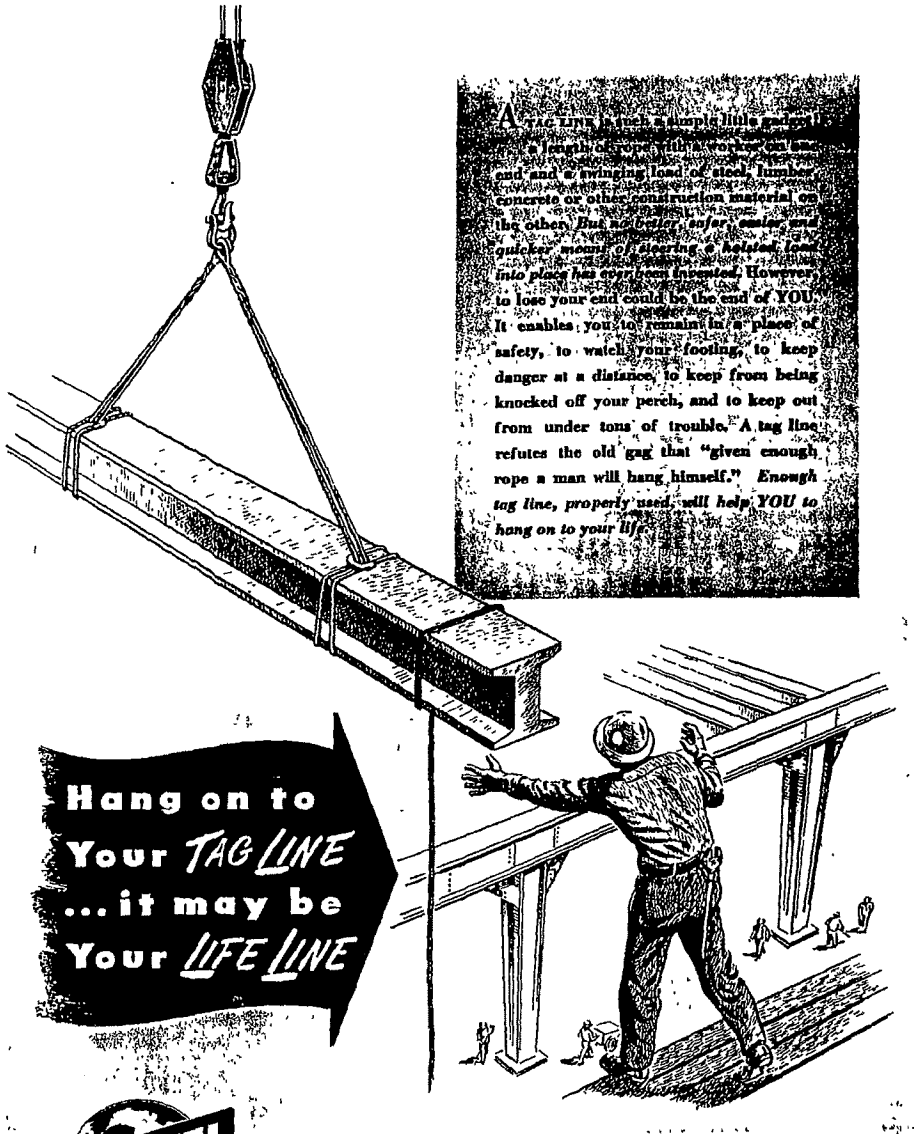
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A TAG LINE is such a simple little gadget. A length of rope at the end of a swinging load of steel, lumber, concrete or other construction material on the other. *But no better, safer, easier and quicker means of steering a load of any kind into place has ever been invented.* However, to lose your end could be the end of YOU. It enables you to remain in a place of safety, to watch your footing, to keep danger at a distance, to keep from being knocked off your perch, and to keep out from under tons of trouble. A tag line refutes the old gag that "given enough rope a man will hang himself." *Enough tag line, properly used, will help YOU to hang on to your life.*

