

Helping America Grow

An introduction to Brea Chemicals, Inc.

On Tour

WITH UNION OIL COMPANY OF CALIFORNIA



AUGUST 1954



Helping America Grow

An introduction to Brea Chemicals, Inc. — a new subsidiary of Union Oil Company

CHARGED with "building a profitable chemical business, using petroleum raw materials of the parent company as a foundation on which to develop," Brea Chemicals, Inc. was organized by Union Oil Company in October, 1952. Set up as an independently operated company rather than a division or department, the new enterprise emphasizes Union Oil management's confidence in the importance of petrochemicals to America's bright new era of industrial progress.

Of course the new subsidiary was created to obtain a better realization—or profit—on the raw materials available to the petroleum industry. But to become established in the competitive climate of America, a new business must have something outstanding to offer in the form of either products or services. Brea Chemicals has already taken great strides toward worthwhile goals:

The first major project—a \$13 million plant which converts natural gas, air and water into ammonia and dry ice—is in full operation. The plant site in beautiful, rolling countryside three miles east of Brea, California

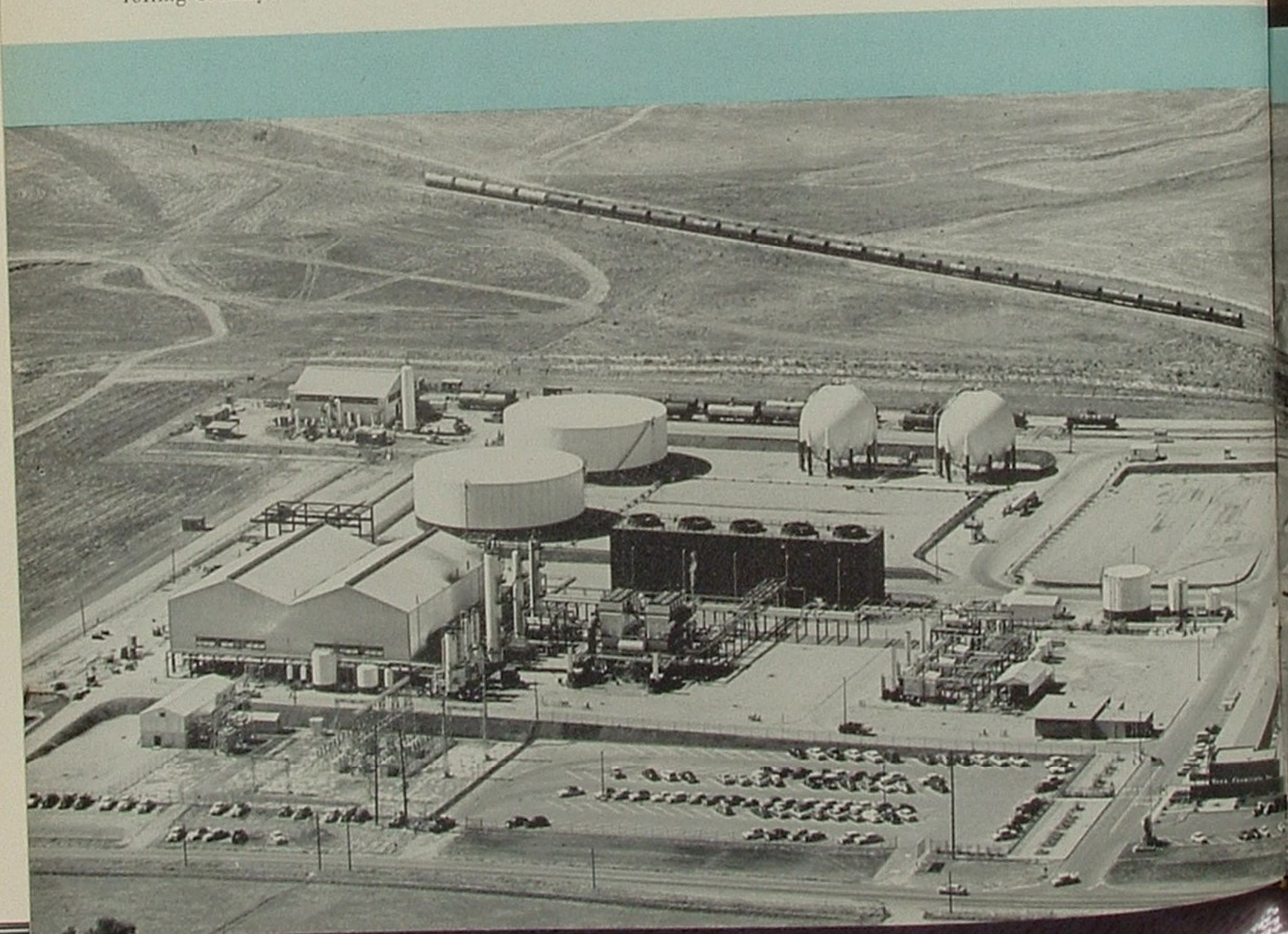
is served by excellent water, power, natural gas and transportation facilities. Union Oil's Research Center is conveniently nearby. Neighboring suburban communities provide ideal living conditions for employees. Adjoining the plant is an abundance of Union Oil property on which to expand.

Brea became the first major producer to market ammonia to agriculture in solution form. The product is a safer, easier-to-handle, nitrogen plant food offering outstanding advantages from the standpoints of soil nutrition, transportation, storage and application.

Brea is pioneering the development of other crop nutrients in solution, the first of which, ammonium phosphate, will be in production this fall.

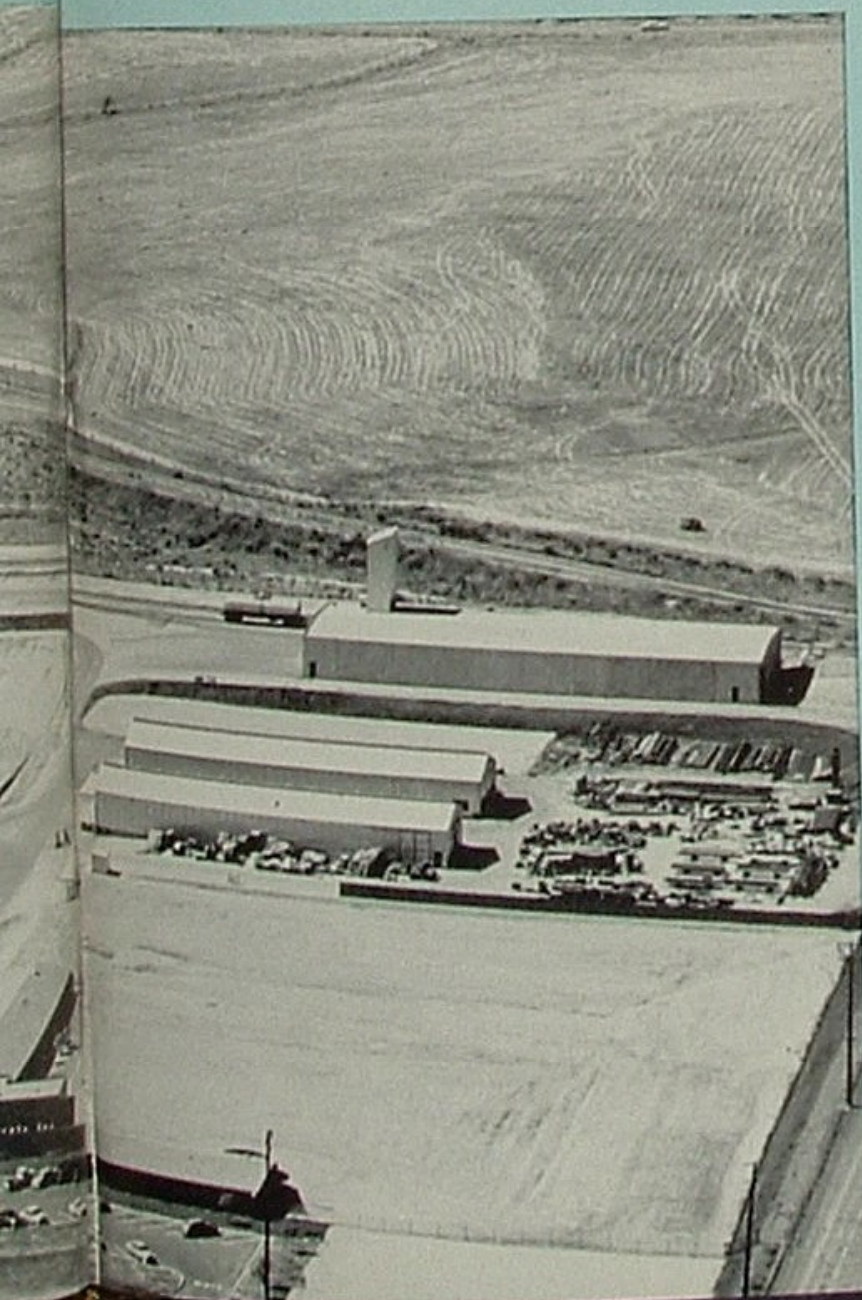
Engineering is underway on proposed nitric acid and ammonium nitrate plants.

America, particularly its great West, is experiencing phenomenal growth. Brea Chemicals not only reflects that growth but adds to its value and endurance by creating new jobs, new products, new services. We are literally helping America grow better as well as bigger.





WELCOME TO BREA—A gracious reception awaits visitors to the administrative and plant offices (above) of Brea Chemicals, Inc., where Peggie Greenfield (left) serves as hostess. The lobby (below) is modern and functional.



THE BREA CHEMICAL PLANT—From ground-breaking to production of ammonia—in 8 months and 12 days! That is a record in chemical plant building, established by Brea Chemicals in order to have full production of ammonia in time for the 1954 growing season. This airview shows the office building (right foreground); ammonia plant and storage facilities (left); dry-ice plant (left background); ammonium sulphate warehouse and shop buildings (extreme right). Union Oil Company's Research Center is less than a mile east of this new plant.



OPERATING COMMITTEE Brea Chemicals' 225 employees are headed by (above, from left) Manager of Research Dr. Gerson S. Schaffel, President Homer Reed, Manager of Manufacturing Robert S. Ray, Vice President in charge of Marketing and Distribution Harvey Fifer, Manager of Development Jack Tielrooy, Assistant Secretary and Manager of Staff Paul Foreman. Meeting in the President's office weekly or when called into special session, these men chart Brea's course and coordinate its activities.



SALES Marketing activities are carried forward by (above, from left) Manager Sales Administration and Credit Perry E. Wright, Supervisor Advertising and Sales Promotion R. E. Brandson, Manager Agricultural Chemical Sales R. H. McGough, Supervisor Agricultural Technical Service R. L. Luckhardt, Supervisor Traffic and Distribution W. H. Foster; (below) Industrial Sales Representative J. L. Todd and Hawaiian District Sales Manager J. B. Sturgess.

STAFF Such functions as financial forecasting, economic review and evaluation of proposed business ventures, projections of earnings and monetary position, and analysis of industrial and business trends are handled by Staff Assistant Jay Linderman.



MANUFACTURING

The efficient operation and maintenance of the Brea plant rest with (right, from left) Engineering and Maintenance Superintendent Harry E. Kinsella, Office Manager Stanley H. Anderson, Operations Superintendent T. C. Henderson, Personnel Superintendent Walter D. Kreutzen, Plant Superintendent Robert S. Ogilvie, and Technical Supervisor Charles A. Dow.



