deck portion of the structure the boxes are 8 ft. deep and elsewhere 6 ft. from top of roadway slab to bottom of soffit slab. Walls and diaphragms vary from 8 to 15 in. in thickness and top and bottom slabs are generally 6½ in. and 6 in. respectively. At each pier, the columns are connected by a very heavy cross beam, the largest of which is 6 ft. 10 in. wide and 13 ft. deep.

After a month's strike delay, construction work is once again swiftly moving forward on the $15,000,000 Lake Washington Ship Canal Bridge, kingpin of the Tacoma-Seattle-Everett freeway. The substructure for the main steel structure has already been completed by Scheumann & Johnson on a $973,973 contract which involved construction of seven concrete piers with a maximum height of 129 ft.; the North Approach, a $1,838,000 contract held by MacRae Bros. Construction Co. is about 30% complete, and the South Approach, a $2,479,000 contract held by S. S. Mullen, Inc., is about 20% complete. The $6,943,000 superstructure contract is held by Allied Structural Steel Co. of Chicago, Ill. Fabrication is still under way on the steel, and field erection is slated to begin in late December. MacRae Bros. Construction Co. also has a $594,500 contract for the construction of two overpasses adjacent to their North Approach job.—Editor

GENERAL view of project looking south toward Lake Washington Ship Canal. Falsework at right is for four south-bound lanes of upper deck. Ramp at left is off-ramp from lower deck. Columns left center are for support of four north-bound lanes of upper deck.

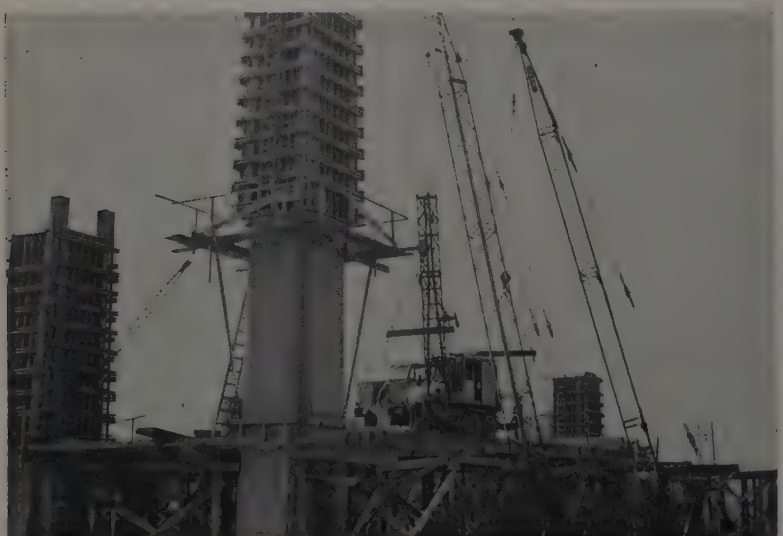
The extremely wide and heavy superstructure combined with its height above ground posed a difficult falsework problem. These conditions coupled with the decision to use rubber-tired mobile cranes operating on the lower deck level of falsework dictated the use of timber falsework with pile bents and relatively long spans. Because of hard ground only 2 to 10 ft. below the surface, driven piles could not be used successfully and piles were set in 14-in. diameter bored holes with about 1 ft. of concrete placed in the bottom just before the pile was placed. Piles are Doulas fir with 7-in. minimum tips and 12-in. butts.

Posts bearing on timber sills have a 10-in. minimum diameter. All caps are 12 x 14 Douglas fir timbers and bracing is 3 x 8 or 4 x 8 fir or hemlock. Most connections are spiked with ⅜ x 8-in. boat spikes but some of the longitudinal bracing in critical areas is also bolted. In a few places also, where long spans were required to clear underground utilities, steel caps were used.

Pile bent spacing varies in the several spans but is generally 17 ft. in the shorter spans and up to 25 ft. in the longer ones. Stringers are Douglas fir rough timbers 6 x 16 in the shorter spans and 8 x 18 and 9 x 18 in the longer and more heavily loaded spans. All stringers are wedged for height adjustment and to permit removal after the concrete has been placed. Due to the time schedule for completion of the upper deck, falsework for more than one-half of the entire project is required at one time. This involves some 75,000 lin. ft. of piles and posts and 950,000 bd. ft. of timber, nearly all of which was purchased new for this project.

Concrete forms have ¾-in. Douglas fir plywood faces for all external concrete surfaces and ¾-in. shiplap for surfaces not exposed to view. A 2 x 6 stud and 2 x 6 wale was used because of the relatively fast rate of concrete pour required. Several types of form ties are being used depending on the strength required and the location in the structure. Generally snap-ties were used in the box girder walls and Richmond coil ties in the heavier sections.

The forms, which require approximately 800 M of dimension lumber and 150 M of plywood, are constructed on the job, prefabricated at a central saw shed and assembly yard served by a 7½-hp. three-phase 220-volt De Walt saw. This saw is served by a commercial power line which also provides the power for lighting and other uses. Portable Homelite generators provide power on the site for power hand saws, drills, concrete vibrators and other hand tools.

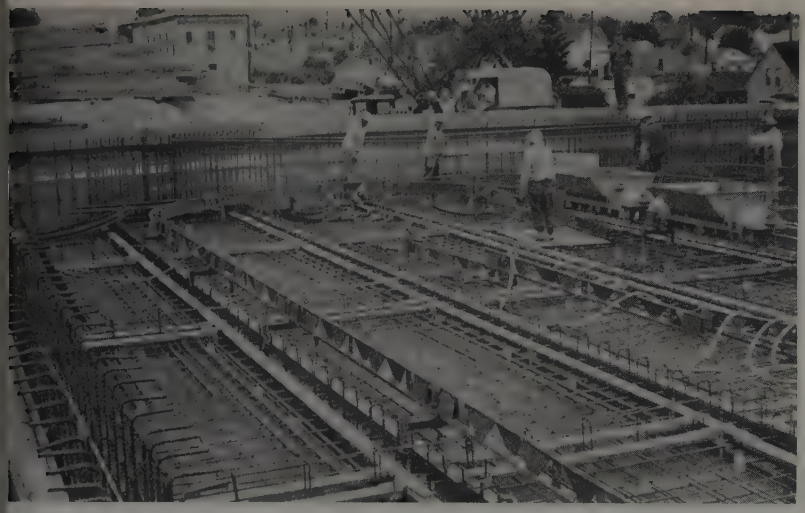


TWO CRANES on the ground have just lifted a third crane to top of lower-deck falsework. Column in foreground being carried up to upper-deck level.

Concrete and handling

Pre-mixed concrete for the job is being supplied by Pioneer Sand and Gravel Co. and is delivered to the job in 6-yd. agitator trucks. From the trucks it is handled in 1-yd. bottom discharge buckets directly to the forms or pouring hoppers wherever possible. The lifting is being done by one or more of the five Lorain rubber-tired mobile cranes serving the job.

Because of the extreme width and height of the superstructure, much of the concrete cannot be handled directly to its place in the forms and re-handling is necessary. In these cases, the concrete buckets handled by the cranes are discharged into 2½-cu. yd. bottom-discharge hoppers serving Rex Railporters. The Railporter consists of a gas engine driven tractor unit either with or without a trailer unit operating over a monorail supported at 12-ft. intervals by two-legged steel stanchions. The body on each tractor or trailer holds



RAILPORTERS (far right) and rail in place for start of concrete pour on soffit slab for two-span unit at north end of project (low end). This unit is now complete with deck at elevation of top of vertical bars at far edge.

RAILPORTER and Clary screed team up to make 26-ft. wide section of deck slab. A 10-ft. aluminum bull float in foreground. For this pour, Railporter was operated on parallel shuttle tracks each served by loading hopper.

slightly less than ½ yd. and after passing under the concrete hopper to receive its load travels to its destination unmanned.

One man, stationed at the hopper, loads and dispatches the cars and another at the receiving end spots them and, after discharges, starts them on the return trip. A variety of track layouts are used, depending upon the controlling conditions for each pour. Under some conditions the trains travel in a continuous loop and under others a separate track is provided for each so that they shuttle back and forth over the same line. During the pour a small track crew shortens or re-arranges the line as the pouring progresses.

Finishing the deck

On the deck pours, a Clary screed is used to strike off the surface and help with the vibration. The screed travels on rails consisting of 1½-in. square steel tubing supported by adjustable steel chairs about 4 ft. apart. These rails are accurately set to grade by means of a nut on a threaded rod which is the essential component of the chair. As the concrete is placed by the bucket or the Railporter it is knocked down with a vibrator and spread with hand shovels to approximate thickness ahead of the Clary screed. After the screed makes two or three passes back and forth, the surface is flush with the rails and is ready for floating. Aluminum bull floats with a 10-ft. blade, especially constructed for the job, true up the surface. The final finish is a burlap drag passed over the surface to create a sand-paper texture.

Slab widths vary from 18 ft. to about 30 ft. and some are tapered due to the varying width of the structure. Two sets of rolls of different widths are on hand for the Clary screed and the desired width is put in the day before the pour. Other variations in width are taken care of without difficulty as the rails are flush with the surface of the slab and the screed simply cantilevers out beyond them.

At this date the North Approach is about 30% complete with completion scheduled for the late summer of 1960. All footings and columns are completed except those above the lower deck of the double deck section, and the superstructure is proceeding in assembly line order with the roadway deck and curbs completed on the most advanced of the seven units.

Principal quantities in the project are 8,450 cu. yd. of structure excavation, 17,990 cu. yd. of concrete of various classes and 4,912,000 lb. of steel reinforcing bars. Some of the larger reinforcing bars, size No. 11 and No. 14, have a continuous length of up to 160 ft. requiring field butt welding after placement. To minimize the number of welds, bars up to 113 ft. were rolled and transported to the job in a single length.

The work is under the general supervision of the writer as project manager for MacRae Bros. Construction Co. with George Ongman as general superintendent, Labon Hartfield as project engineer and Hugh Stephens, office manager.

The project is being constructed under contract with the Washington State Highway Commission, W. A. Bugge, Director of Highways; W. A. McKibben, district engineer; George Andrews, urban bridge engineer, and Ed Wilkerson, resident engineer.

•

High figure for buildings in California program

THE CONSTRUCTION program of the California Division of Architecture for the fiscal year that started last July will exceed $112,000,000 for state building projects. The major volume of this work will be on the campuses of various state colleges. However, a large program of building construction will be carried out for the Department of Corrections. The program will involve more than 280 major general contracts.

Some of the major quantities of construction materials represented in this building program follow:

Steel (all kinds)	40,000 tons
Concrete	470,000 cu. yd.
Cement	700,000 bbls.
Sand and gravel	840,000 tons
Paint	125,000 gal.

ROCKY REACH DAM

A foreword by—

Donald N. McCord
Vice President and Construction Manager
Stone & Webster Engineering Corp.

THE dam and hydroelectric generating station of the Rocky Reach Project are being constructed for Chelan County Public Utility District in Chelan and Douglas counties across the Columbia River at a point approximately 474 mi. from its mouth. Located about 7 mi. upstream from Wenatchee, the site is about 95 air miles east of Seattle and 130 air miles west of Spokane.

Designed by Stone & Webster Engineering Corp., who are supervising construction, the dam will be approximately 4,800 ft. in length, consisting of a gravity concrete structure approximately 2,800 ft. in length and an earth cut-off dam extending approximately 2,000 ft. into the eastern side of the valley. (The cut-off dam and trench were features in the October 1958 issue of *Western Construction.*) The principal concrete structures will consist of a 458-ft. forebay wall extending from the west bank; a powerhouse structure, 1,100 ft. long; a center non-overflow section, 370 ft. in length; a spillway section, 750 ft. long, and a 120-ft. abutment extending into the east bank of the river.

In locating the axis of the dam and powerhouse, advantage was taken of the presence of high places in the bed-rock formation where seismic surveys, verified by preliminary borings, indicated that the amount of natural overburden was relatively small, and a minimum of excavation of either overburden or rock, as well as a minimum volume of concrete, would be required. The L-shaped concrete structure, with the powerhouse forming one leg and the spillway blocks the other leg, was required to provide sufficient length for powerhouse units and spillway openings.

The reservoir created by the dam will extend upstream approximately 43 mi., and at normal operating level will have an area of approximately 9,800 acres. About 35 mi. of highway and 24 mi. of railway relocation will be required. The Rocky Reach Project will have an average gross hydraulic head of approximately 94 ft. The spillway section will contain twelve openings controlled by tainter gates, each approximately 58 ft. high and 50 ft. wide. The structure will be capable of discharging approximately 1,200,000 cu. ft. of water per second, including flow through the powerhouse. This compares with the record high water at this location of approximately 718,000 cfs.

The powerhouse will be constructed to receive eleven generating units, each having nameplate rating of 101,650 kw. and peak capability of at least 110,000 kw. Aggregate nameplate peak capacity will be in excess of 1,200,000 kw. at 93 ft. gross head. Seven of these generating units are now being installed.

The construction of the project was divided into two stages. Stage 1, now completed, consisted of the required east bank cofferdam and unwatering, the completion of nine of the twelve spillway gate openings, the east abutment gravity dam, and the east bank cut-off trench and dam.

Final stage construction, now 60% completed, includes the construction of the gravity concrete dam and forebay wall, the completion of the spillway section, the center non-overflow dam, and the combined intake and powerhouse structure. Also included in this contract is the erection of all turbines and governors, the installation of all tainter gates, intake gates, trash racks and other equipment except the erection of the main generators and the permanent electric installation.

The contract for Stage 1 construction was performed by a joint venture of The Arundel Corporation, L. E. Dixon Company, Hunkin-Conkey Construction Co., and American Pipe & Construction Co., and was sponsored by L. E. Dixon Company.

The contract for final stage construction is held by a joint venture of the same group in addition to the Guy F. Atkinson Company of San Francisco, with L. E. Dixon Company as sponsor.

The work on final stage construction is on schedule, and it is expected that the first generator will be in operation by July 15, 1961, and the entire project completed by June 1962.

DIRECTING operations for Stone & Webster are (l. to r.): George Torrance, assistant superintendent of construction; John H. Boyd, project manager; Ira R. Kline, resident engineer, and Clarence L. Mingo, division superintendent.

SWIFT WATER fights against the closing fill as large rocks are dumped into this final opening in the upstream dike. Closure completed a temporary diversion of the river, which was flowing about 90,000 cfs. at the time. "Siamese boulders" proved to be very effective.

It's always a good fight when you're

Pushing the Columbia River around

to maintain a tight construction schedule

The contractor's own story as told to the editor by—

L. E. Dixon
President
L. E. Dixon Company

"OLD MAN RIVER"—the Columbia, that is—has a pattern of flow from which, with experience gained on previous work, Rocky Reach Contractors scheduled construction work to take full advantage of its weaker periods.

The construction schedule specified by Stone & Webster, engineers for Public Utility District No. 1 of Chelan County, Wash., required features of the work to be completed at dates which necessitated taking fullest advantage of the lower flows in the river each year. The most important phase of the job was the construction of the cofferdam and control of water to permit work on the structure itself to be initiated promptly and be carried on as continuously as possible.

Loss of a whole year would result if all was not ready for flows, which have peaked at more than 700,000 cfs. during the summer months in the Wenatchee reaches of the Columbia. When it is realized that a normal summer peak flow of 450,000 cfs. means that 200,000,000 gal. of water are passing a given point each minute, the magnitude of the job of controlling such flows becomes apparent, along with recognition that construction projects such as Rocky Reach must be timed to the river.

Realizing this, Rocky Reach Dam Builders in December of 1956 began Stage 1 construction of the project, knowing that if a cofferdam around that work was not completed prior to the 1957 summer flood season, it could not start until high flows had subsided in September of that year, and a full year of power revenues for the District would be lost. The work was started before sale of revenue bonds, from which construction money was to be secured, was consumated. It was a gamble, the success of which resulted in completion of required construction as scheduled in time to allow the subsequent start of construction of the powerhouse portion of the project without delay.

Stage 1 construction of nine of the twelve spillway bays was built without untoward incident, despite some unusual problems, behind a cellular sheet pile-type cofferdam, which extended from the east bank of the river, upstream from the work, out and around the site and back to the downstream shore. See picture and sketch.

The river at the project site was aptly named "Rocky Reach", the steep slope of the stream and resultant high velocities having scoured most of the stream bed to bedrock. Maximum cell height of 75 ft. would ordinarily dictate cloverleaf-type cells to provide necessary structure width against overturning and sliding without exceeding steel sheet piling interlock strengths. But, because of limited available river width at the site, the use of circular cofferdam cells, about 60 ft. in diameter, were used to conserve every possible foot of width for passing floods.

The cofferdam, consisting of 24 cells, 60½ ft. in diameter each, was constructed of interlocking steel sheet piles with cells at 64-ft. centers and an impervious dike connection to the up- and downstream shores. Short radius steel sheet piling partial cells connected the large cells.

LINED UP for the final closure, these Euclids are loaded with "Siamese" boulders, some as heavy as 25 tons. Pairs of rocks had been drilled, fastened together with heavy cables and stockpiled. When dumped, one rock went into the opening and the other was pushed over the upstream face of the groin. About 10,000 tons of rock were used.

Rocky Reach Dam Builders constructed the cellular cofferdam in relatively still water by first diverting normal low river flows of 100,000 cfs. around the cofferdam site with a dumped-rock groin built out from the upstream shore. A parallel rock groin was also dumped just inside of the location of the cells. Working from this groin, draglines cleaned the stream bed to bedrock between the groins so that sheet piling could be set on rock. This insured against loss of cell-fill materials through "windows," which might otherwise be left near the bottom of cells. Bottoms of cells were sealed with a layer of clay before the gravel was placed. Because of the height of the cells, the interior of the cofferdam was supported by a large pervious berm, and to overcome scour, a smaller berm of quarried rock was placed against the outer perimeter of the structure. Dumping from the top of the completed cofferdam produced serrations in the outer berm, which served as a horizontal-type temporary fish ladder.

Cells were constructed by stringing MP-101 steel sheet piling around a circular steel template, the outside diameter of which was 8 in. less than the 60½-ft. cell diameter. Because of the instability of cells, which were higher than their diameter and yet had to be constructed on bare rock without the usual streambed material available for driving, the template was constructed of two circular, horizontal, structural rings, 18 ft. apart vertically. The rings were connected by five 18-in. diameter vertical pipes equally spaced around the circle. Light pipe truss members between the large pipes provided lateral stiffness. The large pipes became wells for 16-in. pipe spuds to hold the template at any desired elevation while sheet piling was strung around the template to form the cell.

Normal procedure of cell building started by setting the template in place, exactly centered on a cell location. The template, including the five pipe spuds, weighed more than 20 tons, requiring high crane capacity for handling. Because of time limitations, cofferdams for Stage 1 work and the final construction contracts were built from both ends toward the center so that two templates were used, each handled by a Manitowoc 4500 crawler crane with a 140-ft. "live" boom.

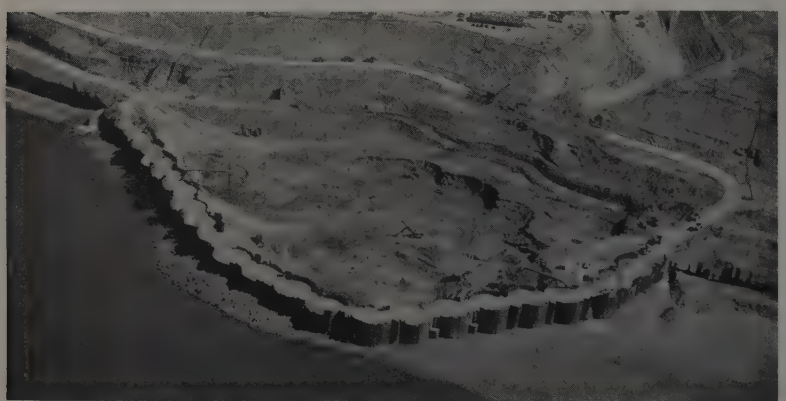
Bedrock at the Rocky Reach site was extremely uneven, so that some of the spuds did not extend to rock as the template was set in place for building a cell. Those spuds were lowered in their wells to rock, and the template leveled on all five spuds with the lower ring at or near the bottom of the upper one-third of the cell height.

Most sheet steel piles were 75 ft. or more in length, the first sheet being carefully plumbed and tied to the template, usually by the use of temporarily welded lugs. The crane with 140-ft. boom length, working from on top of a completed cell, placed the sheets with 75-ft. reach from the crane center pin to the far side of the new cell.

When all 184 piles, comprising a cofferdam cell and its small connector cell, were in place, all were lightly driven with a McKiernan-Terry 9B3 pile hammer to assure that all sheets were down onto bedrock and, if the rock allowed, keyed into the weathered upper layer.

About 3 ft. of clay, stockpiled from job overburden excavation operations, was then dropped by clamshell onto the bare bedrock to act as a seal. The cell was then filled with gravel, also from overburden excavation, to a depth where the partially filled cell became stable without the help of the spudded template. To avoid leaning of cells, which would occur if cell fill became excessive against one side, all of the primary fill was made with a clamshell bucket, dumping exactly in the center of the cell.

A cell always became stable when the fill had reached the lower ring of the template, usually at a lower



FIRST SHOVE of the Columbia was to get it away from the east bank to permit building of the spillway block. The cells of steel sheet piling, berms of supporting material and excavation in the cofferdammed area are typical of the Rocky Reach construction program.

evel, depending on cell height. To liminate time required to change rom crane to clamshell operations, nd because the smaller machine ould make a full 180-deg. swing n less time, a Lima 1201 rig with ½-cu. yd. clamshell bucket was sed for fill operations. All fill as loaded from stockpiles with ½-cu. yd. shovel and hauled in uclid rear-dump trucks out onto he completed cells, where it was icked up by the clamshell and laced in cells.

When a cell became stable, the Manitowoc 4500 crane moved up o lift out the template. There was tendency for a cell to lean to ome extent during filling opera- ions, resulting in considerable fric- ion between piling and template erimeter. After removal of the emplate, it was possible to com- lete cell fill by dumping trucks f gravel into a chute directly from he completed cell behind. Some- imes it became necessary to place portion of the upper part of the ill with dragline to avoid exces- ve side pressure from direct truck umping operations.

Removal of Stage 1 cofferdam ells was accomplished by unload- ng the upper half or two-thirds of ell fill, first by Lima 1201 drag- ne, then by clamshell, until the ell was barely stable. Sheet piles ere then pulled with a Vulcan extractor on a Manitowoc 4500 rane. Final fill removal after the heets were pulled was made by ragline.

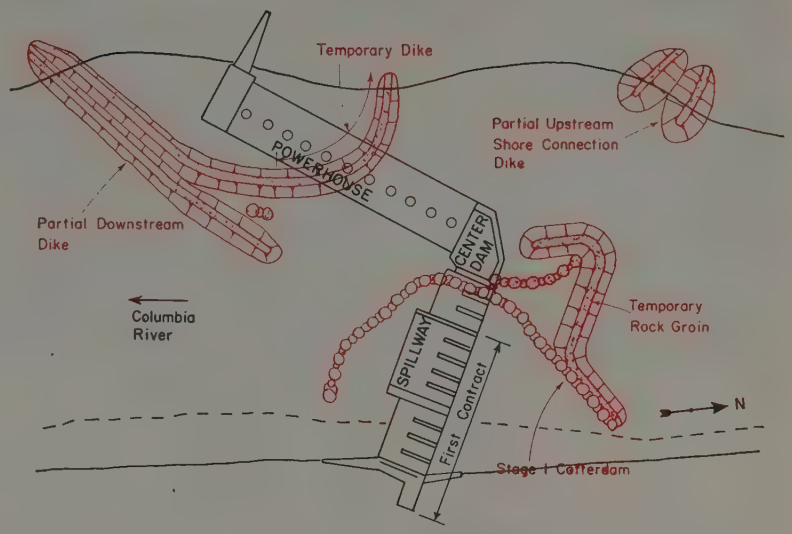
No difficulties were experienced ith the cofferdam, which success- ully withstood peak flow just un- er the computed capacity. Leak- ge through, or under, the struc- ure was normal.

The entire Stage 1 river control rogram was completed prior to he 1957 summer flood season and tage 1 construction was completed ell ahead of the May 1, 1958 con- ract completion date.

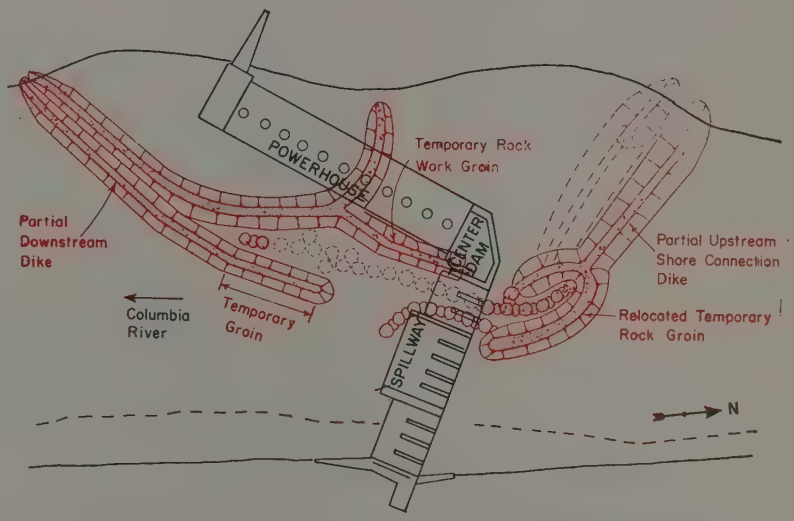
The contractor's proposal for Fi- al Stage work was based upon an lternate design of cofferdam for iver diversion to that proposed by he engineers. Construction sched- les for Final Stage work were ex- remely tight and diversion of the iver was a major project involv- ng quantities of materials and onstruction, which would require tilization of every possible mo- nent, if diversion was to be com- leted prior to the 1958 flood eason.

The first move in the contrac- or's operation was to provide pro-

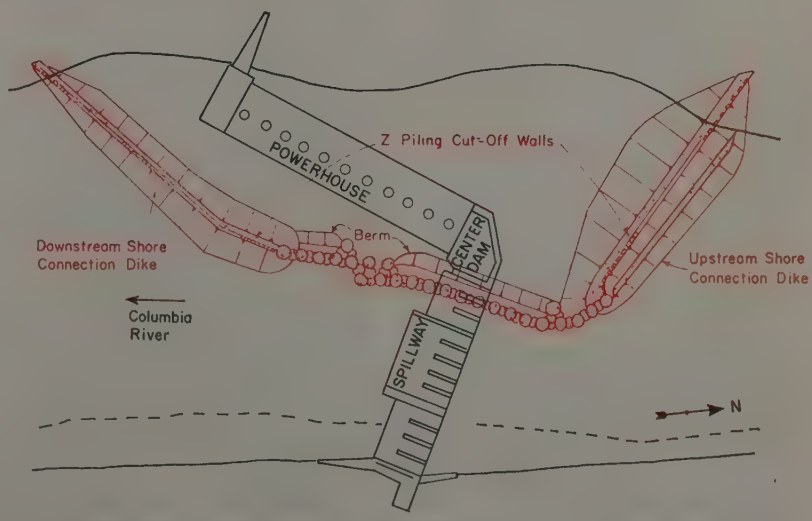
Step-by-step of the final stage



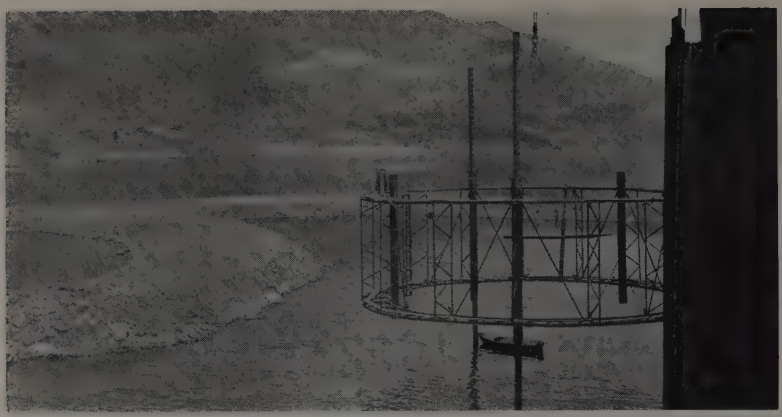
STEP 1—Getting a portion of the powerhouse site cofferdammed for a fast start.



STEP 2—Primary closure of the cofferdam pushed the river through the spillway bays.



STEP 3—Connecting the dikes permitted the unwatering of the entire powerhouse.



TEMPLATE for the cofferdam cells consisted of two horizontal rings 18 ft. apart with five 18-in. vertical pipes spaced around the edge. Spuds of 16-in. pipe were lowered through the larger pipes to bedrock, for supporting the template in position and at proper elevations.

tection on the west bank for as much of the powerhouse excavation as possible so that this major feature of the work could be undertaken promptly. This was done by the construction of a rockfill dike with an impervious core surrounding the service bay and the west four bays of the powerhouse structure (see accompanying diagram, Step 1). This temporary protection was completed promptly to enable powerhouse excavation work to be initiated during the construction of the principal cofferdam itself.

The 1957 flood flow season was over so that six cells of the cofferdam for Final Stage construction could be built out into the river, working off the Stage 1 cofferdam with temporary upstream rock groin for protection (see diagram, Step 1).

Simultaneously with construction of these first cells, removal of the Stage 1 cofferdam around that work was started. At the same time, dumped rock dikes for shore connections of the main cofferdam from the west shore of the river both upstream and downstream from the powerhouse were started (see diagram).

