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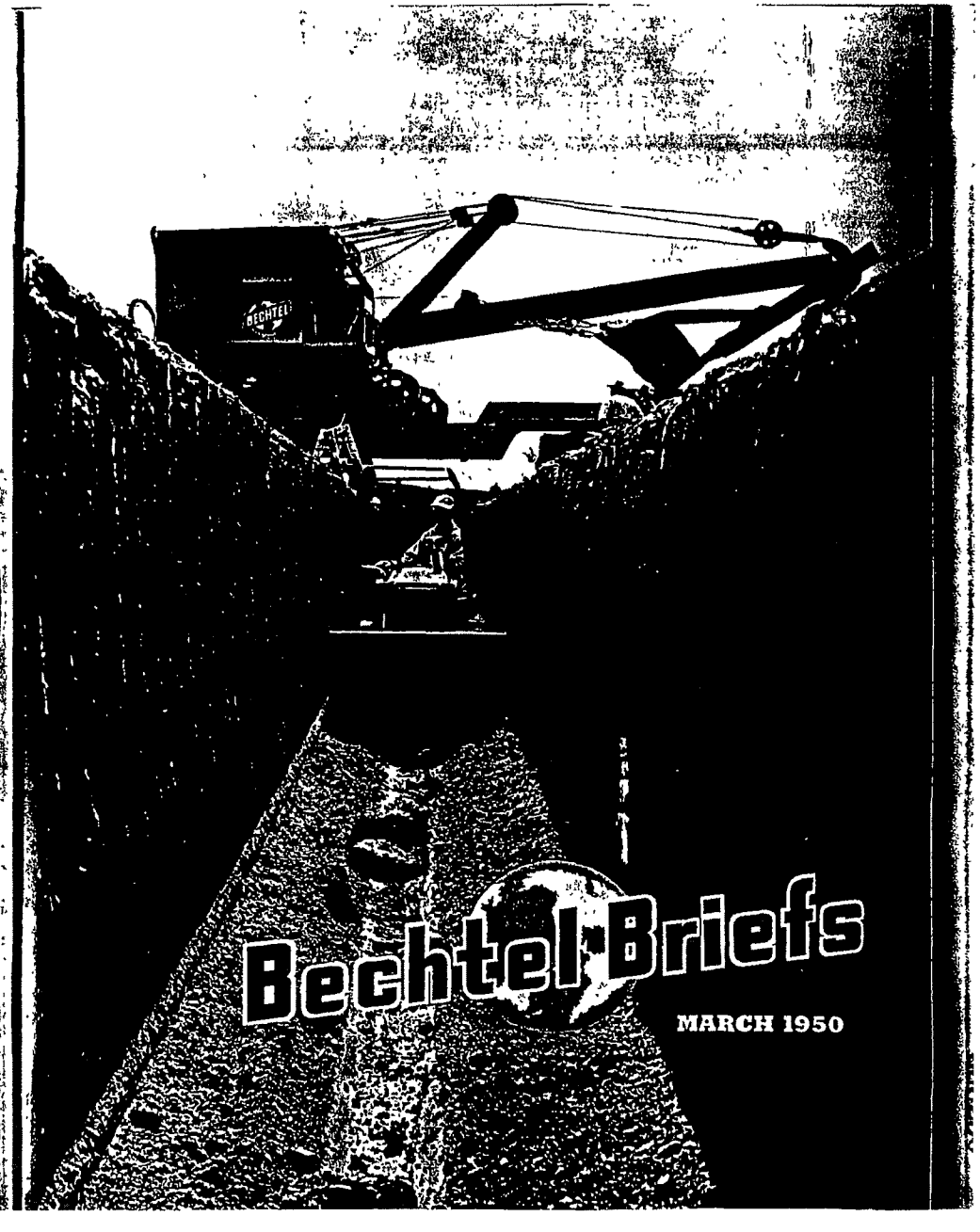
March 1950