RESEARCH

Brea's Research Department is located at Union Oil Company's Research Center. At left, Dr. Schaffel leads a discussion with scientists including (clockwise, from left) Dr. Frank Seubold, Nelson E. Burrin, Dr. Homer E. Rea, Jr., Dr. J. D. Wordie, Ray N. Fleck, Dr. W. S. Dorsey, A. C. McKinnis, D. A. Skinner, and Betty Redman, secretary.

DEVELOPMENT

Working closely with the Research Division are (from left) Supervisor of Process Dr. A. J. Tulleners, Supervisor of Product Development Dr. T. F. Doumani, and Supervisor of Project Engineering J. V. Whipp. These men are concerned with the economic feasibility of new products, the designing of processes, the engineering and construction of new plants, raw material sources, etc.

ON TOUR

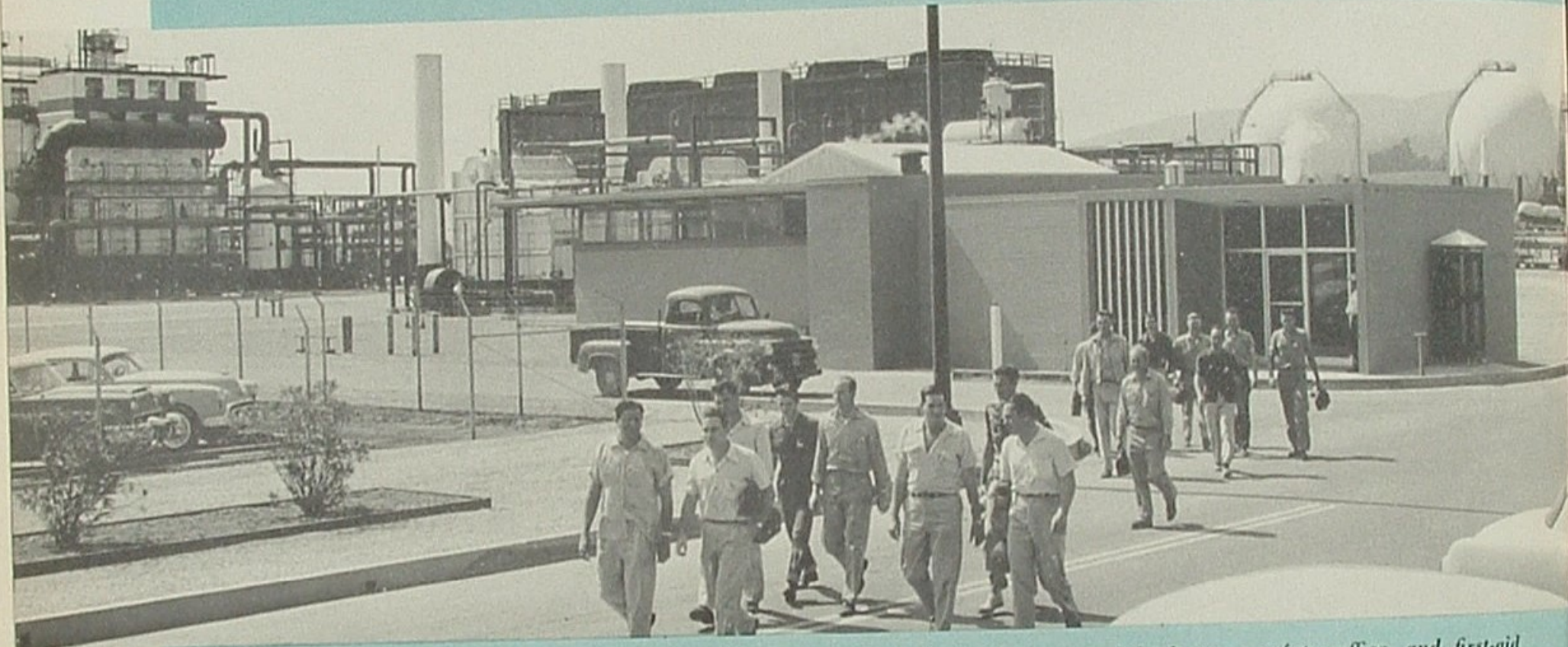




INSTRUMENT PANEL—Scrubbing of the crude hydrogen gas stream is observed and regulated at this gas-reforming control board by Operator Donald Fox.



MACHINE SHOP—General mechanical repairs and maintenance on plant equipment are handled by machine shops. The mechanics are shown working on valve assemblies.

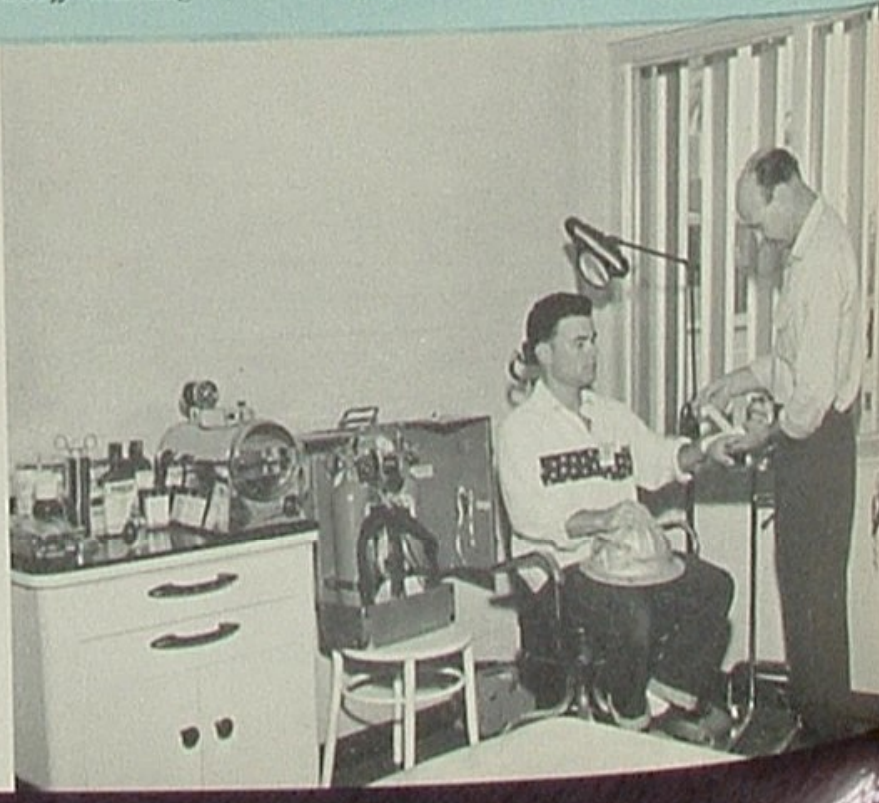


OFF SHIFT—Plant operating personnel leave at the end of their shift. Facilities in the building behind them

include showers and lockers, a safety office, and first-aid rooms, convenient to surrounding working areas of plant.

WASH-UP—Inside the change-house, Fire and Safety Inspector Chuck Davis tries out a foot-operated wash basin.

FIRST-AID—Fire and Safety Supervisor Buryl Schlagenhauff bandages a scratch for Bill Wing in first-aid room.



ENGINEERING AND CONSTRUCTION on the ammonia project were the responsibilities of (from left) Project Managers C. P. Rhys and C. E. Gardner, Project Engineer J. W. Buddenberg, Resident Engineer J. M. Covington, Project Engineer M. J. Laituri, Supervisor of Project Engineering J. V. Whipp, Manager of Development Jack Tielrooy, and Construction Superintendent F. S. Tuck of C. F. Braun & Co.

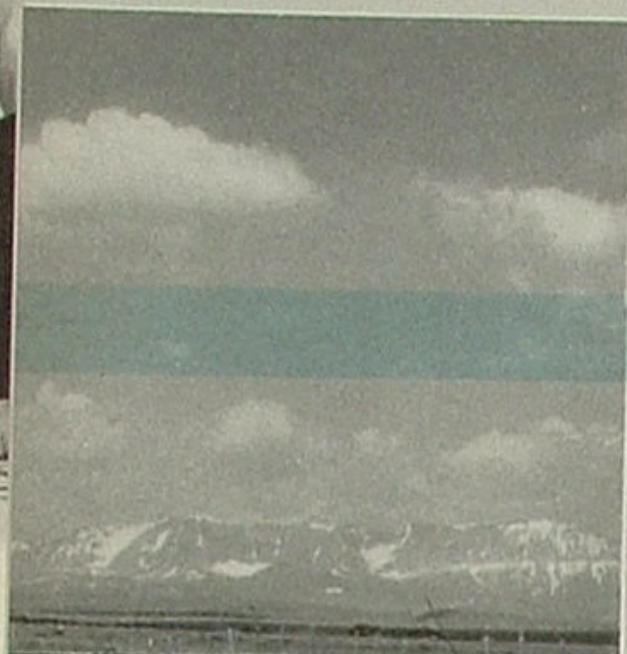


PLANT OFFICE STAFF—Highly essential to Brea Chemicals' success is an alert secretarial staff, including from left (standing), Wilma Carrier, Carol Neally, Mary Lou Moseley; (seated) Ruth Diehl, Florence Baker, Anna Mae Wing, Marion Tally, Nita Minor, Erlene Lunetta, Elaine Krueger, and Nancy Stark.

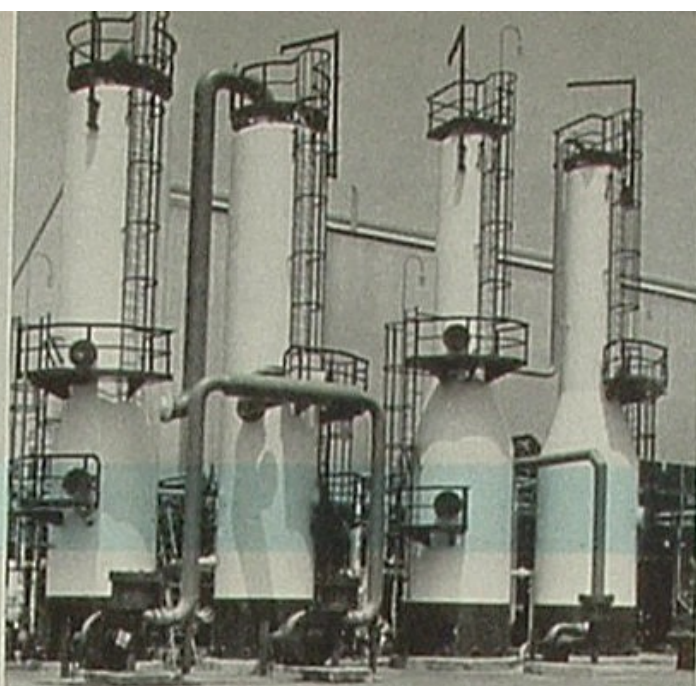


SALES OFFICE STAFF—Equally important to marketing and distribution activities of the new enterprise are (from left) Elizabeth Link, Vivian Ferguson, Dolores Walker, Melva Scalia, and Pat Heller.