The main cofferdam was 3,400 ft. long and included 21 sheet steel cells as the river arm, each 60½ ft. in diameter set at 64-ft. centers, and connected to the shore with the rock-and-impervious dikes with sheet piling diaphragms up and downstream. The upstream dike from the west shore was 1,000 ft. long and 75 ft. high above bedrock, and was constructed by first dumping a rock groin out from the shore to connect with the six cells of the main cofferdam which, as already mentioned, had been constructed working from the Stage 1 cofferdam.

This groin (see diagram, Step 2) comprised the primary closure of the cofferdam, and diverted the main body of the Columbia at low flow of some 100,000 cfs. through the nine spillway bays of Stage 1.

Closure of the 32-ft. high primary rock groin was accomplished despite final water velocities of more than 35 ft. per sec., by the use of large quarried rocks tied together in pairs by cable, one rock being dumped into the final closure opening, and the other being pushed over the adjacent upstream face of the groin.

To complete the upstream shore connections, the primary rock groins from the west bank were paralleled by a second groin just inside, and the area between groins was cleaned with draglines to bedrock; after which this area was filled with sand from an upstream deposit, and steel Z-piling, 75 ft. long, driven through the sand to form a positive cutoff (see diagram, Step 3).

The downstream shore connection dike was of similar construction, but only 55 ft. in height. Use of Z-piling as a diaphragm was decided upon, not only as the most positive from the standpoint of safety, but it allowed dikes of much less width than would have been possible with only impervious core material.

For stability purposes, where room was available, the cells were backed with a large pervious berm between the cofferdam and the powerhouse structure. In areas where there was not sufficient room for the berm type of construction, backup cellular sheet steel piling cells, similar to the type of construction used in the main cofferdam, were used. Cell fill material was grouted at bed rock line on the water side, a were up- and downstream dike at known bedrock "gut" locations

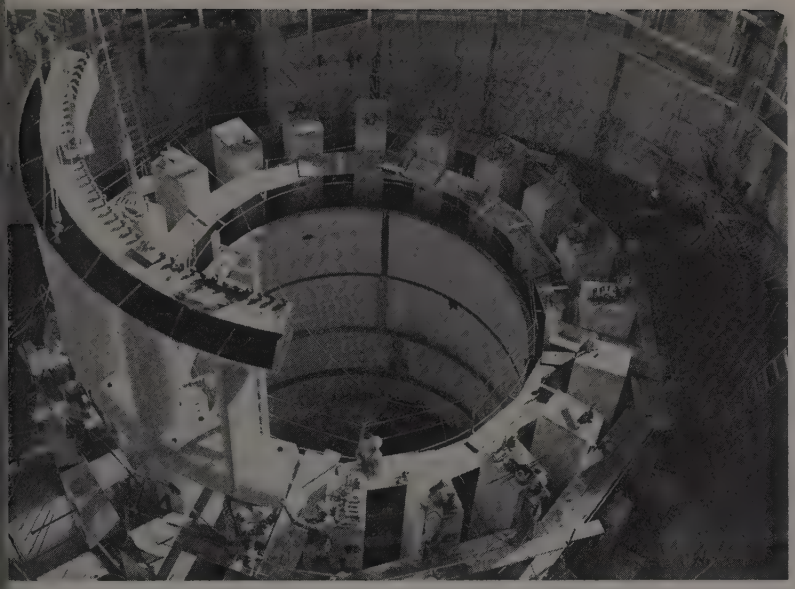
Concrete walls were constructe of, and parallel to, the cofferdan when the area was dewatered t direct seepage water to two pump ing stations. Each station wa equipped with five 20-in. turbin pumps of 200 hp. and 15,000-gpm capacity each. After primary de watering only a minor portion o this pumping capacity was require to provide dry working condition over the 20 ac. enclosed by th main cofferdam. River flow peak ing at well above 400,000 cfs. a the site during the past two floo seasons, has indicated that the co ferdam could successfully pass ir excess of the 500,000 cfs. it was de signed for. Emergency sluiceway were provided to allow filling o the unwatered area in the event o imminent overtopping.

A temporary cellular sheet stee cofferdam was constructed as ar arm from the main cofferdam t Stage 1 construction during the 1958-59 winter low-flow season, be hind which the final three spillway bays were built.

Final Stage concrete construc tion, except for building up the ogee crests of the spillway bays which were left low for river diver sion, will be completed in June 1960. Immediately following high summer river flow that year, the main cofferdam will be breeched and removal of that structure will start. Simultaneously, placing o

MAJOR ITEMS OF EQUIPMENT

1—Northwest 6, shovel & dragline
1—Northwest 80, shovel & dragline
1—Bucyrus-Erie, 54B, shovel & drag.
3—Lima 1201, shovels & draglines
1—Manitowoc 3500, shovel & drag.
4—Manitowoc 4500, cranes & drag.
2—American 11-ton Whirley cranes
1—Clyde 11-ton Whirley crane
1—Washington 11-ton Whirley crane
2—P&H 25-ton truck cranes
8—Caterpillar D8 tractors & dozers
2—Caterpillar Model 12 motor graders
19—Model 31-TD Euclid end dumps
7—Bingham 8-in. submersible pumps
2—Wintroath 10-in. electric pumps
2—Wintroath 14-in. electric pumps
8—Fairbanks 20-in. electric pumps
30—Miscellaneous 3-in. to 6-in. pumps
13—Ingersoll-Rand FM-3 wagon drills
4—Ingersoll-Rand CM-2 crawler drills
4—Gardner-Denver portable 600-cfm. diesel compressors
6—Chicago Pneumatic stationary 1,000-cfm. electric compressors
1—C. S. Johnson batch plant
4—2-cu. yd. Koehring tilting mixers
23—4-yd. Garlinghouse air dump buckets



EVEN generating units will be installed in the powerhouse at this time (eleven ultimate). Total ameplate capacity will be 1,200,000 kw. at 93 ft. gross head.

IRECTING the job for L. E. Dixon are (l. to r.): Eddy W. Elliott, project superintendent; W. N. vans, contractor's representative and vice president, L. E. Dixon Company; Thomas E. Curtis, eneral superintendent.

ome 63,000 cu. yd. of concrete in ne spillway will start, and tainter ates will be installed in the twelve ays as ogee concrete is brought up o grade. Provision was made in riginal spillway construction for lacing closure gates to dry the pillways up for this final con- truction. During this phase, the Columbia will flow through the four future units of the powerhouse. When the spillway is completed early in 1961, permanent concrete stop-logs will be placed to close the intakes of the four future units.

An example of far-sighted cooperation between the owner, engineers and contractors is the large scale model tests conducted at State College of Washington. The model, built to determine most efficient use of river flow for the project, was made available to the contractor for use in checking calculated characteristics of the flow of the river during each phase of river diversion.

MAJOR QUANTITIES INVOLVED UNDER JOINT VENTURE CONTRACTS

Excavation for structure, common	361,498 cu. yd.
Excavation for structure, rock	572,739 cu. yd.
Foundation cleanup for concrete	80,291 sq. yd.
Excavation for east bank & cut-off dam, common	2,331,137 cu. yd.
Excavation for east bank & cut-off dam, rock	23,875 cu. yd.
Excavation for fills, filter zones, riprap, etc.	837,250 cu. yd.
Concrete	1,012,894 cu. yd.
Portland cement	995,309 bbl.
Forms	4,709,890 sq. ft.
Reinforcing steel	40,000 tons

Work now 60% completed

The construction work being performed within the cofferdams is now approximately 60% completed. By the end of the 1959 season, substantially all of the concrete work for the first stage of the structures will have been completed, leaving for the 1960 construction season the completion of the first stage ogee spillway section, and the installation of second stage concrete work in the powerhouse itself.

The total contract amount for the construction required under the joint venture contracts is approximately $71,000,000. Contracts have already been entered into by the Public Utility District for generators, turbines, gates, electrical installation, etc., which total in excess of $48,000,000. The estimated cost of the completed project in 1963 will approach approximately $270,000,000.

Personnel

For the Public Utility District No. 1 of Chelan County, commissioners are L. J. Richardson, president; Ivan J. Compton, secretary; and Robert O. Keiser, member; Kirby Billingsley is manager, and E. C. Metcalf, chief engineer.

Stone & Webster Engineering Corp. personnel appear in the foreword.

L. E. Dixon, the president of L. E. Dixon Company (sponsor), is personally directing the work being carried out. K. L. Parker is the chief engineer of L. E. Dixon Company.

At the site, for Rocky Reach Contractors, W. N. Evans, vice-president of L. E. Dixon Co., is the contractor's manager; E. E. Elliott is general superintendent; T. E. Curtis is job superintendent; and Michael Graves is project engineer. An extensive list and pictures of job supervisory personnel appear on page 108.

Acknowledgement is given also to the firm of LeBouf & Dougherty of Richmond, Calif., for their contribution to cell construction.

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Cummins Engine Company, Inc., Columbus, Indiana

Soil-cement solves problem of highway base in Montana

Inferior aggregate is improved for 13-mi. job at saving over: (1) 40-mi. haul of suitable material, or (2) thicker base with blended sand added. Stabilized base is plant-mixed and spread at 10-in. thickness.

By Glenn A. Learn
Division Engineer
State Highway Commission
Lewistown, Montana

TO SOLVE the problem of an inferior source of base material, cement treatment was used on a 12.93-mi. section of highway between Grass Range and Malta. The cement-treated base was covered with a 3-in. plant-mix bituminous surface and seal coat for a total cost of about $2.45 per sq. yd. of finished roadway.

Material available in the vicinity of this Federal Aid highway project DF 333 (21), has a high P. I. and shows poor results in the swell test. This is a situation which is becoming more and more of a highway problem as sources of better material are exhausted in these Western states, and specifications become tighter.

There were three possible solutions to the problem to be balanced against the matter of economics and final cost. First, suitable material could be brought in to the site but this would have involved some hauling averaging possibly 40 mi. from pit to center of the job. Second, the base thickness could have been increased but this would have required the cost of supplying and blending sand with the local aggregate to have the final material meet Montana highway specifications. Third, the local material could be improved or stabilized to bring it up to meet requirements. Comparative costs indicated that the third method represented the best solution to the problem. Cement treatment of the local material was the stabilizing process selected to make up the natural deficiencies in the local aggregate.

Specifications for the job permitted the contractor to mix the stabilized base either in a plant or on the road. The successful bidder was prepared for plant-mixing of this base material and was experienced in this type of work. As a result, the stabilized base was all plant-mixed. Although this procedure may be a little more costly, the central plant can be operated under more adverse weather conditions than by using road-mix methods, particularly where high winds make road-mixing almost impossible. From the point of view of the state highway department the plant-mixing has other advantages in providing better control in proportioning, probably a more thorough mixing and more uniformity in the resulting material.

Laboratory tests indicated that 6% of cement would be required. This is a somewhat higher percentage than normal, but was required to overcome the deficiency in the quality of the original material. The plant was calibrated by weighing the dry aggregate, determining the weight of water necessary to secure optimum moisture, together with the weight of the added 6% of cement. Optimum moisture content was considered one of the critical controls, as best results in the finished product were obtained when the moisture content was maintained at the best figure. The plant was checked several times each week to maintain proper calibration.

The base material was crushed to a ¾-in. maximum size, and efforts were made at the crushing plant to keep the gradation of the material to about 50% retained and 50% passing the 4-mesh screen.

Mixed material was hauled to the roadway in dump-trucks and spread with a Jersey spreader to a thickness of about 10 in. to secure the 7.2 in. of finished thickness specified.

Field testing included the taking of samples as the material came out of the mixing plant, with one sample taken for about every 500 ft. of roadway. The average of the 7-day test was 243 psi. and for the 28-day test the average was 339 psi. A total of 52 cylinders was submitted.

More than 21,000 bbl. of cement to this remote location was something of a problem in itself. The cement was hauled by trucks directly from the mill at Trident, Mont., a distance of 243 mi. Arriving at the job it was placed in a silo at the mixing plant from where it was augered into the belt carrying the aggregate to the pug-mill. A half-round cover of corrugated metal was installed over the belt carrying the aggregate and cement to the mixer to keep the wind from blowing away some of the cement.

SOURCE of aggregate was close, but its quality presented the problem. Pit material was reduced to ¾-in. maximum size in this Cedarapids plant.

PLANT or road mixing was permitted in the specifications, and the contractor elected to use this Barber-Greene plant, conveyor and hopper for the stabilized base.

ON THE ROAD the loads of cement stabilized material were dumped into a Jersey spreader and laid at a 10-in. depth for a specified compacted thickness of 7.2 in.

Water was added at the mixer.

Arriving at the roadway the soil cement was placed in a single lift as specified. A pneumatic roller followed directly behind the spreader, followed, in turn, by a vibratory roller. The pneumatic roller was used again after the roadway had been shaped up by a motor grader. Use of the vibrating roller was not specified but its use was elected by the contractor and it did excellent work. After rolling had been completed, a curing seal of RC-2 was applied.

Shoulder material was moved up against the cement-treated base by motor grader while the pneumatic and vibrating rollers were compacting the material to within about 1½ ft. of the outside edge of the base. As soon as the shoulder material had been moved up against the edge of the base course, the balance of compacting was carried out along the edge with the pneumatic roller.

Average daily production ran about 1,600 cu. yd. a day on a 10-hr. shift.

Grading on this newly located route was completed early in 1959, with the major part of the grading work carried out last year. Contractor for this grading was the Roth Construction Co., Rapid City, S. D. Contractor for putting down the base was The Summit Construction Co., Rapid City, S. D. Jess Dockery was superintendent for the contractor.

Bidding on the half million dollar project showed 13 bidders, with 6 being within 6% of the low figure. Eight of the bidders were from Montana.

For the Montana State Highway Commission, Charles Buck was project engineer, with Les White, laydown foreman, and Dexter Brown, laydown supervisor. Material supervisor was W. L. Eckert, and William Marsh handled field inspection.

MAJOR EQUIPMENT UNITS

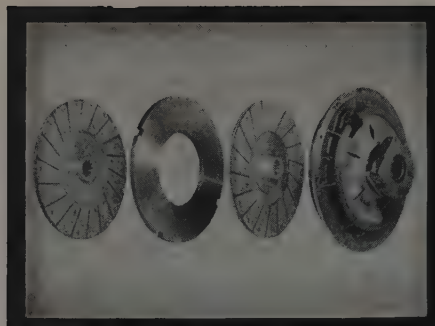
- 1 848 Barber-Greene mixer, conveyor and hopper, and cement meter
- 1 Ross cement silo (270 bbl.)
- 1 D-6 Caterpillar tractor
- 2 D-7 Caterpillar tractors
- 1 D-8 Caterpillar tractor
- 2 Jersey spreaders
- 1 Roscoe pneumatic-tired roller
- 1 Tandem steel-wheeled roller
- 1 Vibropac steel-wheeled roller
- 2 Caterpillar No. 12 motor graders
- 3 Water trucks
- 1 Allis-Chalmers power plant

●

R. G. LeTourneau gets Award

FOR an "achievement that contributed most to the effectiveness of the transportation industry in support of national security" Robert G. LeTourneau is the recipient of the 1959 National Defense Transportation Association's Award, according to Secretary of Defense Neil McElroy. The selection was made by the Joint Chiefs of Staff and was based on the development of a revolutionary "electric wheel" system for powering heavy-duty equipment including the gigantic rubber-tired cranes used in the Arctic Regions.

The association is a military-civilian group of transportation leaders.



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Fresno Friction Materials
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Valley Friction Materials
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Friction Materials Company
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Power Unit Corp.
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Telephone: GIlbert 3-3194

Compton Friction Materials Company
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Telephone: NEwmark 2-7129

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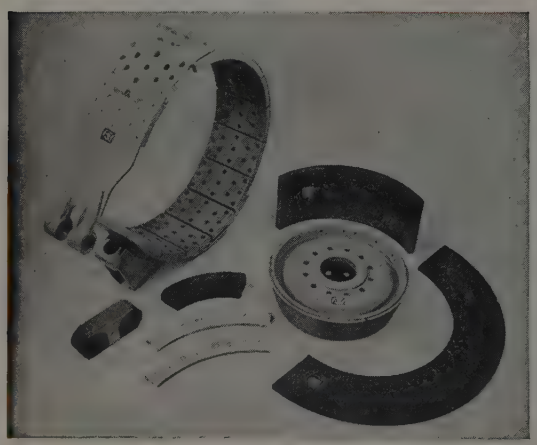

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IN ONE of the borrow pits a DW20 takes on a 19-yd. load pushed by a D9. Each scraper moved about 16 loads an hour over the 1,100-ft. haul to the dike. Dumping on the fill was done on the fly.

Construction ingenuity in channel and levee project

Frederickson & Kasler develop special tools and arrange for an efficient operation of its equipment spread in flood control along the San Joaquin.

PECIAL TOOLS and machine ssignments are making tough jobs asy while speeding work on rederickson & Kasler's $1,956,117 ower San Joaquin River flood ontrol project for the State of alifornia, Department of Water esources. Working from Hills erry to El Nido, the Sacramento ontractor is building 55 mi. of vees and clearing the river bed help protect adjacent land in he fertile San Joaquin Valley.

"Sandy" Sandlin, project superintendent for F&K, moved onto the ob April 22, with 500 calendar ays to complete the work. Tasks cing Sandy were 840 ac. to be eared of brush and trees (willows nd cottonwoods up to 4 ft. in diameter); 800 ac. to be skinned 0.2 . deep to remove grass roots from ike and borrow areas; 507,000 yd. ommon excavation; and 3,500,000 l. borrow to be placed in embankents. All borrow is coming from ver banks, adjacent land and ilot channels—a total of over 140 ts.

Sandy turned to improvization nd well-planned work schedules complete the complex job on me without bringing in an over-large equipment fleet. For this e was backed up by Jeff Kasler, &K's roving project manager, and . E. "Slim" Ransdell, the firm's quipment superintendent. Slim esigned, built and altered several the specialized tools the others ought would fill their needs. uss Pinching, engineer, rounds t this successful team.

First attention, of course, was ven to clearing. This was divided to four phases—channel clearing, rush clearing, grass clearing and burning. Five Caterpillar D8 tractors, one Cat No. 977 Traxcavator and two Cat No. 14 motor graders were assigned these tasks.

In this area the river channel is narrow, being rarely over 20 ft. wide, with a generally soft bottom and steep sides. F&K decided too much time would be wasted pulling tractors out of the mud if the machines were put to work in the river bottom. So they kept the machines up on the banks, devised some special equipment, and made two D8s do the work of four.

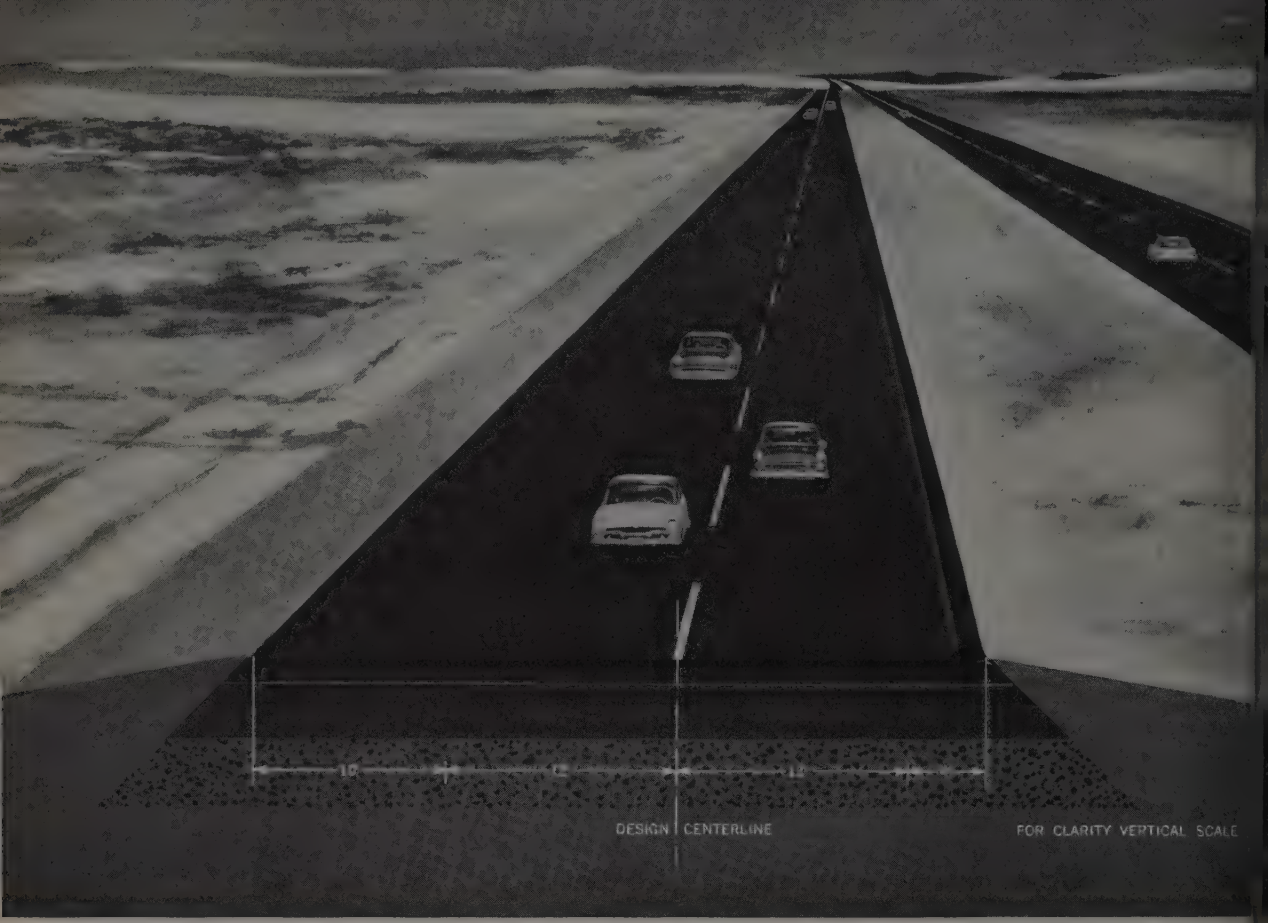
Men work ahead, felling trees with power saws. Then one of the tractors equipped with an 8S straight dozer and a Hyster winch pulls out stumps and trees larger than 18 in. and piles them for burning. Everything else in the channel is handled by another D8 equipped with a unique rear-mounted rake built in F&K's shop.

In making this rake attachment a C-frame was mounted on roller frame trunions and bracketed to the tractor's main frame (see picture). This arrangement lets the tractor carry most of the rake's weight on its roller frame while using its main frame, engine and dozer to counterbalance the rake.

Then twin 12-ft. booms were built up from 10-in. steel pipe. The booms are based together at the D8's drawbar and angle out to each end of a modified 12-ft. rock rake. Each boom is bent downward on about a 120-deg. angle

(Continued on page 58)

CLEARING tool designed and built by the contractor was a tractor-mounted rake. This tool allowed the tractor to work from the bank, and not in the soft bottom of the channel. Weight of the boom and rake is transferred to the roller frame by cables attached to the C-frame. Steel brackets connecting the C-frame to the tractor's main frame allow the engine and heavy dozer to counterbalance the boom. Note arm linkage on top of the rake to permit adjusting teeth to best angle.



Arizona's First Interstat

Experience with veteran 2-lane Asph

Arizona is a big state with a low population density—which means it needs plenty of roads. But there aren't millions of Arizonans to pay for them. Every dollar counts.

These are some of the reasons why most of Arizona's roads traditionally have been of economical Asphalt construction. Time and again, since the State began to pave, Asphalt pavements have stretched available funds over more and more of these long Arizona miles than could any other pavement type.

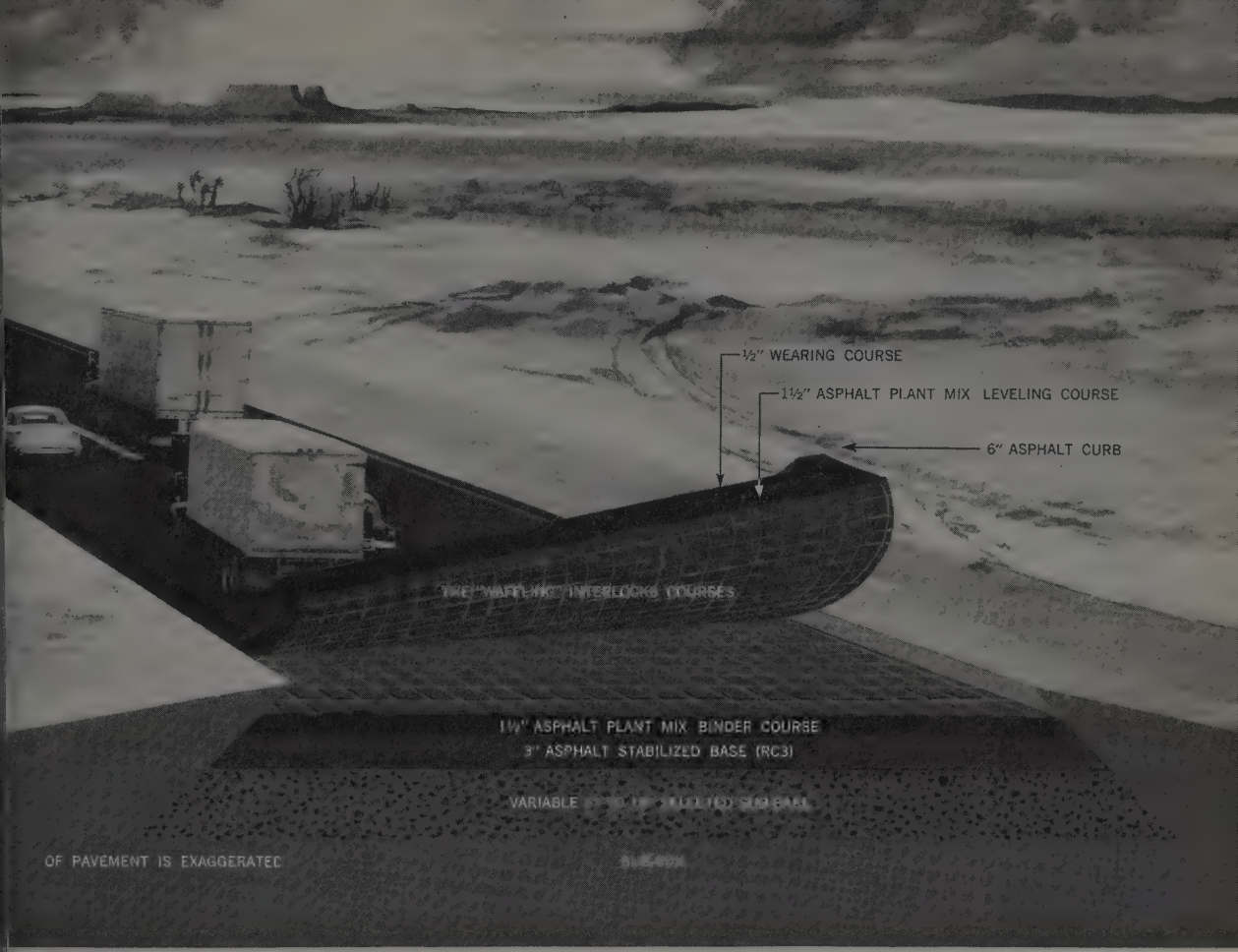
Now, along with the rest of the states, Arizona has launched a vast new road-building program. And even though more federal aid is available than ever before, these roads, too, are turning out to be Asphalt-paved. You don't have to look far for the reasons.

Arizona's veteran Asphalt-paved highways have proved themselves as rugged and durable as they were economical to build and maintain.

U.S. Route 66 between Winslow and Holbro an example. First paved more than 25 years ago Asphalt and sand!), this pavement is successfully porting heavy traffic undreamed of when it was first "Double" trucks by the dozen barrel over it at 60 So does the bulk of Arizona's east-west traffic.

Now this veteran main artery, still in the of its life, is being given local traffic responsib A new divided Interstate Highway (Route 40), ca through traffic, will parallel it. The initial sect Arizona's new Interstate 40 is shown above. It is a 5.6 mile stretch between Winslow and Holbrook.

With no aggregate larger than ¾ inch available (and most under ¼ inch), only Asphalt construction could have been used to build this section of pavement up to Interstate standards. Total cost of the pavement structure was $1.75 per square yard!

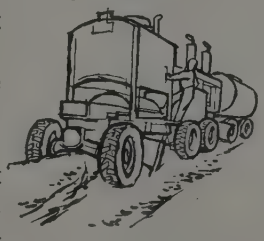


egment Asphalt-Paved!

vements leads to decision

he cross section above shows you in detail how st Asphalt materials were used to give this pave- asting strength despite the scarcity of aggregate.

lotice, first, the use of Asphalt 3-inch base. This base, a gravel, was road-mixed on the ed sub-base using RC-3 liquid t.



lotice, second, (see right ay above) that the 3-inch g course was asphalt plant- id down in two courses. A novel between-course ck was provided by "waffling" the lower course still hot with a 4-inch square grid pattern, impressed 3/8-inch into the surface. A tack coat was applied second course constructed. Then, a ½-inch wearing was laid to insure a non-skid surface.

lotice, third, that both base and surface courses iform across the whole width of the road, shoulders l as traffic lanes.

Notice, fourth, the use of Asphalt curb to provide controlled drainage, prevent embankment erosion and aid safety.

BEAT SCHEDULE BY TEN WEEKS

With today's equipment, modern heavy-duty Asphalt concrete pavement is being laid at record, reputation-building, tax-fund-conserving speeds. In this case, construction was completed 10 weeks ahead of schedule . . . in plenty of time to accommodate the bulk of the summer tourist traffic.