AN ORGANIZATION THAT HAS TO ITS CREDIT EXPERIENCE
IN EVERY PHASE OF ENGINEERING AND CONSTRUCTION



BECHTEL CORPORATION

LOS ANGELES NEW YORK



Bechtel Briefs

MARCH 1950

NEW BAY AREA DEVELOPMENT LEADER

William F Waste, Vice President Bechtel Corporation, is the newly elected chairman of the San Francisco Bay Area Council, a non-profit organization devoted to the economic and civic development of the nine counties bordering San Francisco Bay

A native Californian and a graduate of the University of California, his career with Bechtel interests began in 1931 with W. A. Bechtel Co as manager of pur hasing for Six Companies Inc on the Boulder Dam Project During World War II, he was Vice President and General Manager of Marinship Corporation



Bill Waste, left, receives congratulations from Bill Hale, Executive Vice President of the American Trust Company, in assuming chairmanship of the San Francisco Bay Area Council.

The Council devotes much of its efforts in furthering industrial development as well as providing a coherent plan for expansion of transportation facilities, housing, educational and recreational facilities and airports made imperative by the rapid growth of the section

The direct activities of the Bechtel interests have been of no small importance in the industrial expansion of the San Francisco Bay area These have included in the past several years engineering and construction for the Heinz Processing Plant at Tracy, the Owens-Corning Fiberglas plant at Santa Clara Brenner s Warehouse in Oakland and many large projects in petroleum refiners and the chemical industry for Standard Oil of California, Shell Oil Company, Shell Chemical Company, Hercules Powder Company, Associated Oil Company and many others.

At present, Bay Area work includes the design and building of the new U S. Rubber warehouse in San Francisco the laying of a 506 mile natural gas pipeline for the Pacific Gas and Electric Company, and the construction of a 402,000 horsepower electric steam generating plant for Pacific Gas and Electric Company near Antioch, California

Along with such other sponsors as the Standard Oil of California, the Bank of America, the Pacific Gas and Electric Company, Columbia Steel, and the American Trust, Bechtel Corporation has been an active participant in the affairs of the San Francisco Bay Area Council since it first began

EDITOR'S NOTE—*One of the major activities of the Council is the aid it provides to prospective industrialists. Economic data relative to the Bay Area, and particularly the Bay Area as available at the Council offices in San Francisco.*



Seated, L. to R.: E. E. Kerns, Sohio Super. of Mat'ls. & Equip.; R. S. Dey, Jr., Sohio Legal Counsel; V. G. Hindmarsh, Bechtel V.P.; W. M. Dunnett, Sohio Gen. Proj. Eng.; G. R. Thompson, Sohio Ref. Represent.; Glenn Harding, Bechtel Proj. Eng.; E. N. Marsh, Sohio Proc. Design Super. Standing, L. to R.: W. R. Ayers, Bechtel Admin. Mgr.; R. B. Kilgore, Jr., Sohio Liaison Proj. Eng.; A. J. Orselli, Bechtel Mgr. of Ref. Div.; F. W. Meyer, Bechtel Chief Ref. Eng.; E. E. Dorresteu, Bechtel Mgr. of Eng.; H. F. West, Sohio Chief of Eng. Div.; Dr. F. J. Sanders, Sohio Tech. Mgr.; E. N. Salathe, Sohio Supvr. of Design & Constr.; K. N. Thompson, Sohio Supvr. of Util. & Power; G. L. Bruno, Bechtel Resident Job Eng.; Abe Entingen, Bechtel Field Eng.; C. T. Draney, Bechtel Mgr. of Contracts & Sales; J. Perry Yates, Bechtel V.P. in chg. of Eng.; Hugh Hyde, Bechtel Supvng. Eng.; D. J. Wilson, Bechtel Job Eng. Absent when photo was taken: T. W. Bean, Bechtel Chief Est.