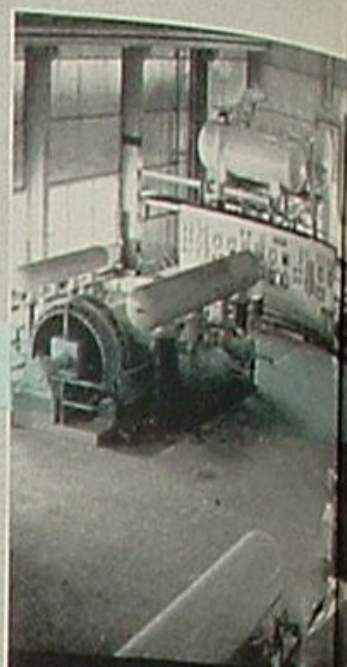




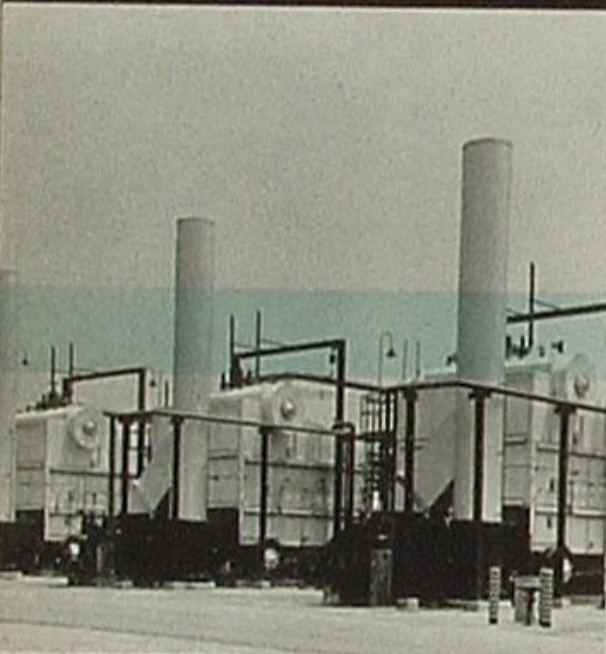
THE ATMOSPHERE, containing 79% nitrogen, is our source of nitrogen for the production of ammonia (NH_3), a gaseous compound composed of nitrogen and hydrogen.



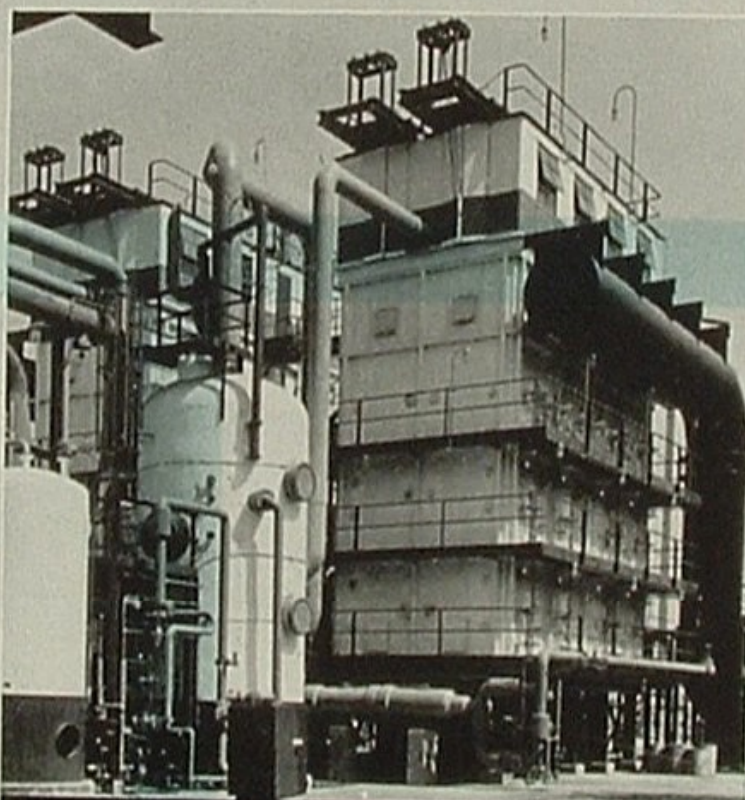
CAUSTIC SODA SCRUBBERS first process the air to remove all traces of carbon dioxide. The remaining gas is principally nitrogen-oxygen, together with minute quantities of other air components.



In **COLD BOXES**, at temperatures as low as -100°F ., the air is liquefied. Nitrogen is then separated from the liquid air by a process similar to that used in petroleum refining.



STEAM, which supplies about half the hydrogen needed in this ammonia production, is obtained by heating treated water in a trio of gas-fired boilers.



In **GAS REFORM FURNACES**, steam is reacted with natural gas. Oxygen from the steam combines with carbon from gas to produce carbon dioxide, thereby freeing hydrogen in about equal amounts from the source materials.



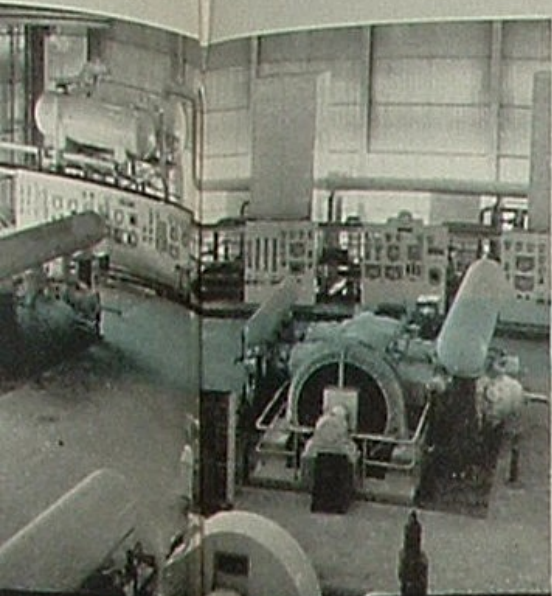
CARBON DIOXIDE REMOVAL is effected by its absorption in MEA solution. Stripped from solution in distillation columns, above, the CO_2 is compressed and cooled to yield dry ice.



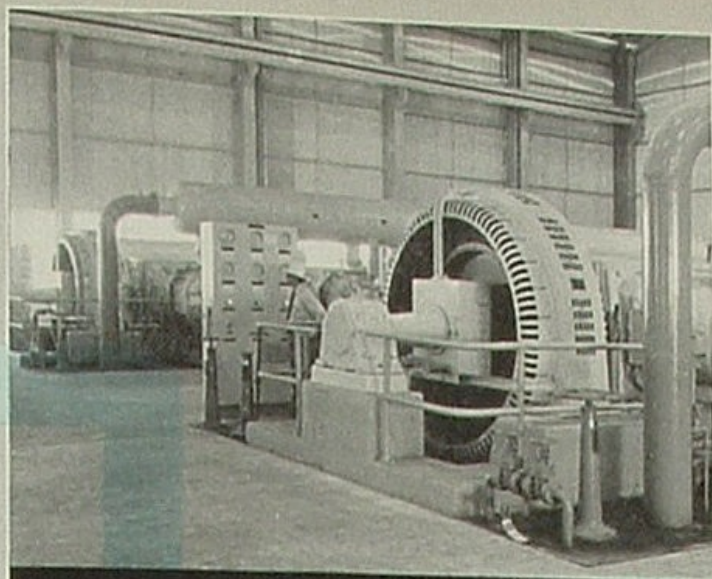
NATURAL GAS from Union Oil's Stearns Absorption Plant near Brea provides the hydrocarbons from which the remaining hydrogen requirements are obtained.

THE LIFE CYCLE OF BREA AMMONIA

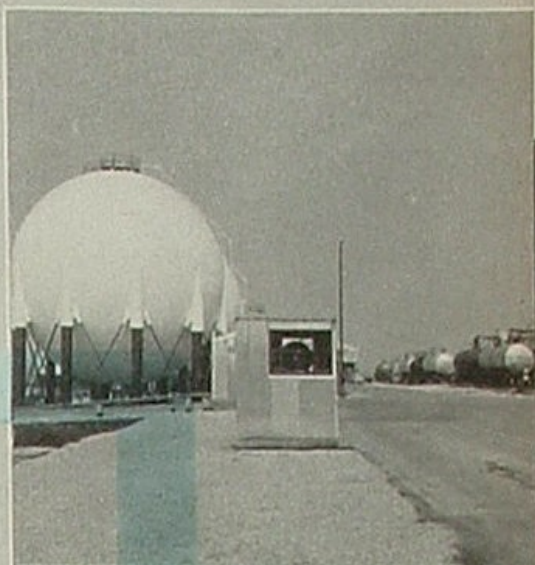
From three raw materials — air, steam and natural gas — Brea Chemicals is manufacturing ammonia and dry ice. The complex chemical plant, designed by Brea engineers and constructed by C. F. Braun & Company, is pictured herewith:



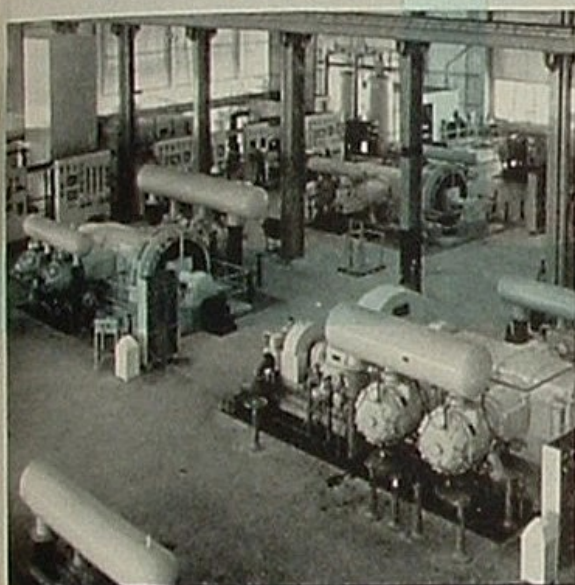
BOXES, at temperatures as low as -320 degrees is liquefied. Nitrogen, lightest of the components, is separated from the liquid air by a distillation process to that used in petroleum refining.



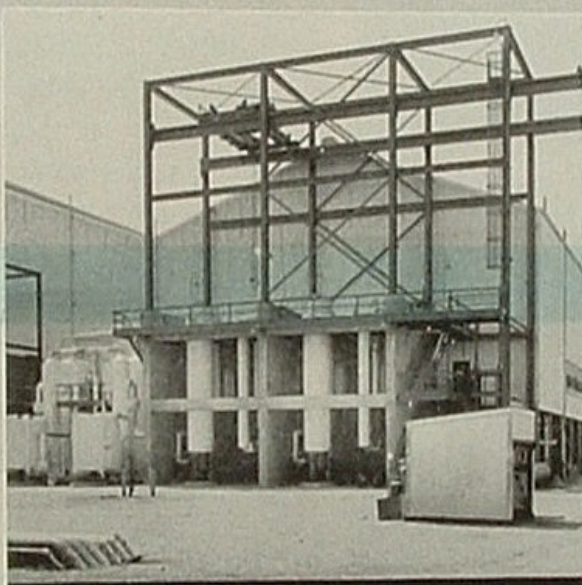
Entering **COMPRESSORS**, the high-purity nitrogen is subjected to a pressure of 3000 pounds per square inch preparatory to being combined with hydrogen. (Please refer to **STEAM** and **NATURAL GAS** facilities, left.)



HORTONSPHERES are used at Brea Chemicals for the storage under pressure of anhydrous ammonia. The plant is designed to produce 235 tons per day of the anhydrous product.



HYDROGEN PURIFICATION is achieved by "washing" the hydrogen with liquid nitrogen in "cold box" units. High-purity hydrogen and nitrogen leave the units as a mixed gas.