Hang on to Your *TAG LINE* ... it may be Your *LIFE LINE*

BECHTEL

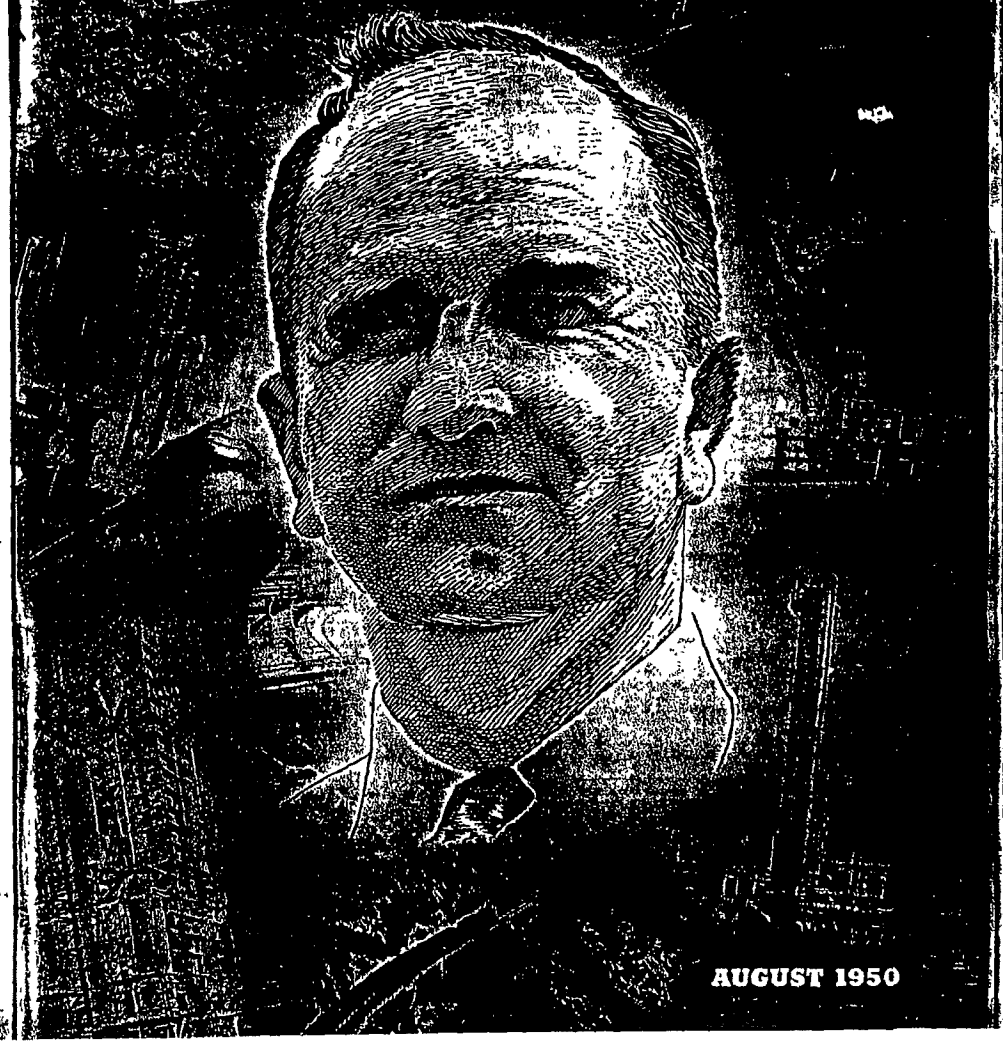
BECHTEL CORPORATION

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Bechtel Briefs



AUGUST 1950

A BUILDER & HIS FAMILY

CHAPTER THIRTEEN

By ROBERT L. INGRAM

"Tailor-made" tankers and oilers

Marinship, however, was not to be a "tailor-made" yard in the sense that Calship was. On July 8th, the day of the second keel laying and Kenneth Bechtel's birthday, he learned from Admiral Vickery that Marinship had been selected for tanker production. The difference between building standardized cargo ships and building tankers can be likened to the difference between making a ready-made suit and tailoring one to measure. The "tailors" went to work, invited California's Governor Earl Warren to lay the first tanker keel on the anniversary of Pearl Harbor, December 7 1942, and went on to become the national tanker champs. When it was all over after VJ Day, six-ways Marinship had delivered fifteen Libertys, sixty two turbo-electric 140,000-barrel T-2 tankers, and sixteen Navy Oilers of similar size and design. Eight of the yard's Navy Oilers later went into Tokyo Bay with the "Big Mo" to acknowledge the Japanese surrender. And Marinship's people continued the family habit of finding improved ways of doing things better and faster, with a number of shipbuilding innovations. One was the high-level outfitting dock, built to deck height and approached by ramps which reduced outfitting time materially.