Modern Asphalt concrete pavement can help **you** speed your highway modernizing program. It provides, as well, strength, durability and economy in full measure. Specify it for your Interstate Highways. Primary and farm-to-market roads, too.

Ribbons of velvet smoothness . . .
***ASPHALT**-paved Interstate Highways*

THE ASPHALT INSTITUTE

Asphalt Institute Building, College Park, Maryland

STEEP 2:1 dike slopes on the land side are brought to grade by dragging an old set of tractor track links behind a Cat D8 tractor. F&K later replaced this with a Briscoe backsloper mounted on the D8, permitting closer control of slopes.

about a third of its distance from the tractor to allow the rake to get behind the brush and to pull across a bank. The rake carries 10 teeth, and can be adjusted for best tooth angle by an arm linkage from the top of the rake to 5 pin settings on the booms.

At first, twisting movements transferred from the ends of the rake broke the bracket mounting on the drawbar. So Slim Ransdell came up with a swivel hitch to permit about 20-deg. rotation. One steel plate, 20 in. in diameter, was mounted on the drawbar. A similar plate was welded on the hinge bracket providing vertical motion for the booms. Two steel plate stops, each covering nearly a quarter of the face, were welded on opposite sides of each face. When the two plates were put together with a center bolt, one face could pivot about 20 deg. across the other before the stops hit. This arrangement eliminated all breakage.

Power for vertical lift is provided by one drum of the D8's rear-mounted cable control. The wire is led up through a single sheave on the C-frame, through a triple sheave on the boom and back to a double sheave on the C-frame. The other drum on the cable control handles the dozer.

To clear brush and small trees from the channel, the operator backs up to the edge of the bank, drops the rake, and moves forward. The rake can be controlled to keep it from digging in too much and to hold its load. The superintendent estimates this unit does the work of three standard clearing tractors working in the channel.

Three other D8's handle brush clearing up on the banks. One is equipped with a straight dozer, another alternates between dozer and a Fleco brush rake, and the third uses a modified Fleco rock rake. Cutting edges welded on the bottom of every other tooth cut roots for easier removal. Straight blades are used for knocking down and stacking trees, rakes for clearing brush.

Brush and trees are burned on the spot, tended by the Traxcavator equipped with a brush rake. Because of the fire hazard in this tinder-dry range land, F&K mounted a 12-ft. scarifier on the back of the Traxcavator to clear firebreaks around the burn areas.

Grass clearing to remove roots in dike and borrow areas added up to another special job. Although only 0.2 ft. had to be cut, this meant 200,000 cu. yd. in the 800 ac. involved. The job had to be done quickly but precisely. After comparative tests, F&K bought two Cat No. 14 motor graders to handle this task. On an 800 by 300-ft. plot the No. 14 completed the skinning in 45 min. less time than a smaller grader because of its ability to cut precisely while carrying the accumulated windrow. Usual working sequence developed was a 1,000-ft. pass, working across the area and carrying the windrow the full width. After the dike sites had been cleared, the graders were fitted with 10-ft. scarifiers to break up the hard-pan for better bonding with embankment material.

BOSS of the fast-moving operation is "Sandy" Sandlin, project superintendent for Frederickson & Kasler. Scooting across rangeland and through rivers in his four-wheel drive Jeep station wagon, Sandy checks all parts of his far-flung job every day to keep the work flowing smoothly.

As soon as clearing was lined out, the contractor moved in his grading fleet of 8 Cat DW20 and 1 DW-21 tractor-scrapers, 3 Euclid SS18s, 4 Cat D9 tractors, 7 D8s, and 4 No. 12 motor graders. Most of the material comes from nearby banks, farm land and pilot channels, with haul roads every 1,000 ft. Average hauls are about 1,100 ft., working on a circular pattern of out one road and in the next.

The tractor-scrapers are divided into three spreads to reduce congestion while squeezing out the best production. Each spread handles a distinct part of the embankment. The dike being built has a 12 to 20-ft. crown sloped 3% each side from the centerline, with 3:1 slopes on the water side and 2:1 slopes on the land side. Average height is about 8 to 10 ft., and the dikes are set back at least 30 ft. from the bank.

Five DW20s with two D9 pushers make up the lead team, roughing in the dike. This team works until the dike has narrowed to about 22 ft. wide, then moves on to the next stretch.

As the lead team moves on, the second team of three DW20s and an SS18, pushloaded by two D9s, take over to continue the fill to within 2 ft. of the top. One of the DW20s may be shifted from one team to the other as the work load varies. The final 2 ft. and cap is placed by the third team of two SS18s and the DW21, pushloaded by tandem D8s.

As the scrapers spread the fill in thin layers, two tractors pulling 50-ton Southwest pneumatic rollers pack the embankment to about 100% compaction. The Cat No. 12 and No. 14 motor graders spread the fill and cut and maintain haul roads. Fine grading of the dike slopes is handled by a D8. On 3:1 slopes it works with a Bee Gee scraper. On 2:1 slopes the D8 drags the bank with an old set of track links.

MORE than a tractor-shovel

he job: 16,000 ft. of storm sewer on Maryland State Route 193.

. Glenmar's H-70 loading out excavated dirt unsuitable or backfill. The clam action of the 4-in-1 bucket does he job neatly and cleanly.

2. The powerful hydraulic clam action also grasps and moves old concrete curbing and chunks.

3. Pipe ranges up to 54" diameter — is carried to position for lowering-in.

4. Bulldozing, backfilling the trench, leveling and grading are also "PAYLOADER" jobs on this project.

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. . . for more details, circle No. 31 on Reader Service Postcard

NEW ROAD which will carry down-hill traffic runs along left side of old canyon. Old Grapevine route shown at right.

Freeway eliminates death trap

The Grapevine, a twisting, 7-mile grade on U.S. 99 which averaged one truck crash a week, is being remodeled into an 8-lane freeway. Job includes 3,200,000 yd. of earthmoving and 88,000 yd. of concrete.

THE GRAPEVINE, seven miles of celebrated death trap on U. S. 99 which descends a twisted canyon through the Tehachapi foothills to the level floor of the San Joaquin Valley about 30 miles south of Bakersfield, is being remodeled into an eight-lane modern freeway by the Guy F. Atkinson Company under a $7,000,500 contract let by the California Division of Highways. The project covers construction of a new roadway on the opposite side of the canyon, which ultimately will carry northbound traffic, and the straightening and repaving of the present route which will be converted to the southbound lanes.

Earthmoving operations total 3,200,000 cu. yd. of unclassified material in five major cuts, the largest of which is 375 ft. high and involves removal of 350,000 cu. yd. of earth. The bulk of the cut material is being used to construct a long ramp from the edge of the foothills down to the valley floor. The fill slants across the plain to bring the northbound and southbound lanes back together at an interchange which forms the northern boundary of the project.

Drainage structures

The contract involves installation of more than 10,000 lineal feet of 10 x 10 ft. box culvert or open flume plus 27,000 ft. of culvert pipe ranging in diameter from 8 to 72 in. and including both concrete and steel pipe. Paving the eight lanes of roadway will consume 88,000 cu. yd. of concrete and 50,000 yd. of asphalt on the shoulders. Another 25,000 cu. yd. of concrete will go into the bridge structures and box culvert.

When completed the new road will have a consistent 6% grade and all sharp curves will be eliminated. It was not possible to reduce this relatively steep grade but the wider separated roadways and shallower curves are expected to cut down on traffic accidents particularly runaway trucks which careen over the embankment on the average of once a week along this heavily traveled highway.

Construction of the new road is not easy. Among the problems involved are: the traffic which must be kept moving; developing a water supply; and working in a narrow canyon further restricted by five

utility pipe lines, two carrying natural gas under high pressure and the other three carrying oil.

A sixth pipe line running through the project proved a big advantage in developing water for the job. This unused line was leased by the contractor and converted into a water main. Water was purchased from the vast Tejon Ranch which covers both sides of the project and connected to the pipe line.

Drainage installation

First order of business on the Grapevine job was to install drainage, primarily the box culvert open flume running through the bottom of the canyon. The contractor built movable panel forms, the inside forms riding on dolly wheels and the outside forms carried overhead on a steel traveler with outriggers at either side.

The invert and curbs were placed first and these became a highway for the trains of side and top forms which followed. The interior forms were made up of two inverted L panels forming the sides and top of the box. A gap was left between the pair of forms at the top and this was spanned by a flat steel plate, set on top of the forms. When the forms were in position, this steel plate was supported directly by a series of Acrow shores running down the center line of the culvert. Interior forms were braced with additional Acrow shores placed horizontally. When the interior forms were in place, steel channels were laid over the reinforcing steel, and the traveler carrying the outside forms moved forward. Forms were detached and quickly set into place. The carrier was run back and its temporary roadway removed.

Three days after the concrete was placed, forms were ready to move. Inside the culvert, the top center steel plate and its independent supporting shores were left in place. Inside form panels were released and moved forward to the next position independently. This left the completed section with a line of supports running down its center. These were kept in place until the curing process advanced far enough to give the culvert its specified strength.

Forms were built in 20-ft. lengths and used in groups of 5 to provide a 100-ft. section for pouring. At each joint, flat steel plates similar to those used along the top center were employed to close the gap between the panels. This provided an articulated form which could easily conform to curves or changes in grade.

At the peak of operations, the contractor had five form spreads going at various locations on the job. This was done to enable him to pour as nearly continuously as possible. A similar but much simpler operation was used to form the open flume portions of the drainage system. Here a steel frame on dolly wheels was moved along the invert carrying both inside and outside panels.

The earthmoving phases of the

(Continued on page 66)

BIG FILL, left, carries road out of mountains to valley floor. Grade matches existing ramp at right. Project ends at interchange.

TWO BRIDGES, concrete in foreground and steel, must be removed. Concrete will be burned out to prevent damage to salvageable steel.

BROKEN concrete from old road loaded in trucks for disposal in fill area. Resteel in old road was cut with torch to separate chunks.

NEW FROM DODGE FOR 196

The thriftiest trucks, in the widest tonnage range, Dodge has ever built . including totally new cab-forward models with diesel or gasoline engin

Name your job. There's a Dodge truck to do it. For Dodge has never had a line-up as great as this new 1 truck platoon. Spirited panels and pick-ups that deliver up to 200 horsepower. Rugged stakes with up 19,500 lbs. G.V.W. Husky 4-wheel-drive models with wheelbases from 108″ to 174″. All these and more m Dodge your smartest choice for efficient, low-cost hauling. And in the heavyweight class, Dodge introduce completely new line of cab-forward models, trucks engineered to put real muscle into your biggest jobs, tru whose new Servi-Swing fenders open with a simple latch and allow you to walk right up to the engine! See your Dodge dealer. He'll be pleased to give you the full Dodge truck story for 1960.

DEPEND ON **DODGE** TO SAVE YOU MONEY IN **TRUCKS**

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"JOB-RATED" FROM 4,250 LBS. G.V.W. TO 76,800 LBS. G.C.W.

TLINE pick-ups head their class in looks; load space, power. 4-wheel-drive optional.

FORWARD-CONTROL chassis put famous Dodge dependability under the body of your choice.

VAN and other special bodies are easily accommodated by most 1960 Dodge trucks.

TOR models with compact new 89¼" BBC ger trailers, bigger legal payloads.

STAKE bodies from 7½' to 14' are built by Dodge on models to 19,500 lbs. G.V.W.

TANDEM units provide top hauling strength for dump and other extra-rugged operations.

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AREA manager Evan Millington in charge of Grapevine and other San Joaquin Valley jobs.

PAVING spread, shown here completing resurfacing job at end of Grapevine grade, places 24-ft strip using a Blaw-Knox spreader and two Lewis leveling and finishing machines.

The Grapevine

(Continued from page 63)

work were complicated by the wide range of material in the cuts. Instead of putting in one spread capable of handling anything from soft earth to hard rock, the contractor employed several types of earthmoving spreads tailoring the equipment to fit the material.

Evan Millington, area superintendent for Atkinson and the chief field executive on the Grapevine project, noted that wherever possible, equipment was carefully matched to the type of material in order to move the material in the most economical fashion and with the least damage to equipment. On a number of occasions, the earthmover spread was pulled off a cut, and a shovel and truck operation substituted.

In earthmoving operations, the critical factor is tires on the big rubber-tired units. At $2,500 per tire and up, you cannot tear up very many of these before the cost per yard goes over the budget. Consequently, when the scraper spread gets into heavy rock, Atkinson prefers to shift over to a shovel, even though the material still can be loaded by scraper.

Three types of earthmoving spreads are maintained on the job. These are scrapers, tractor-drawn scrapers, and shovel-truck outfits. Scrapers used are Caterpillar DW 20 units of 20-yd. capacity. At the peak of cut and fill work, 23 of these units were used in one spread.

Tractor-drawn scrapers are pulled by Caterpillar D8's and D9's and also have a 20-yd. capacity.

The shovel spread is based on a Bucyrus-Erie 88-B shovel with a 3½-yd. bucket served by 10 Euclid end-dump trucks of 16-yd. capacity. Although most of the earth work is completed, the shovel show is currently running two shifts per day, five days per week excavating the new grade in a narrow portion of the canyon where traffic has been re-routed to provide clearance.

The entire job stretches over some seven miles, and in places material was hauled as much as two miles for the fill. For these long runs, Atkinson used scrapers with 4-wheel prime movers. These units, he says, give better steering and are capable of higher haul speeds.

The DW 20 prime movers are also used for pulling compaction rollers. The job uses both sheepsfoot rollers and the Hyster grid roller, which in selected terrain is somewhat faster than the conventional sheepsfoot. About four passes are required to gain necessary compaction.

Paving operations on the new roadway are planned to start about Nov. 1. Aggregate for this job is being developed at a plant at the upper end of the job. Batching will be done at a local plant located close to the project midpoint. Paving will be handled by C. A. "Duke" Fowler, paving superintendent. The spread will be set up at the bottom of the long ramp and will work its way up-hill. The concrete on the northbound lanes will be 8 in. thick on the inside and 9 in. on the outside lanes. (Paving on the southbound lanes where traffic will be moving upgrade will be 10 in. thick on the outside and 8 in. on the inside.)

Pavement will be placed in two 24-ft. strips using a Blaw-Knox spreader and two Lewis leveling and finishing machines. The spreader is fed by two Worthington 1½-yd. pavers. Curing compound will be applied under subcontract by Concrete Machinery Co. using a special automatic sprayer on a traveling bridge. Concrete Machinery also will saw the joints using a special machine mounting 8 saws powered by four individual air-cooled engines. The saws are all mounted in the same plane and each cuts a portion of the transverse joint. Thus, the entire joint is sawed by moving the machine only thirty inches. Using this spread, Atkinson has recently completed repaving about 12.3 miles of U. S. 99 in the San Joaquin Valley. This project adjoins Grapevine and is known as Grapevine No. 2. The job was a concrete overlay on the existing asphalt pavement. A level bed for the header boards on this job was made by placing a shallow windrow of rock dust on either side of the pavement. Material was placed from a modified spreader box with a hopper and elevation controls at one end.

The staff of the Guy F. Atkinson Company includes Evan E. Millington, area project manager, Ted Jones, superintendent, Fred Hogadone, excavation superintendent, Norman Weaver, structural superintendent "Red" Bentley, master mechanic, Dan Lowry, engineer, Britt Clair, assistant engineer, and Kenneth Westfall, office manager.

CAREFUL TIMING based on two-way radio dispatching of transport units permits this contractor to get maximum efficiency out of equipment units. Needed at another job location this tractor-roller combination moves onto the trailer, gets a fast tie-down (above) and is off to the other site with minimum loss of time.

Radio control of low-beds cuts equipment needs

TYPICAL of one phase of Western construction is the large local contractor handling a wide variety of jobs with a high number of projects in progress at all times. These projects—varied as to size and type of activity—are often scattered throughout an area reaching as far as 100 mi. from his base of operations.

Syar and Harms in rapidly-expanding Vallejo, Calif. is an example of this type of contractor. Through smart use of two heavy-duty equipment transporters, this construction outfit has been able to eliminate one of the toughest problems presented by such an operation: meeting equipment requirements presented by carrying forward many jobs at the same time without maintaining an overly-burdensome inventory of costly equipment.

Largest of the equipment transporters is a Trailmobile trailer pulled by a Peterbilt tractor. This work horse has a gross weight capacity of 95,000 lb. A smaller transporter is also put to constant use by Syar and Harms. It is a LaCrosse tilt-bed trailer pulled by an International tractor and will haul loads up to 20,000 lb.

The transporters serve constantly to shuttle equipment from one job to another. This construction equipment shuffling avoids lost time that could result from crews held up for lack of a particular piece of equipment.

From the Vallejo headquarters, a dispatcher directs the operation of the two transporters by two-way radio telephone. A Kaar Engineering TR 500 Expeditor installation enables the headquarters to maintain constant communication with all job foremen as well as transporter drivers.

Typical of the wide variety of jobs in process in a widespread operating area are a street project in Montgomery Village—a housing tract development near Travis Air Force Base 20 mi. east of Vallejo—and a major building being constructed on the grounds of the Imola State Hospital at Napa, some 13 mi. north of Vallejo.

The job foreman on the Napa building project needed a D-6 Caterpillar tractor and a large sheepsfoot tamper which were in use at the Montgomery Village job. Forecasting this equipment requirements, he was able to advise the dispatcher at headquarters of the time he thought he would need the equipment. Radio telephone communication with the job foreman on the Montgomery Village job enabled the dispatcher to schedule transporter pick-up of the equipment for delivery to the Napa building job.

Use of the Kaar Expeditor radio telephone system has added a great deal of efficiency to the equipment shuffling operation by Syar and Harms. Mobile units are installed in two of the company's automobiles and five pick-up trucks as well as in the two equipment transporters.

THE Kaar Expeditor radios are installed on two autos, five pick-ups and the two equipment transporters, as well as at headquarters. Drivers of the transporters receive orders on the fly for their next assignment.

•

AEC to build $5,000,000 reactor

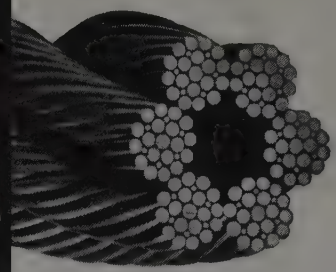
THE ATOMIC Energy Commission has selected, as a basis for contract negotiations, the proposal of Combustion Engineering, Inc., for design and operation of a nuclear test reactor. It will be built at the National Reactor Testing Station near Idaho Falls, Idaho. The proposed reactor, to be designated the Nuclear Test Plant (NTP), would be capable of testing reactor cores with power capacities up to 60,000 thermal kilowatts.

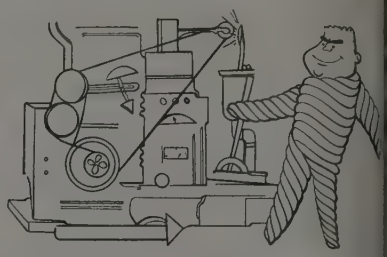
Upon completion of detailed engineering design, construction would be performed under separate contracts to be negotiated with architect-engineer and construction firms.

Tuffy® Wire Rope Tips

To Get The Most for What You Pay Be Sure You Get Correct Rope Lay

Wire Rope is a "Machine" of Moving Parts





...and Every Part Must Fight Destructive Forces

A "look inside" a piece of wire rope reveals a precision-designed assembly of working parts. The parts are core, wire and strand. They are subjected not only to external and internal stresses and strains, but also to heavy surface pressures and abrasions. All these fo may be sustained while the rope is r ning under very high speeds, and abru changing direction of motion. That's different uses require different structions of wire rope.

Tuffy Balanced Dragline Rope

Here's highest abrasive resistance with super flexibility. Better spooling. Smoother riding on grooves. And Tuffy Dragline Rope hugs the drum when casting for full load. Gives you longer service life, consistent dependability, in handling any material — wet or dry dirt, sand, gravel, rock, cement or minerals.

Extra Strength Alone is Not Enough... Wire Rope Must Be BALANCED

Sometimes extra strength is heavily stressed in advertising wire rope. While strength is important wherever wire rope is used, it is not the only important property. And there are cases where too much strength is a liability.

For example, manufacturers of scrapers have designed their equipment to take certain loads. These loads are controlled by, or subject to the ultimate strength of the rope. Larger ropes with higher strength do not break, but *the equipment itself begins to break up.*

Depending on your use of wire r the "job prescribed" Tuffy Sp Purpose Ropes give you the RI BALANCE of strength, toughn flexibility for greatest effici and longest service life.

Tuffy Balanced Slings & Hoist Lines

"Balanced" because they combine strength, flexibility and toughness in the proper relationship to do a better job longer.

Tuffy Slings and Hoist Lines are a top-performing team in every type of materials handling. The slings are made of a patented, machine-braided fabric that's next to impossible to knot or kink. The hoist lines are a special construction in which strength, flexibility and toughness are balanced.

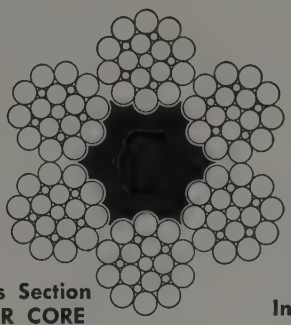
Tuffy Balanced Dozer Rope

Built to give you longer service with less downtime. Mounted on your dozer, a 150' reel of ½" or 9/16" can give you a big bonus of extra service. Here's how: when rope shows drum wear or is crushed on the drum, you feed through just enough to replace the damaged part. You save the 40 to 50 feet ordinarily thrown away. Also available in 300' and 500' reels.

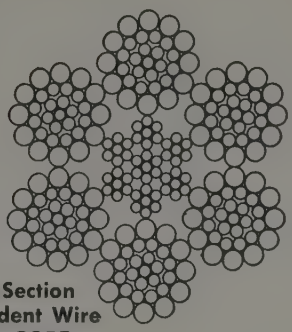
Tuffy Balanced Scraper Rope

"Balanced" construction makes it flexible enough to withstand sharp bends, yet stiff enough to resist looping and kinking when sla gives higher resistance to the shock impact on slack line. Moves more yard foot because it's specially built to t beating of drum-crushing abuse.

t's Take A Look at the CORE of Wire Rope



Cross Section
FIBER CORE

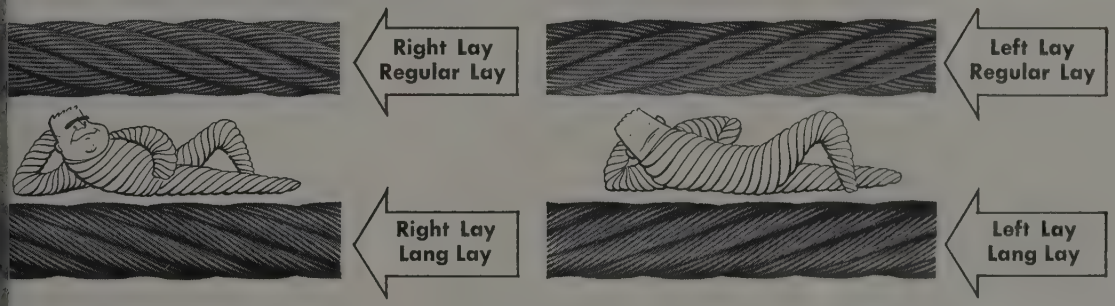


Cross Section
Independent Wire
ROPE CORE

ither fiber or steel. Fiber cores isually made from sisal, java, a or combination of such hard . Steel cores are either wire l or an independent wire rope core, which amounts to a separate wire rope. The core serves as a base for the strands, keeping the rope in round shape and providing clearance between the strands for freedom of movement.

It's easy to see why wire rope is a "machine"—deserving the same care in selection and use that is given to any fine machine.

ch Lay of Wire Rope is Right for What Use



lay" of a rope is described in di- nal terms. It's a **right lay** when rands pass from left to right the rope. It's **left lay** when they rom right to left.

Wire rope is also either **regular** or **lang lay**. In the **regular lay** the wires are laid in strands opposite in direction to the lay of the strands. In the **lang lay** rope, the wires are laid in the strands in the same direction as the lay of the strands.

Most wire rope is regular lay. It has the greatest stability under the widest range of uses. On the other hand, lang lay is used in applications where greater flexibility and longer wearing services are needed.

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4

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HEAPING loads are picked up by these two 18-yd. LeTourneau-Westinghouse scrapers hooked up in tandem and pulled by Model C prime mover. The electric power system for the controls simplifies the hook-up.

Tandem-rig doubles scraper capacity on grading job

CONTROL panel has three extra switches, upper right, to operate second electrically powered scraper.

UNIVERSAL joint hitch was made by lengthening gooseneck 12 inches and adding standard 4-wheel unit coupling.

A LE TOURNEAU-WESTINGHOUSE Model C prime mover is successfully pulling two 18-yd. scrapers in a tandem rig built for Al Periera, San Francisco Bay Area grading contractor, in a move to beat today's high cost of operation.

The new unit is at work on an 85,000-yd. subdivision grading project at Pinole, Calif., where it performs for an almost daily parade of contractors and equipment men. The performance is so successful that LeTourneau-Westinghouse Co. is reported seriously considering manufacture of the tandem rigs as part of its equipment line.

Working in rock-free clay soil loosened with ripping teeth, the tandem machine is loaded in 40 to 55 sec. by a single Caterpillar D8 push tractor. It hauls about 40 heaped yards, according to the contractor's estimate, negotiates a moderately steep grade on the return trip without assistance, and easily keeps up with an identical single-scraper L-W unit. In tests it has negotiated 18% grades. The tandem uses about 13 gal. more fuel per shift than the single unit and, of course, hauls twice as much material.

This is the performance Periera had in mind when he called on Blakemore Equipment Co., Oakland distributor of L-W machines, to order a new scraper. "Make it a double," he said.

So they did. Periera ordered as a basic unit a C Pull with 18-yd. scraper. The two-wheel prime mover was powered by a 270-hp. Cummins turbocharged diesel with an L-W torque converter transmission. To this unit was attached a second matching scraper.

Attachment was made in the Blakemore shops by welding a plate and universal hitch block to the top of the push-block frame of the forward scraper, and reinforcing the frame with additional steel channel members. A standard swivel hitch used on 4-wheel model pull-type scrapers, taken from the distributor's parts stock, was used to join the two scrapers. The first hook-up was unsuccessful. The pivot was set too far back on the frame, and on tight turns the rear member tended to swing the leading units to the inside. The plate was moved forward to bring the pivot directly over the rear axle of the leading scraper, and that problem was solved.

The L-W earth-movers use a 300-volt electrical system to power the various scraper operations: hoist, apron and tail gate, as well as for steering. This electrical power system made addition of the second scraper a relatively easy job. Electric leads were run back to the trailing scraper to power its three motors, and a bank of three switches was added to the instrument panel.

It was necessary to modify the quick-drop air-operated clutch on the bowl hoist. This clutch is designed to disconnect the cable motor and let the bowl drop, for a fast loading or braking. Power is provided by a compressed air re-

WNER Al Periera, left, and son Fred who operates the double unit stand beside a full load. igger tires are used on center wheels to take weight of second scraper.

ease through a valve at the head nd of the line. The line was too ong, causing a delay in releasing ir pressure at the second scraper, o the valve, operated by a sole- oid, was switched to the motor nd. Niall Quinn of Blakemore Equipment Co. said the job took nly three days and proved ex- remely easy.

The tandem rig shows little tend- ncy to jackknife. The back bowl sually is loaded first, with power eing applied to the prime mover wheels to keep the rig straight. Coming down steep slopes it can e braked by dropping one or both ans.

The distributor believes the tan- em rig will have wide application n earth-moving jobs. It was noted hat its advantages include high ca- acity (rated 36-yd. heaped), easy oading, and versatility. For heavy- luty work, the 270-hp. C prime nover is interchangeable with a arger 370-hp. B tractor; or the econd scraper can be dropped off nd the unit operated as a single craper.

Owner Al Periera likes his tan- em rig as much for what it hasn't ot as what it has. Among the fea- ures that are absent: two tires at 1,400 each, one engine, and one perator at substantially $5 an our.

Periera observed that since he tarted as a grading contractor in 940, the cost of equipment has one up five times, and wages have ripled, but his equipment revenue er hour has not quite doubled. This, he says, puts him into a tight ost squeeze. Part of the squeeze, the low bids for earth-moving, is brought on by amateurs trying to break into what they think is a good business. "After one year, they are out," he said, "but in that one year, they can ruin the price, and there always seems to be somebody to take their place."

Periera keeps detailed cost records, charging his equipment to each job as if it were a rental. With these figures in mind, he is highly conscious of rising costs. The tandem scraper is an effort to combat these costs, and represents an investment of about $62,000, compared to $42,000 for a single unit. Savings are sufficient to persuade him to order a second tandem. This one will have the optional GM 8V-71 diesel of 270 hp. and Fuller sliding-gear transmission. Blakemore Equipment Co. will again assemble the rig from standard L-W Tournapull, scrapers, and components.

Meanwhile, back at the factory, serious studies are under way toward including Periera's cost cutting rig in the company's line.

Tandem scrapers are not a new development. The first ones—twin LeTourneau cable controlled Carryalls—were used with crawler tractors as far back as 1935. More recently, in 1956, rubber-tired units were hooked in tandem to enable Ferry & Crow to make the "Big Cut" leading to the Carquinez Bridge for a record low bid of 25.6¢ per yd. (*Western Construction, October* 1956).

However, the current development is believed to be the first tandem application for general earth-moving.

CONCRETE spread by Blaw-Knox spreader at head of Daley Corporation paving train. One side of form rides on header rails while other moves on previously placed slab. Cement-treated base was plant-mixed and compacted between these same forms.

Modern equipment train On San Diego freeway job

CEMENT-treated base mixed at plant and spread inside headers. Spreading, compacting and grade cutting operations are shown in this over-all view of project.

