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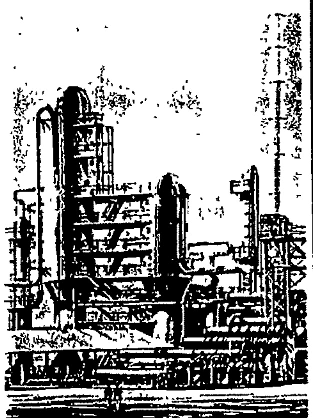
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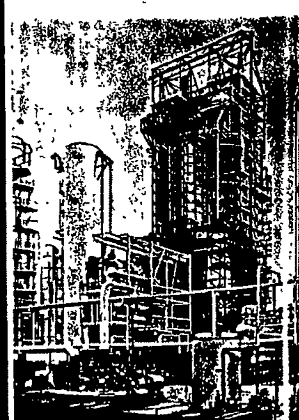
REFINERIES



BECHTEL CORPORATION is *manned and equipped to design and build refineries of any size or type the world over.*

PROOF—The past performance of men who are thoroughly experienced in the many complex problems that enter into refinery process design, engineering and construction.





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BECHTEL CORPORATION

ENGINEERS AND CONSTRUCTORS

SAN FRANCISCO · NEW YORK



A BUILDER & HIS FAMILY

By ROBERT L. INGRAM

The Power Division

Work of this type, and the engineering and construction of facilities to generate and distribute the additional electric power, later became the function of the firm's Power Division. The concept of this Division grew out of the entire postwar power development, but started specifically with the frequency change contract. Perry Yates, present head of the Power Division, took charge of this initial contract, and his chief assistant on its execution was John Kiely. Project Manager Kiely came from Calship, where he made an excellent record as Manager of Outfitting from 1942 on. His "frequency changers" gave a good account of themselves on this three-year project, as management expected when Kiely was put in charge of it.

1946: A big year for the process industries

The new year brought heavy activity in construction for industrial chemistry and petroleum refining. By 1946 BBM was well established as one of the largest firms doing this class of engineering, able to step in and deliver turnkey operations from preliminary study through process design to construction. In 1946 there were nine new contracts for large chemical plants and refineries, and a number of smaller jobs. The Industrial Division men, fresh from making an excellent record at Tracy, went to work on three major industrial plants. In a return to public work, construction began of a tremendous concrete siphon on the Friant-Kern Canal, a unit in the (California) Central Valley Project of the United States Bureau of Reclamation. As a group venture through partnership with the J. H. Pomeroy Co., work started on a large breakwater at Guam—Jack Pomeroy's men going back to this old stamping ground where some of their mates had been captured during the war. At Pittsburg, California, the same contractor sponsored group construction of a new tinplate mill and other facilities for Columbia Steel Company where W.A.Be had been active earlier.

BBM's process and refinery engineering staff had grown to sizable proportions, with experienced men in the key positions and specialized technicians to back them up. Early in 1946 Fred Meyer (whose appointment to the post of Chief Engineer was announced at the close of 1945) returned to the Bechtel organization from Japan. On this trip he headed a team in the Oil, Chemical and Rubber Section of the United States Strategic Bombing Survey. Cliff Peld was another Bechtel man on the expedition. Also, BBM's construction side had developed strength to match its engineering—and the firm's resources of manpower were continuing to grow.

1946-'48: "Gasoline" from coal

From the standpoint of process design, the most interesting 1946 development was contained in a U. S. Bureau of Mines contract. It called for a multi-million dollar demonstration plant to produce synthetic motor fuel from coal. And it was put up at Louisiana, Missouri, where Bechtel-McCone built the wartime Missouri Ordnance Works. Engineering began in May, involving a large amount of exploratory work carried out in conjunction with Government specialists.

A coal hydrogenation plant never before had been built in this country. There was no precedent for the solution of problems concerned with extremely high operating pressures and the flow of liquids and coal paste. Consequently, the design engineers had to develop new equipment. This job was high-powered pioneering, even though they had the counsel of experienced German scientists. Approximately two years were needed to complete the design. Plant construction began in May of 1947, and was carried out under Superintendent Jim Brady. Ray Russell was Project Manager. Some of the equipment was of enormous size, the ninety-ton converters, for instance. A great deal of it required totally new manufacturing design. But the real feature of the plant was its extremely high-pressure piping—up to fifteen thousand pounds p.s.i.—which not only accomplished the necessary process functions but provided a safety margin well above that of European plants.