SOHIO GROUP MEETS

Representatives from the Standard Oil Company of Ohio met with members of the Bechtel organization on Wednesday, February 15, to discuss the conversion of a double Houdry Catalytic Cracking Unit at their Cleveland refinery to a double Thermofor Unit

Design work is now in process and con truction is scheduled to begin the early part of March

After the business affairs were accomplished in the two consecutive daily meetings, the visitors were entertained by a tour of the Bay Area on Saturday, February 18, visiting Stanford University, Muir Woods, the refineries of this section and many points of interest within the City of San Francisco

New Engineering Assignments

J. P Yates, Vice-President in charge of the Engineering Division, has announced two new assignments due to increased activity.

Russell B Johnson will serve as Assistant Chief Refinery Engineer under Fred Meyer, and Robert S Custer is assigned as Assistant Chief Process Engineer under Gordon Zimmerman.

Russ Johnson has been with Bechtel Corporation for over seven years. During that time, he has handled several large projects within the engineering group His latest project is the addition to the Salt Lake City Refinery of the Standard Oil Company a Catalytic Cracking Unit and gas treating facilities This entire refinery has been his "baby" since its inception in 1947 Russ is a native Californian, born in Martinez, and a graduate in Petroleum Engineering from the University of California at Berkeley. At present, he resides in Mill Valley in Marin County with his wife, Jodine and his two daughters, whom he indulges when he is free from Bechtel assignments, in his avocation of gardening

Robert S. Custer is also a native of California from Glendale. He is a graduate of California Institute of Technology For the past two years he has been with the Bechtel Engineering Process group and has had a hand in the process work for most of the recent refinery projects of the division His recent work has been concerned with the Union Oil Delayed Coker Units, the Catalytic Cracking jobs, and the recently completed Ponca City Crude Unit In addition to his professional engineering status, Bob has quite a reputation as an amateur structural engineer, having planned and built his own home in Palo Alto His wife, Elsa, and his boy and three girls were his only assistants

Tulsa Office

Announcement has been made by President S D Bechtel that on March 1st Bechtel Corporation will open a new office in Tulsa, Oklahoma Space has been procured in the Philtower Building in the heart of the city business district



George Gibson

George Gibson who for the past two years has been company representative in New York will be in charge of the new Tulsa office. The decision to establish permanent mid-continent headquarters results from the expansion of Bechtel operations in the area, mainly in the engineering and construction of refinery, chemical plants and pipe lines. Direct operating responsibility for the Tulsa office will be through Charles T Draney, who handles the sales development program of the company under the direction of Vice President W. E. Waste

THIS MONTH'S COVER

POLISHING UP THE DITCH

BOWMAN'S LATEST VACUUM CLEANER



Handiest tool on a big inch pipe line is a recent innovation in the form of Supt. Bob Bowman's newest gadget. It's a tricky little Oliver Clettac, gas-driven crawler with a cable controlled 45" blade. With it the pipeliners on the 506 mile P. G. and E job can go into the ditch and sweep up as well as a new broom

Unique safety device in the form of steel side screens was especially designed to protect the operator from falling dirt and rocks

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Senior Management Changes in Effect

In keeping with the policy of strengthening the senior management of all divisions, S. D Bechtel, President of Bechtel Corporation, announced that as of February 10th, E. E Dorresten became assistant to Vice-President V G. Hindmarsh This assignment will make it possible for the latter to devote more of his attention to policy matters and for personal cooperation with President Bechtel in the general affairs of the company



E E Dorresten

Duties of E. E. Dorresten will include coordination of estimating, refinery engineering and procurement of materials and assignments on the development of certain new business Special services or projects may be assigned by V G. Hindmarsh from time to time

Al Orselli will continue in his current assignment as Manager of the Refinery Division, concentrating his attention on direct construction as at present.

Field Notes

Assignments of construction field personnel have been announced by Al Orselli Refinery Construction Division Manager, for Jobs 1616 and 1621, the Socony Vacuum Buffalo Project and the Standard Oil of Ohio Cleveland Project respectively.