But achievements notwithstanding, the one main thing Marin's old hands remember most vividly was its *esprit de corps* something very special even for those days of employer-employee unity. It soaked all the way through the outfit, you could notice it the minute you checked in at the gate. And it ran clear through the big redwood Administration Building, from the receptionist on up to the President's office. Even at this distance no one cares to put a finger on the exact cause. Probably there were many causes—fellows like President Ken and Vice President and General Manager Bill Waste, Ray Hamilton who headed production, Administrative Manager Bob Digges, Naval Architect Dick Grambow, Russ Quick and Bill Ayers. And in the earlier days, Ted Panton who built the yard. And the partners—Steve, John McCone, Jack Pomeroy, and Felix Kahn; and Harry Morrison and W. V. McMenimen. Give an "assist" to the employees' own magazine, *The Marin er*. Spontaneous outbursts from the ranks helped, too, like *The Stinger*, that fearless champion of democratic journalism fathered by John Connolly. Certainly John O'Connell who was there (and who now looks after labor relations under Hanna Hindmarsh), got off to a good start in Marinship's healthy labor climate. Some people believe that the personnel knit together quickly because Marin was a smaller operation, if indeed a force of twenty thousand can be considered small.

Why men stayed on

At all events a high degree of morale developed. It was Marinship's version of the old teamwork idea that kept cropping up again and again in this fifty-year story. Dad Bechtel began. Some of the yard's key men had been members of the family long before the war and still are, but others who joined here for the first time also stayed on to share in postwar growth. When a man showed he meant to stick and learn for bigger things, management caught on quickly and gave him the opportunity. In fact, the Bechtels provided permanent careers for so many of their people that the circumstance attracted editorial notice in the 1947 Engineering Issue of the *California Monthly*, alumni organ of the University.

Both Calship and Marin won coveted wartime awards for outstanding service. Both, by the jobs they did, can share in sentiment expressed by Admiral Vickery, speaking specifically of Marinship, when he said "What we were buying was management brains. I knew the Bechtels and a number of their people. I sent telegrams to about a dozen people asking got the telegram and said they were going right to work on it—they made the best record of any of the yards that came in at that time. They were making such a good record that when I saw I had to do something to increase production of tankers, I took that yard myself and shifted it to tanker production."

Joshua Hendy Iron Works

Not merely ships but engines to drive them were produced by a Bechtel-sponsored war industry. The manufacture of ship engines was a production job of the venerable Joshua Hendy Iron Works. The name Joshua Hendy reaches back to California's Gold Rush—in fact Hendy's founder came around the Horn to San Francisco in '49. For seventy-five years this factory's placer mining and sawmill machinery enjoyed a world-wide reputation. After its San Francisco plant was destroyed in the earthquake and fire of 1906, the operation was moved to Sunnyvale, in the orchard country north of San Jose, California.

1940-42: From sixty to eleven thousand employees

When the group of contractors bought Hendy in November of 1940, the plant employed sixty people. In the following twenty-four months its payroll grew to eleven thousand



"Iron Men" of Joshua Hendy celebrate the 500th Liberty engine produced. A final total of 750 was made. Steve and Kenneth Bechtel were directors with Kenneth also serving as Secretary. Management of the organization included such distinguished men as Charles E. Moore, Felix Kahn and John McCone.

what they could do. Bechtel called up when five hundred, and the original plant expanded to cover a million square feet. Charles E. Moore was President during this program and the war production period, and was followed in that office by John McCone in 1945. Steve and Kenneth Bechtel were Directors, Kenneth also the Secretary. Long time associate Felix Kahn gave a lot of attention to this group interest as Hendy's Vice President and Treasurer. Les Corey of Utah Construction Co., Gene Trefethen of the Kaiser organization, and W. Gorrill Swigert of Pacific Bridge were others who served on the Directorate, another throw back to Six Companies days.