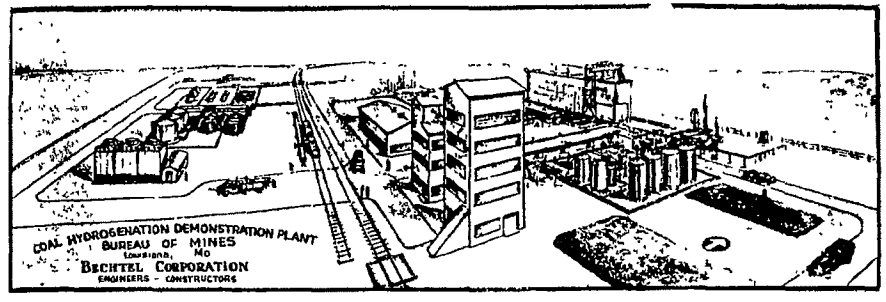
1946: Repeat performance in Missouri

Also at Louisiana, Missouri, but for the Army, anhydrous ammonia manufacturing facilities at the Missouri Ordnance Works were rehabilitated after a period of shutdown following the war. This was a real conversion to peace, enabling a powder-making facility to switch over to the manufacture of agricultural materials.

1946: Action in the Refinery Division

Late in the summer of 1946 work commenced on a sulfonate project for Standard Oil at Richmond. Earlier in the year, an eighteen months program of engineering and construction was undertaken for the Shell Chemical Corp., at Pittsburg. Three crude oil units were started, one for Associated at its Avon, California, refinery; another for Standard at El Segundo and the third for the same owner at Richmond. Also for Standard, sulphur dioxide and acid treating facilities were built at El Segundo, and extensive alterations made on an alkylation plant near Bakersfield. An asphalt plant near Portland was completed for Shell; for Union Oil, BBM refinery men went to Cut Bank, Montana, and built extensions, where BMP years before had erected one of its earliest refineries. Condensed here into one paragraph are the reasons why BBM's refinery headquarters in San Francisco took on the appearance of Grand Central Station at five-fifteen!

The industrial men kept pace. On March 15th they received the first contracts for the facilities which manufacture the paper stock and print the Pacific Coast editions of *Time*, *Life* and *Sunset* magazines. These contracts covered precision installations of paper-making equipment in two plants belonging to Crown-Zellerbach Corporation, one located at West Linn, Oregon, and the other in Camas, Washington. This was the start of a circle, completed by the construction in Los Angeles of the west's largest printing establishment, the Pacific Press, where these magazines and the Los Angeles *Shopping News* are produced. The big "automatic" paper machines and the tremendous presses with their wheels and gears looked like something men from Mars might have designed. They did everything but think, and there was even some doubt about that!



1946: The migrants stayed put

The Far West grew up during the war. People came by the hundreds of thousands to work in the shipyards and plane factories, but no one knew how many would remain once the gates closed at the war plants. Peace came, they stayed, found new jobs and sent for friends and relatives. Far from ending, the migration continued—swelling into the greatest peacetime population movement the world has ever known. People made markets, markets needed goods and services, which created jobs and buying power.

As far as the Bechtel people were concerned the west's new maturity brought a greater demand for petroleum products and power and food, and the means to supply them. In addition, large-scale steel production headed toward the Pacific. Jack Pomeroy's men, as noted, were helping Columbia at Pittsburg prepare to meet the increased demand for steel. Henry Kaiser, using war needs as a springboard, had entered into steel production with a new mill at Fontana in Southern California.