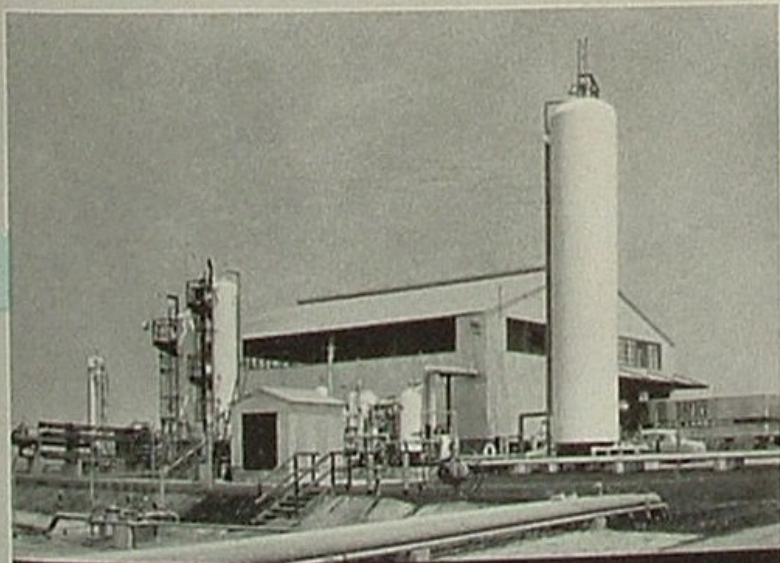


AMMONIA SYNTHESIS, or the chemical combining of nitrogen with hydrogen to form ammonia, takes place in these vessels at pressure of 3000 pounds and temperature of 1000 degrees.



CONVERSION to Aqua Ammonia, a water-ammonia mixture that is handled like gasoline, takes place at conversion and storage terminals located conveniently throughout West.

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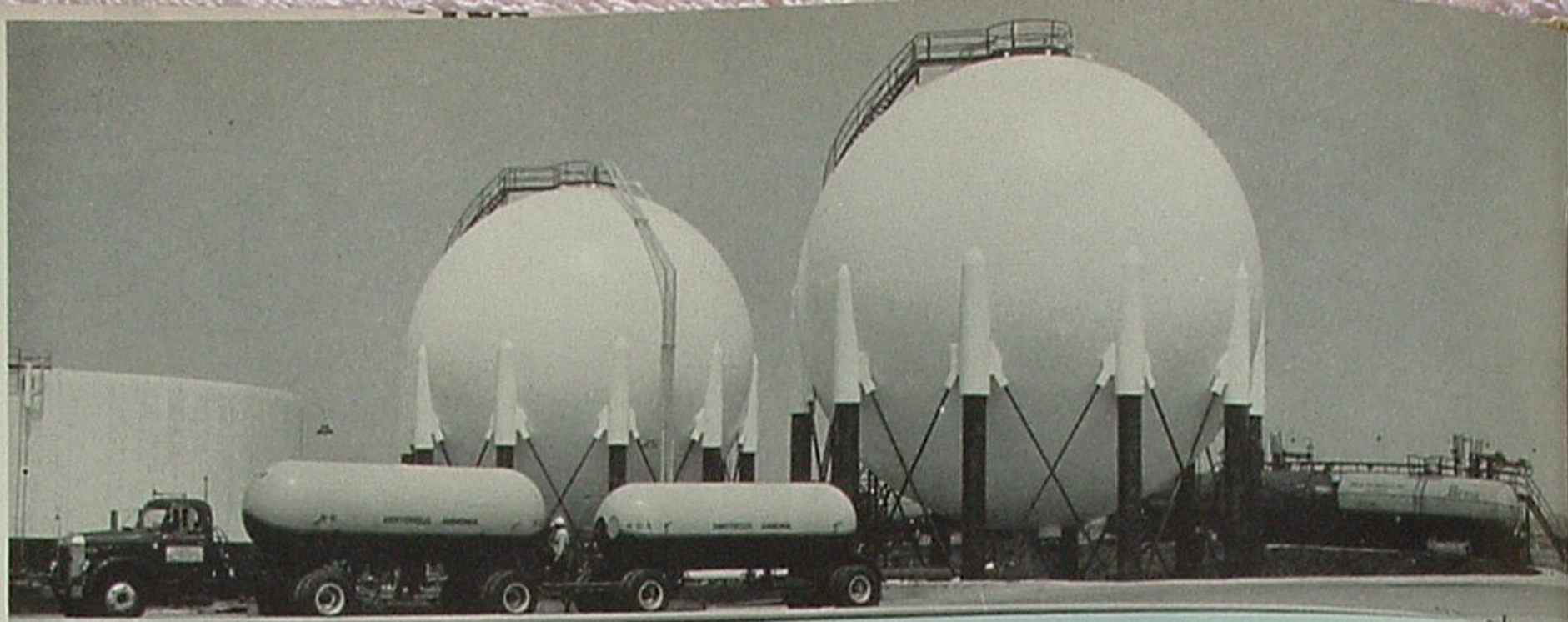


The **CARBON DIOXIDE PLANT** produces both liquid CO_2 and dry ice for industrial consumers. Plant capacity is 100 tons per day of liquid or 70 tons of ice.

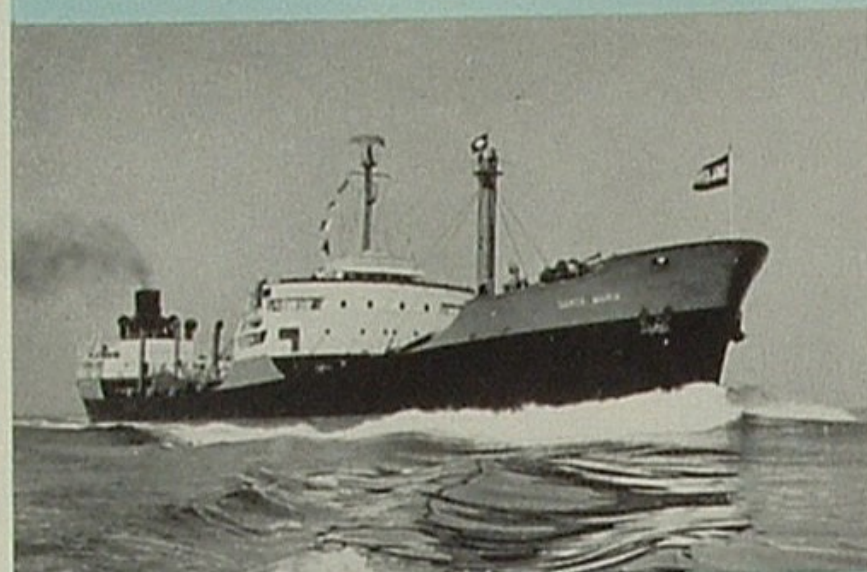


HIGH-YIELD GROWERS apply Brea Aqua Ammonia to soil by direct injection, above, or in irrigation water. This product is already helping America grow bigger, better crops.

NIA
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High-pressure Hortonspheres serve as preliminary storage for anhydrous ammonia at the Brea plant.



Aqua ammonia is pumped aboard and transported in Union Oil tankships quite as economically as gasoline.



Anhydrous ammonia moves overland by rail (above) and truck (below) to Brea terminals, where it is converted to aqua ammonia before being stored.



Brea's Distribution System OFFERS MOST CONVENIENT HANDLING

BREA CHEMICALS is the first major producer of ammonia to achieve convenient handling, storing and application of the product in solution form. By using water as the carrier, we are successfully converting anhydrous ammonia to Brea Aqua Ammonia—a stable solution. As a result, the same standard storage and transportation equipment used for bulk petroleum products can be adapted readily to aqua ammonia handling. This eliminates the need for expensive high-pressure equipment and provides more flexibility in every phase of transportation from producer to consumer.

Typical of the conversion and storage terminals is this new installation at Bracley, California. Aqua ammonia is more economically handled than gaseous products.

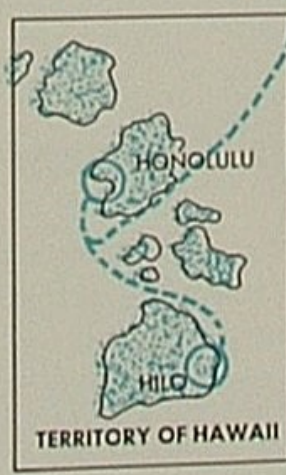
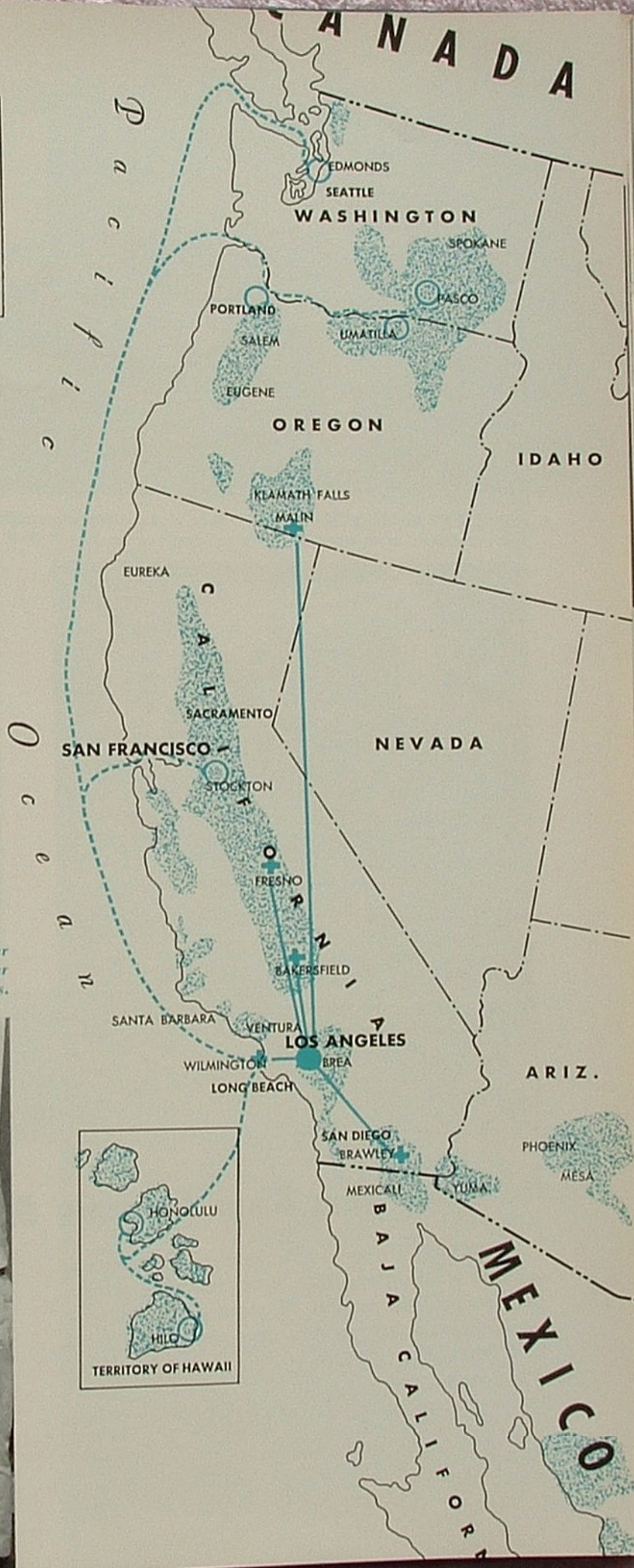
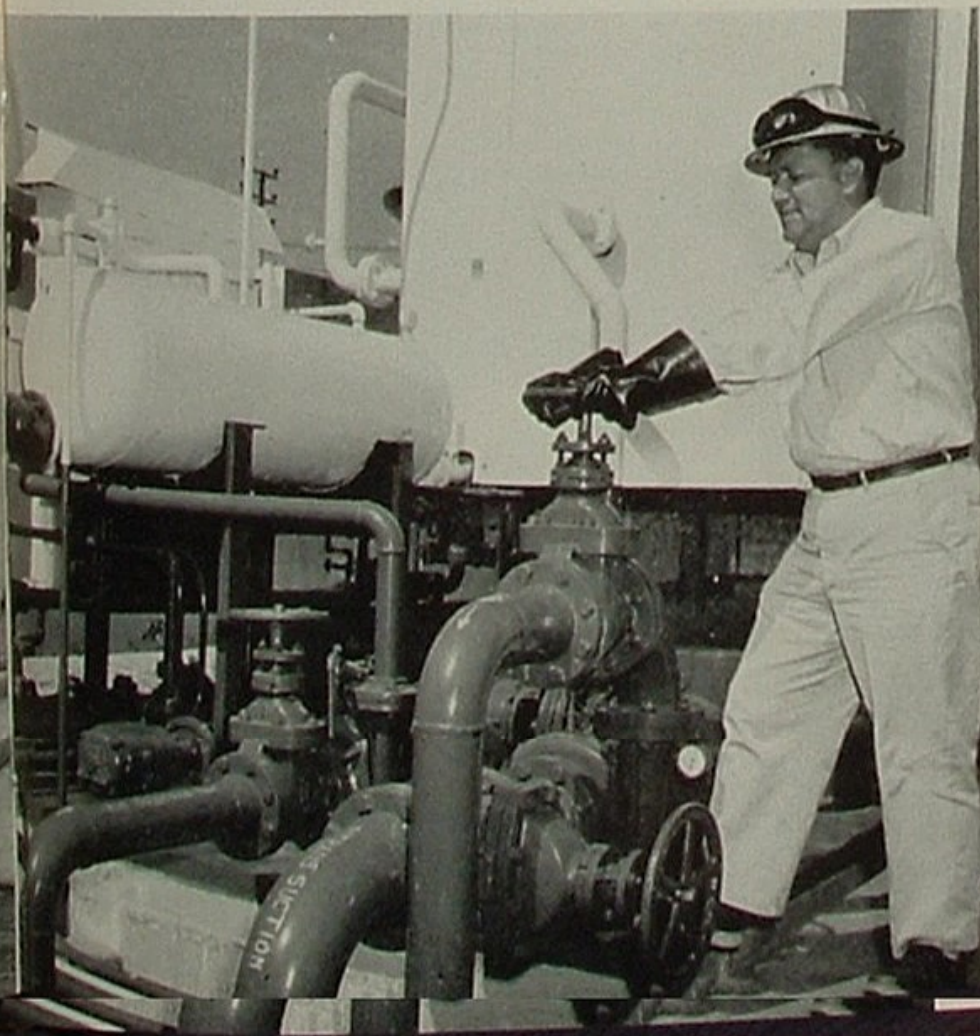