USE OF MODERN equipment and production-line techniques marked the San Diego freeway construction project recently completed by Daley Corporation.

The contract, which covered about 2 mi. of new roadway, included 1,030,000 cu. yd. of excavation, placement of cement-treated subgrade, and portland cement concete surfacing, as well as plant-mix surfacing on untreated base. Also included was construction of a box girder overcrossing bridge.

Concrete surfacing was placed in 12-ft. strips. The paving process was speeded by placing the CTB in "ready-mix" form within the header boards, and spreading and compacting it to proper depth. Equipment used in connection with the cement-treated subgrade consisted of a Michigan loader with belt feeder attachment which was operated outside the header line feeding plant-mixed cement-treated subgrade material to the grader ahead of the spreading machine. A Blaw-Knox grade cutting machine, a pneumatic roller, a 12-ton tandem waffle-wheel roller, a 1,500-gal. distributor and ten 10-wheel dump trucks completed the spread.

Paving train

The concrete paving train was made up of a Rex 34E mixer, a Blaw-Knox spreader and Blaw-

Knox tamper, and Johnson float finisher. An average of 14 batch trucks, each hauling four 1½-yd. batches, furnished material to the mixer. Metal strip weakened plane joints were placed at 60-ft. intervals in initial lane and at 30-ft. intervals, or opposite all working joints, in adjoining lanes. Sawing also was used on the intermediate joints. The average daily pour on the longer runs amounted to 810 cu. yd.

In the plant-mix surfacing operation, material was produced at Daley's commercial plant and hauled to the job in 10-yd. dump-trucks. It was spread by Barber-Greene pavers on the main lanes and with Caterpillar No. 12 motor patrol in the irregular areas. Compaction was done by one rubber-tired roller and two 12-ton tandem rollers. Distributor truck was used for priming and seal.

Grading operation

The grading operation was sublet to Esby C. Young, LaMesa, Calif. Of the more than 1,000,000 cu. yd. excavation, about 300,000 cu. yd. was excess, and was disposed of at various locations, including the Balboa Park Road which took about 135,000 cu. yd. This material was taken from the western portion of the project, and hauled to the Balboa Park Road fill by trucks. Equipment on the grading operation included a 1½-cu. yd. Link-Belt shovel, 1-cu. yd. Michigan loader, 1 D-8 ripper tractor, 3 D-8 push tractors, three 10-wheel dump-trucks, one D-8 with rubber-tired compactor, one D-8 with sheepsfoot, two 3,800-gal. water trucks, two No. 12 Caterpillar graders, 6 DW 20 scrapers, one DW 21, and two Euclid scrapers. Grading operations included placement of 128,000 yd. select material on structural sections, and 25,000 yd. of top soil placed at various locations for planting.

The concrete bridge was constructed by Harry Muns of San Diego; electrical work by Ets-Hokin & Galvan; and erosion control items by Jack W. Brem.

Personnel

Inspection of the work was under supervision of J. Dekema, district engineer, District XI, California Division of Highways; J. F. Jorgensen, assistant district engineer; C. E. Walcott, district construction engineer; and James A. Jesperson, resident engineer.

FEEDER attachment mounted on Michigan loader handles truck delivered CTB. Lift is placed with tractor-drawn spreader and compacted by tandem waffle-wheel roller.

FINAL trimming of base material is done with Blaw-Knox grade cutter with minimum of handwork. Compacted subgrade is then ready for seal coat and concrete surfacing.

FOLLOWING spreader is this Blaw-Knox tamper. Paving train is completed by a Johnson float finisher. Both metal strip and sawed joints were used.

3 HIGH-PRODUCTION CAT

MOTOR GRADERS...to fit any job!

HERE THEY ARE—Caterpillar's three modern, heavy-duty Motor Graders. Each is designed to outwork any machine of comparable size. Each is ruggedly built to deliver unequaled availability under the toughest conditions. Pick the one that meets your job needs—and you can count on it to do a whale of a job for you.

The No. 14, the industry's first and only Turbocharged Motor Grader, is the most versatile BIG grader ever developed. It operates at the highest practical working speeds with either a 12-foot or 14-foot moldboard. Built to handle the biggest jobs, it will deliver profitably for you on many applications. For example:

1. **Power Applications** like heavy grading, heavy ditching, rough grading and bank sloping.

2. **Control Applications** like light spreading, surface maintenance, fine grading and light blading.

The No. 12, known for more than 20 years as the "standard of the industry," has recently been improved to increase its superiority over similar-size graders. Here are some improvements that contribute to its greater capacity:

1. **Clearance** between the top edge of the blade and bottom edge of the circle has been increased to provide improved rolling action, allow more material to move across the blade.

2. **Blade Thickness** has been increased and blade beams have been increased in length and thickness to handle heavier loads.

3. **New Mechanical Controls** for reduced kickback, easier engagement.

4. **New Blade Controls** feature a positive mechanical lock—exclusive with Caterpillar. When control is in neutral, the power shaft is locked by a set of gear teeth to prevent creeping.

The No. 112 has also been improved recently—including the new blade controls mentioned above. Use the No. 112 on smaller jobs—none can touch it for efficient performance!

These are just some of many features that put Cat Motor Graders out front with higher production at lower operating cost. For the complete picture, see your Caterpillar Dealer. Ask him to demonstrate—just say when and where, he'll be there!

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

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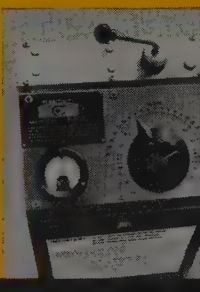
HIGH-PRODUCTION FEATURES OF CAT MOTOR GRADERS!



PRECO AUTOMATIC BLADE CONTROL Optional. Exclusive for Caterpillar Graders, improves performance on a wide range of applications. Operator selects desired slope on dial. Now transistorized for freedom from maintenance and adjustment, the unit automatically maintains blade slope within ⅛ inch in 10 feet.

MECHANICAL BLADE CONTROLS Standard. Exclusive, new Caterpillar mechanical blade controls ease engagement, provide precise blade adjustment and reduce kickback. "Anti-creep" lock makes blade stay put under load. Another plus: Operator, while seated, has unobstructed view of job.

NEW DRY-TYPE AIR CLEANER Most efficient air cleaner ever developed. Removes 99.8% of all dirt from intake air during every service hour. Can be serviced in five minutes. Cuts maintenance time (by as much as 70%) and substantially reduces costs. Extends engine life.

AMPLE THROAT CLEARANCE New design on the No. 14 and No. 12 permits increased clearance between moldboard and circle for maximum loads. Extra strength is built into frame, drawbar and circle to match engine power, absorb the punishment of rough work and assure accurate blading.

OIL CLUTCH Both the No. 14 and No. 12 are equipped with the most advanced clutch design in the industry—proved by millions of hours of use. Provides up to 2,000 hours' service without adjustment, the equivalent of about 12 months of "adjustment free" operation. Virtually eliminates down time for clutch repair.

. . . for more details, circle No. 35 on Reader Service Postcard

WESTERN CONSTRUCTION NEWS

New Calif. State Highway Engineer

APPOINTMENT of J. W. Vickrey, deputy state highway engineer for the past three years, to the post of California State Highway Engineer, has been announced. Vickrey assumed his new duties Oct. 1, succeeding George T. McCoy, who is retiring after serving as State Highway Engineer since 1943. Vickrey was top man on a civil service promotional list for the position.

Vickrey has been with the Division of Highways for 42 years, and for the past 12 years has been closely identified with the California freeway program as the division's chief planner. He was born in Indiana, in 1892, and was raised in that state, studying engineering at Danville, Ind., and later at Los Angeles Polytechnic Institute.

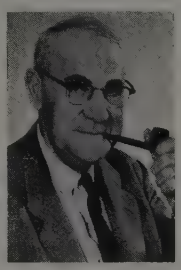
J. W. Vickrey

After some engineering work with the Southern Pacific Railroad and the Los Angeles County Surveyor's office, Vickrey went to work for the Division of Highways at Willits (Mendocino County) in 1917 as a transitman. For the next eight years he worked as a construction engineer and on survey parties in various parts of the state. In 1925 he was appointed assistant engineer in charge of location and construction for District III, at that time with offices in Sacramento, and three years later was appointed district maintenance engineer.

In 1932 he was transferred to District IX at Bishop as acting district engineer and the following year was appointed district engineer of District I at Eureka. He remained there until his promotion to traffic and safety engineer for the Division of Highways in 1938, and has been in the Sacramento headquarters office ever since. Vickrey was appointed assistant state highway engineer in charge of planning in 1947, and promoted to deputy state highway engineer in 1955.

McCoy retires

McCoy's retirement climaxes a notable career in engineering. After graduating from Whitman College in Walla Walla, Washington, and completing a course in civil engineering at Columbia University, his first major professional assignment was an assistant engineer on bridge and dam construction and highway relocation in connection with the Catskill Aqueduct.



George T. McCoy

In 1916 he went to work for the Washington State Highway Department and rose to be assistant state highway engineer. McCoy came to California in 1927 as assistant office engineer, and in the following year he was appointed administrative assistant to State Highway Engineer C. H. Purcell. In 1933 he was advanced to the position of assistant state highway engineer, becoming State Highway Engineer 10 years later.

In that office he was responsible for the expenditure of some two and a half billion dollars for state highway improvement and guided the development of California's highway system into a position of recognized leadership throughout the country. In 1958 McCoy received the MacDonald Memorial Award from A.A.S.H.O. for outstanding service in highway engineering. He was the first highway official in active service to receive it. He is a native of Milton, Oregon, born on September 12, 1889.

Strike still ties up the Glen Ganyon Dam work

FOR more than three months a strike has held up construction operations on the Glen Canyon Dam project. Being built by the Bureau of Reclamation under contract to Merritt-Chapman & Scott Corp., this record project on the Colorado River has been described in *Western Construction* on many occasions.

The strike started, according to reports, when several unions took men off the job in a dispute over the payment of a "premium" of $6.00 a day for work in a remote area. This item came up during negotiations with the contractor on a new contract to replace one that expired on June 1 of this year. At that time the project was running ahead of schedule, having been started in April 1957.

The contractor refused to agree to the payment of this premium contending that adequate housing facilities and shops were available in the new City of Page, Ariz., which eliminated any requirement for "remote area" pay. The premium had been paid by the contractor during early stages of the work and up until last January when arbitration ruled that the available facilities eliminated the need for paying the premium. According to the contractor this ruling was accepted by the unions at that time.

The unions, following some negotiations, submitted terms which included wage increases of from 65 to 75 cents an hour, but dropped the demand for the premium.

The Government, and particularly the Bureau of Reclamation, is directly involved in this situation since the contract includes an escalator clause under which the

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Government is required to compensate for 85% of any wage increase made by the contractor during the term of the job, with the 15% to be taken by the contractor. The wording of the contract, however, does not make the Government liable for any premium or subsistence pay increases. The Government has declined to accept its share in the proposed wage increase. Although not giving any formal reason for this refusal, it is rather apparent that the Federal Government looks upon the demand for wage increase as containing a hidden amount of premium pay. Further, the increase would tend to upset the prevailing wage rates in the State of Arizona.

The contractor, on the other hand, is standing fast on what it considers to be the contract agreement that the Federal Government pay 85% of any wage increase it negotiates.

Colorado resumes awarding contracts for highway work

ALTHOUGH the state highway department had not received the new regulations for highway controls or "expenditure planning" from the Bureau of Public Roads, Colorado began to advertise for highway bids on new construction projects early in October with bid openings scheduled during the month. Projects scheduled for bid openings represented an aggregate of 67.5 mi. of highway construction.

According to Mark Watrous, state highway engineer of Colorado, "We previously announced the pre-advertising of five high-altitude jobs in the hope that contractors would have an opportunity to visit the sites before they were covered by snow. The plan was to call for bids about October 15, but the unusually heavy September snows delayed this program. We're going ahead with the advertising of these 13 projects as scheduled, with more to follow—and we're hoping our program will not be disrupted by the contract control regulations, if and when we receive them."

Watrous indicated that the accumulated highway needs of Colorado were becoming so pressing that no further delay was acceptable in getting work under contract even though new regulations which will control the allocation and expenditure of Federal aid funds are not yet available.

Treatment plants ordered

FOLLOWING a public hearing at the request of the state pollution control agencies of both Oregon and Washington, six cities in Washington, and Portland, Ore. were ordered to build major sewage treatment plants by July 1961. The requirement also provides that present facilities be improved by next year.

"X" MARKS THE SPOT ON THE ARIZONA DESERT

This plastic marker is one of more than 400 used in the aerial mapping project being carried out by the Arizona Highway Department. Each target consists of two plastic strips 36 in. wide by 40 ft. long. They are placed at 2-mi. intervals, opposite numbered mileposts. Flying at 12,000 they are targets for the pilot and show clearly in the photographs. The mapping project of the photogrammetry division covers the 1,200 mi. of Interstate System in Arizona.

$16,641,000 contract for underwater tube

THE California Department of Public Works has awarded a contract for the construction of the Webster Street Tube under the Oakland Estuary between Oakland and Alameda. The low bidder was Pomeroy-Bates & Rogers-Gerwick, San Francisco, at $16,641,000. Eight bids were received. Second and third low bidders were Peter Kiewit Sons' Co., San Francisco, $16,953,480, and Alameda Tube Constructors, San Francisco, $17,170,493, respectively.

The tube will be the second underwater highway crossing in California. The Posey Tube between Oakland and Alameda, which the Webster Street Tube will parallel and supplement, was completed in 1928. Of the total cost of the tube, $9,000,000 is provided in the current State Highway Budget. The balance will be allocated in future years. Site of the new tube is about one block west of the present Posey Tube. When the project is completed, in about three years, the Webster Street Tube will carry one-way traffic to Alameda and the Posey Tube will be converted to handle one-way traffic to Oakland.

The new underwater tunnel will be 3,350 ft. long, portal to portal and will provide a two-lane roadway. The underwater portion of the tube will be constructed by sinking precast sections into a trench. Twelve tube sections, each 200 ft. long and 37 ft. in diameter, will be built in dry dock, floated to the proper locations, sunk in final position, and connected at a depth up to 90 ft.

The Webster Street Tube will be the twelfth underwater vehicular tube to be constructed by this method throughout the world. The Posey Tube was the first.

Unfavorable project report

A SPECIAL Bureau of Reclamation report on a finding unfavorable to the development of the Pine River Project Extension in southwestern Colorado has been forwarded to the Congress. On the basis of the report, construction of the authorized $2,200,000 Pine River Project Extension will be indefinitely deferred. The Bureau of the Budget, in a letter accompanying the document, indicated that it had no objection to submission of the report to Congress.

Yard after yard of ready-mix concrete hauled by Mack trucks is used to build retaining wall at construction site.

Brawny Mack Model B-63SX 47,000 lbs. GVW dumper helps in excavation for Pittsburgh hotel foundation.

Heavy loads meet their match in rugged Mack dumpers, whose quick cycling keeps shovel busy at underground garage project.

. . . for more details, circle No. 38

Preliminary work advances on Mountain Sheep project

ANOTHER forward step was taken in the preliminaries to building the 690-ft. Mountain Sheep Dam under the application of the Pacific Northwest Power Co. to the Federal Power Commission. The dam would be located on the Snake River above the mouth of the Salmon River. The current field work, which is intended to move the work forward another step, includes drilling at the site to permit further engineering work.

The organization which has applied for license to build this project is a combination of private utility companies in the Northwest with a proposal representing one of the largest and costliest projects ever undertaken by private utilities. The Mountain Sheep Dam would have a generating capacity of 2,000,000 kw., and the total cost of the project would represent about $250,000,000. The 690-ft. concrete arch would be the highest of its kind in the United States, while the reservoir would extend almost 60 mi. up the Snake River to Hells Canyon. By locating the reservoir on the Snake River above the mouth of the Salmon River, the project reduces the fish problem.

Utah is the first state to complete road program

ACCORDING to information released by the U. S. Bureau of Public Roads, Utah is the first state to complete its emergency road program. This is the plan that provided for additional funds for highway building under the Federal Highway Act of 1958. The special program was commenced as a means to speed up the highway program and to stimulate employment.

Under the provisions of the Act, Utah was allocated $3,798,038 for work on the primary, secondary, and urban systems. This was to be matched with state funds on the basis of 83% Federal funds and 17% state funds. The money was to be used for construction projects which had to be placed under contract or have the work started before Dec. 1, 1958. The work had to be completed prior to Dec. 1, 1959.

The State Road Commission placed under contract 17 projects which involved over 72 mi. of new construction. The work also included six bridges.

Contract awarded for gates of Oahe Dam intakes

THE Western-Knapp Engineering Co. of San Francisco has been awarded a contract to construct seven intake superstructures as part of the powerhouse development on the Oahe Dam across the Missouri River near Pierre, South Dakota. WKE's bid was the lowest of five bids submitted for construction of the huge concrete structures.

Work will begin immediately and the first concrete will be poured on the project in March of 1960. The seven intake superstructures, each 145 ft. high and approximately 40 ft. in diameter, will be of reinforced concrete. These intake structures when completed will be used to control the flow of water from the pool behind the dam to the powerhouse below.

A dike has already been constructed around the area where construction is to take place. This dike will be removed when the Oahe power plant is ready for operation after December 1961.

Bid call for Glen Canyon 155,500-hp. turbines

THE Bureau of Reclamation has called bids from manufacturers for eight turbines for the hydroelectric plant at Glen Canyon Dam. The Glen Canyon powerplant, at the toe of the dam, will have an installed capacity of 900,000 kw. The invitation calls for furnishing eight 155,500-hp., 150-rpm., vertical shaft Francis-type hydraulic turbines. These will turn eight 112,500-kw., 150-rpm., vertical shaft generators. Specifications for the generators will be issued next spring.

The Bureau states this will be the largest single contract for turbines in its history. Except for nine units in the right powerhouse at Coulee Dam, these will have the greatest horsepower per unit.

"The importance of completing Glen Canyon Dam and its associated features is a responsibility of which the Bureau is very conscious," said Commissioner Dominy, "in spite of the strike which has stopped construction on the dam this summer, we are pushing all other aspects of the job — including awarding of contracts for equipment — with the full expectation that a solution to the strike problem can soon be worked out by the contractor and the unions and that construction can be resumed."

SPECIAL REPORT TO CATERPILLAR OWNERS

CAT CATERPILLAR

Parts you can trust.
Dependable round-the-clock service.

CATERPILLAR PARTS ASSEMBLY EXCHANGES LET YOU
TRADE DOWN TIME FOR MORE GO TIME

re's news about the time-saving, money-saving n offered by your Caterpillar Dealer. It works s way:

Place your order for a parts exchange assembly that is available from dealer stock.

Remove your worn assembly and install the reconditioned unit.

Send your machine back to work and return the worn unit for credit.

Do-it-yourself repairs to parts assemblies must be weighed against earning losses. What would your equipment earn for you *during the extra time* it takes to repair parts assemblies? You can eliminate earning losses of this type and still pay no premium. Your equipment can actually be making money for you, when otherwise it would be down.

Cat assembly exchange units are guaranteed by your Caterpillar Dealer and can be ready to go on just as soon as the worn assembly is off. The cost? The cost compares favorably with the actual cost had you done the repair work yourself—often less because of the availability of special equipment and serviceman's skill in your dealer's shops.

You can exchange with confidence. When you purchase a Caterpillar Exchange Assembly, you can be sure it's been reconditioned by trained experts using authorized techniques, and only *genuine* Caterpillar parts are used. Every assembly exchange item is backed 100% to be in first-class condition.

Any way you look at it, Cat Parts Assembly Exchange is a good deal. You get a dependable, guaranteed exchange unit at approximately the same cost had you done the job yourself—and the time saved can be converted into cash by having your machine working and earning. Contact your dealer today for his list of Parts Assembly Exchange Units and prices.

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

EQUIPMENT RENTAL AVERAGES DURING 1958*

as compiled by Associated Equipment Distributors

RAWLERS	PER DAY DIRECT DRIVE	PER DAY TORQUE CONVERTER
9	$296.00	$386.00
9 w/No. 9A Dozer	367.00	457.00
9 w/No. 491 Scraper	497.00	507.00
8	211.00	330.00
8 w/No. 8A Dozer	270.75	398.25
8 w/No. 463 Scraper	366.00	485.00
7	142.00	
7 w/No. 7A Dozer	188.25	
7 w/No. 435 Scraper	265.00	
6	107.00	
6 w/No. 6A Dozer	148.50	
6 w/No. 60 Scraper	179.75	
4	74.75	
4 w/No. 4A Dozer	109.50	
4 w/No. 40 Scraper	113.40	

MOTOR GRADERS	PER DAY
No. 14	$138.00
No. 14 w/Scarifier Attach.	149.00
No. 12	117.00
No. 12 w/Scarifier Attach.	125.75
No. 112	93.00
No. 112 w/Scarifier Attach.	110.85
WHEEL TRACTORS w/2-WHEEL SCRAPER	
DW21-No. 470	$382.00
DW20-No. 456	482.00
DW15-No. 428	205.00
TRACTOR LOADERS, FRONT END LOAD and DUMP	
No. 977	$199.00
No. 955	108.00
No. 933	85.75

*Figures are national average rates and in no way reflect the going rate in any area, and cannot be so used. Actual rental costs vary depending on local practices and conditions.

SERVICE TIP

BEFORE you begin to tear down your equipment to remove a parts assembly, check with your Caterpillar Dealer on availability and delivery. The big advantage of Parts Assembly Exchange is in having the reconditioned unit ready to go on as soon as the worn one is off.

CATERPILLAR

. . . for more details, circle No. 39 on Reader Service Postcard

Army Engineers establish office at Larson Air Base

AN area office of the U. S. Army Corps of Engineers with an ultimate personnel of approximately 90 people has been established at Larson Air Force Base at Moses Lake, Wash. to service the Titan missile program installations to be constructed within that area, according to Col. Paul H. Symbol, Walla Walla District Engineer. The Area Office will absorb the present resident engineer's office at Larson and will supervise four project offices to be located at the air base and at missile sites.

The Larson Air Force Base Area Office will be in charge of Lt. Col. Robert W. Fritz as area engineer. C. B. Olmstead, present chief of contract administration branch in the Walla Walla District office, will be transferred to the area office as assistant area engineer. Chief of construction will be Walter J. Murphy, present resident engineer at Larson.

Four project offices with individually assigned project engineers and personnel of from 8 to 12 people will be established; one at Larson Air Force Base to supervise the Air Force construction work under way by the Corps of Engineers at the base and three project offices at missile complex sites. One site will be west of Othello, the second south of Warden and the third west of Ritzville near Batum. All three complex sites will be concerned with Titan Intercontinental Ballistic Missile installations.

Key area personnel of engineers and specialists will be transferred or reassigned from within the North Pacific Division.

New home for J. H. Pomeroy

J. H. Pomeroy & Co., Inc., has purchased an existing building and garage at 755 Sansome St., San Francisco, and plans its early conversion into a new headquarters. Robert N. Pomeroy, president of the international construction and engineering concern, reported the purchase and conversion plans.

Estimated completion date of the job is Mar. 1, 1960, when the company, located on Montgomery Street since the early 1930's, expects to move to the new location.

As modernized, the six-story Pomeroy Building will provide approximately 80,000 sq. ft. of office space.

ALASKA Newsletter

By CLIFFORD S. CERNICK, Fairbanks

COLLEGE IS BORN—One of the "proudest" projects now under way in the 49th state is the new Alaska Methodist University being built in Anchorage. The first building on the new campus is a multi-purpose structure now going up at a cost of $1,221,000. C & R Builders of Seattle is putting up the historic "first" building on a 470-ac. site located on the outskirts of Anchorage. Ultimately, the campus will have around 30 buildings scattered around an area which now is largely moose pasture. Next spring, a $700,000 dormitory is planned. A student union building also is included among the early-phase construction projects. Classes are scheduled to open in the fall of 1960. It will be the first university to be built in Alaska's largest city—and the second to be established in Alaska.

ERA OF PLENTY?—Alaska's carpenters voted to go back to work in September—the last half of the ninth inning so far as the Alaska construction season is concerned—and agreed to a 3-year contract with the Associated General Contractors. Does this mean the Alaska construction industry is in for an era of plenty? With labor tranquility now guaranteed for the next three years and with defense, housing, commercial and municipal construction requirements at peak levels it looks very much like Alaska will be in for a considerable boom. Some of the contractors I talked to feel that 1960 will be the biggest construction year in the peacetime history of Alaska. There are some good grounds for such glowing optimism.

GOLDEN CARRY-OVER—Carryover from the past season, which was seriously curtailed by the walkout, plus new military construction to be started next year, added to plans for a record-breaking road construction program and a heavy commercial schedule adds up to what looks like a season of tremendous activity. During the past season, budgeted military construction amounting to about $71,000,000, had been scheduled. Due to the strike, about one-third of this construction, amounting to approximately $23,000,000, was not started. We are informed that all of this work will be carried over until the next construction season.

1960 FORECAST—This column has received a report from a reliable source that new military projects slated for the 1960 season will amount to approximately $90,000,000. When you add the 1959 carryover of approximately $23,000,000 to the new work planned for next year, the $113,000,000 total emerges as one of the "big" years for Alaska construction. The only thing which could seriously jeopardize the 1960 season would be a prolonged U. S. steel strike.

HIGHWAY CONSTRUCTION—One of the brightest notes on the Alaska construction front was the announcement of the 1960 highway program recently. Richard A. Downing, commissioner of the Alaska Public Works Department, announced that the program will involve expenditure of $38,147,350 and will involve construction of more than 450 mi. of highway and 24 bridges. The program is the largest ever undertaken in Alaska within a single year. It includes construction on 66 individual projects. Survey and design work has been programmed on an additional 26 projects. This jumbo-size road program is a direct result of Alaska's first participation as a state in the Federal highway aid program. As a full participant in the program for the first time, Alaska qualifies for a grant of more than $36,000,000 in Federal funds, to which the state will add a small percentage of matching funds.

PERSONNEL SHORTAGE—With the size of the construction program contemplated for 1960 expanding with each new announcement from Federal, state and municipal agencies, Alaskans are beginning to look at the personnel requirements for such a large-scale undertaking. For the first time in years, there probably will be an acute shortage of help to fill all the construction job openings. No shortage is foreseen in the always-plentiful supply of laborers. In the ranks of the more skilled crafts,

however, particularly in the earth-moving categories, the demand is expected to be heavy and the supply short.

UNTAPPED LABOR SOURCE—One possible source for the construction labor which will probably be needed next year has been suggested by State Labor Commissioner Lewis Dischner. He feels that no shortage of labor in the construction industry would develop if skilled natives were brought in from remote villages to help man jobs in and near the cities. He believes that this would be a far better method of recruiting workers than importing them from Seattle and other points since the natives in some areas are suffering from an economic slump. Dischner said the only trades in which the demand for workers now exceeds the supply is cement and block men.

RAMPART SURVEY—Work is being started immediately by U. S. Army Engineers on a survey of the engineering and economic feasibility of the proposed Rampart Rapids Dam on the Yukon River. The recent session of Congress appropriated $49,000 for a study of the Yukon River project. Earlier studies indicate the proposed dam could have an installed generating capacity of 5,000,000 kw. — more than twice the 1,944,000-kw. capacity of the nation's present largest hydro-power project.

RENEWAL PLANS CANCELED Plans for an urban renewal project in Juneau have been scrapped by order of the U. S. Urban Renewal Administration. One of the main reasons indicated for the cancellation was widespread discussion of proposals to move site of Alaska's capital to a more central location within the state. A large number of the state's legislators, particularly those from the Fairbanks-Anchorage areas, favor transferring the capital because of the inaccessibility and poor weather conditions of Juneau. Rep. Earl D. Hillstrand, chairman of the state House of Representatives Finance Committee, for example, believes the new Alaska capitol should be located in Anchorage, probably in a skyscraper structure costing about $20,000,000. The uproar about the possibility of moving the capital has Juneau-area residents somewhat worried.

S. S. Mullen Co., Inc.

...Breaking The Seattle Bottle-Neck

C.I.T. Is On The Job, Too!

Another bottle-neck breaker in the Pacific Northwest's giant freeway system is fast taking shape at Seattle as S. S. Mullen Co., Inc., rushes completion of a 1000-ft. approach for the Lake Washington Ship Canal Bridge.

The new bridge approach, a double-decked roadway specially designed to help ease Seattle's severe rush-hour traffic jams, is part of a big, new highway system. When completed, the system will link Portland, Oregon; Tacoma, Seattle, Everett, and Bellingham, Washington; and Vancouver, Canada.

Getting the job done efficiently requires plenty of big equipment. And, as Roy S. Brown, Mullen General Manager, points out: "That often means *new* equipment with the latest cost-saving design improvements. To stay competitive, we can't afford not to have the best.

"C.I.T. understands our problems. C.I.T. gives us the financial backing we need to get the most effici equipment for each job . . . and they make their fa ties available to us on a basis that fits in with the quirements of the heavy construction business."

How Job-Engineered Finance Plans Help Contractors

Payd Plan equipment financing terms to 6 years w payment schedules related to depreciation, or eq monthly payments over 36 months, or skip-paym plans where needed . . . these are just a few of the h ful financing tools offered by C.I.T. Corporation.

In addition to equipment purchase financing, C. can help improve contractors' bid and bond capac meet current operating expenses or other busi needs by arranging capital loans. C.I.T. represe tives know how to lay out "job-engineered" fina plans, carefully devised to fit the needs. Why not or write. No obligation, of course.

neral Manager Roy S. Brown (*center*), eman J. M. Malone (*left*), and C.I.T. resentative Al Keith discuss job prog- at the construction site. Job com- ion is scheduled for early fall 1960.