Jim Brady is assigned to act in an over-all coordinating capacity for both jobs

Construction superintendent for Job 1616 is Fred C Brown with Larry Pitchford as job engineer and J. E Poe as office manager. The work at Socony Vacuum's Atlas Works at Buffalo, New York, includes, in addition to increasing present gas facilities, a T.C.C. conversion from a present Houdry Catalytic Cracking Unit

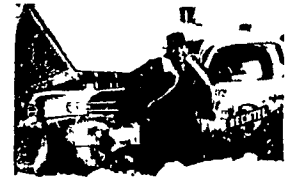
At Cleveland, Ohio, John Shea is construction superintendent assisted by Wayne Cox and George Wilcox. Jim Wolfsohn will act as Job engineer The Job 1621 work consists of a conversion of a double Houdry Unit to a double Thermofor Cracking Unit for Sohio.

As already announced, Gene Lippa, has started the expansion program for the Salt Lake Refinery Co., Job 1541.

Arctic Work Proceeds in Sub-Zero Weather

Freezing temperatures only begin to describe the weather on the Last River desert site near Arco, Idaho, where the new Experimental Breeder Reactor work is in progress

Excavation for the reactor footings has been completed and, the weather notwithstanding, concrete footings and walls are being poured. With temperatures constantly on the minus side of 0° F., sometimes as low as 30° below zero, it is necessary to use kerosene burning "salamanders" each generating 385,000 B.T.U. s per hour to maintain a temperature of 52° to 60° inside the forms and in curing of the concrete.



General Superintendent Walt Sims of the Arco, Idaho, job, shows us what 40 below looks like in Arco. It looks like he'll have to dig his way out to the jobsite.

Quoting Walt Sims construction superintendent of the job (and only recently returned from Arabia), "We had a few tough problems To me, it was a reenaction of Canol, but on a smaller scale. However, the problems are the same whether on a large project or a small one Tell the boys in Arabia that we would gladly swap 40° of temperature and I think we would all be happy." E. A. Draeger, assistant superintendent, concurs

The Experimental Breeder Reactor Plant is being built for the Atomic Energy Commission of the United States.



Salt Lake Field Office Opens

Office procedures and work has been initiated in the field at the Salt Lake Refinery Project under the capable supervision of Al Carman, Office Manager, and Mel Geer, Chief Materials Man Materials have already begun to arrive for the construction of the new Cat-Cracker for the Salt Lake Refinery Co.



Mr. Geier, chief materials man, going over purchases with office manager, Al Carman.

The office is situated within the construction area at the refinery site about three miles north of the central part of Salt Lake City

Al and Mel are part of the former Ponca City team Also included on this Salt Lake combination from the Continental Crude Unit Job is Construction Superintendent Lippa and Stenographer Madelene Burton who has been described by Lippa as "The best one girl crew west of the Mississippi.



B-M-K Sponsors Basketball Team

Another Bechtel Morrison-Knudsen joint venture as illustrated in the accompanying photograph This time it is a basketball team under the sponsorship of Cliff Pehl and H. L. Lawton and coached by A. L. McGuire

Besides posing for pictures, they do quite well on the floor having won 3 out of 5 of their games against some pretty good teams from various high schools and veteran organizations in the Big Creek part of the Sierras. They have quite a good record considering the fact that practices are so few that the fellows sometimes can't remember their team mates names, much less the plays. Nevertheless, they usually overcome all handicaps about the beginning of the second quarter and really start to toss the ball around

Oh yes, they are otherwise occupied building a dam in the "Gateway to the Sierras", to be more exact, on the San Joaquin River about 50 miles northeast of Fresno, California

Top row, left to right: A. L. McGuire (Coach), Fred Hampton, E. M. Zierott, Chuck Baker, Jack Smith, Ralph Core, L. E. Rosetta, P. A. Corkins, Johnny Cole. Bottom row, left to right: C. S. Braumbaugh, Dick Austin, C. R. Silcock, Bud Stamper, Norris Whiteside, B. B. Ayotte, and Jim Cannon.