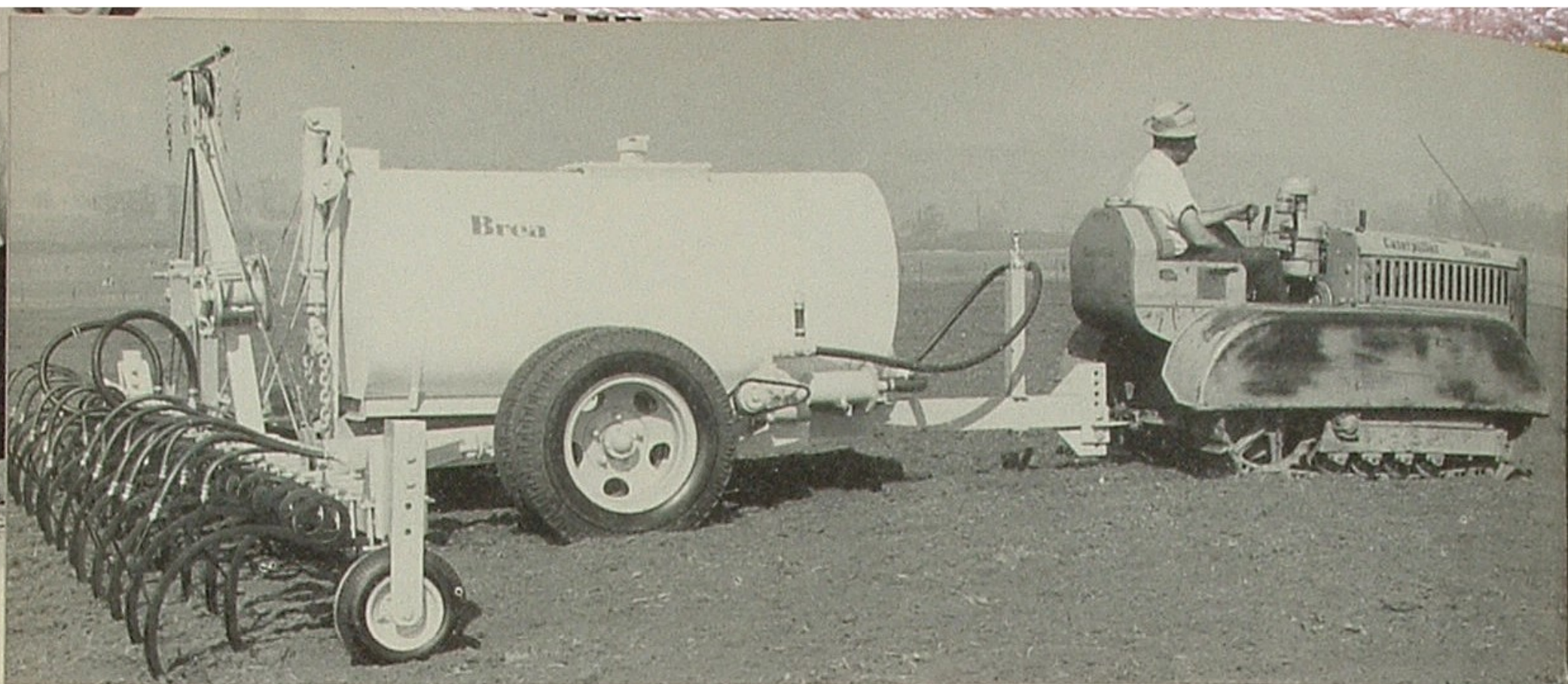
LEGEND

- Plant ●
- Conversion and Storage Terminals +
- Storage (only) Terminals ○
- Anhydrous Ammonia—Shipped by Rail or Truck —
- Aqua Ammonia—Shipped by Tanker or Barge - - -

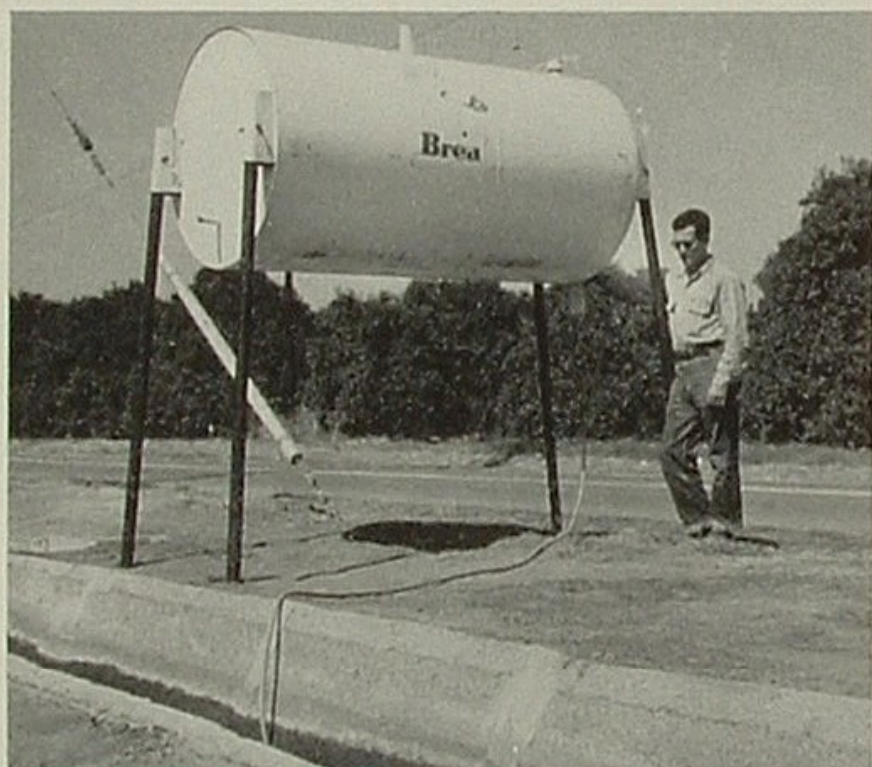
The location of Brea Chemicals' 13 existing distribution terminals is shown on this map. Shading indicates important growing areas. Lines indicate either overland delivery of anhydrous ammonia or over-water delivery of aqua ammonia. Additional over-water distribution is planned to other Northern Pacific ports and Mexico. Direct tankship delivery is made to large users in the Northwest.

At Brea's Wilmington Station, Superintendent Mike Butler converts anhydrous ammonia to aqua ammonia; the latter proceeds by tankship to Hawaii and Pacific Coast ports.

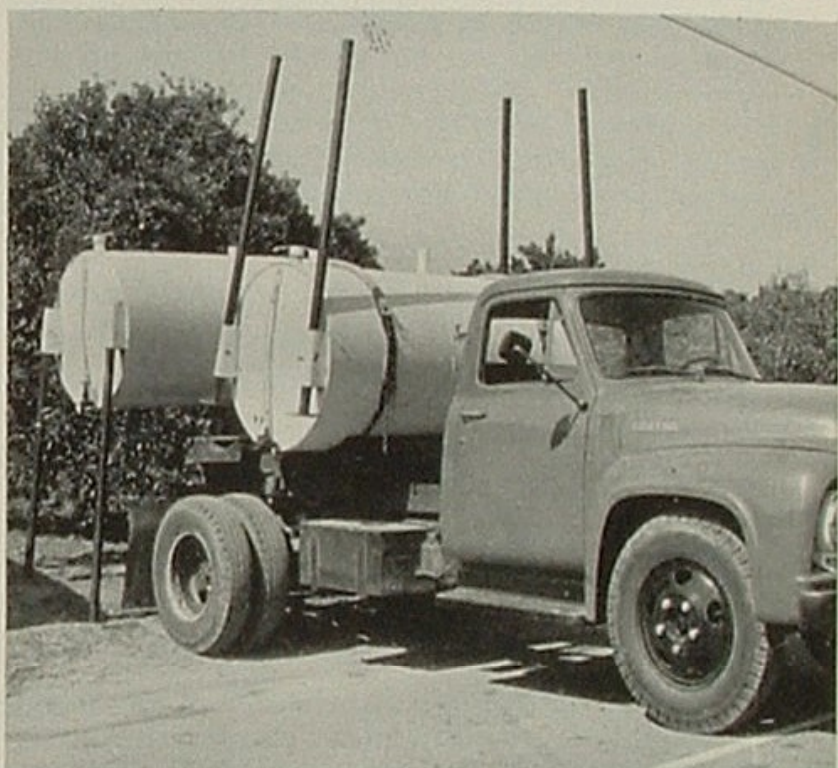




PRECISION DRILL INJECTION of Brea Aqua Ammonia results in even distribution, accurate placement in the soil, and maximum nitrogen availability to crop root systems. Drill application is made by Brea dealers or by the growers.



MEASURED INTO IRRIGATION RUNS, Brea Aqua Ammonia can be applied to crops during growing season.



TURNTABLE TRUCK with hydraulic lift makes easy field-side delivery of aqua ammonia, carrying two tanks at a time.