Utah ends three-month interruption in bidding

AFTER a lapse of three months the Utah State Road Commission has again begun to call for bids on state highway work. Utah estimates that it will receive a total of about $17,000,000 for its part of the Interstate system, which figure is about 30% under the amount originally scheduled for the state during fiscal year 1961. During the following fiscal year Utah would receive an estimated $18,700,000 for the Interstate which represents a cutback of approximately 10%.

The state will receive no cut in the amount of Federal funds allocated for the regular Federal Aid program and this allocation for Utah remains at $11,400,000 for the 1961 fiscal year. On a percentage basis, figures released by the Bureau of Public Roads indicates that Utah ranks third in the nation in anticipated increase in total vehicle registration for 1959. During the current year the national average will be an increase of 3.1% while Utah will have an increase of 6.1%.

Washington resumes bidding for highway contracts

ANOTHER Western state, this time Washington, has returned to calling for highway bids, with the clarification of the Federal Highway Program. Washington slowed bid calls down to a stop during mid-summer.

Bids totaling more than $1,500,000 worth of highway projects opened in mid-October indicated the break in the highway construction program.

A second and more important step will be the call for bids on continuation of the Seattle Freeway project and additional work on the freeway near Tacoma. This work will represent an aggregate of more than $13,000,000 in contract.

Contract for Gray Reef Dam

A $593,237 Bureau of Reclamation contract for construction of Gray Reef Dam on the North Platte River near Alcova, Wyo, has been awarded. The dam is a feature of the Glendo Unit of the Missouri River Basin Project. The contract, calling for completion within 600 days, went to the Davis Construction Co., Inc., of Grand Junction, Colo., on that firm's low bid. Eleven bidders submitted offers, ranging to a high bid of $884,383.

HAWAII Report

By ALAN GOODFADER, Honolulu

TOURISTS BOOM CONSTRUCTION—One boom leads to another here in Hawaii as contractors turn toward building hotel rooms needed by the Island's bustling tourist industry. The construction is being hustled along by the fact that Hawaii's more than 5,000 hotel rooms weren't enough to handle all the people who wanted to visit here this summer. There are already 1,298 rooms under construction here—mostly in Waikiki—and more are in the offing. Waikiki's two largest hotel operators have announced plans to construct nearly 2,000 rooms within two years. The local branch of the Sheraton chain has 332 rooms under construction and plans a new 600 to 1,000-room hotel. Hotel owner Roy Kelley, who builds his own, has 450 rooms under construction which are part of a 1,000-room expansion planned for Kelley's Edgewater-Reef complex in Waikiki. The William J. Kimi Co., which builds as well as operates hotels, has started work on an $850,000 hotel on the island of Maui. The Inter-Island Resorts chain hopes to have a $3,000,000 resort built on Kauai by July 1. Paul A. Heady, retired building superintendent for Roy Kelley, is building a 20-unit apartment hotel for himself in Waikiki.

PLENTY OF WORK—All the hotel building is helping drive construction totals to new highs. The Honolulu Building Department, whose totals of building permit declared values is an index to civilian construction on the Island of Oahu, says permits have been issued for $78,500,000 worth of construction in the first eight months of the year and it looks like the value of new construction will top $100,000,000 this year. Construction so far is running $11,000,000 ahead of last year's record. In August alone, permits were issued for $7,052,965 worth of construction in Honolulu. The General Contractors' Association's count of contracts in August totaled $11,200,000 compared to $8,600,000 in August, 1958. Almost half of this was for private housing.

OFFICES GOING UP—An urgent need for office space also is making work for the building trades. Office construction plans announced recently include two bank buildings, one nine stories high and the other of 10 stories; a million-dollar life insurance building; a 6-story, $750,000 Hawaiian Telephone Co. building; a 3-story combined garage and office building to cost $300,000 and other office space that will be combined with other uses such as hotels or stores. A research firm said here recently there was an immediate need for 100,000 square feet of office space.

PRIVATE DEVELOPERS GO BIG—Three multi-million-dollar private land development projects on Oahu were announced within days of one another. The largest—valued at $300,000,000—was a combined project of the Bishop Museum, Bishop Estate, the Oahu Sugar Co. and local builder Joseph R. Pao. It involves the development of about 13,500 acres of land above Pearl Harbor. Plans call for construction of 12,000 homes in the $12,000 to $40,000 price range, three commercial centers and a 150-ac. light industry area. A second project would develop a $5,000,000, 225-home subdivision in Oahu's Niu Valley. This development of 60 acres would include sites for a shopping center, park and church. Site preparation is expected to be finished later this year. The third project is planned by the Dillingham construction interests here. It envisions a $2,700,000 development of 40 acres in rural Oahu into a hotel, apartment, shopping and residential area.

FIRST OF ITS KIND—Pacific Construction Co. has received a $1,432,400 contract for the first Hawaii Housing Authority project to include homes especially designed for the aged. To be built are a 7-story and a 3-story building. The job includes 156 apartment units and is expected to be completed in December 1960.

FEDERAL FUNDS—President Eisenhower has signed a bill giving

Hawaii a $10,000,000 military construction program for the fiscal year ending June 30. The money would go for: Army, $1,518,000; Navy, $5,467,000; Air National Guard, $2,991,000, and National Guard, $145,000. In addition, Congress has passed a bill expected to give Hawaii more airport Federal aid. Hawaii would be put on a per capita basis as other states are.

MISSILE PLANT BIDS ASKED—The Navy has asked for bids to build a $250,000 to $500,000 missile plant at the Kaneohe Marine Air Station on Oahu. Bid deadline is Oct. 14, with a 5-month construction timetable set. The buildings will be part of the Pacific Missile Range facilities that will stretch from California almost to New Guinea, cost $4,000,000,000 to build and take 15 years to complete.

ASK INTERVENTION—Seven Maui contractors have asked the National Labor Relations Board to intervene in their 8-week building trades strike on that island. They ask that the activities of the Honolulu Building Trades Council, AFL-CIO, be investigated and that a representation election be held. The council seeks recognition as the bargaining agent for workers. Meanwhile, work is continuing on already started projects under a "common pool" arrangement using workers not honoring the strike.

BID NEWS—Anderson-Westfall Co. of Portland, Ore., has received $662,809 contract to build eight cement storage silos and a sacking plant for the new Permanente Cement Co. plant here.

A $23,000,000 power system would connect Utah, Arizona

A power transmission system to cost about $23,000,000 and handle the power generated at Glen Canyon Dam has been proposed to the Bureau of Reclamation by the Utah Power & Light Co. and the Arizona Public Service Co. The plan of the two utility companies calls for a 230,000-volt transmission line from the dam to Salt Lake City representing a length of about 300 mi. The Arizona company would build a similar line 155 mi. long to the vicinity of Flagstaff. These proposed facilities would make Glen Canyon power available to Utah, Idaho and Arizona.

LET YOUR MASSEY-FERGUSON INDUSTRIAL DEALE

IN ARIZONA:

Mesa
Lyle E. Trimble, Inc.
641 West Main

Phoenix
Trimble Equipment Company
1419 South Central Avenue

Tucson
Anderson Equipment Company
548 West Speedway

IN CALIFORNIA:

Anaheim
Wallace Tractor Sales
110 North Manchester

Bakersfield
E. O. Mitchell, Inc.
1610 East Truxton Avenue

Fresno
Farm Machinery Center
2632 South Elm Avenue

Indio

Modesto
Farm Equipment Center, Inc.
1220 South 99 Highway

Ontario
Glenn B. Dorning
1744 East Holt Boulevard

Oakland
Cook Brothers Truck & Equipment Company
7101 San Leandro Street

Oxnard
Coastal Equipment Company
2540 Ventura Boulevard

Redwood City
Bayshore Tractor & Equipment
3014 Bayshore Highway

Sacramento
New Island Equipment Company, Inc.
6450 Freeport Boulevard

San Diego

San Jose
Roose and Orlando
63 South Montgomery Street

Santa Rosa
Guanella Tractor Company
1240 Petaluma Hill Road

Visalia
Mid-Valley Equipment
2307 East Main Street

IN COLORADO:

Berthoud
Modern Farm Service, Inc.
357 Mountain Avenue

Canon City
McCrory Oil Company
1101 River Street

Grand Junction
Werth Implement Company
Fruita Highway

IN IDAHO:

Boise

NEWEST 134 IN THE EXPANDING LINE 164

MODEL 134
8,000 LB. CAPACITY

MODEL 164
,000 LB. CAPACITY

ROJAN makes what it takes for any job!

ow you can bid any size job — secure in the knowledge at this complete Trojan line fits any and all applications. ith the introduction of the 134 and 164, both one-achine owners and fleet operators alike may choose om a full working range . . . 1 to 4 cubic yards in lifting pacities from 5,000 to 24,000 lbs. . . . making available every operator a model precisely matched to his needs . . Add up the many Trojan benefits and features, you ill then see why any one of these models could mean tra profits from the very first working day . . . Put ourself ahead — ask your distributor to demonstrate the rojan model of your choice.

TROJAN 134

This 1⅓ yard machine, with an 8,000 lb. lifting capacity, has an 8′8″ dump height, 2′5″ forward reach and gas or diesel power.

TROJAN 164

Here is a 1⅔ yard loader with a 10,000 lb. lifting capacity, 8′6″ dump height, 2′9″ forward reach and choice of gas or diesel power.

AD NO. 44-42

The Trojan line includes models with lifting capacities from 5,000 to 24,000 lbs. and bucket capacities from 1 to 4 cu. yds.

THE YALE & TOWNE MANUFACTURING COMPANY
TROJAN DIVISION
BATAVIA, NEW YORK • SAN LEANDRO, CALIFORNIA

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

Low bids and contract awards

ARIZONA

Southern Industries, Inc. of Phoenix, submitted a low bid of $801,024 for 8.6 mi. of grading and surfacing on the East Rim Drive of Grand Canyon National Park in Coconino County. **Thayn Construction Co.** of Salt Lake City, Utah, submitted a low bid of $415,014 for 11 mi. of grading and surfacing on the North Rim Drive of Grand Canyon National Park in Coconino County. **Palmer Contracting Co.** of Phoenix submitted a low bid of $571,057 for widening, grading, and surfacing on 6.4 mi. of U. S. Route 666, near Safford in Graham County. **Wallace & Wallace** of Phoenix submitted a low bid of $220,563 for grading, surfacing, and draining on 1.2 mi. on the Parker - Parker Dam highway toward Parker Dam in Yuma County.

CALIFORNIA

Pomeroy-Bates & Rogers-Gerwick, of San Francisco received a $16,641,000 contract for construction of the Webster Street Tube under the Oakland Estuary between Oakland and Alameda in Alameda County. **Ray W. Byers** of Redding submitted a low bid of $511,100 for Schedules 1, 2 and 3, clearing site for Trinity Center, East Fork and Trinity River areas. Trinity River Division, Central Valley Project. A $201,154 contract was received by **Wulfert Co., Inc.** of San Leandro for installing barriers in the center dividing strip on 6.8 mi. of the Nimitz Freeway in San Lorenzo, Alameda County. **Milleman and Sooy,** Redlands, received a $321,989 contract for construction of barriers in the center strip on 14.1 mi. of the Hollywood and Santa Ana freeways in and south of Los Angeles, Los Angeles County.

COLORADO

Morrison-Knudsen Co., Inc., Johnson, Drake & Piper, Inc., Paul Hardeman, Inc., Olson Construction Co., and **F. E. Young Construction Co.** of Los Angeles, Calif. in a joint venture, submitted a low bid of $26,944,820 for Technical Facilities Complex 2A, 2B and 2C, at Lowry Air Force Base, Denver. **C. H. Leavell & Co.** of El Paso, Tex., submitted a low bid of $2,735,176 for Schedules 1 and 2, construction of guided missile maintenance shop, Pueblo Ordnance Depot, Pueblo. **Western Paving Co.** of Denver received a $321,000 contract for widening, grading and surfacing on the Mt. Evans and Echo Lake highway in Arapahoe National Forest in Clear Creek County. A $297,000 contract was received by **Siegrist Construction Co.** of Denver for 15.5 mi. of grading and surfacing on the Cedaredge - Mesa route in the Grand Mesa-Uncompahgre National Forest in Mesa and Delta counties.

NEVADA

A $646,606 contract was received by **Dodge Construction Co.** of Fallon for 10.8 mi. of grading, surfacing and related work on Primary Highway System, Churchill County. **Silver State Construction Co.,** Fallon, received a $160,543 contract for 1.8 mi. of grading and

urfacing on Sheckler Road southest of Fallon, Churchill County.

OREGON

Hannan Bros. Co., Portland, subitted a low bid of $381,705 for ridge construction on the Washgton County Line-Highlands Inerchange section on Sunset Highay in Multnomah County. **S and Construction Co.,** Portland, subitted a low bid of $422,095 for onstruction of the Grande Ronde iver Bridge on the Glover-Perry ction of the Old Oregon Trail in nion County. **J. A. Troxell** of eattle, Wash. received a $298,075 ontract for dredging and excaating from the navigation channel the Columbia River between ancouver, Wash., and Bonneville am.

UTAH

Lestwich Construction Co., Pro-, submitted a low bid of $786,-03 for construction of water disibution system, Bountiful Water nbconservancy District.

WASHINGTON

Bass Construction Co., Inc., Seate, received a $312,228 contract for 5 mi. of grading and surfacing King County. **Northwest Conruction, Inc.** of Seattle, received $185,920 contract for construcon of the Hood Canal Bridge nit No. 4, East Approach Highay in Kitsap County. A $95,327 ontract was received by **J. E. Vork, Inc.** of Bellevue for 1.8 mi. grading and surfacing in King ounty.

WYOMING

Korshoj Construction Co., Inc., lair, Neb., submitted a low bid of ,952,737 for Schedules 1 and 2, onstruction of Sundance TM Site 01-Cantonment Area in Sundance. $251,190 contract was received y **Knisley-Moore Co.** of Douglas r grading, draining, and surfacg, construction of 1 bridge and iscellaneous work on 4.4 mi. of e access road for Site "C" near heyenne in Laramie County. **Tagart Construction Co.** of Cody reived a $227,000 contract for grading and surfacing on 6.7 mi. of the hell Canyon Highway route in ig Horn National Forest in Big Horn County. A $168,000 contract as received by **Aslett Construction o.** of Twin Falls, Idaho, for 2 mi. grading and surfacing on the Snake River Canyon route in Targhee National Forest in Lincoln County. **Midland Construction Co.** of Cheyenne received a $119,654 contract for 5.9 mi. of grading and surfacing on the Seminoe Dam road north of Sinclair in Carbon County. **Woodward Construction Co.,** Rock Springs, received a $109,979 contract for 6 mi. of grading, draining, and surfacing on the Lower Fontenelle road in Lincoln County. **Morrison-Knudsen Co., Inc.** of Boise received a $687,149 contract for grading, culvert installation, and surfacing on 7.1 mi. of 4-lane divided highway west of Biglow Bench in Uinta County. **Summit Construction Co.,** Rapid City, So. Dak., received a $663,156 contract for 6.7 mi. of grading, surfacing, and related work on the Upton-Moorcroft road from Upton northwest in Weston County. A $550,-734 contract was received by **C. H. Elle Construction Co.,** Pocatello, Idaho, for grading, draining, and miscellaneous work on 2.5 mi. of the Tensleep-Buffalo road in Washakie County.

"This is a job for Autocar . . . nothing less"

There are some jobs just too tough for the "runners-up"—and in the construction field Autocar custom-engineered trucks demonstrate every day that it would be costly to try to get along with anything less.

Hauling extra-heavy loads through mud or rocky ground and up steep grades—then rushing downgrade again for still another load—is tough work. But here is exactly where Autocars prove what their unequaled strength and stamina really can do to help owners carry the heaviest payloads in the shortest time and with more profit.

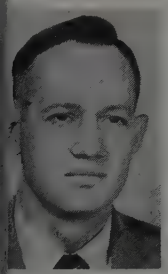
Why settle for less than the "world's finest" on *your* hauling jobs?

Autocar
"World's Finest"

Division of
The White Motor Company
Exton, Pa.

ENGINEERS and CONTRACTORS

Appointment of two civil engineers, **James A. Willis** and **Arthur Beard,** to the staff of the Portland Cement Association is announced by **Warren G. Burres,** district engineer in charge of the Los Angeles office. For the past three years Willis has been a structural



Willis

Beard

designer with Thomas G. Atkins, structural engineer in San Diego, prior to which he was with the East Bay Municipal Utility District in Oakland. He will work out of San Diego as PCA's representative in San Diego and Imperial counties. Beard joins the Association following eight years service as a Naval construction officer. He also spent five years as an engineer with the Orange County road commission. Beard resides in Costa Mesa and will represent PCA in the city of Long Beach and in Orange County.

* * *

The Bureau of Reclamation announces several personnel changes in its Western regions. Appointed director of Region VII with headquarters in Denver, is **John N. Spencer** who has been acting director since **R. J. Walter, Jr.** moved to the office of the chief engineer. **James L. Ogilvie** has been named assistant regional director. Region VII comprises eastern Colorado, southeastern Wyoming, Nebraska and part of Kansas.

The new assistant regional director for Region I at Boise, Idaho, is **Boyd Austin.** He succeeds **G. G. Stamm** who recently became chief of the Division of Irrigation and Use in Washington. At Region III, Boulder City, Nev., Director **W. H. Taylor** has been named to the newly established position of chief of the Division of Power Operations and General Engineering. He will be located in the office of the chief engineer in Denver.

* * *

Lt. Col. Robert W. Fritz spent two weeks at the District Office of the Corps of Engineers at Walla Walla, Wash. before proceeding to undertake his latest assignment as area engineer for the new Larson Air Base Area Office at Moses Lake, Wash. A member of the American Society of Civil Engineers, Colonel Fritz has been on an assignment in France for the past several years.

* * *

Charles E. McGraw has been named special vice president of Utah Construction & Mining Co. and assistant manager of its construction division under General Vice President **C. S. Davis.** For the past four and a half years McGraw

Charles E. McGraw

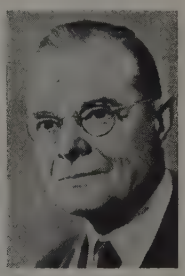
has been general manager of the operations of Marcona Mining Co. in Peru, of which Utah is a joint owner. A member of the American Society of Civil Engineers, McGraw spent four years with Utah's construction division before his Peruvian assignment.

* * *

Major John F. Kimbel has been assigned as executive officer with the Portland District, Corps of Engineers, following a 3-year assignment in London, Eng. During 1949 and 1950 Major Kimbel was in San Francisco, attached to the U. S. Naval Radiological Defense Laboratory.

Charles R. Graff, manager of Raymond Concrete Pile Co.'s San Francisco district, has been named assistant vice president in charge of Raymond's West Coast operations. He succeeds **Otis C. Struthers** who is retiring. Graff will continue as manager of the San Francisco district and will make his headquarters here. The Los Angeles district, directed by Struthers, will be taken over by **A. Pearce Godley,** former district manager in Kansas City. A registered civil engineer, Graff joined Raymond as a field engineer and later served as superintendent on West Coast construction projects. Struthers has been in charge of Raymond's operations on the West Coast and in Salt Lake City since 1923.

Graff



Struthers

* * *

Sherman Burton has been named resident engineer on a steel girder remodeling job south of Bountiful, Utah, according to **Harry E. Wilbert,** district engineer for the Utah State Road Commission. Weyher Construction Co. is doing the work.

* * *

Frank A. Chambers has taken over the post of deputy director of the California State Department of Public Works. The post was vacated by **J. F. Wright,** recently appointed deputy director of the State Department of Water Resources.

* * *

Westerners elected by the American Society of Civil Engineers to serve with its new 1959-1960 president, **Frank A. Marston** of Boston, are: **Lawrence A. Elsener** of San Francisco. Elsener will serve as vice president of Zone IV which encompasses the West Coast section of North America and Hawaii. Also **Trent R. Dames** of Los Angeles, who was elected director of District II, composed of California, Arizona, Utah, Nevada, and Hawaii.

CATERPILLAR'S
PROJECT
PAYDIRT

PROJECT PAYDIRT pays off again...*

NEW CAT D7 SERIES D

***PROJECT PAYDIRT:** Caterpillar's multimillion-dollar research and development program to meet the continuous challenge of the greatest construction era in history with the most productive earthmoving machines ever developed.

TRACTOR

HE PAYOFF FOR YOU: MORE PRODUCTION AT OWER OPERATING COST THAN EVER BEFORE!

By any comparison the *new* Cat D7 Series D Trac-r is champ in its class. It packs 140 horsepower . . . atched with 80% more lugging ability than the revious model for greater production. And it de-vers this production with lower operating and main-nance costs. The payoff is increased money-making erformance *on your job*—performance that no other actor in its power range can match!

Major improvements, developed by Caterpillar's roject Paydirt, account for the increased capacity of e new D7. These improvements affect the engine, ower train and undercarriage. They're explained in etail on the right.

Along with the new features, the best of the me-tested features of the Series C model have been tained. One of many examples: the exclusive aterpillar oil clutch, which delivers up to 2,000 hours one whole season—without adjustment!

For complete facts about the leader in this class, e your Caterpillar Dealer. He's ready to give you e whole story about the new D7 Series D, as well as her achievements of Project Paydirt. He'll be glad demonstrate, too, for this D7 really shines—in action. ay when and where—he'll be there!

aterpillar Tractor Co., San Francisco, Calif.; Peoria, Ill., U.S.A.

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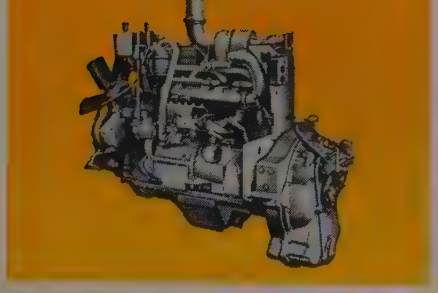
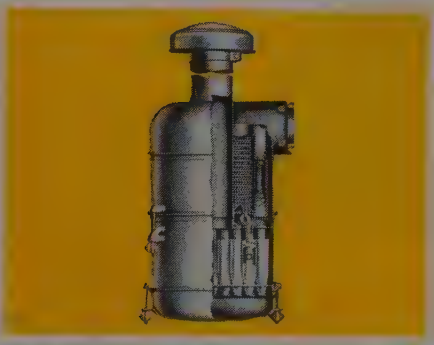
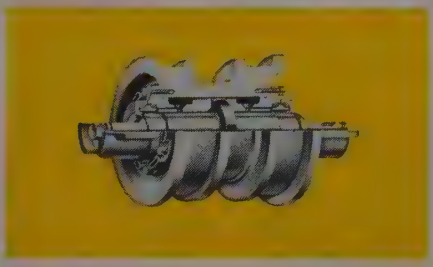
PROVED IN THE FIELD



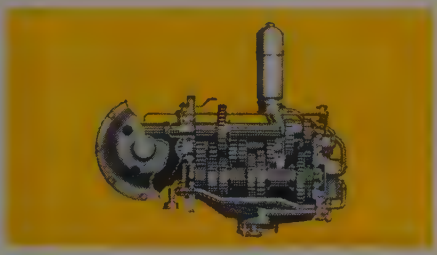
NEW TURBOCHARGED ENGINE. 140 flywheel horsepower . . . 112 drawbar horsepower make the new D7 even more productive. In-seat starting is available as an attachment. And in addition to the 9% horsepower increase, the new Turbocharged Cat Engine offers 80% more tractor lugging ability. The payoff: greater capacity to lug against big loads without stalling—for higher production, greater operating economy.



NEW DRY-TYPE AIR CLEANER. Pioneered by Caterpillar, this new dry-type air cleaner uses cyclone tubes and cellulose filter element to remove at least 99.8% of all dirt and dust from engine intake air—during every operating hour, even under the most severe operating conditions. Filter element can be cleaned and re-used. Cleaner can be serviced in 5 minutes. The payoff: longer engine life, greater economy, less maintenance.



SERVICE-FREE TRACK ROLLERS. New lifetime lubricated track rollers, carrier rollers and idlers on the undercarriage are protected by exclusive Caterpillar floating-ring seals. They need no lubrication until rebuilding, eliminate on-the-job roller lubrication. In addition, track roller life is increased by improved load-carrying design. The payoff: greater economy, longer life, less maintenance.



PRESSURE-LUBRICATED TRANSMISSION. Transmission, bevel gear and pinion are now pressure lubricated with full-flow filtered oil, another development of Caterpillar's research program Project Paydirt. And new power train components, provided to transmit greater horsepower, feature a major increase in strength in the final drive gears. The payoff: longer lived gears and bearings for trouble-free operation.

. . . for more details, circle No. 47 on Reader Service Postcard

Ernest C. White, who once served as project engineer for The Dalles-Celilo Canal, has retired from the Portland District of the Corps of Engineers following 35 years of service. At the time of his retirement he was a civil engineer at The Dalles Dam.

* * *

On Sept. 1 **Donald S. Walter** ended a professional engineering career with the Bureau of Reclamation which started nearly forty years ago. For the past ten years

Donald S. Walter

he has been Regional Engineer for Region 1 at Boise, Idaho, which region encompasses Idaho, Washington, Oregon, west Montana and west Wyoming.

* * *

Haas and Haynie Corp., general contractors, San Francisco, have opened offices in Hawaii. **William Curlett,** vice president of the firm, will be in charge of the Honolulu operations. The new office was established in connection with Haas and Haynie's contracts for remodel-

William Curlett

ing hotel facilities, construction of a new 600-room addition and other projects for Sheraton Hotels, plus other developments in the Islands. Curlett has been associated with the building industry since 1934. He has been a member of the National Board of Directors of AGC.

* * *

Rockwin Prestressed Corp., Santa Fe Springs, Calif., announces the formation of an engineering group to specialize in the prestressed concrete field. Under the name of Rockwin Engineers, the new consulting service restricts itself completely to prestressed concrete, offering such services as design, checking, investigations, inspections, reports, and construction supervision. The new consulting service is headed by **Steven Galezewski,** a leading authority in prestressing.

* * *

Wade O. Halstead, principal estimator of building construction in the California Division of Architecture, retired from State service Aug. 31. A veteran in engineering and construction, Halstead at one time supervised many large construction projects throughout the state and from 1925 to 1933 operated his own general contracting business. He joined the Division of Architecture in 1935 as an estimator.

* * *

Norman F. Garton, Rear Admiral, USN (ret.) has been appointed vice president for project development at the Conley Engineering Co. of Los Angeles, as announced by **Hugh G. Conley,** president of the firm, which specializes in all forms of civil engineering.

SUPERVISING the jobs

J. W. Hardison is acting as superintendent on his own recent award to regrade and pave with asphaltic concrete the south two lanes of U.S. 10, and construct and pave Hiawatha Valley interchange ramps in Grant County, Wash. Assisting as operators in this $133,333 undertaking are the following: **Carl Jacobson,** finish blade; **W. P. McDonough,** Euclid TS-24; **L. W. Murray;** Cat dozer, and **Ray Brandon** and **O. B. Brandon,** Cat scraper. Paving is subcontracted to McAttee & Heathe, and crushing to Materne Bros. The job has been under way since July and will soon be finished.

* * *

R. R. La Vitt is acting as project manager and engineer on a $824,082 award to Hood Construction Co. and F. W. Case Corp. for Corn-

AT Maybell, Colo., Lakeside Construction Co. was recently awarded a contract to move 9,000,000 yd. of overburden, in addition to 4,500,000 yd. already being moved in a mining project. Shown here (l. to r.) are the men in charge: *Gale Nye,* foreman; *(Rex Jacobs,* a power equipment salesman); *John Moon,* superintendent; *E. J. Cox,* master mechanic; *Joseph Bartylak,* office manager; and *Orvil Karr,* foreman. They are working two 8-hr. shifts with 40 operators employed.

TO THE RESCUE!

Announcing
A New Service
For Fleet Operators

To cut maintenance costs | To reduce accident rate

A special training course for drivers and mechanics is now available through Mobil fleet representatives. Short and hard-hitting, with slide films and sound track, it teaches men in trucks to avoid common errors in safety and upkeep. Once they realize their mistakes, and see in shocking photos how these mistakes can wreck a truck, men grow more alert to hidden hazards. This new course (in either three sessions or six) can quickly pay off in lower operating costs. Fewer repairs—fewer overhauls—fewer accidents and lower insurance rates: these can be the rewards for you. For details, contact your local Mobil fleet representative.

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ing Canal pumping plant and discharge lines, part of the Sacramento Canals Unit of the Central Valley Project, Calif. Superintendent is **C. B. Reed. Jim Corning** is office manager. Foreman is **O. Osborne.** Under way since last July, the job will be finished next September.

* * *

John C. Frederick, project manager and engineer, **David Perrsons,** superintendent, **James Minton,** office manager, and **J. C. Fredericks,** purchasing agent, comprise the top personnel for F. W. Case Corporation's $227,636 contract to repair existing pier in Manhattan Beach State Park, Los Angeles County, Calif. Scheduled for completion next February, work has been under way since July.

* * *

Harris Bethers is supervising a $143,432 road job for Nelson Bros. Construction Co. Job is located in San Juan County, Utah, and consists of 6.8 mi. of grading and surfacing on State Road 261. Under construction since August, Nelson expects the job to be finished about June of next year.

Clarence Craig, superintendent for W. E. Barling, Inc., has charge of a $519,880 project consisting of 4.1 mi. of grading and surfacing on the Jackson Lake Road in Grand Teton National Park in Wyoming. Other key contractor men are **Herb Mills,** foreman, **Charles Nickelson,** timekeeper, **J. P. McGary,** crushing superintendent, and **Lloyd Barling,** oiling superintendent. Under construction since August, the project will be complete sometime in 1960.