A BUILDER & HIS FAMILY

By ROBERT L. INGRAM

CHAPTER EIGHT

March 4, 1931: The bids

The Government set March 4, 1931 as "B Day for bids. When the chips were down, of the many organizations which previously had shown lively interest only three made application. The project's size combined with difficulties of location and terrain, made estimating a tremendous task. Furthermore, the hazards were so obvious that even the most rare bulls worked out bid was extremely risky. The figures showed Six Companies an even five million dollars below the next lowest offer, and almost ten millions under the highest bidder. In their exultation to win, it looked like they had left five millions on the table. Furthermore they found out they were only twenty-four thousand dollars above the Bureau of Reclamation's estimate of actual cost. Success would require ingenuity all the way.

One week later: On the job in Black Canyon

Six Companies Inc. got the job for $48,890,-996. Within a week the nucleus of the construction organization was complete. Superintendent Frank T. Crowe arrived at the site on March 11th. "I was wild to build this," he told an interviewer from *Fortune* magazine twelve years later, "the biggest dam ever built by anyone anywhere." Frank Crowe was a University of Maine engineer with more than twenty years of service with the Bureau of Reclamation. He built the Jackson Lake Dam in Wyoming and the Arrow Dam in Washington. Six Companies got him through Morrison-Knudsen and Utah.

Crowe knew his business and minced no words about it. Once asked what his biggest hazard was at Boulder Dam he promptly snapped "the Directors!" These gentlemen saw his point, and gave him a closely-knit four man Executive Committee, for most of them were men of his own rugged stamp. Such as Dad Bechtel and Hank Lawler, who for many years held informal "board meetings" every Saturday afternoon over the pinochle table. Between them they would decide what was going on and tackle their problems while the cards dropped—to these old timers the height of joint venturing.

A "temporary" job

Soon after the contract was announced, suppliers anxious for a piece of this big business began to descend on Steve. A close friend, Bill Waste, heard from him by phone one day kept him away more of the time. He served on the Board, as did Kenneth

April, 1931. "Come over and give me a lift," Steve said, "I want you to front for me with all these peddlers." That was Bill's start with the Bechtels, he went to work the following morning. Salary was not discussed. "I thought it was a temporary job," he says, "but in no time at all I was at Steve's side helping him direct the buying. Before it was over we purchased between eight and ten million dollars worth of supplies."

The Bechtels' contribution

"W. A. Bechtel Co.'s direct share of the work was largely administrative, but as officers and directors the Bechtels put their construction knowledge into the common pot," said Bill Waste, who was there almost from the beginning. William H. Watts, in his seventies and ailing when elected President, died six months after the contract award. The partners picked Dad Bechtel to succeed him. Later, Steve was elected First Vice President; became a member of the four-man Executive Committee which directed actual work, and Administrative Director. Warren Bechtel, busy with other Company work, was able to spend about half his time at the Dam in the first year; after that the press of outside duties



Congratulations poured into Dad Bechtel's office after his election to A.G.C.'s National Presidency. With him on the happy occasion were L. S. Burney, President of Nevada Construction Co., and Bechtel veteran Earle G. Lloyd.

Hoover Dam: some statistics

The technical story of Hoover Dam's construction has been told many times. The bare statistics of the contract were these: the project was divided into five parts; first, the river diversion works necessary to pass the Colorado River around the damsite, consisting of upper and lower cofferdams about ninety feet high, and four of the largest rock tunnels ever built, averaging four thousand feet each in length and fifty-six feet in diameter; second, the dam proper, a concrete arch seven hundred twenty-seven feet high and eleven hundred eighty feet across at the crest; third, two giant spillways each large enough to accommodate a battleship; fourth, two outlet systems leading from four great intake towers through rock tunnels to the powerhouse and valve houses; fifth, the powerhouse, largest of its kind ever designed. Additionally, the volume of development work—cableways, roads down the sheer cliffs, a railroad, a permanent city for workers, communications, and such incidentals as mammoth aggregate and concrete plants — was rivalled for magnitude only by later foreign projects. To do all this the Government established a working time of 2,565 days—approximately seven years. It was done in five years—at a saving to the public treasury of five and one-half million dollars.