How Brea Aqua Ammonia Grows Bigger, Better Crops

AMMONIA is very rich in nitrogen, the most important of the three basic crop nutrients—nitrogen, phosphorous and potash. All plants need nitrogen to form the cells that make up their stems, leaves, seeds and fruit. When nitrogen in the soil runs low, there's little or no crop.

For generations, farmers have been restoring nitrogen

by slow or expensive methods—by crop rotation, by spreading crop and animal residues, or by adding high-cost fertilizers such as bird guano and sodium nitrate.

To keep pace with today's fast-growing population, we must produce more and more food from the same land area. This requires more and more nitrogen. The most abundant supply of nitrogen is in the air around

us. It contains nearly 80 per cent nitrogen; there are millions of tons of it over every square mile of the earth's surface. The problem has been to get nitrogen out of the air—and into the soil—at low cost.

Modern synthetic ammonia plants like Brea's are making such soil rejuvenation possible. Economists and farm experts rank the achievement—along with modern farm tools—as a foremost answer to the world's food supply problem. Farmers have discovered that for every \$1 invested in nitrogen they receive an average of \$4 in return. That is why the use of agricultural ammonia increased 600 per cent from 1946 to 1951—doubled in the next two years—and is expected to double again in two more years.

Ammonia itself is a gas which must be transported, stored and applied to the soil by using one of three packages or carriers. (1) it can be handled as a liquefied gas, anhydrous ammonia, in heavy-pressure steel equipment. (2) It can be combined with other chemicals to form solids such as ammonium nitrate or ammonium sulfate. (3) Or it can be dissolved in water to form aqua ammonia, a stable solution that can be handled in bulk like gasoline.

Brea Chemicals chose the aqua route because it was believed to be the most economical way to store and transport ammonia. Further, aqua ammonia is easier and safer to handle and apply—nitrogen-in-solution has important crop production advantages—and indications are that other crop nutrients can be adapted successfully to similar methods of handling.

Other Plant Nutrients "In Solution"

The second major service now being arranged by Brea



INDEPENDENT DEALERS are the backbone of Brea's agricultural sales and service organization. Shown with Dealer B. J. Cannon (center), manager of Border Fertilizer & Supply Co. of Imperial Valley, are members of his sales staff together with several officials of Brea Chemicals.

Chemicals will supply phosphate in solution form to Western growers. Phosphate stands next to nitrogen among fertilizers required for maximum soil enrichment in the West. Monsanto Chemical Company will manufacture phosphoric acid for Brea. This product will be combined in solution with ammonia to form ammonium phosphate, a non-corrosive product that can be handled in the same equipment transporting aqua ammonia. Construction of the first ammonium phosphate plant at Brea will be completed in September, 1954. Two additional plants will be in operation early in 1955 at Fresno and Brawley, California.

SALES PROMOTION of the new chemical products holds the attention of Brea's sales representatives (from left) Clyde Dillehay, John Wise, Hal Balmer, Ammonia Sales Supervisor Harrison Acker (seated), Robert Hickle, and Advertising-Public Relations Counsel Charles Bowes.

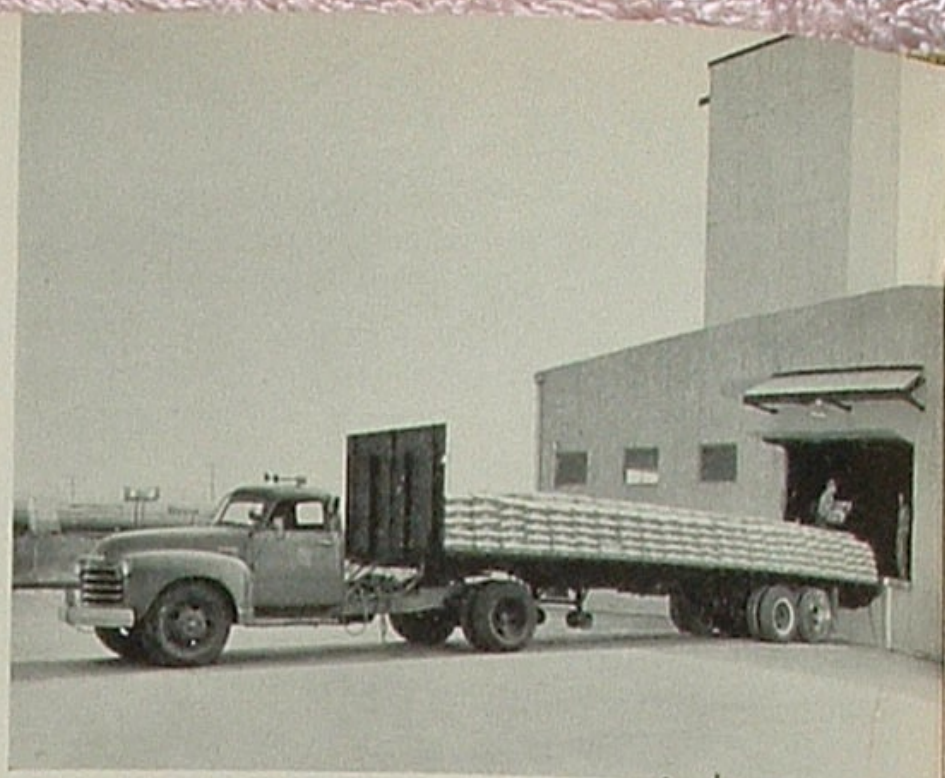


TECHNICAL SERVICE to growers is provided by trained agronomists of Brea's Agricultural Technical Service including (from left) Supervisor R. L. Luckhardt, Technical Representatives Olan Genn, Tom Boland, Dick Schade and Les Orton—seen evaluating grain field stubble.



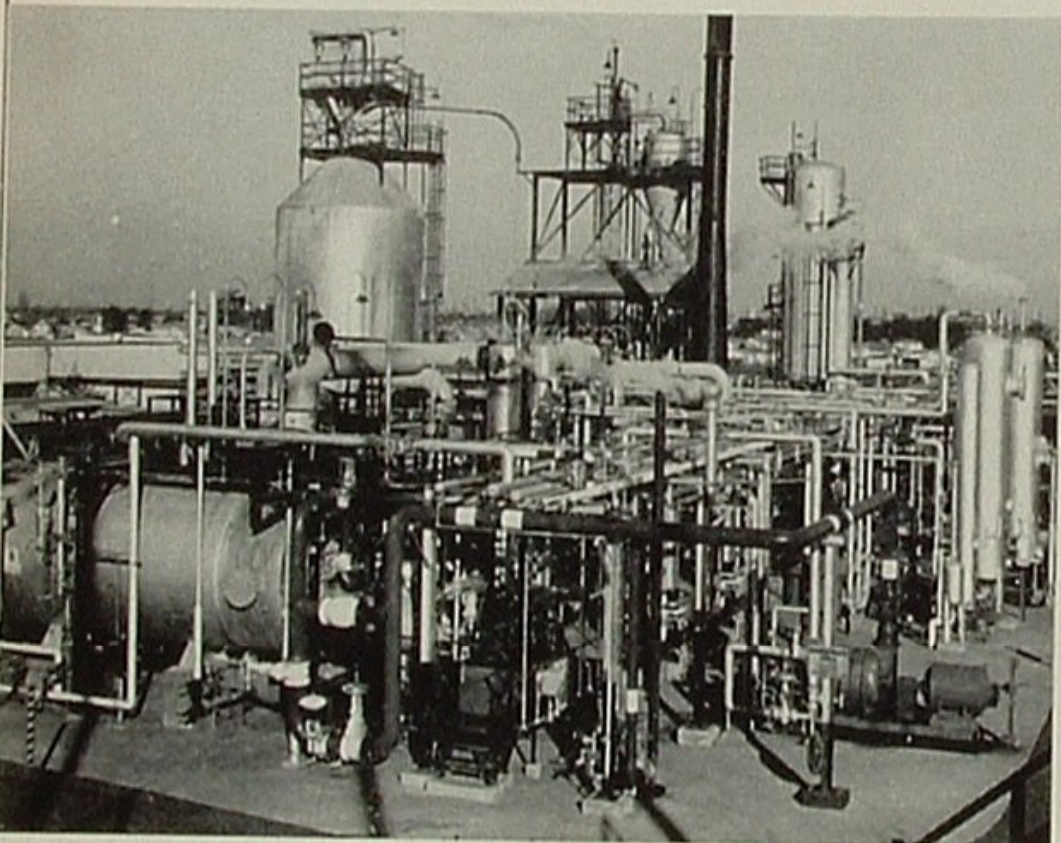


Carbon Dioxide (Dry Ice)