* * *

Tommy Moore is acting as project manager on the $903,891 recent award to Southern Arizona Contracting Co. for grading and surfacing on 10.4 mi. on Casa Grande-Tucson highway in Arizona. **Elton Ashworth** is superintendent, **Howard McDaniel,** master mechanic, and **J. N. Winski** is in charge of the office.

Southern Arizona Contracting is also working on a 6.6-mi. grading and surfacing job on the Picacho-Florence Junction highway in Pinal County, costing $144,170. The above mentioned men are in the key posts on this job also, with the addition of **Fred McFarland** in the foreman spot. Both jobs will be finished next January.

* * *

Duncan Manning, superintendent (grading, drainage, utilities), and **"Hank" Ralston,** paving superintendent, are key men on a $1,969,445 runway extension contract at Point Mugu, Calif., recently awarded to Cox Brothers and J. E. Haddock Co. With July 1960 the target, work started in August.

* * *

Raymond Burns is supervising a $1,153,403 job of Gardner Construction Co. consisting of an overpass structure, grading, surfacing and related work in Ogden, Utah. **Alex Michel** is the carpenter foreman on this job which started in August, with April 1960 the target.

* * *

W. M. Edwards and **Louis B. McKee,** superintendent and construction engineer respectively, are top men on construction of a 125-room hospital in Tucson, Ariz. Robert E. McKee, Contractor, was the successful bidder at $2,258,300. Structure is scheduled for completion December 1960.

Bill Holgers is superintendent on construction of a 5-7 story reinforced concrete structure for Williams & Burrows, Inc., contractor. The building is being erected at Berkeley for the University of California at a cost of $4,695,000. **Bill Carr** is the contractor's expediter and office manager. Under way since June 29, construction is slated to be finished Sept. 6, 1961.

* * *

D. M. Taylor is general manager in charge of construction by Phillip Yousem Construction Co. of 800 houses at the Naval Air Station, LeMoore, Calif. These units are part of the Capehart Housing and are being erected at a cost of $12,200,000. Work got started in September and Taylor estimates it will be finished about June 1961.

* * *

Byron Williams, general superintendent, heads the list of job personnel working for Thorn Construction Co. on 10.6 mi. of grading, surfacing and structure near Minersville, Utah. **Wayne Evans** is concrete superintendent, while **Alden Peterson** is foreman. Supervising the gravel operation is **France Bradley.** Pipe foreman is **Bill Carter; Ted Madsen** is grade foreman. Thorn bid this job at $348,677, started work in July, and will be finished the end of the year.

* * *

J. V. Beach, superintendent, assisted by **Joe Salaegui** and **J. J. Montrose** as foremen, is in charge of a $657,795 job for Silver State Construction Co. Contract is for construction of a portion of state highway east of Eureka on U.S. 50 in Nevada.

* * *

C. G. Wiswell, project manager, is in charge of a recent award to Maino Construction Co. to construct one steel Telementry Building and concrete block additions to Range Operations Building at the Naval Missile Center, Point Mugu, Calif. Carpenter foreman is **Wayne Davenport.** Purchasing is in charge of **Kenneth Mitchell.** Maino received the job on a low bid of $1,144,900.

* * *

Tom J. Hornbeck is superintending a 4.1-mi. grading, draining and surfacing contract on U. S. 187 known as Cora Road in Sublette County, Wyo. for L. H. Weber, Contractor. Foreman **Donald R. Carson** is assisting on the $182,512 job soon to be finished.

Orville Swan, general grading superintendent, and **Donald Teeters,** shifter, are key men on grading, surfacing and related work on 4.8 mi. of Casper Mountain road in Natrona County, Wyo. Job was successfully bid by Asbell Bros. and Wyoming Paving Co. at $243,390. Other important supervisors on the job, now about finished, are **Clifford Christensen,** gravel superintendent; **Neil Baker,** paving superintendent, and **B. L. Gilbert,** master mechanic.

"**Dutch**" **Willems,** project manager, with **John Clayton** and **Guy Haney,** superintendents, head the job personnel working for McLaughlin, Inc., Nilson-Smith, S. Birch, Inc. & S. Birch & Sons, successful bidder at $2,629,104 for grading, drainage, gravel, plant-mix paving, etc. on 8.3 mi. of the Sun River-Great Falls road in Montana. Office manager is **Ed Falkner;** timekeeper, "**Hank**" **Vaskey.** Estimated to take 400 calendar days, work here started in August.

Supervisory staff at Rocky Reach Dam

These are the men directing field operations on the Columbia River project that is described in the article that starts on page 45.

J. B. Gibson, office engineer; Robert R. Glick, materials engineer; Michael Graves, project engineer; Wallace B. Evans, chief design engineer; Morris Hayes, coordinating engineer; Anthony N. Ahles, field engineer; Arthur R. Linden, change-order engineer.

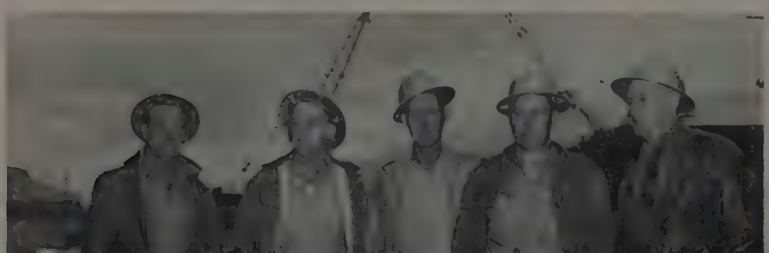
LLOYD E. HIXSON
Day shift superintendent

Henry Jack Holt, M. L. Umberger, and R. L. Aydelott, all general carpenter foremen; Stanton D. Fraser, carpenter superintendent; John J. Hansch, general carpenter foreman; Melvin S. Roberts, general carpenter foreman—mill.

JOSEPH DeMILITA
Swing shift superintendent

James W. Drinnon, batch plant superintendent; Floyd Burton, electrician foreman; W. B. Hughes, electrical superintendent; Sylvan W. Smith, master mechanic; John Starks, mechanic foreman; George Schultz, mechanic foreman.

FLOYD E. STEEL
Grave-yard superintendent



Edward J. Clancy, Isaac A. Johnson, H. W. Beavers and Howard E. Baker, all general ironworker foremen; William C. Jones, rigging superintendent.

MY JOB FOLLOWS ME ... since I put my home on wheels!

This is the life! *Now* when I change jobs it's easy to change my home's location too. No more scrambling for a place to stay, worrying over how long it'll be before the wife and kids can follow along.

Where else and how else can a man keep his freedom to choose a job he likes, and still know the pleasures of home life? I've got roots, I'm as stable as any land—or job-bound citizen. And after a day sweating over a hot line or moving plenty of earth it's soul-satisfying to have my home close by to unwind in—a hot shower, a big easy chair to sink into, and seconds after I've got my feet propped up on the hassock, the wife's got a cold beer in my hand!

She's happy too, naturally. She's got as modern a kitchen as any we've ever seen, and as pretty decorated a house as she could wish for.

There's plenty of space for the kids (separate bedrooms!) and a living room large enough for partying. And we've saved so much since we've owned our mobile home that we've got a new car, plenty of insurance and a bank account that guarantees the kids a good education.

Our park neighbors got their information from a local dealer—found him in the yellow pages. We wrote the Mobile Home Division of the Trailer Coach Association. Step inside some mobile homes—our bet is you'll buy one.

CONTRACTORS: Your most dependable employee today is *the man with the Mobile Home.*

Within one day he can be completely and comfortably moved to the job site—no packing up, no furniture moving or storage problems, and no days wasted looking for a new place to live.

Best of all, his family moves with him, bringing all the comforts of his luxurious and modern mobile home.

A normal, stable and comfortable family life means fewer days lost to illness. He can devote all his energies to the job, undistracted by personal inconveniences.

If you have employees with housing problems, write for additional information and reprints of this ad.

TRAILER COACH ASSOCIATION TCA *607 So. Hobart Blvd., Los Angeles 5, California*

Look for the TCA seal—your guarantee of high construction standards.

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CONSTRUCTION BRIEFS

Fabric tanks for storage and transport of fuel

INCREASED DEMAND for economical transportation and storage of bulk liquids has caused Goodyear Tire & Rubber Co. to expand its line of collapsible Pillow Tanks. Goodyear, which previously built the world's largest fabric container—a 50,000-gal. capacity unit—announced that its Pillow Tanks can now be constructed to accommodate 200,000 gal. Versatility and durability of these fabric storage containers have attracted the interest of companies and individuals in virtually every field where storage or transportation of liquids is involved.

As a typical case of military usage the U. S. Marine Corps has twenty-three 300,000-gal. storage systems set up with 10,000-gal. tanks. The system receives fuel onshore and transfers it 3 mi. inland at the rate of 350 gpm. to supply fuel at dispensing stations for aircraft, ground vehicles and other equipment. Also these tanks with 50,000-gal. capacities are in use by the Army Corps of Engineers for offshore refueling; the Quartermaster Corps has ordered 5,000-gal. containers for transporting liquids on railroad cars and land barges, and the Bureau of Ships is using 4,000 and 13,000-gal. pillow tanks for shipboard storage of fuel.

Commercial applications of pillow tanks are equally as varied, ranging from the storage of petroleum products by oil companies to the transportation of milk and other edibles in a container equipped with a protective throwaway lining to prevent contamination.

These containers are comparatively lightweight, easy to handle and can be rolled up like a rug when not in use; durability is proved by the fact that the tanks can be overloaded by approximately 25% without damage; virtually all types of liquid, with the exception of acids, may be stored or transported; they have a high capacity refueling and are effective in virtually any climate, with temperatures ranging from 40 deg. below zero to 165 above. They are also effective time-savers, eliminating "dead-heading" which is necessary when liquids are delivered by tank trucks.

Pillow tanks are constructed with one or two plies of synthetic rubber-coated nylon. When two plies are used the outer ply consists of nylon cloth coated on both sides with gasoline resistant synthetic rubber. The inner ply consists of a similar but lighter ply of nylon cloth. The inner and outer surfaces are coated with Chemigum, a gasoline-resistant rubber manufactured by Goodyear. The number of fittings has been kept to a minimum to reduce any areas which might prove to be a source of difficulty.

The tanks are quickly put into service by unrolling them from their protective box onto a flat site. Hoses are connected and the tank is filled and emptied normally by means of a pumping unit. A 10,000-gal. tank is 42 ft. long, 12 ft. wide and weighs 580 lb. when empty. A 200,000-gal. tank is 124 ft. long, 38 ft. wide and weighs about 4,000 lb. The life span of the collapsible containers is impressive; several tanks delivered to the military seven years ago are still in use.

Morrison-Knudsen Co., Inc., contractor, has been using eight 10,000-gal. tanks for about two years. These tanks are placed on a leveled area midway on a small hill, filled by gravity from a tank truck on the crest of a hill through a filler opening on the top and end. The fuel is dispensed at the base of the hill from a discharge fitting on the bottom and opposite end from the filler.

Mainframe-mounted ripper is compact and rugged. Pressure applied to its shank and points tends to compress the grader tires, for even better traction and increased ripping efficiency.

NOW AVAILABLE...Rear Rippers for LW Graders

Available now, for use with LW 550 or 660 motor graders, is this new heavy-duty ATECO *ripper*. Attached to the rear of a big LeTourneau-Westinghouse grader, it breaks up heavy and tough materials, *at fast speed* . . . gives new versatility to motor graders.

Easily and quickly mounted to LW's massive, one-piece frame, the ripper operates through the grader's hydraulic system. Its shank shape and point angle . . . teamed with the power and weight of the "550" or "660" . . . provides quick penetration, to any depth up to 12 inches. The ripper greatly increases the usefulness of your LW grader, and makes it a one-man "wrecking" tool that will let you handle more work at a saving in time and equipment.

Fully-tested, fully-approved

This new attachment was engineered especially for the LW 550 and 660 by ATECO, a pioneer designer and developer of ripper attachments. The unit has been made available only after months of testing and successful application on LW graders, where it proved its money-making potential.

This new money-saving attachment is available with several different shank shapes, for various jobs, and can be mounted to "660" or "550" graders in the field, or purchased as optional equipment with new graders. Ask for full details.

Operator has complete and accurate control, can "scalp" asphalt pavement faster than with any other tool. With rear-mounted ripper for high-speed work in tough materials, and front-mounted scarifier for work around manholes and other obstructions, LW 550 and 660 graders add to their usefulness.

Ripper is shown in raised "carry" position, using one hinge pin. Unit's raised shanks can also be pinned rigidly, for bank, corner, or any "back-in" type work. Ripping is a logical utilization of the excellent power and traction characteristics of the big LW 550 and 660 graders, which offer 123 and 145 hp in "straight-shift" models, and 160 and 190 hp in POWER-Flow® torque-converter models.

G-2244-G-1

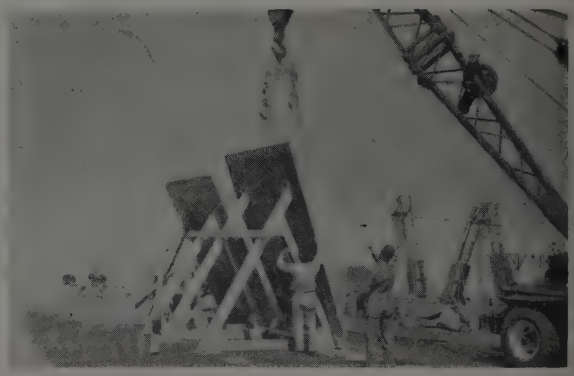
LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

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

Precast slabs and braces for jet blast barrier



A JET BLAST deflection fence made of 10-ft. high concrete slabs has been erected on the edge of San Francisco International Airport. First of its kind, the 536-ft. fence serves to protect a nearby parking lot and auto driveway from the blasts of flame, smoke, and rushing air given out by TWA's Boeing 707 jet transports, as those planes operate near the airline's own hangars. The fence is made up of sixty-seven 3-in. concrete slabs, each 8 ft. long and 10 ft. high, supported by concrete A-frames.

As the 707's run up their jet engines, with their tails only yards from the deflection fence, the sloping concrete-slab surface takes the jet blast and deflects it sharply upward. Tests of the design show that the jet blast is thus dispersed into the air above the fence, with no smoke or disturbed air getting through to the parking lot and roads beyond.

The Les Kelly Co. of Belmont, Calif., general contractor that erected the slab structure, reports that there were no precedents for much of the work. The deflector panels, a patent of the Parker Stressed Concrete Co., were poured on top of one another.

By conventional methods, the sixty-seven segments of the deflection fence would probably have been poured individually on the ground, their total area thus adding up to 5,360 sq. ft. In pouring the slabs atop one another in groups of ten each upper surface was used as the base to form the next slab. Wood forms for each succeeding slab were placed in position at time of the pour.

This procedure included the use of Horn Parting Compound on top of each slab just before laying down the next one. The compound not only prevents adhesion of one slab to another, but also serves as a curing compound.

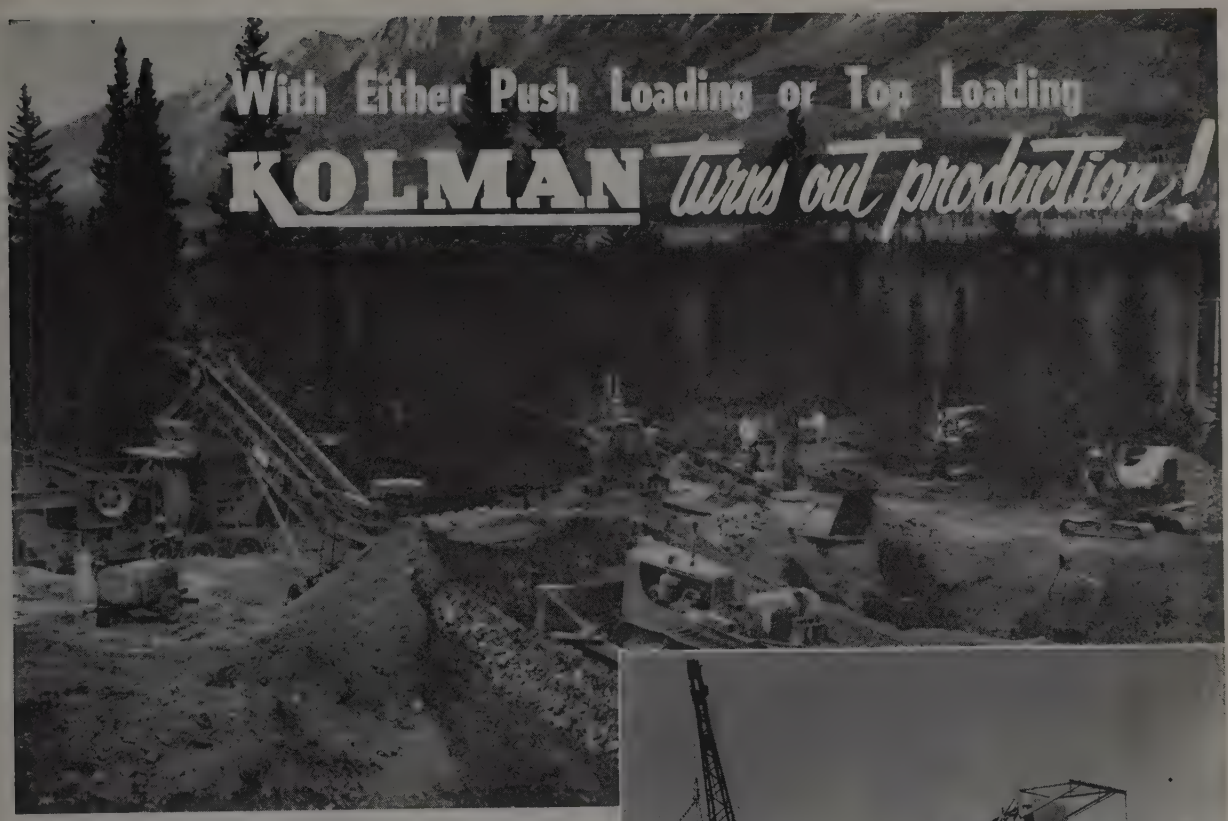
After hardening, the slabs were lifted apart and showed completely smooth surfaces. Square apertures at the tops of the slabs for the upper ends of "A-frame" members, and built-in lifting lugs, served to facilitate handling by crane and fork truck.

Meanwhile, the A-frames were formed in a similar manner, using the same Horn Parting Compound.

Slabs and A-frames were fabricated at the yard of the contractor, and moved by truck to the airport. Airport operations precluded monopolizing a substantial portion of runway or taxi strip space with forms, trucks, cement mixers, and workmen. Actual erection of the 536-ft. fence took two days and two hours. It is estimated that a comparable structure poured on the site would have taken three weeks to build.

LIGHTWEIGHT AGGREGATE MAKES HIGH LIFT BY CRANES POSSIBLE

Field problems were solved by the use of lightweight concrete on the Del Rio Senior High School in Santa Ana. *Floyd Weaver*, structural engineer, specified Rocklite expanded shale aggregate for the high tilt-up panels and roof slab. The 26-ton weight of regular rock and sand concrete in the panels would have been too great to be lifted by crane to their position 60 ft. above the ground. The 8-in. tilt-up panels were 36 ft. high and 14 ft. wide. Use of the lightweight concrete solved the problem by reducing the dead load of each panel from 26 tons to 17 tons or 50 lb. per cu. ft. General contractor on the project was Means and Ulrich, the lightweight concrete supplied by Western Concrete and Equipment Co.



This dozer-charged KOLMAN Model 101 is scalping out boulders from material being fed into crusher. The KOLMAN Plant is also very effectively used for rejecting fines ahead of a crusher.

For versatility and flexibility, you can't top the KOLMAN Model 101 Conveyor-Screen Plant.

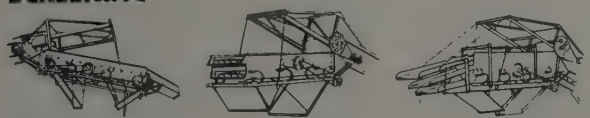
LOADING

Dozer Trap | Feeder-Trap | Casting Hopper | Feeder-Hopper

This portable plant is available with a wide choice of feeding accessories which facilitate charging with most any type of equipment. The Dozer Trap and Feeder-Trap illustrated are ideal accessories for PUSH LOADING operations with a bulldozer. The Casting Hopper and Feeder-Hopper are designed especially for TOP LOADING with various charging units, from front end loaders and trucks to shovels and draglines.

Complete flexibility is now also available with the Conversion Hopper for Dozer Traps and Feeder-Traps, making both top loading and push loading practical with the same plant. The removable Conversion Hopper is illustrated in the lower photo above, where it is being charged with a dragline. Set in place over the Feeder-Trap and bolted in position, it is easily removed for other jobs where high speed dozer charging is possible.

SCREENING



Single-deck, Type SC | Double-deck, Type DC | Triple-deck, Type TC

Further adaptability of the KOLMAN Portable Conveyor-Screen Plant to any job requirement is achieved through a choice of single, double or tripie deck Screens on the Model 101. Thus an unusually low equipment investment makes possible simultaneous loading and screening while scalping oversize or rejecting fines with a single deck, both scalping and rejecting at once with a double deck or grading and classifying with the triple deck Vibrating Screen.

Yes, KOLMAN has the answer for low cost, high production screening and loading. Proven results on numerous types of applications with a great variety of materials has established the Model 101 as a truly outstanding production unit. Only with a

This Model 101 with Feeder-Trap, Wing Walls and Single Deck Screen is equipped with Conversion Hopper for top loading with dragline. Hopper is easily removed from Trap for high speed dozer charging.

KOLMAN can you obtain the full choice of loading and screening accessories, along with the many other necessary convenience and construction features which assure you greatest possible economy of operation and highest profits.

Complete selection of sizes from 18" to 48" belt widths, lengths up to 60', and screens to 5'x12' on Conveyor-Screen Plants. Portable 101 Conveyors also available up to 80' lengths and loaders up to 60" belt widths. Write for literature and prices.

See Your Nearest Dealer

ARIZONA
PHOENIX—Arizona Cedar Rapids Co.

CALIFORNIA
LOS ANGELES, BAKERSFIELD, SAN DIEGO, RIVERSIDE, SANTA BARBARA —Brown-Bevis Industrial Equip. Co.
OAKLAND—Spears-Wells Machinery Co.

COLORADO
DENVER—Faris-Moritz Equipment Co.

IDAHO
BOISE, POCATELLO—Intermountain Equip. Co.

MONTANA
BILLINGS, GREAT FALLS, MISSOULA—Miller Machinery Co.

NEVADA
LAS VEGAS—Clark County Wholesale Mercantile Co.

NEW MEXICO
ALBUQUERQUE—Construction Machinery Co.

OREGON
PORTLAND—Balzer Machinery Co.

UTAH
SALT LAKE—Rasmussen Equipment & Supply Co.

WASHINGTON
SEATTLE—Sahlberg Equip., Inc.
SPOKANE—Intermountain Equip. Co.

WYOMING
CHEYENNE, CASPER, ROCK SPRINGS and SHERIDAN—Wortham Machinery Co.

ALASKA
FAIRBANKS, ANCHORAGE—The Carrington Co.

Western Representative—S. A. MADRID, 2910 Lawton St., San Francisco 22

KOLMAN MANUFACTURING CO.
3670 W. 12th St. Sioux Falls, S. D.

. . . for more details, circle No. 53 on Reader Service Postcard

Crawler-loader handy tunnel digger at Denver's famous Red Rocks Park

THIS crawler-loader operator doesn't have much chance to see the impressive scenery at Denver's giant Red Rocks natural amphitheater. He is too busy cutting a narrow tunnel 100 ft. long directly beneath the center aisle seats. Only 7 ft. high and so narrow a man can touch both walls at once, the tunnel is to serve as a walkway between the open-air stage and an underground control room. The passageway was part of an over-all construction program at Red Rocks which had to be completed on a tight schedule.

Wheelbarrow labor was tried on the rock removal job, with discouraging results. Because of the existing poured concrete seat construction directly over the tunnel, dynamite could be used only in half sticks, and then just when denser veins of rock made forward progress impossible.

Superintendent R. B. "Dick" Dickerson of Berglund-Cherne Construction Co., Denver, had to find a better way to get the rock out. He selected a 7/8-yd. crawler-loader with direction reverser from Denver's John Deere Industrial Equipment dealer. After it got started Dickerson estimated that the loader was removing in 30 min. material that would otherwise have required 4 hr. work by four men.

"We found the unit performs well in removing loose stone at the face, in cutting clean sidewalls, and even in cutting the sandstone overhead," said the superintendent. With the direction reverser, he said, "You can run out with a full load, dump, and you're gone."

The whole cycle wasn't quite that easy. Providing a real test of power and maneuverability, conditions required the loader to enter and back out of the tunnel at a forward pitch of about 40 deg., while the operator ducked his head. Each time the rig had to maneuver on top of a small temporary platform built over the stage moat before it could change course from tunnel to truck. The 12% power loss affecting all internal combustion engines at Denver's mile-high altitude was no problem.

●

Yuba gets Wanapum Dam job

THE Yuba Consolidated Industries, Inc. has been awarded a $5,250,000 contract by Grant County Construction Co., prime contractors on the $93,000,000 Wanapum Dam on the Columbia River. Grant County Construction Co. is a joint venture of Morrison-Knudsen, Henry J. Kaiser, Macco Corporation, Raymond International, and F & S Contractors Co.

Yuba Manufacturing Division's portion of the contract is for engineering, fabrication, and erection of gantry and powerhouse cranes, trash racks, spillway gates, powerhouse gates and intake gates. The field erection of the equipment will be handled by Yuba Consolidated Erectors, Inc.

Interstate Highway system stands at 4,353 mi. done

CONSTRUCTION was under way, as of August 31, on 5,249 mi. of the National System of Interstate and Defense Highways, at an estimated cost of $3.30 billion, the Bureau of Public Roads has announced. Construction contracts have been completed since July 1, 1956, on 4,353 mi. of the system at a cost of $1.50 billion. Included in the program were 5,293 bridges under way and 3,258 completed. In addition, $2.13 billion had been authorized or spent for preliminary engineering work and acquisition of right-of-way since July 1, 1956.

Initial construction contracts on projects involving 175 mi. of the Interstate System, including 121 bridges, were awarded during the month of August, with an estimated cost of $114 million. Preliminary engineering worth $7 million and right-of-way acquisition estimated to cost $21 million were also authorized during the month. Construction contracts were completed in August on 148 mi., including 194 bridges, at a cost of $61 million.

Gila River improvement is recommended by USED

BRIG. GEN. Robert G. MacDonnell, Division Engineer, South Pacific, San Francisco, has announced that a report of survey regarding the advisability of improvement of the Gila River and tributaries, in the vicinity of Tucson, Ariz., for flood control, is favorable to the improvement.

Recommendations are for the completion of the diversion channel between Tucson Arroyo and the Southern Pacific Railroad to a capacity of 9,900 cfs.; enlarging the existing diversion channel between the Southern Pacific Railroad and the detention basin, completing the detention basin, raising levee heights around the basin, and increasing the discharge capacity to 10,600 cfs.; increasing the capacity of the channel between the detention basin and Julian Wash to 10,600 cfs.; and improving Julian Wash from the outlet channel to Santa Cruz River with a capacity of 17,800 cfs.

The total Federal cost of the project is estimated at $4,740,000 and the total cost to local interests is estimated at $2,590,000.

NEW LITERATURE

To obtain free copies of literature described in this section, circle the corresponding numbers on reply postcard.

Fork truck bulletin

A colorful 16-page catalog describing its line of fork trucks and their features has been issued by **Allis-Chalmers Co.** The booklet covers the company's FT Series fork lift trucks. Illustrations, including cutaways, help describe the engineering, design, construction and operating features of the series that provide "Years Ahead" advanced function design, operator comfort and simplified service. Among the features described are power shift torque converter drive; servicing accessibility which permits clutch change in 30 minutes and complete overhaul without removing engine. Trucks are offered with optional diesel engines.

. . . Circle No. 156

Corrugated steel slab form

A new corrugated steel form for concrete floor and roof slabs is described in a 4-page folder released by **Pittsburgh Steel Products, division of Pittsburgh Steel Co.** The material is called Fab-Form, and is available in lengths up to 28 ft. 3 in., and widths up to 32 in. Weather-resistant surface coating, new welding washer sticks and special vent clips are discussed in the folder which also lists load tables, and suggested specifications.

. . . Circle No. 157

Speed reducer data

Detailed engineering data on **Hewitt-Robins** speed reducer units are contained in two new 24-page booklets issued recently. One book lists in-line and right angle helical drives, the other covers shaft mounted units. Each booklet contains rating tables, selection procedures, physical dimensions and technical data useful to engineers specifying power transmission machinery.

. . . Circle No. 158

Assembly exchange plan

A parts exchange plan for Caterpillar equipment under which entire assemblies are exchanged and the user pays only the cost of renewing the worn parts is covered in a new booklet issued by the **Peterson Tractor Co.** The catalog also lists parts available for exchange as well as special exchange assemblies. Price lists for a number of parts are included for easy machine identification. A handy chart covers track component rebuild wear limits on Caterpillar track-type tractors.

. . . Circle No. 159

Painting specifications

A specialized protective coatings brochure designed to aid in selection of the proper coating for exterior and interior surfaces of all kinds is available from **Super Concrete Emulsions, Ltd.** Among the types of surfaces covered are: concrete block, brick, concrete, plaster, drywall, accoustical materials and cement asbestos board. A feature of the brochure is a chart which clearly describes the most important factors to consider when selecting an effective coating system for each type of surface. The brochure is designed with a gate fold so that the entire 4-page chart can be unfolded and placed on the wall for quick reference.