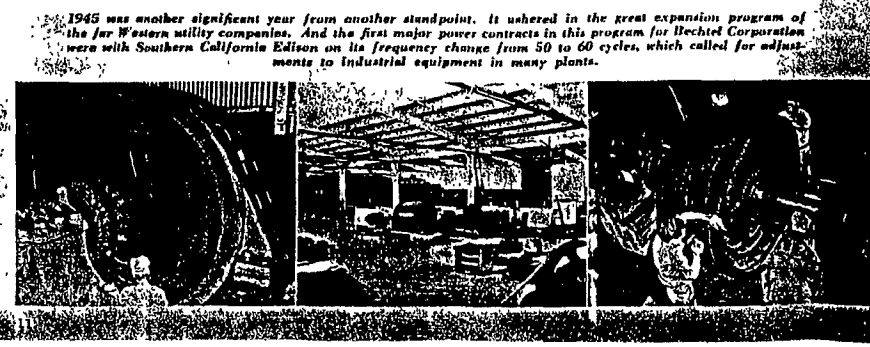
Bethlehem Steel

Now, in line with earlier construction by W. A. Bechtel Co., at Pittsburg, and the powerhouse built at Fontana, BBM heard from another steelmaker—one of the largest—Bethlehem. In April, 1946, construction started in Los Angeles on the expansion of Bethlehem Steel Corporation's production facilities there. Altogether, this program required an investment of sixteen million dollars, almost ninety per cent of the total going for construction in Southern California. Again it was a case of mammoth excavations and reinforced concrete foundations for the heaviest of heavy equipment, and again the delicate job of accurately setting tremendous machinery—problems that yielded to Bechtel experience. When it was complete, a substantial increase had been made in western steel plant capacity.



Across these parched hills near Friant, Fresno County, California, will come the 26-ft. concrete inverted siphon to carry water across a canyon for the Central Valley Project. Artist's lines show approximate location of tube with inlet and outlet. Crew in foreground are blasting.

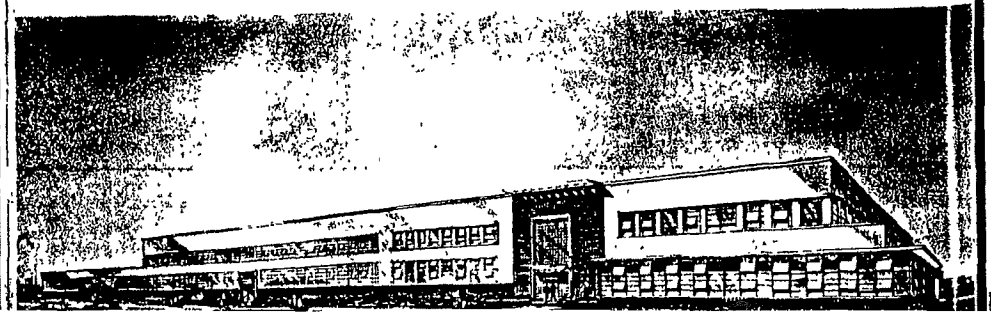
1945 was another significant year from another standpoint. It ushered in the great expansion program of the far Western utility companies. And the first major power contracts in this program for Bechtel Corporation were with Southern California Edison on its frequency change from 50 to 60 cycles, which called for adjustments to industrial equipment in many plants.



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.*

PACIFIC PRESS—A MODERN PRINTERY—*Competent design of new and up-to-date plants reflects credit to engineering and construction experience of Bechtel's Industrial Division.*



Portraits

George M Wood finds his foreign experience with Bechtel constantly valuable in performing his duties as office manager of the BIC Personnel Department When the Personnel Department began expanding in anticipation of the Tapline program in 1947, George started working there with the intention of preparing for a second foreign assignment with Bechtel As the program grew, however, a need arose for an individual to develop procedure, answer the questions of prospective employees and assist in maintaining amicable relations with the families of men employed overseas Having served a contract on the SARP job at Ras Tanura, George was well prepared to assume these duties and enjoyed them Subsequently employment verifications, credit references, special inquiries of all sorts, as well as a number of special services naturally gravitated into his sphere of activity and the prospects of foreign employment were forgotten.



GEORGE M. WOOD
515 Market St., S. F.

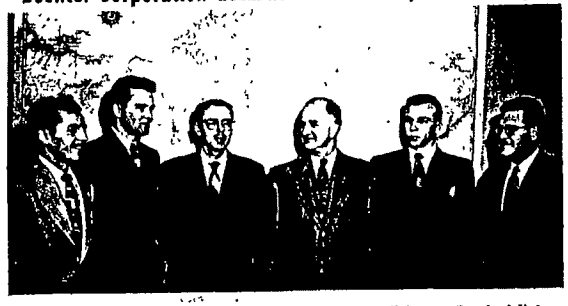
Born in Sheridan Wyoming, in 1912, George migrated with his family by way of Denver to Long Beach, where he received most of his education. After graduation from high school in 1929, there was a period of working interspersed with attendance at University of California at Los Angeles, Long Beach Junior College, and a business course at the College of Commerce While studying court reporting at the College of Commerce, he met Catherine Gamble, and the need of a permanent job before marrying her brought George to San Francisco in 1933 He got both the job and the girl

For the following ten years he was employed by Acme Breweries and, for five of those years, worked simultaneously at the San Francisco Conservatory of Music Ostensibly employed as a payroll accountant in both places, with supplementary general accounting and cashiering duties, George soon learned that the absence of a personnel department turned the individual preparing and distributing the pay checks into one.