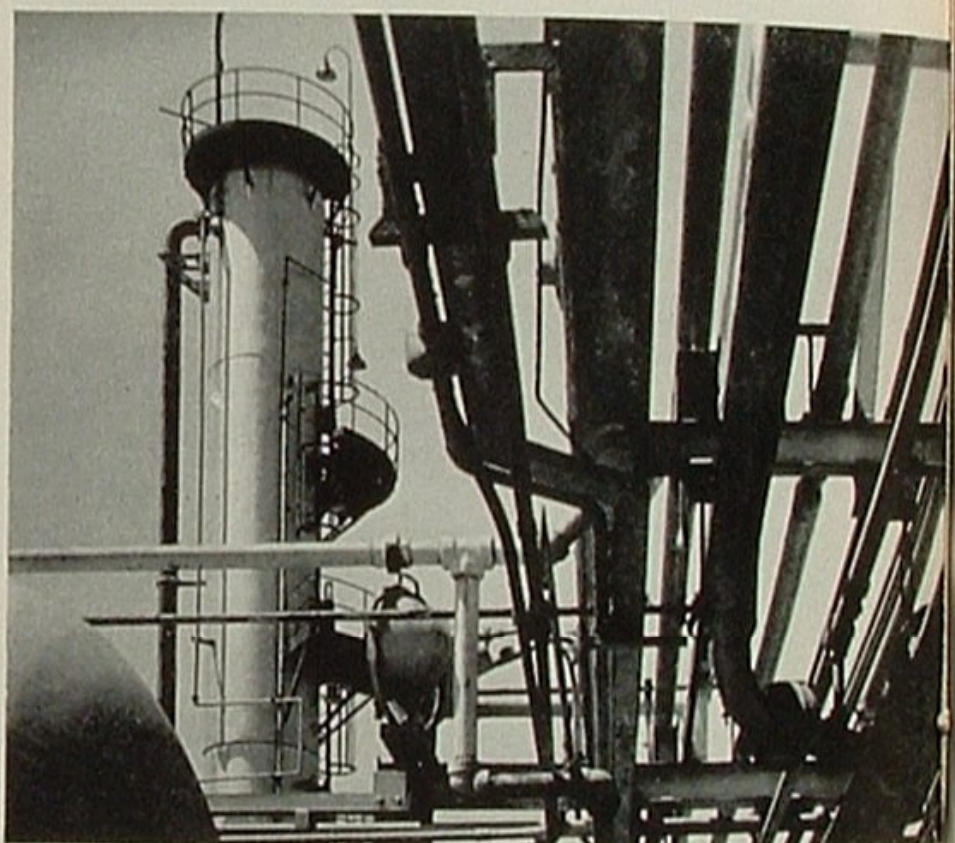


*Ammonium Sulfate**

Other Products of Brea Chemicals

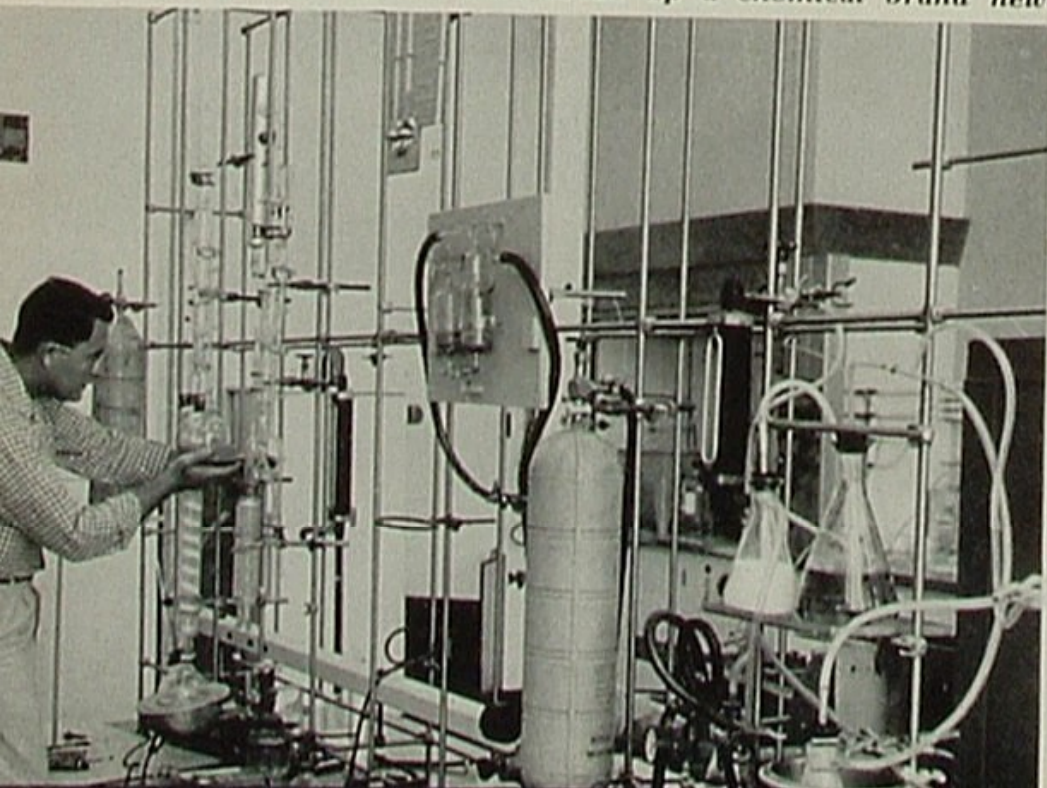


*Sulfur**



*Mercaptans**

and below K. W. Fort cooks up a chemical brand new.



...and more to come

The future of Brea Chemicals holds great promise. Extensive product research and market development are underway. The goal is to develop, manufacture and market, at a profit, new and useful chemical products. Brea, backed by Union Oil Company, has the advantage of ample raw materials, technical know-how and the finest distribution facilities. We are bound to **HELP AMERICA GROW.**

**Manufactured by the Union Oil Company at the Los Angeles Refinery, Wilmington, California.*

Why a "PROSPEROUS NEIGHBOR" Policy?

Reprinted through courtesy of the Los Angeles Examiner—July 3, 1954

THE best way we can help our friends in Central and South America and ourselves at the same time, as Leslie Gould has suggested in his column in the Hearst newspapers, is to support the development of the rich sources of strategic materials—particularly metals—in this hemisphere.

There are some 77 critical raw materials, including many vital metals essential to peacetime industries and indispensable to national defense, of which the United States is in seriously short supply and is thus under necessity to stockpile from the world supply.

Since the world supply is in considerable part under the control of our potential enemies, and in greater part might fall to our enemies in the event of war, our situation in that respect is dangerous.

But the most encouraging aspect in this situation, recently developed by a 10-month study conducted by a Senate subcommittee headed by Senator Malone of Nevada, is that virtually all of these materials and metals are available in the Western Hemisphere in vast but undeveloped supply.

The urgent recommendation of the Malone subcommittee, as reported by Mr. Gould, is that we could substantially increase the prosperity of our neighboring republics by assisting in the development of these rich and vital resources, and by the same means achieve our own independence from a precarious world market.

It would not be international boondoggling in the manner to which the American people have become expensively accustomed.

It would be investment, enormously productive of profit.

There has been much wishful thinking, and much idle talk, about good will and good relations between the American republics, but the Guatemalan situation has proved the need of action in the pattern of our words.

The friendship of our neighbors is

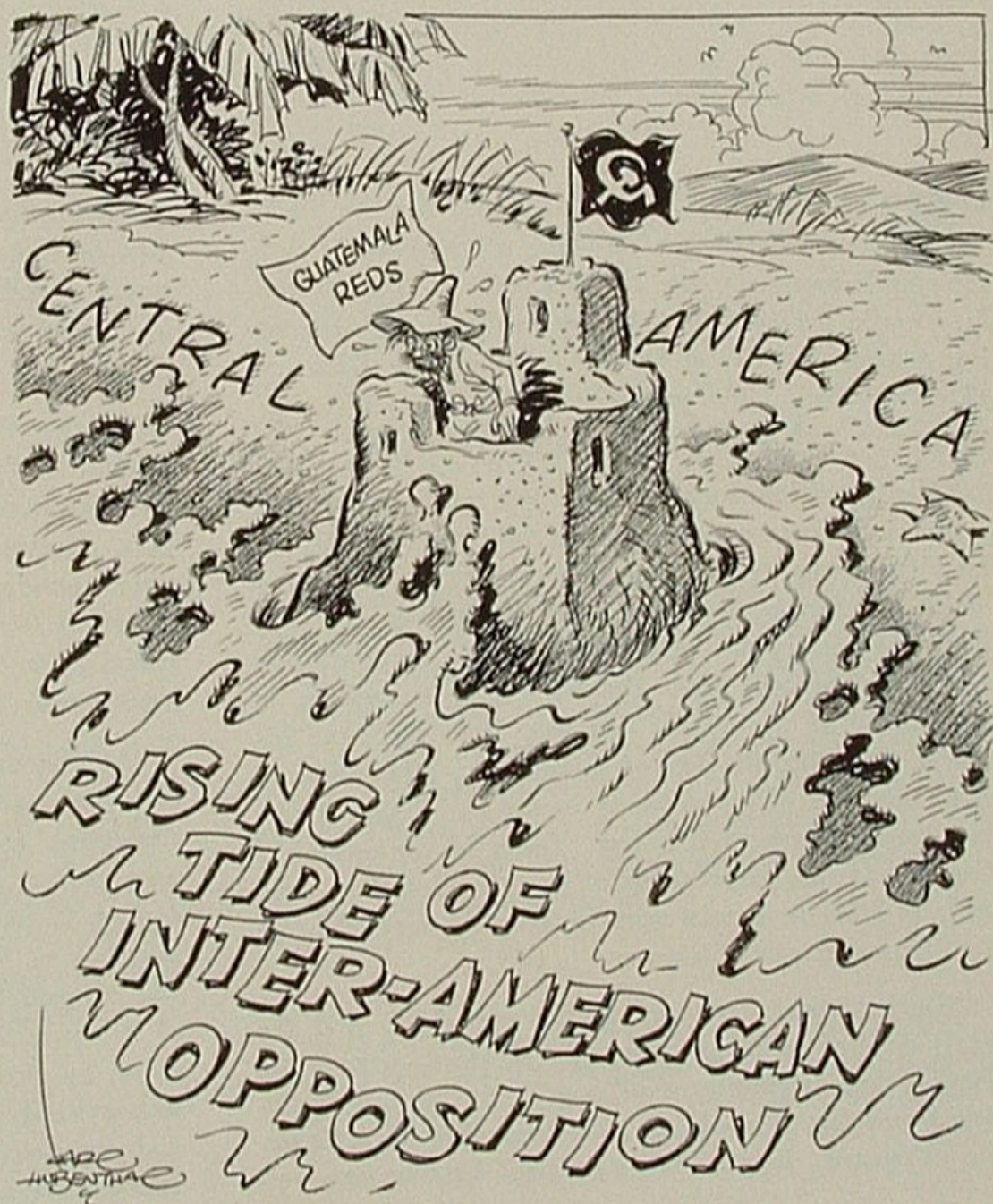
something to be earned, not bought.

They do not want gifts or loans in the dismal down-the-rathole way that we have tried, and failed, to buy friends in other parts of the world.

They are dignified nations, entitled to respect not as recipients of largess but as full partners in the wealth and enterprises of the incalculably rich part of the world which they cherish.

In whatever part the United States contributes to the development of the resources of the Western Hemisphere—and it can and should be a very great part—it will have the good opinion of its neighbors, and a more secure place of its own in the world.

VANISHING BEACHHEAD





"The Senator from V

THE "CONGRESSIONAL RECORD"

OF JUNE 30

QUOTES SENATOR NEELY'S
ARGUMENTS IN FAVOR OF RETAINING
OIL'S DEPLETION ALLOWANCE

"MR. PRESIDENT, Napoleon said that he could always defeat the members of the council with the simple argument that 2 and 2 make 4. That formula would probably be sufficient to defeat the devastating amendment offered by the Senator from Delaware (Mr. Williams). But prudence admonishes me to supplement it with both facts and argumentation.

"The provision for the 27½ per cent oil and gas depletion allowance was written into the law of the land by virtue of an amendment which I wrote and which the Senate, on my motion, adopted on the 25th day of February 28 years ago. This is the provision which the Senator from Delaware is now seeking to impair. In all the attacks that have been made on this amendment since the date of its adoption, I have defined it to the limit of my capacity in the belief that it was my duty to pursue that course. Today let me appeal to Senators for the perpetuation of this amendment as earnestly as John the Baptist cried in the wilderness of Judea for the repentance of sinners.

"During the latter part of the year 1925 and the early days of 1926, informed men of vision warned the Nation that its supply of oil was being rapidly diminished and that it would, in the reasonably near future, be exhausted. It was then estimated that our total oil

reserves amounted to only 8½ billion barrels. Patriotic men in high places urged the conservation of this vital resource and even recommended that it be nationalized in order that it might be conserved to the limit of possibility.

"At that time it was daily becoming more and more difficult to find oil. Its discoveries in 1922, 1923 and 1924 averaged approximately a half-billion barrels a year. Multitudes of venturesome, patriotic, tireless men were spending their lives and their fortunes vainly searching for more oil. At last the prudent declined to spend their days and their capital in the burdensome, bankrupting, hazardous hunt for oil.

"A diligent Congress recognized the Nation's peril in this vital matter and proceeded to provide the necessary protection against it by adopting the depletion allowance under which oil operators, who were fortunate enough to succeed, could eventually regain their capital investment. The effect of the adoption of the amendment was immediate and amazingly beneficial. As a result of its operation, a foundation was laid for accomplishments by virtue of which the United States is today the last and only effectual barrier to Communistic conquest and enslavement. From 1926 to 1931 the newly discovered oil averaged over 2 billion barrels a year—300 per

from West Virginia is Recognized"

cent more than the average discoveries of 1922, 1923 and 1924.

"By virtue of the provision of the law which the Senator from Delaware is striving to cripple, America supplied the oil that enabled her and her allies to win the Second World War. That war made more than a fourfold increase in the demand upon our oil resources and production. Nevertheless, because of the incentive afforded by the depletion allowance provision, we now have more than 3 times $8\frac{1}{2}$ billion barrels of reserve oil, of which we knew 28 years ago.

"Without the unimpaired provision under attack, this Nation would soon become absolutely dependent not only for its progress but also for its economic existence upon the foreign oil, which, in case of an atom or hydrogen bomb war, would be rendered impossible of obtainment by this country.

"The depletion provision of the law is largely responsible for the fact that America's 22,052,559 registered automobiles and other motor vehicles of 1926 have increased more than 30 million in 28 years.