The plant turned out seven hundred and fifty EC-2 reciprocating steam engines for the Liberty ships—really big power plants weighing one hundred thirty-seven tons each. Hendy also manufactured main-propulsion steam turbines (for ships), turbo-generators, turbine-drive reduction gears, diesel engines, ships' line shafting and torpedo-tube mounts. Initiation of turbine manufacture marked the first time engines of this type had been made in the western half of the United States.

1942: Crocker-Wheeler was added

In September of 1942 the Joshua Hendy operation was expanded by the acquisition of the Crocker-Wheeler Manufacturing Company of East Orange, New Jersey. Crocker-Wheeler was also a pioneer in its field—the manufacture of motors, generators, motor-generator sets and large flexible couplings. When the war ended, Joshua Hendy and its Crocker-Wheeler Division stood beside the two shipyards in the reviewing line, for they too had earned the highest merit awards the nation bestowed on its soldiers of production.

That, in essence, was the story of ships and ship engines for victory. It was big and dramatic, but not as big nor as hazardous as another emergency contract. This was the far-flung construction of Pacific Naval Air Bases which grew into the largest and fastest construction job of all time, a statement for which there is the good authority of Vice Admiral Morrell, who had charge of it. The job was undertaken as a group project, or more accurately, as a series of projects.

Pacific Naval Air Bases officially began on May 25, 1939, with the appropriation by Congress of sixty-three millions for the purpose. The story before that is a long one, of devotion by key Navy people to a task filled with heartbreaks—the race lost against time to register with the American people an awareness of vulnerability on the Pacific flank. One who proved tireless on this job was the head of the Navy's Bureau of Yards and Docks, Admiral Ben Morrell. Once under way, PNAB became his baby, a thriving infant striving mightily to grow up in a mere matter of months because it had been born five years too late.

1941: PNAB seats for the American eagle

From a spearpoint in the Philippines, up through Guam, Wake, Midway—and swinging back out of Pearl Harbor down to Palmyra and Johnston, all of it anchoring on the California base at Alameda—the plan proposed to ring the fortified Japanese mandated islands with air power. Only part of what the Navy knew to be its bare minimum had been provided by Congress even at this eleventh hour, but it was a start and Morrell let no grass grow in getting it under way. This program began as a sixty-three million dollar project and eventually grew to cost about four times that amount. Billions were spent for cure where millions might have afforded prevention. Countless lives were poured into that final price, too, contractors' men and Navy people alike.

When the newspapers reported the authorizing legislation, no less than forty contracting firms showed interest. One was the Turner Construction Co., of New York, which under R. C. "Cliff" Wilson, was then completing a testing basin for the Navy in Maryland. This firm soon arranged to tie up with Raymond Concrete Pile and the Hawaiian Dredging Company of Honolulu, headed by Walter H. Dillingham. They called themselves Hawaiian-Raymond-Turner. Two Baltimore firms, the Arundel Corporation and Consolidated Construction Co., formed a separate group. And, as might be expected, the western contractors teamed up once more to offer their services. There were others anxious to do the work, but only these three groups survived the early rounds.

"We can do the job"

Harry Morrison took the lead for the constructors from the Far West. Three days of meetings convinced the Navy that these men could justify their stated position . . . "We can do the job. Details? We'll work them out as they come up, and give you the job you want in fast time." As it turned out, they were selected. But not at the outset. Hawaiian-Raymond-Turner had made a detailed analysis and proposal; they were put to work first with the western partners held in reserve. The Navy knew that before long there would be enough work to occupy both groups.

David O. Woodbury's book, *Builders for Battle*, gives a thoroughgoing account of the whole adventure—its background, how it grew, and what happened before and after the shooting started out on the jobsites stretching ten thousand miles across the Pacific. Even Woodbury's four hundred pages only highlight the story. But the heroism of Dan Teter's twelve hundred workers on falling Wake is in it, and the story of Marilyn Sheik with fifteen hundred of Harry Morrison's men on embattled Midway—yes, and Gus Ayers and the others getting under way on reconstruction while the smoke still hung over Pearl, and Lowell Dillingham's bunch ingeniously freeing the wedged battleships along the Ford Island shore.