Bechtel veterans Waste and Sewell with an old friend—Tom Phillips—in 1936.

EDITOR'S NOTE

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

The human side of man's conquest of the Colorado has been preserved by George A. Pettitt in *So Boulder Dam Was Built*, a book published in 1935. He states the twin problems that made for urgency—widespread unemployment which only public works could relieve, and recurring floods that threatened disaster to the people of California's Imperial Valley.



Matching nature's beauty—a bridge of native stone, Sequoia National Park.

And he documents the victory of spirit over nature's mightiest forces—man-killing weather and floods that tossed the great preliminary works aside like match sticks. Every man who was there carries vivid memories of these and a hundred other battles not recorded in printer's ink.

Aug. 28, 1933: A builder laid down his tools

Meanwhile the fame of the men who were winning this fight spread around the engineering world. Six Companies' President was urged by the Russian Government to inspect the great Dnieprostroy Dam, just completed. "It's a good time to see what the rest of the world is doing," Dad told his partners. With three sons on the job at home, the invitation offered an opportunity to compare notes on men and methods. So he was off to the U.S.S.R. accompanied by his first and best partner, Mrs. Bechtel. And there, in Moscow on August 28, 1933, he died. It was a great shock and a great loss, but the family and his host of friends could find solace in the knowledge that he left as he had lived—and as he would want to go—active to the very last, a construction man on a construction mission.

Dad's homecoming gave the country and his profession an opportunity to show where he stood in their hearts. Let Gilbert Darwin speak for the many who memorialized him in the nation's press. Mr. Darwin, then editor of *Western Construction News*, wrote in the September, 1933, issue:

Oakland, California—Sept. 19, 1933:

"'Dad' Bechtel is gone. His end came with tragic suddenness. An international figure—beloved and respected by thousands—he was a self taught, highly-successful builder with intense pri[illegible] a job well done. Outstanding in his characteristics were a loyalty to old friends and faithful employees no matter what their station; a simplicity and kindliness of manner enduring from his pick-and-shovel days on railroad construction until his death as the height of activity and power; honesty; tremendous vitality; prodigious industry; a great sense of humor and enthusiasm.

"'Dad' Bechtel did a world of good things few people will ever hear about. Success never changed his attitude toward life or construction. He paid the closest attention to all details of his work; kept up his equipment in first-class shape; operated good camps; was on the alert for new and improved methods and materials of construction. A prominent railroad executive, from a background of over twenty years acquaintance, says of him 'No engineer ever had to go after Bechtel to do a good job.'

"The many useful monuments built by Dad will endure from generation to generation, silent tributes to his genius in development of the western empire. His brother and three sons are left to carry on the ideals of Bechtel contracting organizations of a fine man who built well and loved his fellows."

Fraternal and association activities

The press accounts emphasized the great warmth of W. A.'s personality, devoting fully as much space to his richly human qualities as to his many notable achievements. Little was written about his honors and affiliations. Nevertheless, he joined in fraternal and association activities, choosing them carefully—a necessity for a man so thoroughly occupied by the two things nearest his heart—family and work.

Dad was a Mason and a Knight Templar, and of this fellowship he was deeply and justly



Dad's brother Art had a winning way with men and animals.

proud. He was also a loyal Elk. In the field of association service he contributed substantially to the advancement of the construction industry—as a Charter Member of the Associated General Contractors of America, and in 1929, as A.G.C.'s National President. He was the pioneer of western builders in this organization, holding a personal membership long before the formation of its first Pacific Coast chapter, and his active participation in association work had a lot to do with putting the western contractors "on the map" with their eastern contemporaries.