In 1942 he decided to try to convert his interest in books into a means of livelihood, and changed his status from that of customer to employee at San Francisco's Newbegin's Book Shop. A chance meeting with a customer of the shop resulted in the offer of the librarian's job on SARP, and he was in the construction business Arriving at Ras Tanura in December 1944 George soon had the library in operation, and he was assigned to work in the Personnel Department. In June of 1945 he became secretary to John M. Rogers who was project manager, and continued in that capacity until the completion of SARP in June 1946

George's two great enthusiasms are personnel work and the Middle East, happily combined on his present job, his ambition is to return to the Middle East on an assignment which will permit Mrs. Wood to accompany him In the meantime, he finds in his home in Mill Valley the perfect setting for enjoying his hobbies of gardening, reading, and music

Bechtel Corporation Establis...s University Scholarships



Left to Right: Peter Riplog, Univ. of California; Robert Falconer, Stanford University; Bob Kilpatrick, Univ. of California; S. D. Bechtel; Fred Kirsten, Univ. of California and Leon Torrey, Stanford University.

Five scholarships for the academic year 1950-1951, three for students at the University of California and two for Stanford University students, have been established by the Board of Directors of Bechtel Corporation.

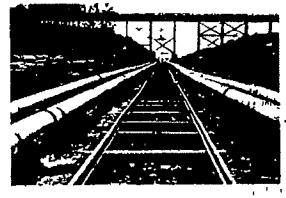
Stephen D Bechtel, President, is a Member of the Council of the California Alumni Association Many of the firm's key people were educated at one or the other of the two universities

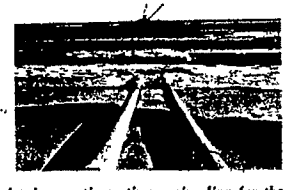
The three University of California scholarships, according to the Bechtel Corporation Board's request, will be given to students in the College of Engineering, preferably in the Senior year, one each in the fields of study embracing Civil, Electrical and Mechanical Engineering. The awards are to be approved by the University's Committee on Undergraduate Scholarships upon nominations by the Dean of the College of Engineering

At Stanford University, one scholarship will be awarded to a second year student in the Graduate School of Business who is specializing in Industrial Relations

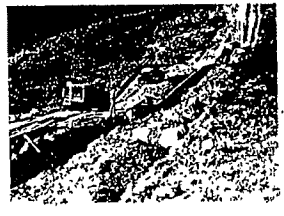
The other Stanford scholarship, in the School of Engineering, according to the donor's suggestion would be given to a student specializing in Civil, Electrical or Mechanical Engineering, with preference to Senior candidates

SOMASTIC DOINGS





Bechtel Somastic Division have just completed somastic coating a pipe line for the Tide Water Associated Oil Company at Gaviota Canyon. The photograph on the left shows the trucks and the somastic coated pipe before it was launched. The photograph on the right shows a barge in the distance pulling the pipe out from the shore.



The Somastic Division of Bechtel Corporation has just completed a contract for the Richfield Oil Corporation which covered application of field joints to 14" and 16" pipe bringing oil from Cuyama Valley to Wilmington.

Walt Sims Cagers

One of the sharpest basketball teams in the West (according to Walt Sims, Job 1699 Supt.) is the Bechtel quintet up in Arco Led by high-scoring Claude Holmes, the boys recently chalked up a 45-43 win over the First Ward five after trailing by 11 points midway in the second half

Sim's doesn't want to go overboard on the Arco basketeers, but he does say they're ready to play anybody—anytime and anyplace He adds that it better be soon, since some of the boys are 1-A and 'most long for the civilian world."

Edison ELECTS TWO EXECUTIVES

W C. Mullendore, president of the Southern California Edison Company, announced today (January 19) the election by the Board of Directors of W. L CHADWICK and J F DAVENPORT as vice presidents of the company.