1941: The Bechtels "enlist" again

By January of 1941 money was promised to expand naval facilities in the far Pacific. Time was running out for work in the Philippines, before Congress could vote the funds, the eight PNAB contractors were asked who would take the job. "We will," Steve Bechtel answered, "and the man we will send out is our Vice President, George S. Colley, Jr. He can get people to do what they don't know they're capable of." The Bechtels put the nucleus together quickly. George turned the job of building Calship over to Jap Connell, packed his bag and climbed on a plane for Manila. He had Jack Scarlet for General Superintendent, and Harry Koons, Chuck Snead, Smith, Davis, Coombs, Webber, Neal—thirty-seven key men. Workers were recruited at Manila.

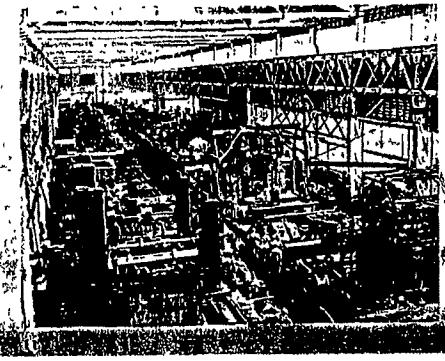
A late start at Cavite

George Colley with George Ferris of Turner and a small group went in by Clipper on April 20th. The Navy's Commander Jim Wilson and his assistants were waiting for them. First order of business was to modernize the installations at Cavite on Manila Bay. There were no blueprints, just a list of jobs the Navy wanted done. "It's up to us," Wilson told them, "we'll have to plan on the spot." Construction headquarters went up right away; draftsmen, purchasing agents and the office crew buckled down. Twenty-seven projects were on the list, at Cavite and out on Sangley Point—dredging, seaplane ramps, hangars, fuel and ammunition storage, powerhouse, living quarters.

EDITOR'S NOTE

The Bechtels is privileged to present in a series of installments "A Builder and His Family," written and copyrighted by Robert L. Ingram.

One of the departments at Joshua Hendy where one-fourth of all power plants for cargo ships built during World War II were made.

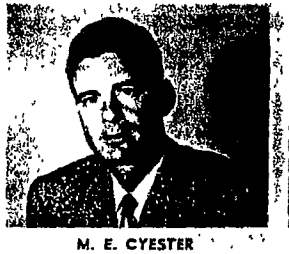


Western Products in action. The pictured landing on Leyte saw western-made materiel in bulk, from sandbags to L.S.T.'s.

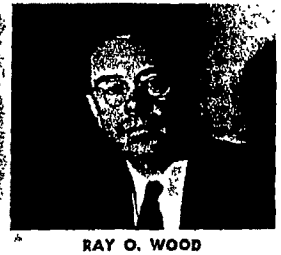


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Family Album — OREGON AND TENNESSEE



M. E. CYESTER



RAY O. WOOD

Two essential requisites for a successful construction job are materials and manpower, both of which must be good and sufficient. For the procurement of the latter commodity for all of Bechtel's foreign jobs during most of the past six years the man immediately responsible has been Millard E. ("Cy") Cyester. There isn't an American employee of IBI who would hesitate to say that in his particular case, at least, Cy's choice was a wise one.

Bechtel International Corporation, which does the foreign recruiting, has had as many as five offices in key cities at one time, with roaming representatives covering thirteen different areas throughout the United States. Between 1944 and 1950 some six thousand Americans have been hired and sent abroad by the Bechtel interests. But so careful has been the screening of prospects and applicants that in order to deliver to the various job sites the required number of personnel, over 350,000 contacts were made.