. . . Circle No. 160

Big tractor shovels

Two Allis-Chalmers heavy duty tractor shovels, the HD-16G with 3-cu. yd. capacity, and the HD-21G with 4-cu. yd. capacity, are covered in an 8-page bulletin issued by **Allis Chalmers Construction Machinery Division.** Both machines are diesel powered with torque converter drive. The HD16G has 150 hp. and a total weight of 48,600 lb., while the HD21G is rated at 225 hp. and weighs 66,500 lb. Booklet describes bucket construction, hydraulic system, shovel frame assembly, and mechanical components.

. . . Circle No. 161

Rubber-tired shovel

Three interchangeable buckets ranging in capacity from 1½ to 2¾ cu. yd. are now offered with the Trojan Model 204 tractor shovel, described in a specification bulletin issued by the **Trojan Division of Yale & Towne Mfg. Co.** Standard and optional equipment for this newest Trojan rubber-tired tractor shovel are covered in the two-page bulletin as well as detailed dimensions and specifications. The unit is offered with a choice of three engines, one gasoline and two diesel.

. . . Circle No. 162

Versatile compressors

Combination tractor-air compressors with a wide variety of attachments are featured in a new bulletin on construction products issued by the **LeRoi Division, Westinghouse Air Brake Co.** The basic 125 Tractair Compressor is a 42-hp. tractor with air compressor "built in." It mounts various drills, and attachments as well as backhoe and front-end loader. The booklet also covers conventional compressor units of both rotary and piston type as well as a number of air tools, such as sinkers, tempers and breakers.

. . . Circle No. 163

Shovel replacement parts

A 4-page brochure describing line of shovel replacement parts has been issued by **Kensington Steel Division of Poor & Company.** The booklet covers parts for all makes of crawlers, shovels, cranes and draglines.

. . . Circle No. 164

Hydraulic rescue equipment

Details on Porto-Power portable hydraulic pumps and rams used in rescue equipment are provided in a bulletin issued by **Mine Safety Appliances Co.** Described are: basic operating principles of M-S-A Porto-Power equipment which combines a hand-powered hydraulic pump and hydraulic ram to convert manual power to a maximum of 20 tons of power applied to rescue operations. A wide variety of operations are illustrated including removal of piled debris, bracing of tunnel walls, opening smashed vehicle doors and spreading jammed openings. Three packaged Porto-Power sets are described in the bulletin; 4-ton for light duty; 10-ton for general duty, and 10 and 20-ton for heavy duty. A special 50-ton unit for lifting in mine, rail-

EXCLUSIVE* A Tractor-Mounted Ripper That Leaves ROOM FOR A WINCH!

New ATECO HR48 • D8H Rock Ripper

Here's a way to get the absolute **most** out of your D8H... equip it with an ATECO HR48 rock ripper. You'll still have plenty of room for a double-drum PCU winch on the rear to operate a dozer or other cable-operated equipment.

Only ATECO... pioneer in tractor-mounted rippers ... offers this valuable feature plus these performance-boosters:

BEEFED-UP TOOL BEAM of 1½" steel plate all around, 11" x 12⅝" section, box-welded and **internally reinforced** — most rugged D8 tool beam on the market!

EXTRA CLEARANCE to prevent clogging...14" minimum under tool beam when ripping; swing bracket holes moved back to put shank farther behind beam. On offset beam, center shank is 20" back of outside shanks for easier rock breaking and more clearance.

"RUGGEDIZED" THROUGHOUT... 30% larger cylinders with 43% heavier rods; 50% stronger draft arms with no top or bottom welds; extra-thick replaceable wear pads on swing brackets; heavier cylinder support brackets.

ATECO builds the most complete line of job-proved tractor mounted rock rippers in the world. They're available for practically every popular make and model of heavy duty crawler tractor. Why not get the facts? Write today for literature, specifications.

Dept. W11

59

American ATECO TRACTOR EQUIPMENT Corporation

Designers and Manufacturers Since 1920

9131 SAN LEANDRO BOULEVARD • OAKLAND 3, CALIFORNIA

... for more details, circle No. 56 on Reader Service Postcard

road, factory and marine disasters also is illustrated together with a line of hydraulic hand jacks ranging from 1½ to 100 tons.

. . . Circle No. 165

Highway lighting

The role played by proper lighting in highway safety is described in a 24-page pocket booklet called Guide To Nightime Highway Safety published by the **Street and Highway Safety Lighting Bureau.** The booklet lists the points where highway lighting should be installed, discusses various types of lighting and its uses, provides tables on the minimum visibility required for passing at various speeds and includes a series of drawings showing the effect of lighting in maintaining traffic flow in the proper lanes.

. . . Circle No. 166

Concrete bridge problems

Case history reports of more than 200 bridges are covered in a new, 16-page bulletin issued by the **Master Builders Company.** Stories representative of a great variety of job and weather conditions cite the role played by Pozzolith concrete in meeting these conditions. The case histories cover concreting of piers and bridge decks for highway and railway bridges, and includes discussion of hot and cold weather concreting; the use of lightweight aggregate in bridge work; and placing and finishing problems encountered in bridge work.

. . . Circle No. 167

Portable heater brochure

A wide choice of heating equipment is offered contractors in a new, 4-page catalogue listing Insto-Hot Salamanders, Blower Heaters and Infra-Red Heaters issued by **Insto-Gas Corporation.** Covered are 4 models of salamanders with hourly heat output ranging to 150,000 B.t.u. as well as 2 models of blower heaters and 3 infra-red heaters. Salamander types described include those which connect directly to cylinders with flange type valves and floor models connected with high pressure hose. Features described include safety shutoff valve, automatic electric ignition on blowers, and infra-red units available in multiples or with extension mast.

. . . Circle No. 168

Compressed air fundamentals

An informative booklet on compressed air and operation of compressors, titled "Compressed Air Fundamentals," has been published by **Ingersoll-Rand Co.** The 16-page book describes compressed air, how it is compressed, single and two-stage compressors, piston displacement, regulation and types of control used. Other material included is information on compressor oils, pipe sizes, wire sizes and terminology and definitions used in connection with compression of air. The booklet provides tabular and chart information on amount of air required to operate various pneumatic equipment, air supply tables, and volumes of compressed air required per stroke to operate various size air cylinders.

. . . Circle No. 169

Sectional belt conveyors

Complete data on its line of Pre-Bilt sectional belt conveyors are contained in 40-page handbook published by the **Link-Belt Co.** Conveyors, pre-engineered and shop-assembled from matched components are adaptable to a large proportion of belt conveyor uses and operating conditions. A total of 22 components and accessories are listed in the book, which also provides detailed engineering and selection data. Illustrations show job applications in a variety of industries, and typical layouts.

. . . Circle No. 170

Crane-excavator catalog

American Hoist & Derrick Co. has issued a 24-page catalog on its 500 series crawler crane which provides small crane mobility coupled with working capacities up to 40 tons. The catalog shows how this machine can be operated with track extended for work or retracted for loading. The machine easily converts to crane, dragline, clamshell, shovel, backhoe, pile driver, or for special grapple work. Numerous action photos included as well as illustrations of principal components.

. . . Circle No. 171

Digging accessories

Six specialized digging accessories are listed in a cartoon-style folder issued by **Warner & Swasey Co.** describing its G-1000 Gradall. Included are single tooth ripper, 8-ft. ditch cleaning bucket, 12-ft. scraper blade, excavating and trenching

bucket, heavily ribbed pavement removal bucket, and a 25-ft. formed ditch digging bucket. The unit has a lifting capacity of 7 tons. Its capacity and control are shown in a photo of the G-1000 swinging a 13,000-lb. Gradall carrier.

. . . Circle No. 172

Repowering handbook

A 36-page pocket size handbook discussing replacement engines for construction equipment has been issued by **Caterpillar Tractor Co.** The booklet covers the economics of repowering, various types of equipment which can be repowered profitably, case histories of power problems successfully solved and lists factors to consider in buying engines. Included is a questionnaire on which a contractor can summarize specific repowering needs for individual assistance from Caterpillar.

. . . Circle No. 173

Remote control batch truck

Action pictures of the new Galion Remote Control Batch Truck Body are included in a striking 6-page folder recently issued by the **Galion All-steel Body Company.** Included in the brochure are detail pictures showing essential elements of this remote dumping system, including side-mounted trippers, remote switches, hydraulic stabilizer and hydraulic trailer leveler. The unit is equipped with specially designed cement box partitions and can be loaded and dumped from the cab.

. . . Circle No. 174

Cleaning fine aggregate

The WEMCO Remer Jig, and its use in removing undesired materials from fine aggregate and sand are described in an 8-page bulletin published by **WEMCO, a Division of Western Machinery Company.**

. . . Circle No. 175

Masonry saw catalog

A 4-page price list and catalog covering its line of masonry saws and blades has been issued by **Clipper Manufacturing Company.** Clipper's SuperMatic models featuring 14 to 20-in. blade capacity are included as well as Diamond, Abrasive and the new Blue Bond Series of break-resistant blades together with many masonry saw accessories.

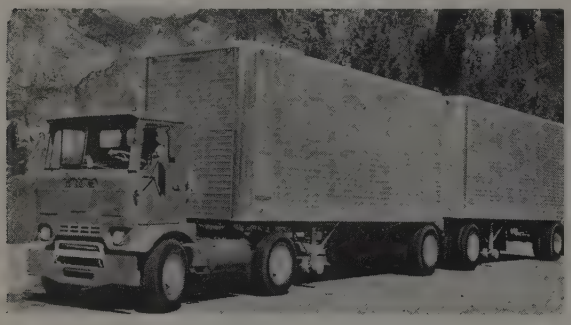
. . . Circle No. 176

NEW EQUIPMENT

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

V-6 diesels for highway trucks

Production of the new V-6 diesel engine for its new line of highway tractors powered by V-6 diesel engines is announced by **General Motors GMC Truck & Coach Division.** The V-6 diesel is 200 lb. lighter than the in-line engine of the same displacement. Other weight saving features include the new aluminum cab which weighs only 696 lb. and a welded steel frame of I-beam construction which is 300 lb. lighter than previous designs. The new tilt cab is only 48 in. deep from bumper to back of cab. It is designed to accommodate the largest drivers in complete comfort. The cab is counter-balanced with a torsion spring and can be tilted to any position without use of power. New tractors have an air suspension system. The front axle is eliminated to the use of independent truck wheel



suspension. The new GMC light-weight tractor is designated DFR-8000. Its normal front axle position is 28 in. behind the bumper. Companion model, the DLR-8000, has a front axle set back 50 in. from the front bumper. These two units offer complete flexibility in the inter-state systems where there are many varied weight and length regulations. The air suspension system permits lowering of the trailer floor and fifth wheel by 3 in. by eliminating provision for spring deflection. This can add up to 70 cu. ft. of cargo space. Reduction in weight of the cab and frame permits an additional 2,000 lb. of payload. Standard gross combination weight ratings of the new trucks are 61,000 lb. When equipped with optional heavy-duty 2-speed rear axle, combinations of up to 76,000 GCW can be handled. *. . . Circle No. 177*

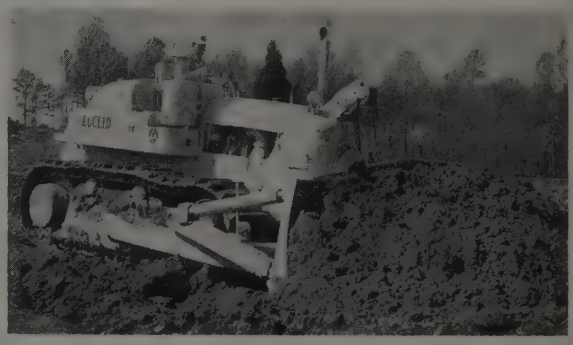
Cleans clogged culverts in a hurry

To solve a problem for which no piece of equipment was available, **Topeka Hiway Mower, Inc.** has introduced a hydraulic earth auger assembly for cleaning clogged culverts and drainage tubes. The assembly can be mounted or dismounted in 10 min. from the side of the Topeka Forty-Mile Mower. The auger uses the same hydraulic system. The attachment consists of the drive box, a 20-ft. drive tube, 10-ft. tube extension, plus two 10-ft. augers, one 6 in. and the other 9 in. in diameter. In addition to direct boring action, there is a "whipping" action to the augers, which increases the diameter of their action.

Mounted on the mower, the auger can be moved between job sites at regular traffic speeds. The auger can be operated from either end of the drive box which means it can handle culverts up to 60 ft. in length. *. . . Circle No. 178*

Euclid introduces C-6 tractor

Climaxing nearly 5 years of testing, the model C-6 211-hp. tractor has been introduced by **Euclid Division of General Motors.** The new crawler is equipped with a torqmatic drive consisting of torque converter and semi-automatic transmission that eliminates the master clutch. Changes to any of the three forward speed ranges or from forward to reverse are made under full engine power. Positive track control is provided by a system of common braking and steer-



ing that requires no adjustment of steering clutches or brakes. Other features of the C-6 are front stabilizer bar which gives both vertical and lateral support without the usual cross braces, track roller frames which are pivot mounted on the main frame and a track recoil system which incorporates a gas accumulator and piston in place of the heavy steel spring commonly used for this purpose. The engine has a dry type air cleaner and rear mounted radiator. Stan-

A good dozer man can feel the difference in the seat of his pants

We've all taken unexpected nose dives off a bank — gobbled steering clutches or breathers in some spot where we should have backed off . . . it's all part of the game, I guess.

But there's no longer any sense of teetering on top of every clod you crawl over because of plain, outdated, bad-balance design.

You're right! There is a commercial . . . but it makes good "dozer sense," so hang on a minute.

Step up to the 66.5 hp Allis-Chalmers HD-6

. . . Our smallest dozer, but a real work horse for its size. Smaller tractor-dozers *usually* mean bigger gouges and more "railroading" action — there's simply less track to absorb the bumps. Not so with the HD-6!

Compare it!

Match the "6" with any other unit near its size. You're in for a surprise! It gives you the best balance in its weight range. A longer track and 5 truck wheels instead of the usual 4 offers real blade control. It's the kind you *might* find in the next larger size dozer of other makes. The "6" really keeps a level head on fine dozing — sends plenty of warning through those extra long tracks to the seat of your pants on rough work, too.

Feel the difference

Another big difference is dozer mounting. The "6's" engine-mounted dozer has 2-point linkage, while ordinary track-mounted dozers used by tractors "C" and "I" make do with 6-point juggle-nut connections. The results are obvious: The "6" gives you finer dozer control without linkage looseness. The HD-6 has more clearance around the track which makes a wider, more "floatable" track available . . . better visibility and safety.

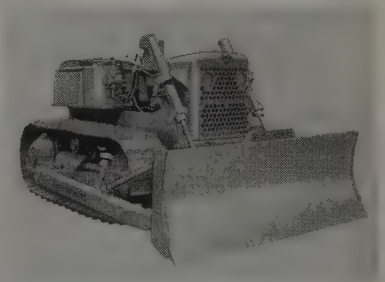
That's the story! The Allis-Chalmers 66.5-hp HD-6 will give you an easier day — a better finish job than any other unit near its size and work capacity. Near-perfect tractor balance and dozer control like this is not exclusive to the "6" either...comes "standard" in every Allis-Chalmers tractor-dozer.

Tell your boss

That's why it'd be worth your while to try the Allis-Chalmers HD-6 in the dirt . . . where you can *feel* that big difference in dozing ability. Tell your boss about it — bet he'll be surprised too!

HD-6

66.5 net engine hp • 14,790 lb approx.



move ahead with ALLIS-CHALMERS... power for a growing world

ALASKA
Yukon Equipment, Inc.—Seattle and Anchorage

ARIZONA
Neil B. McGinnis Equipment Company—Phoenix

NORTHERN CALIFORNIA
Industrial Tractor Sales—North Sacramento
Shasta Truck & Equipment Sales—Redding
West Coast Engine & Equipment Company—Berkeley, Branch: San Jose and Ukiah
Trinity Tractor Company—Eureka

SOUTHERN CALIFORNIA
Construction Machinery Co.—San Diego
San Joaquin Tractor Co.—Bakersfield
Shaw Sales & Service Co.—Los Angeles

IDAHO
Southern Idaho Equipment Co.—Idaho Falls and Twin Falls
Southern Idaho Equipment Co. of Boise, Inc.—Boise

MONTANA
Mountain Tractor Company—Missoula and Kalispell
Seitz Machinery Company, Inc.—Billings

NEVADA
A D Machinery Company, Inc.—Elko and Las Vegas
Reno Equipment Sales Co.—Reno

OREGON
Haupert Tractor Company—Medford
Wood Tractor Company—Portland
Timber Tractor Company—Springfield

UTAH
Cafe Equipment Company—Salt Lake City and Price

WASHINGTON
Pacific Hoist & Derrick Company—Seattle & Puyallup
American Machine Company—Spokane

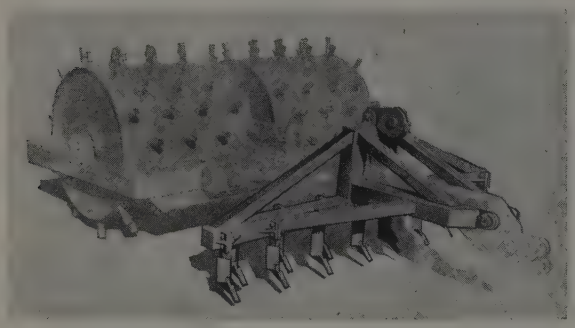
WYOMING
Studer Tractor & Equipment Company—Casper

. . . for more details, circle No. 60 on Reader Service Postcard

dard track shoes are 88 in. wide, track guage is 78 in. Overall dimensions of the C-6 are 178 in. long, 100 in. wide and 96¾ in. high. Bare operating weight is 42,000 lb. and top speed, forward and reverse, is 7.9 mph. Literature available. *. . . Circle No. 179*

For mixing material ahead of roller

Designed to provide uniform mixing of materials and moisture ahead of a sheepsfoot roller, **McCoy Company** has designed a manipulator bar. The teeth mounted on this bar rip into the previous compacted earth to eliminate soft spots and to provide a bonding action with the new layer. This accomplishes a solid



and firm fill through the action of the following sheepsfoot roller. The bar rides the sheepsfoot drawbar, and can easily be removed. It is operated by any standard cable control unit, and can be set in five depth adjustments to a maximum of 15-in. penetration. The unit weighs about 1¼ tons and is designed for mounting on Cat D8, D9, AC21, IHC TD24 and similar units. *. . . Circle No. 180*

Crushing plant on wheels

A mobile, self-contained crushing plant with a capacity of 90 to 120 tons per hour is announced by **Diamond Iron Works Division** of **Goodman Mfg. Co.** The single pass crushing unit features a 15 x 36 in. jaw crusher, a 3 x 5 ft. 1½ deck vibrating screen, a

30-in. delivery conveyor and a 2-cu. yd. loading hopper. The plant can produce up to 120 tons per hour based on 25% over-size material passing a 1-in. screen. Designated Model 1536, it is ideal for counties, townships and contractors' work where top production must be coupled with mobility for frequent changes of location. *. . . Circle No. 181*

New D9 offers variety of drives

Caterpillar Tractor Co. announces its D9 series E tractor, available with a choice of the new power shift transmission or direct drive or torque converter drive. A new turbo-charger will give the D9 E 335 hp. versus the previous 320. The new machine is 1 7/16 in. longer and 1 in. higher than its predecessor. Improvements are concentrated in the under carriage components. The track group is completely new and all components have been increased in size and strengthened. A cam type equalizer bar has been added to provide better machine stability on side-hill operations. Latest design changes such as anti-friction track carrier roller bearings and lifetime lubricated track carrier rollers, and front idler bearings are included in the new series E models. Hydraulically controlled bulldozers are offered with the D9 E for the first time. Engineered to match the size and power of the tractor, they are conrolled by a new high capacity No. 184 hydraulic control unit. In operation the weight of the tractor can be used to exert down pressure on the blade to penerate more easily and move difficult material. The hydraulic control which can also be used to control the

operation of dozer tilt cylinder and ripper is powered by a GM front mounted vane-type pump driven by the engine through a universal joint. Cable operated versions of the D9 now have 12-in. sheaves which offer easier spooling and longer cable life. New power shift transmission offered on the D9 E is also available on D8 tractors. The new transmission provides instantaneous one-lever control of gear shifting without interruption of power and momentum. The unit is built to withstand the demanding conditions of tractor service. Use of planetary gears combines the best features of both direct drive and torque converter power trains. Planetary gear set is driven by the engine flywheel which transmits one-third of the engine torque directly to the transmission in-put shaft and the remaining engine torque through the torque converter. On the operator's deck one range selection lever now takes the place of the flywheel clutch lever gear selection lever and forward reverse lever. This means reduced shifting time as well as simplified shifting. *. . . Circle No. 182*

Job office on wheels

A 2-room office building which actually looks like a building but which can be transported from job site to job site like any other trailer has been marketed by **Santa Fe Travel Trailers.** The unit is made up of

CLEAN!

The 30th Asphalt Plant — another STANDARD bought by Industrial Asphalt, world's largest producer of asphalt paving materials, features the new STANDARD "Cyclonic Wet Washing System."

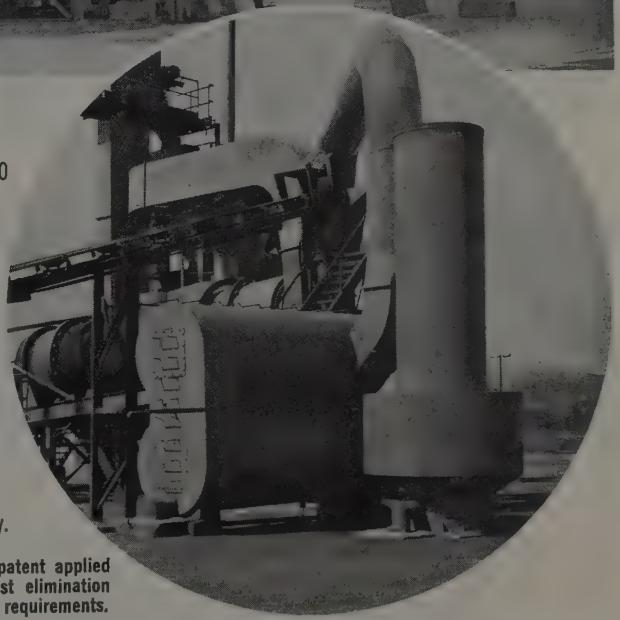
AMERICA'S CLEANEST ASPHALT PLANTS

Shown above is Industrial Asphalt's new STANDARD Model R-M 4000 pound Asphalt Plant, located in Escondido, California.

Fully equipped with the latest STANDARD improvements including the new "Cyclonic Wet Washer," this plant has been in daily production for some time, producing as high as 180 tons of hot mix per hour.

TODAY . . . see your STANDARD distributor! He can tell you in detail about all the many features of the STANDARD Asphalt Plants which add up to: lowest cost erection, lowest cost operation, lowest cost maintenance, plus highest tonnages — size for size.

STANDARD Asphalt Plants range in size from 1000-8000 lb. capacity.



STANDARD's new "Cyclonic Wet Washer" (patent applied for) assures added dust collection and dust elimination efficiency — meets all known air pollution requirements.

STANDARD
ASPHALT PLANTS
"THE WORLD'S FINEST"

STANDARD STEEL CORPORATION

GENERAL OFFICES AND PLANT, 5649 BOYLE AVENUE, LOS ANGELES 58, CALIF.
MIDWEST OFFICES AND PLANT, DECATUR 49, ILLINOIS
EASTERN OFFICES AND PLANT, LOWELL 49, MASSACHUSETTS

. . . built to do a better job!

PARTS WAREHOUSES IN LOS ANGELES AND DECATUR, ILLINOIS

Attention Contractors!

The New STANDARD Portable T. M. Plant offers top production. A *complete* self-contained batch type Asphalt Plant...on wheels. One man operates! Has exclusive "SELF-LIFT" erecting device. RUGGED – ECONOMICAL – SIMPLE. Mixes up to 80 tons per hour!

ROTARY DRYERS • KILNS • COOLERS • ASPHALT PLANTS

. . . for more details, circle No. 61 on Reader Service Postcard

two 8 x 10 rooms, separated by sliding door. Each has a private door entrance. The rooms have prefinished plywood wall paneling, acoustical ceilings, inlaid tile linoleum, modern light fixtures and duplex electrical outlets. Jalousie-type windows on all sides and an attic-style vented roof assure plenty of ventilation. It can be purchased either furnished or unfurnished. Steps and platform and electric brakes are included as standard equipment. The stationary appearance is achieved by use of modern columned facade and aluminum skirt at the bottom. These can easily be removed for transport and reattached in a matter of minutes. The office has an aluminum panel exterior and is available in a variety of colors.

. . . Circle No. 183

Measure moisture content instantly

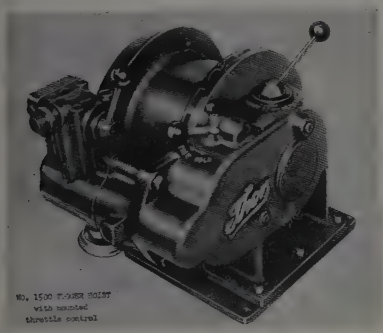
For obtaining the exact moisture content of sand, soil or any bulk material accurately and instantly, **C&W Sales Co.** has available a lightweight electronic instrument. The new portable moisture meter can be carried over the shoulder and registers the moisture

content in the material on a dial when the probe, connected by insulated cord to the meter, is inserted into the maerial. Use of this device avoids the frequent delay in analyzing moisture content, and also takes the guess work out of such determination.

. . . Circle No. 184

Thor has new tugger hoist

With a capacity of 1,500 lb. and air operated, **Thor Power Tool Co.** has developed a tugger hoist with dual control system. The Thor No. 1500 will lift, lower or hold loads



by air pressure and has a wire rope capacity of 280 ft. Normal throttle control is mounted on the hoist but can be removed and operated from a remote position by means of connecting hoses.

. . . Circle No. 185

PTO for starting under load

A new power takeoff designed particularly to meet the problem of equipment that must start under heavy load, **Twin Disc Cluch Co.** has Model IBF-214P. The unit is suited particularly for rock crushers, conveyors and other heavy equipment. It offers three advantages over standard units: (1) withstands high-energy heat loads, (2) can be applied to high-speed engines up to 3,380 rpm., and (3) will operate for 6 months between lubrications. Too-heavy starting loads often damage power takeoff by creating uneven thermal stresses. The new Twin Disc PTO is designed to overcome this problem by an exclusive ventilated center

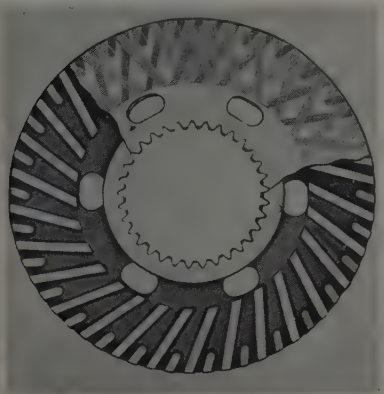
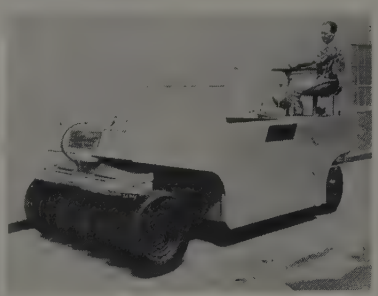


plate. It permits air flow to dissipate heat. Oil rather than grease is used for lubrication to assure safe operating temperatures at the high speeds for which this unit is designed.

. . . Circle No. 186

Pneumatic roller for highways

With water-tank capacity increased to 100 gal. and uniform cleaning of all wheels, **Southwest Welding & Mfg. Divn., Yuba Consolidated Industries, Inc.** has introduced this improved version of its self propelled roller (Model VP-11) designed particularly for highway construction. The cleaning operation on the wheels is accomplished by coco mat brushes which are hydraulically controlled from the operator's position. Also available, if desired, is a complete lighting system. The new model VP-11



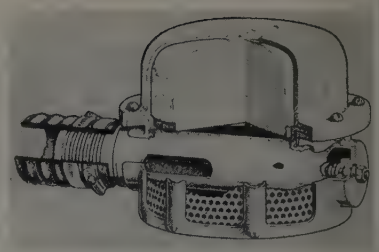
has rear wheels that oscillate vertically to provide uniform compaction on uneven surfaces. Its wider rolling width, at 84 in., gives 15-20% more rolling capacity. Single lever control and full swiveling seat simplify operations in both forward and reverse direction and the open box provides for easy removal of ballast.

. . . Circle No. 187

Floating suction strainer

To meet a frequent complaint by the users of pumps drawing from sumps or other sources containing solids, **Megator Pumps & Compressors, Inc.** has produced a floating suction strainer. It solves the problem of drawing water from just below the surface which avoids drawing in either sand and silt from the bottom, or floating matter from the surface. The design also overcomes the tendency for air to be entrained into the pump suction due to the formation of a vortex. Referred to as the Dolphin, this strainer is light, compact and can be fitted easily to the end of the suction hose. The float chamber is filled with a moulded plastic foam so that buoyancy will not be lost as a result of accidental damage. Correct design balances buoyancy against the weight of hose. Built out of plastics and stainless steel it is not subject to corrosion.