Left: W. L. Chadwick, Vice President in charge of engineering and construction, Southern California Edison Company, Los Angeles. Right: J. F. Davenport, Vice President, Southern California Edison Company, Los Angeles.

Mr. Chadwick, manager of engineering since 1945, was elected vice president in charge of engineering and construction He joined the company in 1922 as a draftsman at the famous Edison Big Creek hydroelectric project in the High Sierra. He became division engineer there in 1924, and came to the general office in Los Angeles in 1928 as transmission engineer. From 1931 to 1937 Mr Chadwick was engineer and senior engineer, Metropolitan Water District. He rejoined the Edison Company in 1937 as a civil engineer and served as chief civil engineer until his appointment as manager of engineering.

Mr. Davenport has been associated with the company since 1926. In 1929 he became hydro engineer, and in 1931 was appointed superintendent of hydroelectric generation for the company. He was named superintendent of generation in 1937, and assistant manager of operation in 1940.

Following more than four years of military service with the Air Corps in the fields of communications, radar and the U. S. strategic bombing survey, Mr. Davenport returned to the Edison Company as assistant vice president on February 14, 1946.

We are also congratulating the appointment of R W Spencer as Manager of Engineering and P B Peecook as Assistant Manager of Engineering, Southern California Edison Company. Peecook was project engineer on Big Creek No. 4, and a graduate of Tennessee Polytechnic Institute. He has been with Southern California Edison since 1945 Spencer is a graduate of the University of Washington and has been with Southern California Edison since 1940





A former Bechtel office manager, Marine Captain Frank Perry, who has just returned from Korea for a little hospital check-up, is discussing the landing of the Leathernecks in Inchon with Administrative Manager, Bill Ayers and his former superior, Field Office Administrator, Gene Lepori.

Sohio Cat Cracker at No. 1 Refinery Goes on Stream

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BECHTEL CORP.
ATTN HINDMARSH AND ORSELLI
EAST UNIT ON STREAM 426 AM TODAY
EXPECT TO SUBSTANTIALLY REDUCE
SHEA'S ASPIRIN QUOTA.
BECHTEL CONSTRUCTORS
JIM BRADY

Thermofor catalytic cracking plant went on stream on January 29 Expanding catalytic cracking capacity to 18,000 barrels of feed stock per day, the new construction is a major step forward in Sohio's ability to meet military needs. Part of a company-wide $100,000,000 expansion and modernization program underway since 1948, modernization of No 1 Refinery's cat cracking facilities cost $4,000 000

Begun in March, 1950, the project includes incorporation of two 9,000-barrel per day Thermofor cracking units into refinery equipment which was originally built in 1944 to produce aviation gasoline for war-time use Existing fractionating facilities have been revamped and incorporated with the new units The control room was modernized to meet instrumentation needs, and pumps and exchangers added to meet new demands

Shut down during the TCC construction period, the cat gas plant, which is operated in conjunction with the catalytic cracking facilities, was modernized by No 1 Refinery maintenance crews

Weighing in excess of three quarters of a million pounds of steel and concrete, the new TCC plant was constructed by Bechtel Constructors which employed 500 local men on the project

Sohio's newest bulwark in the nation's defense program towers 268 feet in the air, and stands on a concrete foundation 70 feet wide by 81 feet long by 5 feet thick This foundation lies atop a similar mat of concrete formerly used to support the unit which has been replaced by the new construction In constructing the foundation, part was supported on new piling

Much credit is due Jim Brady and his gang headed by General Superintendent Johnny Shea and W Cox, G Wilcox, L Sweet, G Cantua, J. Patton, J Wolfsohn, G Bruno and W. Wilson Directing the job from San Francisco is Al Orselli, Refinery Division Manager, under V G Hindmarsh, Vice President, Refinery Division



Introducing our youngest equipment operator on the Texas-Illinois Pipeline job, Gregory Gavagan, age seven month, operating equipment No. B-81.

THIS MONTH'S COVER



BECHTEL BRIEFS *and its colorful front covers have become a by-word in the field of company publications. Depicting, as they do, the wide scope of Bechtel engineering and construction activities, these covers highlight scenes of company construction endeavors This month, just as a reminder and for old times sake,* BRIEFS *retrieved its files and presents in composite form a group of its early and most interesting covers of the past three years.*

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