Cyester's experience in personnel work goes back fifteen years or more, but it was in 1942 that it became his full-time vocation. This was at Calship on Terminal Island, California, where Bechtel was building ships for the U. S. Maritime Commission. After seven months of personnel work in the production department he recommended the setting up of a centralized company-wide personnel and industrial relations department. His recommendation was accepted and he was given the task of organizing the new department, of which he was appointed assistant manager. At that time 3,000 people a month were being hired, and there were more than 40,000 at work in the yard.

In July, 1944, he was moved to San Francisco to assist in setting up and streamlining a recruitment program for Bechtel jobs under way in Bahrein, Saudia Arabia and Curacao. Two years later, following the formation of BIC-IBI, he was appointed personnel manager.

Born in Ashland, Oregon, March 23, 1911, Cy was taken at an early age by his parents to Long Beach, where he was educated. His father became an invalid, and in 1929 Cy undertook the support of his family. In the nearby Signal Hills oilfields he worked for two years as a roustabout and roughneck—which was not too great a handicap for a strapping six footer who had played football and basketball in school.

After that he joined the U. S. Forest Service, building and maintaining roads, telephone lines, water systems, and various other facilities, besides fighting fires or preventing them. As protective assistant and later as an administrator he spent a full seven years with the Forest Service, supervising the control of hundreds of thousands of acres comprising the Saugus and Santa Anita districts.

In 1937 he married Nancy Gill, a girl from his home town, and they have two boys, Gill (9) and Gregory (going on 4). Their home is in San Mateo, California.

Always a keen sportsman, Cy bowls and plays softball and enjoys salmon fishing. During a survey of IBI field operations in Saudi Arabia in the fall of 1949, he managed to take an hour or two off to try fishing in the Persian Gulf. He hooked a couple of big ones. He'll never know what they were because they got away, but he's pretty sure they were sharks.

Ray Wood was born in the heart of the Cumberland Range in Tennessee in that remote section where acreage yield is measured not by bushels but by *gallons* per acre. His earliest recollection of schooldays takes him back to one-room frame building located alongside of an apple-brandy still. Like all kids of the area, he was taught the three R's, beginning with the old Red Back Speller, and in off-school hours he learned the efficient use of a muzzleloading squirrel rifle, principally for turkey shoots.

He first started in construction at the age of 15, helping to build roads and bridges in Fentress County, Tennessee, where dirt-moving equipment consisted of a flat type of scraper with two handles for loading, and the motive power was a span of mules or horses. This was probably a forerunner of the old Fresno scraper. After being thrown into the team because he failed to release the loading handles when the scraper hit an outcropping of hard limestone, and being much too light for this type of work, he was put on the job of blasting stumps and rock out of the right-of-way and became the regular "powder monkey" on road construction in the county.

Wood states that regular wages for an adult were $1.25 per day for ten hours' work, and how proud he was to be drawing a man's wages at the age of 15. He went to boarding school on the money earned blasting for the county road department, as public school was only three months per year then.

He migrated West two years later, and built and operated a camp ground, general store, gas station, post office, and restaurant on what is now U. S. Highway 66, in San Bernardino County.

Between 1918 and 1930 he managed to get through high school and approximately two years of college work, all in evening classes. A few of the schools he attended were Stockton's Valley Institute, Helena, Tennessee; Manual Arts, Polytechnic, Metropolitan, L. A. High, all in Los Angeles; then Huntington Park High School, and the University of Southern California.

After a short period of employment with Bishop & Company, candy manufacturers, he spent four and a half years with Consumers Rock and Gravel Company in the accounting department, six years as paymaster in the office of the Controller, State of California, then switched to California Shipbuilding Corporation in 1941, starting as a timekeeper.

Successively he became cost supervisor, assistant chief timekeeper, chief timekeeper, and finally plant accountant. As plant accountant, his duties consisted of heading the timekeeping department, cost department, two tabulating departments (one of which handled the payroll and the other material control), paymasters department, bond issue, and payroll claims department.

The combined personnel under the plant accountant's position exceeded eleven hundred persons. With this number of people, even a small personnel problem could, and often did, multiply many times. These problems were secondary, however, to those involved in keeping 42,000 persons paid regularly and correctly each week, as well as supplying production with a detail of man-hours expended and man-hours applied for the various production units of work scattered over a yard of 177 acres.