. . . Circle No. 188



Tractor air conditioning

A combined air conditioner and dust filtering unit which fits all Caterpillar tractor and motor grader cabs is announced by **Crenlo, Inc.** Called Dust-Temp air washer, the unit is an evaporative air cooler which provides a completely dust free atmosphere eliminating need for respirators, and goggles, with optional heater attachment, also functions as a cab heater during winter months. The unit works without special attachments on tractors without an electrical system. Water circulating

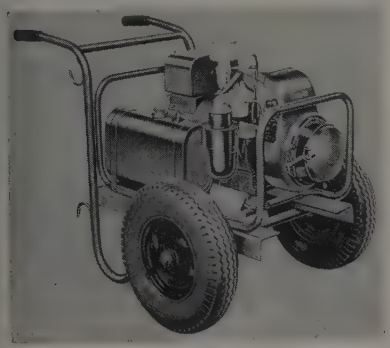
pump and pressure fans are direct engine driven. Honeycomb rust proof aluminum filter elements are constantly cleaned by water spray so no servicing or replacements are necessary. Only maintenance is regular replacement of water supply, usually once every two days.

. . . Circle No. 189

Electric plant is cart mounted

With a 2-wheel, rubber tired cart mounting, **Kohler Co.** has announced this mounting for several models. This arrangement makes the electric plants handy for use at construction sites. A large unit of 2,500-watt capacity will furnish 230-volt power for saws and at the same time will have available 115-volt DC current for small electric tools and lighting.

. . . Circle No. 190



Dump-body and hoist "package" offered

A 5-ton steel dump-body with standard underbody hoist is now offered in one package by the Day-

brook Hydraulic Divn. of Young Spring & Wire Corp. Made for installation on a 1-ton truck, the all steel dump body has structural steel underbody construction and a full length sub-frame for chassis support. Full width rub rails cover and protect the tires. The body is 8 ft. 2 in. long and 6 ft. wide. The top edge has pockets to receive side boards. The underbody hoist provides for full 45-deg. dumping. The hoist cylinder has spring loaded, self-adjusting packing. Hoist and power take-off controls are dash-mounted leaving the floor of the cab free of control levers. Literature and specifications available.

. . . Circle No. 191

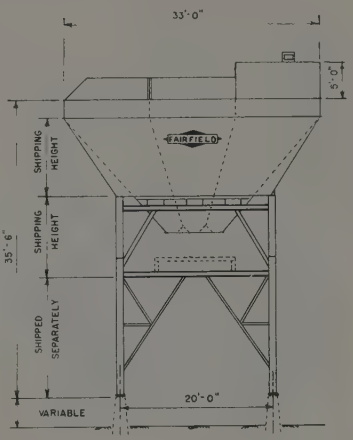
Inexpensive concrete additive

A liquid additive wetting element which can be added to the mix at a cost of less than 7c a cu. yd. is announced by **Deynor Corp.** Called Multiwet No. 50, the new formula is added at the rate of 4 oz. per cu. yd. to the mix to induce complete hydration. About 15% less water is required for the same slump, better plasticity is obtained, strength is increased and 3½% air entrainment results. Cement content of the mix can be reduced and still achieve the required strength according to laboratory and field tests. Literature available.

. . . Circle No. 192

Large portable batching plant

A 300-ton capacity unit, considered the largest portable batch plant yet developed, has been introduced by **The Fairfield Engineering Co.** This Fairbatch is



offered with a design to handle either aggregate or a combination of aggregate and cement. Variations in design make from 2 to 8 compartments available. Low cost, unitized erection are a feature. Smaller plants are available down to 100-ton capacity.

. . . Circle No. 193

Road leveling machine

A road leveling implement which provides constant cutting and filling action as well as easy maneuverability has been marketed by **Speedline Implement Mfg. Co.** Designated the C-126 DI Road Planer, the unit is an adaptation of the company's agricultural land

leveling implement. Only 25 ft. long, the C-126 has good maneuverability and delivers a long leveling accuracy comparable to machines twice its length. The road planer's 2½-cu. yd. capacity bucket is suspended at 4 points and may be controlled either manually or hydraulically. The patented spring equalization action permits constant cutting and filling and eliminates gouging and excess dumping. Other features include a 10-ft. reversible cutting blade, crank type stops, depth gauge, elevated tongue structure and dolly carriage. The machine has been tested and approved by Arizona's highway construction engineers. Specifications and literature available.

. . . Circle No. 194

Switch seat roller

A 1-ton tandem steel roller with 2 seats, one for going forward and the other for reverse is offered by **Gledhill Road Machy. Co.** The 2

seats enable the operator to change seats and face the direction he is moving instead of craning his neck to look over his shoulder when he has to roll backwards. Another feature of the Gledhill roller is the less than ½-in. overhang which allows the operator to roll close to posts, walls and curbs, thus eliminating hand tamping in these tight spots.

. . . Circle No. 195

Plastic waterstop has long life

Waterstops made of polyvinyl chloride are now being marketed by **Lexsuco, Inc.** The new material called Lexsuco PVC Waterstops is available in two functional types, a corrugated Lock Rib and Dumbbell, in a complete range of sizes. The new material is said to be a substantial improvement over rubber as a waterstop, because it not only provides a compression seal which permits expansion and contraction of concrete but has greater age resistance. Cost savings are gained with PVC waterstops over rubber because of easier on-the-job splicing and by eliminating the need for special storage facilities. The new waterstops meet Corps of Engineers specifications as well as those of many other similar state and federal authorities.

. . . Circle No. 196

Big loader has single lever control

A 9,000-lb. capacity front-end wheel loader operated by a single lever is announced by **Allis-Chalmers Mfg. Co.** The model TL-20

TractoLoader is a companion model of the previously announced TL-16. The TL-20 incorporates the exclusive single lever drive control which gives the operator a choice of three speeds in either forward or reverse. The unit weighs 23,150 lb., has a carrying capacity of 9,000 lb. and is powered by a 130-hp. A-C diesel. It is available with buckets ranging from 2¼ to 5 cu. yd.

. . . Circle No. 197

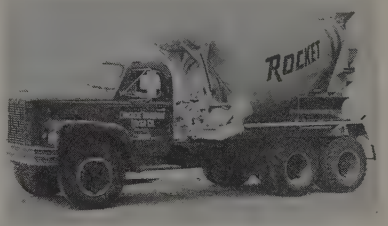
Rubber tires for off-road work

A combination of double strength, nylon tire cord and tough steel cable is employed in the new off-road truck tire developed by **United States Rubber Co.** It is designed to withstand the punishment of off-the-road terrain as well as high heat and wear generated by highway speeds with heavy loads. Construction includes multiple plies of nylon cord in the carcass of the tire to protect against breaks and blowouts, plus 2 layers of steel cable in the tread to protect against cuts and ruptures in the vital tread area. The new tire runs about 1/3 cooler than most truck tires; its tread is deep for soft or rough off-road running and has sharp traction edges for skid control. Recommended for dump trucks, tankers, ready-mix cement trucks, logging and oil field rigs and other heavy-duty applications, the tires are marketed under the trade name U. S. Royal Super Fleetmaster, Safety Steel Sheild. They are made in sizes ranging from 7:50-20 to 11:00-24 in both tubed and tubeless types.

. . . Circle No. 198

Mix truck has high payload

Weight reduction of several hundred pounds through use of a new power train is announced by **Concrete Transport Mixer Co.** for its line of rocket truck mixers. The unit is mounted on a Reo truck which has a flywheel power take-off. The mixer picks up its power



from the output shaft at the flywheel by means of a Universal joint drive shaft to move the mixer gear mechanism. This type of drive will save considerable expense as well as maintenance while reducing the total weight of the rig by several hundred pounds. A 6-yd. mixer can carry up to 6½ cu. yd. depending on the legal load limit.

. . . Circle No. 199

23 projects in Pacific Northwest slated by Corps of Engineers

THE Walla Walla District of the U. S. Army, Corps of Engineers, will issue during the current fiscal year ending June 1960, 23 bid invitations covering work on civil projects that will reach an estimated total of over $107,000,000, Colonel Paul H. Symbol, District Engineer, has announced. Contracts will cover various phases of work at McNary Dam, Ice Harbor Dam, John Day Dam and some flood control contracts at Jackson Hole on the Snake River, Lower Dry Creek in Walla Walla County and Umatilla River near Pendleton.

For McNary Dam, two bid invitations will be issued, one in mid-October calling for the landscaping and grounds development to an estimate of over $100,000. The second will be issued in early November, calling for remote control of spillway gates. It will also be in excess of $100,000.

For Ice Harbor Lock and Dam, nine invitations to bid will be issued, one of an estimated $5,000,000 to $10,000,000 to cover the grading and bank protection work on the Union Pacific Railroad in Section 1 and the relocation of Walla Walla County roads. A second invitation was issued late August, estimated between $1,000,000 and $5,000,000. It calls for the grading and bank protection for the Union Pacific Railroad in Section 2 and for ballast and spur tracks, along with Walla Walla County road work. A third relocation bid for track materials, rails and fittings scheduled for release in mid-October is estimated between $1,000,000 and $5,000,000.

On the north shore of the Ice Harbor Dam project, bid invitations released calling for relocation of Northern Pacific Railroad and embankment protection, along with Franklin County roads work, is scheduled for early May, with estimates between $1,000,000 and $5,000,000. Scheduled for release in mid-November will be an invitation for bids on the largest Ice Harbor Dam contract. It will cover the contract for the downstream navigation channel which is estimated will be in excess of $10,000,000.

At John Day Dam, grading Section 2 of the Spokane, Portland & Seattle Railway and Section 1, Washington Highway 8-E, is scheduled for invitation release in late December, with an estimate of between $5,000,000 and $10,000,000. In mid-February of 1960 invitations will go out for the building of a Union Pacific Railroad bridge over the John Day River at an estimated cost of $1,000,000 to $5,000,000, and in mid-May 1960, invitation will go out calling for the grading of U. S. Highway 30 along the Oregon shore in Section 1, along with the Union Pacific main line, Section 1 and part of the John Day Dam left shore abutment. Estimated cost of this work is set between $5,000,000 and $10,000,000.

Scheduled for release last month was an invitation for realignment of the Interstate Highway 80 detour past the dam site, along with the Union Pacific Railroad dam site shoofly at an estimated cost of between $1,000,000 and $5,000,000. For mid-October 1959, bids on a contract for Interstate Highway 80 and the Watchmans Dip detour, along with Union Pacific Railroad and Watchmans Dip shoofly will

be at an estimated $1,000,000 to $5,000,000. In June of 1960, another invitation on Interstate Highway 80 for grading and temporary surfacing, and for the Union Pacific main line from Rufus, Oregon, to the John Day River, along with initial construction of the left shore abutment embankment will be released, with cost estimated between $1,000,000 and $5,000,000.

Invitations for grading and paving Washington P.S.H. 8 and grading and track laying on the Spokane, Portland & Seattle Railway, Towal to Rock Creek, will be released in February 1960, at an estimated cost of $1,000,000 to $5,000,000. On John Day's north shore, construction grading on the SP&S Railway in the dam area, the navigation lock, fish facilities and channel excavation, parking and temporary navigation channel, along with construction facilities, was released in August with estimated cost of over $10,000,000.

Walla Walla District far exceeds the Portland and Seattle districts in civil project contract invitations to be released, Portland having seventeen contracts totaling approximately $8,500,000 and Seattle three civil contracts totaling slightly over $1,000,000. None of the above-mentioned sums include funds for military work.

Alaska labor covered by compensation law

CONSTRUCTION workers employed by contractors on Federal projects are now covered under the Alaska Workmen's Compensation Act, the U. S. Army Engineer District, Alaska, has announced. Serious doubt existed since statehood on whether injured workers were protected by state or by Federal law. With the signing of the Alaska Omnibus Act into law by President Eisenhower, the Defense Base Act and the War Hazards Compensation Act no longer apply to workers employed on Federal projects in Alaska.

The provisions of these acts were withdrawn, according to a report to the Senate, giving the State Industrial Board full jurisdiction over workmen's compensation cases under the state compensation act, as in the other 48 states. The action extending coverage of the state act to all workers employed on Federal projects was made retroactive to January 3, 1959, the date Alaska officially became a state.

News of DISTRIBUTORS

Mayer elected Bacon partner

Herbert J. Mayer, executive vice president of Western Machinery Co., has been elected a partner of Edward R. Bacon Co. of San Francisco, and general manager of the firm. In addition, he will continue

Herbert J. Mayer

as a director of Western Machinery and as executive vice president in charge of its machinery distribution businesses presently being handled by the Industrial Sales and Smith Booth Usher Co. divisions. Associated with Western Machinery for nearly 25 years, Mayer is a leader in the Associated Equipment Distributors, serving for many years as a regional director and this year as vice president.

Cook named for all Koehring construction lines

Appointment of Cook Bros. Truck & Equipment Co., Oakland, Calif., as distributor for the complete Koehring construction equipment line in Northern California and northwestern Nevada, is announced. Cook Bros., who have been selling and servicing products of the Parsons, C. S. Johnson and Ko-Cal divisions for some time, now also are adding the Koehring, Buffalo-Springfield, Kwik-Mix and KA-MO lines.

Additional outlets for PM plants

Additional distributors have been appointed to handle Pacific Mercury electric plants, with complete parts and service departments. They are W. J. Burke & Co., with offices in San Francisco, Oakland, Portland and Seattle; State-Wide Hardware of Seattle, Wash.; and Redding Saw Works, Redding, Calif.

New Southwest zone manager

New zone manager for McCarty-Sherman Distributing Corp., Denver, Colo., for the New Mexico-southwest Texas area is Clarence Sievers. He replaces Norman Pierce who had been with this distributor-

Clarence Sievers

ship for the past five years. Sievers has had broad experience as a territory manager for John Deere, and also through his experience as a retail dealer knows the requirements of tractor selling. His headquarters will be at Albuquerque, N. Mex.

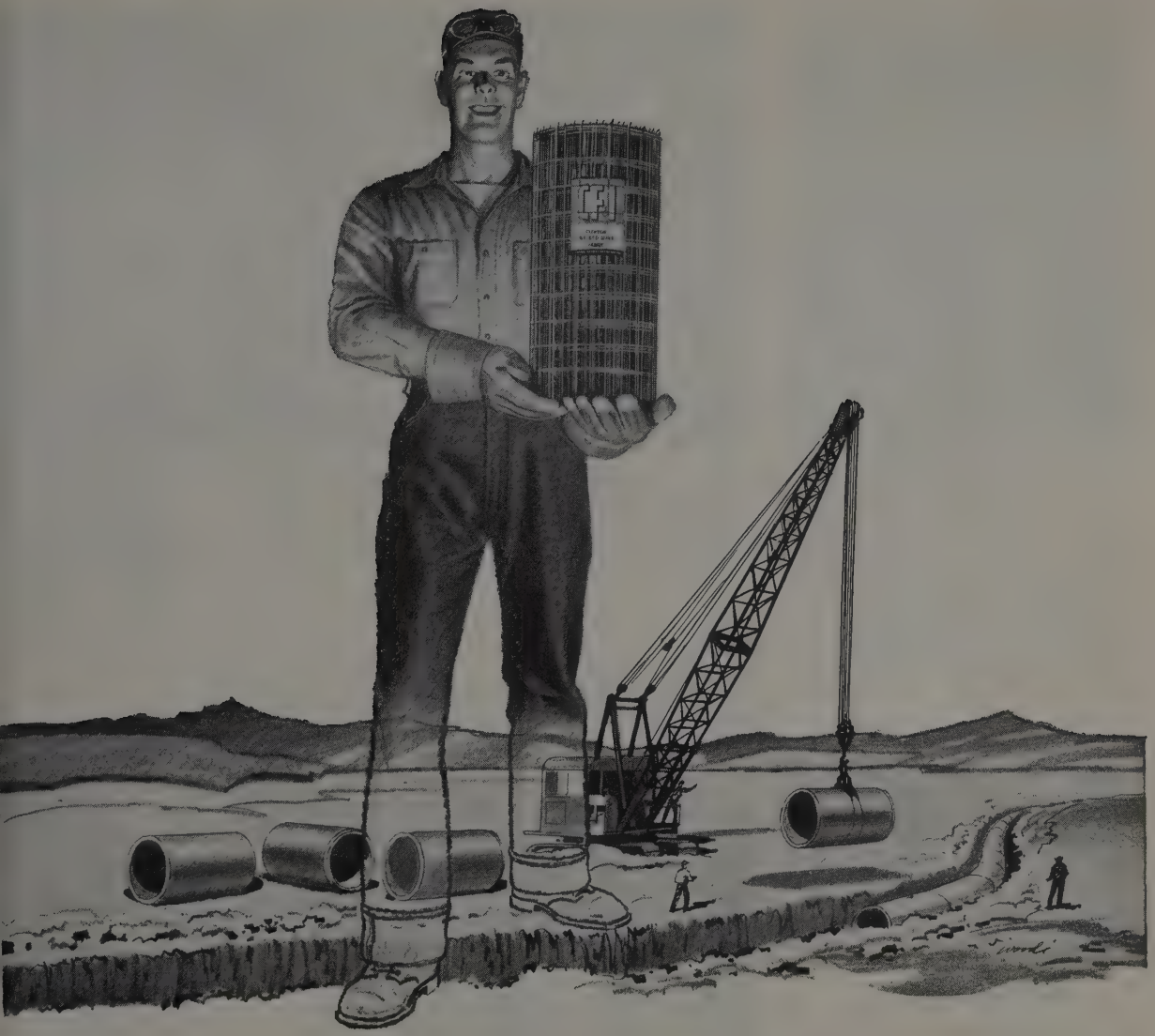
INTRODUCING *Robert J. Loskill* as the new general merchandising manager for Shepherd Machinery Co., Los Angeles. Loskill has a long and successful record in the machinery business dating from his first position in 1936 with Caterpillar Tractor Co. He has held various key positions while with Caterpillar, including sales development work where he initiated a number of national programs which are in effective use today by Cat dealers. For the past five years Loskill has been in Brazil managing Caterpillar operations there.

Jack Frank joins Power Equipment Co.

Announcement is made by William Faulkner, president of Power Equipment Co. in Denver, Colo., of the appointment of John L.

John L. Frank

"Jack" Frank of Stockton, Calif., to the post of general manager, service and parts department. Faulkner has been Allis-Chalmers dealer in Stockton, and recently disposed of his interest in the Stockton dealership to join Power Equipment Co., the A-C dealer for the state of Colorado.



The CF&I Image assures positive reinforcement in concrete pipe with **Clinton Welded Wire Fabric**

The CF&I Image stands for many quality steel products that serve the needs of the construction industry. And one of them—Clinton Welded Wire Fabric—is playing a major role in today's improved construction techniques.

When used to reinforce concrete pipe, CF&I-Clinton Welded Wire Fabric combines the strength of steel with the permanence of concrete. Reinforced concrete pipe is ideally suited for culverts, drainage systems and water lines. It has maximum corrosion resistance . . . has greater strength to withstand external loading and internal hydraulic pressure . . . gives many additional years of trouble-free service.

For further information on CF&I-Clinton Welded Wire Fabric, call our nearest sales office.

FREE! Send for new 32-page catalog, "CF&I Steel Products for the Construction Industry".

CLINTON WELDED WIRE FABRIC

THE COLORADO FUEL AND IRON CORPORATION

CF&I STEEL

In the West: **THE COLORADO FUEL AND IRON CORPORATION**—Albuquerque · Amarillo · Billings · Boise · Butte · Denver · El Paso · Ft. Worth · Houston · Kansas City · Lincoln · Los Angeles · Oakland · Oklahoma City · Phoenix · Portland · Pueblo · Salt Lake City · San Francisco · San Leandro · Seattle · Spokane · Wichita

In the East: **WICKWIRE SPENCER STEEL DIVISION**—Atlanta · Boston · Buffalo · Chicago · Detroit · New Orleans · New York · Philadelphia

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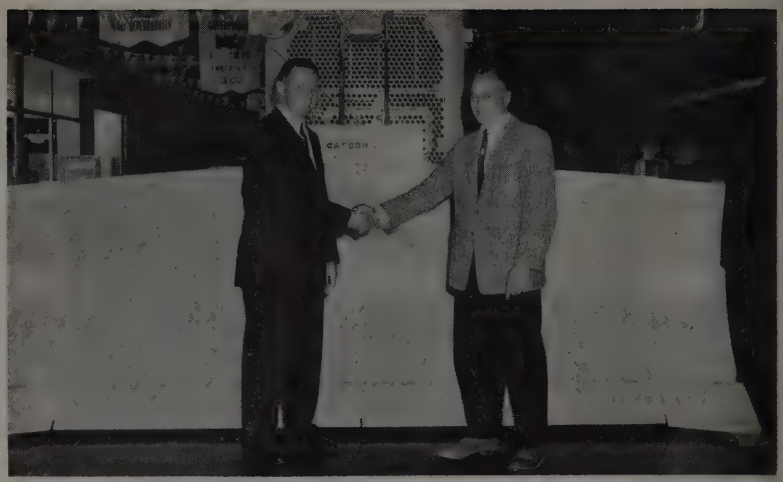


SHEPHERD CIVIL ENGINEERING SCHOLARSHIP AWARD

The four-year scholarship presented annually by Shepherd Machinery Co. goes this year to *Richard J. Poppler* (right) of Compton, Calif., who starts his civil engineering course at the University of Southern California. He is the son of *Jack Poppler*, who is the personnel manager for Morrison-Knudsen Co., Inc., in Los Angeles. Presentation was made by *W. W. Shepherd*, general manager of the company.

Changes and additions

Brizard-Matthews Machinery Co., Eureka, Calif., announces three key personnel changes. Elvis Offenbacher has been named general parts manager, while Jack

Carlson

Nicholson

Elvis Offenbacher

Nicholson has been appointed manager of the Crescent City branch, and Don Carlson is new salesman for the firm's southern district. Some expansion too has taken place at the Eureka plant. The parts department has been increased two-thirds in area and the service department space has also been extended.

Kaiser Aluminum appoints distributor

Custom Rolled Corrugated Metals Co., Albany, Calif., has been appointed distributor of Kaiser Aluminum industrial building products in Northern and Central California. CUROCO, fabricators of sheet metal roof and wall systems, will carry a complete line of Kaiser Aluminum industrial siding and roofing in lengths up to 30 ft. with accessories.

MANUFACTURERS

Stardrill-Keystone moves

New headquarters for the Stardrill-Keystone Co., recently acquired division of Koehring Company, Milwaukee, is announced by H. J. Ruttenberg, division president. Formerly located at Beaver Falls, Pa., the firm has moved to 1210 Kenton St., Springfield, Ohio, where it occupies 189,000 sq. ft. in a plant already established by another Koehring Division, the Buffalo-Springfield Co. Stardrill-Keystone manufactures drills for the construction industry, as well as for the quarry, gas, and other industries.

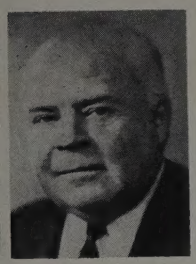
Merger planned

An agreement has been reached by The Flintkote Company, New

York City, and Calaveras Cement Co., San Francisco, on the merger of the West Coast manufacturer of portland cement into The Flintkote Company. The agreement is subject to the approval of the directors and the stockholders of both companies.

Carl Rolf elected president of Pioneer Engineering

Carl R. Rolf was recently named president of Pioneer Engineering, Division of Poor & Co., Inc., Minneapolis, Minn. He succeeds Oscar J. Ellertson, who resigned as president to devote his full time to newly assigned duties as vice president of Poor & Co.



Carl R. Rolf

Olin Mathieson sales appointments

Two recent appointments in the Western explosives operations of Olin Mathieson Chemical Corp., New York City, are announced as part of a new sales organizational structure: L. A. Hoffman, Western construction manager — contractor group; and Mike Evans, Rocky Mountain construction manager—contractor group.

Koehring acquires Shawnee Mfg. Co.

The acquisition of the complete business of the Shawnee Manufacturing Co., Inc., Topeka, Kans., is announced by Koehring Company, heavy construction equipment manufacturer of Milwaukee, Wis. Shawnee will operate as part of Koehring's Parsons Division which manufactures trench digging equipment.

Top management changes

Reorganization of top posts for expanded sales and field service is announced by R. E. Hall, president of Pacific Corrugated Culvert companies of Southern and Northern California. The shifts include management of the parent W. E .Hall Co. of Irwindale, pioneer California general engineering construction firm, with W. E. Hall, Sr.,

moving from president to chairman of the board, and W. E. Hall, Jr., stepping up from vice president to president. R. E. Hall moves from secretary of the Hall company to head of both Pacific Corrugated Culvert Co., Irwindale, and Pacific Corrugated Culvert Co., Sacramento. James L. Niccolson advances from general manager to vice president of the Southern California company, and Jack F. Halladay goes from general manager to vice president of Northern California operations.

Named to Bucyrus-Erie sales posts

Bucyrus-Erie Co. announces the appointments of Charles B. Brockmeyer as sales engineer, dragline buckets and dippers; and Frank T. House, sales development manager. Both men are stationed at the company's home office in South Milwaukee, Wis.

Chain Belt announces promotions

Appointments of Robert V. Krikorian to the newly-created position of manager-construction machinery section, and Charles A. Christy to sales manager of the section has been announced by Chain Belt Co., Milwaukee. In his new assignment Krikorian is responsible for construction equipment operations in Milwaukee and the new plant at Madison, Ind. As his successor, Christy will assume many of Krikorian's former duties as head of sales.

Additional Western sales heads named by Curtiss-Wright

Announced by Robert Campello, general sales manager of the South Bend Division of Curtiss-Wright Corp., manufacturer of a complete line of construction equipment, are the appointments of two new district sales managers. The states of California and Nevada are to be covered by John W. King, Sr., 501 E. Orangethorpe Ave., Anaheim, Calif., with the title of Western district sales manager. Harold E. Klump of 7340 Southwest 90th Ave., Portland, Ore., has been named Northwestern district sales manager, covering Wyoming, Idaho, Montana, Oregon, Washington, and Alaska. King has been associated with the heavy construction equipment field for the past 25 years, and Klump for 17 years.

King

Klump

American Pipe and Nukem merge

American Pipe & Construction Co. of Monterey Park, Calif., and Nukem Products Corp., Buffalo, N. Y., have completed a merger designed to provide increased facilities on two coasts for the activities of each company in the field of corrosion-resistant products.

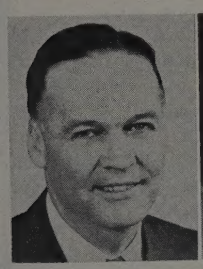
Aro and C.I.T. announce finance plan

A new merchandising program that permits buyers of heavy-duty

mobile lubricating rigs and vans used for field servicing of heavy construction equipment to acquire the units on long-term installment contracts is announced by The Aro Equipment Corp., Bryan, Ohio. The new financing program was developed with C.I.T. Corporation, according to Aro president Marquard J. Anderson.

Koehring top level appointments

J. E. Chadwick has been appointed to head a new department of Koehring Company to integrate sales to national and fleet buyers. Chadwick has held various sales positions in his fourteen years at



Chadwick

Goree

Koehring. Most recently he has been in charge of sales for the Koehring Division. Through its president E. A. Brugger, this Division announced the appointment of Edwin T. Goree as the Division's new vice president in charge of sales. Before joining Koehring, Goree was sales manager of cranes and excavators for Bucyrus-Erie Co.

Herrin becomes Motorola Western area sales head

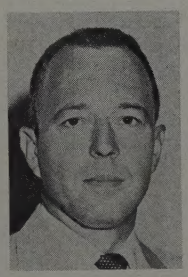
Charles Herrin has been named sales manager, 2-way radio products, for Motorola Communications & Electronics, Inc., for the Western states. A member of the Motorola organization for the past six years, Herrin's office is located at 1616 Rollins Road, Burlingame, Calif., the Western area sales and service headquarters.

Flaherty Manufacturing acquired by Koehring

The complete business of Flaherty Manufacturing, Inc., Pocatello, Idaho, has been acquired by Koehring Company, Milwaukee heavy equipment manufacturer. The acquisition represents an expansion of Koehring into the bituminous paving and maintenance phases of the construction field. The Flaherty firm will operate as a branch of Koehring's Buffalo-Springfield Division, a leading manufacturer of road rollers and compaction equipment for seventy years. Gene Flaherty, president of the Pocatello firm, will remain as general manager of the new branch, with responsibility for the manufacture and sales of Flaherty products.

Hough announces sales development manager

Appointment of David D. Hunsaker as manager of sales development for the Payloader section of The Frank G. Hough Co. is announced by H. R. Brown, sales manager. Formerly a district manager, Hunsaker has been with Hough for fourteen years. In the newly-created position, he will be responsible for sales engineering, training aids, product knowledge, and merchandising programs.



David D. Hunsaker

Calaveras Cement promotes Gordon

Appointment of Jack Gordon as assistant sales manager of Calaveras Cement Co., San Francisco, is announced by Mel J. London, vice president in charge of marketing. Gordon has been regional division manager since 1957, and before that was sales representative in Alameda and Contra Costa counties, Calif.

Lewinski made manager distributor development

H. J. Lewinski has been named manager of distributor development for the Daybrook Hydraulic Division of Young Spring & Wire Corp. A former zone manager for Daybrook, Lewinski will now be in charge of the appointment of distributors, sales training, and distributor relations programs. His headquarters are at the company offices in Bowling Green, Ohio.

New Euclid plant in production

Production of two crawler tractor models is now in progress at its new plant, according to R. Q. Armington, manager of Euclid Division of General Motors Corp., Cleveland. Located on a 400-ac. site in Hudson, Ohio, the new tractor plant is the fifth manufacturing facility of Euclid in the greater Cleveland area. With a floor area of 662,000 sq. ft., and a 10-ac. paved parking lot for employees, plus the latest features in modern construction, the new plant is an unusually attractive heavy industrial facility.

Ramset Fastening moves headquarters

Ramset Fastening System has moved its headquarters from Cleveland to New Haven, Conn. Ramset is part of the Winchester-Western Division of Olin Mathieson Chemical Corp., which has its headquarters in New Haven. Concurrent with its change in headquarters, Ramset established dealer service facilities in Los Angeles under the direction of Ted R. McGary, customer service manager.

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