Wood resigned from Calship in April 1946, because the job was done. He spent the next fourteen months buying and selling textiles to a market that had been waiting for four years for such scarce commodities as cotton goods of every description. When the period of this scarcity was over, and inventories started to pile up on store shelves, he quickly closed out this small jobbing business and came North to join BIC.

He became administrative assistant to Tom Loach and assumed the duties of office manager. He takes care of all insurance, control of communications, and the thousand and one other duties that keep his phone extension the busiest in the office.

His hobbies are hunting, fishing, farming and carpentry, but for the last year he has devoted every spare moment to the building of one wing of a new residence in the foothills near Los Altos. The way Ray puts it, his wife Alma has actually built the 1,400 square feet that they have completed, with a bit of help from himself and 12-year-old daughter Carolyn.

When they talk of building, they do not mean merely supervising various subcontractors, but actually doing the job themselves, including the carpentry, electrical work, plumbing, and concrete work. However, they did permit themselves the luxury of a brick mason, but only because there wasn't time for Ray to learn chimney building and still get a fire going for the cold winter evenings!

Canadian Pipeline Movie

"Canadian Pipeline" is the title of a new 16mm. sound film report on the construction of Bechtel-Mannix's 450-mile portion of the Edmonton-Great Lakes crude-oil pipeline. Produced by Bechtel Historian Richard Fannie, it is the third of a series on great pipeline projects now nearing completion by the Bechtel interests, the other films being "Pipeline in Arabia" and "Super Inch." All three are now available for the use of especially interested groups.

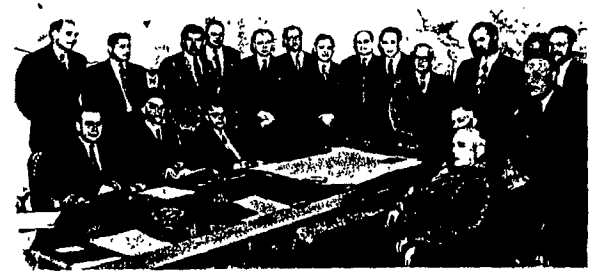
Alaska Power Projects

Assignment of two new power station design jobs by the Corps of Engineers U. S. Army, to Bechtel Corporation has been announced by Vice President J. P. Yates. Work on these projects is underway in the San Francisco Power Division Engineering Office. They include the design of a plant at East Fort Richardson, near Anchorage, Alaska, to supply steam for heat as well as electric power generation, and a plant at Whittier, some fifty miles southeasterly from Anchorage. The Whittier plant is to utilize equipment removed from another plant.

J. N. Landis, Chief Power Engineer, reports that preparation of drawings and specifications, under the supervision of J. F. Del Curo in the San Francisco Power Division Office, is in progress on both stations, and that a review of work and plans on both plants was conducted by U. S. Army Corps of Engineers and other Army representatives in San Francisco during early July.

The East Fort Richardson plant will be similar to the plant designed and built by Bechtel in the early forties and currently operating at Elmendorf Field, also near Anchorage.

In the picture (on the right) those representing U. S. Army, Alaska, were Major J. S. Merrill; representing Corps of Engineers, Alaska District were Messrs. Warren George, R. E. Charles, Henry Straub, J. Calvert, representing Chief Engineers Office, were Messrs. S. Uhr and Fred Simpson; and representing the North Pacific Division, Messrs. G. H. Kelleway and B. B. Bessesen.



Seated around table L. to R.: Warren George, Henry Straub, S. Uhr, B. B. Bessesen, G. H. Kelleway.

Standing: A. A. Knapf, R. L. Walker, J. M. Sardis, L. T. Zbanek, J. Calvert, Gordon L. Way, Jim Landis, Major J. S. Merrill, Roy E. Charles, Fred Simpson, J. R. Kirby, M. G. Lewis, W. L. Dickey, J. F. Del Curo.

THIS MONTH'S COVER



This month BECHTEL BRIEFS *is proud to present a pen and ink sketch of President S. D. Bechtel that we like very much. Through the courtesy of artist H. Arnold Jacobsen and the* OIL FORUM, *in which publication Steer's picture originally appeared in connection with an article on the Middle East oil situation, we are privileged to give our readers this interesting portrait of "S. D." with its backdrop of typical Bechtel engineering and construction jobs.*

GEORGE E. KEENEY
Editor, BECHTEL BRIEFS

Vol. V **No. 8**

Published in August, 1950, By and For The Employees of Bechtel Corporation, Engineers and Constructors.

1950 Annual Bechtel Picnic

The festive memory of the Bechtel annual Family Day still lingers on the minds of the 1,050 persons, men, women and children, who packed Happy Hollow Park near Walnut Creek to capacity.

The outing began with a Power Division sponsored tour of the new 30 million dollar P. G. and E. Antioch steam electric generating plant now under construction by Bechtel crews. And everything cooperated to make the day a success—the weather was perfect, the barbecue dinner excellent and the program ran off without a hitch.

Swimming, dancing, hiking, races for the young folks, gate prizes and a stellar soft-ball game occupied the afternoon and evening. Late in the afternoon the crowd began to break up—some stayed until early evening—but all seemed to have had a good time.

Much credit is due to the picnic committee. Its members were: Harry McBride, George Keeney, C. K. Lewis, R. M. Dorman, Frank C. Weisner, Mary Jordan, Lola Bangs, Chadelyn Hulburt, Fred Hempleman, Helen Boughton, Ray Woods, Bob Deckman, C. C. Trowbridge, Les Greatbanks, Clyde Barr, Cy Dufilo, J. W. Becker, Norman Macfee and Buzz Harkness.

BRIEFS

In the last few weeks there have been many transfers to take care of an accelerated Summer construction program and the addition of new work.

Cliff Amarantes and George Cantua left the P. G. and E. pipeline in California. Cliff to assist Gene Lippa at the Salt Lake Refinery and George to assist Johnny Shea at the SOhio Refinery. Bill Lake was transferred from Salt Lake to also assist at the SOhio Project.

C. L. Drake replaced Tom Moran as superintendent at Klamath Falls so as to release Tom for a future assignment at Richmond. In the interim, Tom is at Avon on a special project. H. J. Winandy also replaced at Klamath Falls by J. H. Cooper and is now office manager for the construction of the new phosphorus plant at Pocatello. Office Manager E. C. Elting and D. E. Johnson received a Southwest assignment, Elting going to the new Texas-Illinois natural gas pipeline in Arkansas and Johnson going to the Phosphate plant project at Lawrence, Kansas for the Food Machinery and Chemical Corp.

Safety

By CECIL W. COLE, *Safety Supervisor*

Management of Bechtel Corporation has always had a positive attitude toward safety for its employees. It is evidenced by its emphasis on selecting competent and experienced supervisory personnel who have a cooperative attitude toward matters of safety as well as a record for ability and skill. A constant program of checks and education has been carried forward by top management to insure that construction workers have the best equipment and safe working operations. All proven safety devices and health protective measures will be taken to insure the field workers against risk.

Of course, the final responsibility for any program, or the use of any safety device, is that of the men on the job, beginning with the superintendents through the foremen and, finally, to the man doing the actual work. Each one of these men must constantly be aware of the importance of not only protecting himself from harm, but also protecting others. To keep this awareness at a maximum, we must constantly *walk safety, think safety,* and *act safety*. The program of safety signs, safety articles and safety talks, is for the most part, underlining what everyone of us already knows. However, it serves to keep the subject constantly in mind, a must if our jobs are going to be free of accidents.

Some of the common causes of injuries are known. They are listed for your help. If you recognize any of them on the job—do all that you can to eliminate them.

1. Lack of sufficient experience
2. Over fatigue
3. Lack of sufficient sleep
4. Worry about family trouble
5. Disregard of safety rules
6. Fear of losing job
7. Attempting to do a job too fast
8. Anger or flighty temperament
9. Inattention to the job
10. Objection to constructive criticism
11. Uncorrected physical defects such as poor vision, hearing or muscular coordination
12. Over-confidence
13. Poor attitude toward safety

Self analysis may contribute to an individual's thinking so as to provide an adequate defense against needless mishaps.