"On the date of the enactment of the depletion allowance law, this Nation had, exclusive of city streets, 550,064 miles of paved highways. During the intervening years, our paved highways have been increased to an aggregate length of more than 1,600,000 miles. In other words, our highway paving during the 28 years since the adoption of the depletion allowance amendment is more than a million miles greater than all such paving ever done in this country in all the preceding history of the United States. But for the oil produced as a result of the depletion allowance and the necessity for highways over which to operate the automobiles that were powered and lubricated by that oil, the million miles of our roads last paved would still be ankle-deep with dust in summer and knee-deep with mud in winter—instrumentalities of stagnation, poverty and distress instead of sources of prosperity, comfort and peace.

"Please remember when voting on the Williams amendment that no matter how great the loss of taxes due to the depletion law, it has not only been fully redeemed

but repaid a hundred times and more by the additional taxes paid on gasoline—by taxes on the fabulously increased incomes of our vastly expanded iron, steel, automobile and airplane industries and others related to them—and by new taxes paid by the millions who have been lucratively employed in our great industrial enterprises as the direct or indirect result of the oil which, but for the depletion provision in question, never would have been produced.

"In justification of the present depletion allowance provision, let me remind the Senate that in this country last year it was necessary to drill 6 and 6/10's oil wells in order to obtain one producer, and that our average cost of drilling producer oil wells in 1953 was more than 17 times as much as it was before the Second World War.

"It is now more necessary than it ever was before that our oil production be fully maintained. The adoption of the Williams amendment would reduce this indispensable consummation to a sheer impossibility. If I wanted to help the Communists overrun this country as they have overrun Europe and Asia, I would vote for the Williams amendment. Of course, I do not question the Senator's motives or doubt his patriotism in urging this amendment, but to adopt it would be disastrous beyond the possibility of calculation.

"In this crucial hour of unparalleled danger, aggression, and worldwide encircling gloom, let us, by overwhelmingly defeating the amendment, officially warn not only all ferocious warmongers, but also all our timid friends across the sea that we will not, by legislation, appeasement, or any other earthly means, destroy, handicap or discourage any legitimate industry or activity that is vital to the security, happiness, prosperity, or peace of the American people."

Editor's Note:—The Williams amendment, which would have critically hampered if not halted oil exploration by reducing the depletion allowance from 27½% to 15%, was defeated by "voice vote" in the Senate on June 30, 1954.



Key to City of Portland is extended to President Reese H. Taylor, left, by Mayor Fred Peterson, while Vice President A. C. Stewart and Portland Airport Superintendent Olin Harrison witness the gesture of city goodwill.



Below, Queen Jan I, Portland's Rose Queen, was on hand to pin one of Portland's famous roses on each visitor.

Directors Welcomed In Northwest

THE selection of Seattle as the meeting place for our Board of Directors on June 28 brought about the first such Company function ever held in the Northwest and, more important, reflected the growing importance of that area to Union Oil's success.

Thirteen of the Company's 16 directors, accompanied by four of our officers, made an airplane tour of Glacier Division and Northwest Territory properties before the board meeting convened. During stops at Portland, Cut Bank, Great Falls and Seattle, they were accorded the warmest courtesy and heartiest of welcome by state and city officials, leaders of industry, and Union Oil people.

Copious newspaper accounts of the visits called attention to Union Oil's industrial service and importance: The Company now ranks 49th among all manufacturing companies in the United States and 12th among all oil companies. In Northwest Territory, where 1400 of our shareowners reside, we do \$72 million worth of business annually through 1400 retail outlets and 190 marketing stations; and pay out some \$8 million yearly in wages and commissions. In Montana we are making proportionate contributions to that state's well-being and development.

Climaxing their meeting, the Board of Directors announced that Union Oil would pay a 60 cent quarterly dividend on shares of common stock—an increase of 10 cents over dividends paid during recent years.

Vice President Stewart finds a moment to talk marketing with, from left, Distributor Waldo Hemphill, Territory Manager W. I. Martin, Attorney Herbert Little, and Manager of Wholesale Sales L. B. Trelue of Seattle.

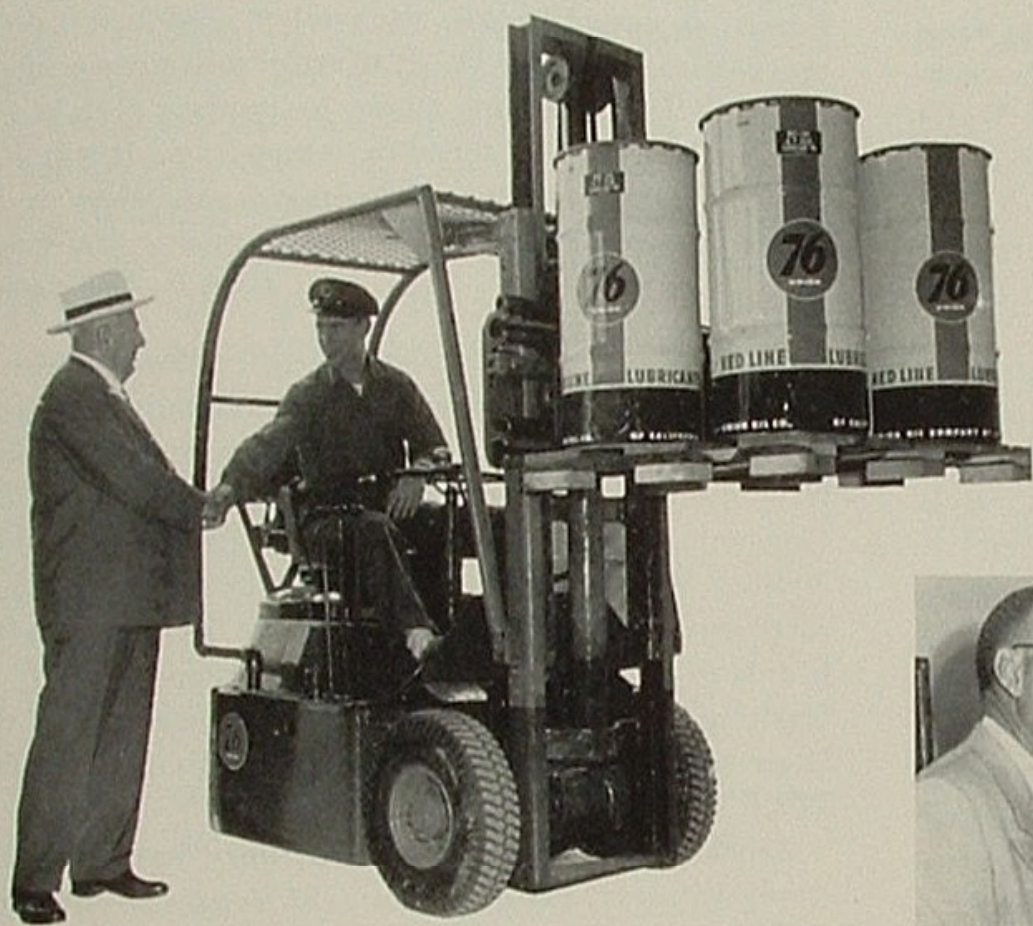




The tour provided valuable contacts between Directors and employees. Above, Superintendent Leo Lund describes Seattle Terminal functions for the visitors. Below, Director S. W. Morshead meets Lift-Truck Driver Dave Phillips.



Arriving at Willbridge Terminal, Executive Vice President W. L. Stewart, Jr., left, and Vice President Roy Linden are welcomed by Distribution Manager W. I. Harland. Superintendent Ralph Cairney, below, answers plant operating questions for the Directors.



Below, Mayor Allen Pomeroy extends Seattle's welcome to Mr. Taylor and the Board; while in our Seattle office cafeteria Miss Bernie Willis, one of several Union Oil girls delegated to the pleasant assignment, serves as hostess during a tour of the building and coffee shop. At Great Falls, lower right, Governor Arnsion of Montana engages in more serious conversation with the President.





INDUSTRIAL SUMMARY

● FIELD

Growth of the Ventura Division, California, during the past few years is seen in some noteworthy comparisons emanating from records maintained by our Santa Paula office. At the close of World War II, eight years ago, crude oil production from the entire division amounted to only 500 barrels per day, mostly from wells drilled around the turn of the century. Today, the Division produces approximately 15,000 barrels of crude per day.

Production from our large Simi Fee holdings at the beginning of 1946, all from the shallow Torrey and C. D. L. B. fields, was at a rate of 150 B/D. Recent discoveries at Torrey, Oakridge and South Tapo have boosted production from the Simi Fee to 8,000 B/D.

Eight years ago, our properties at South Mountain were contributing about 145 B/D. An active drilling program has been underway for some time in this area—and it is still in progress—which has built up production to 3,200 B/D. During this period, the number of producing wells has increased from 10 to 62. Recently a well on our Culbert lease was brought in for flowing production of 500 B/D, the best completion to date.

This division, with 102 producing wells in 1946 and 299 today, has indeed played an important role in building up our California crude oil production. The current active exploratory program may continue to point production indices upward.

from Sam Grinsfelder

● MANUFACTURING

The Ammonium Sulfate Plant at Los Angeles Refinery is undergoing changes to increase its production capacity to 70 tons per day. This increased capacity will permit use of by-product acid sludges available at the refinery. The ammonia required for this increased production will be purchased from Union's subsidiary—Brea Chemicals, Inc.

Oleum Refinery has increased its land area to 651 acres by the recent purchase of 215 acres.

Under the MP-30 program at Oleum, the new Unifiner Unit will remove sulfur, nitrogen and acidic compounds from the gasoline stock. The treated gasoline will then

be processed in a catalytic reforming unit called a Platformer, so named because the catalyst used in this process contains platinum. The Platformer will process about 17,000 B/D of gasoline stocks to produce high-knock-rating motor gasoline blending components. It will also produce large quantities of hydrogen gas, which is required in the gasoline desulfurizing process—Unifining.

from K. E. Kingman

● MARKETING

The Northwest Territory sales volume was substantially increased during June by a tanker shipment of bunker fuel oil and Navy special fuel oil to two accounts of White Petroleum Company, Union Oil distributors in British Columbia. Another tanker shipment of Diesol, stove oil and lubricants proceeded to Nome, Alaska, near the Arctic Circle, in July to serve the gold dredging operations of the U. S. Smelting, Refining and Mining Co. (A description of the latter voyage will appear in next month's issue of ON TOUR.)

Asphalt sales in Northwest Territory have shown a steady increase, amounting to a 32% gain in May and a 22% gain in June.

The opening of a Union Oil service station by Ralph W. Flygare in Jackson, Wyoming, represents an important extension of our service station chain in southern Idaho and northern Utah. It should prove to be a welcome accommodation to the many Union Oil customers who visit the Jackson Hole and Yellowstone Park areas.

The first shipment of Royal Triton 5-20 and 10-30 has been made to our Tahiti distributor, Sin Tung Hing. Both oils are also available in the Philippine Islands through Theo. H. Davies & Co., Far East, Ltd., and at Maruzen's service stations in Japan. Other grades of Royal Triton are being sold in these countries as well as in Hong Kong and Portugal.

from Roy Linden

● RESEARCH & PROCESS

Three new Unifining licenses have been obtained in recent weeks. The Eastern States Petroleum Company, Inc. of Houston, Texas, will use the process for upgrad-

ing 3,000 B/D of cracked gas oils by removing sulfur and generally improving the quality of mid-barrel products. This plant is expected to be in operation by September 1, 1954.

The first foreign Unifining license agreement has been signed with an overseas refiner. The initial unit to be constructed will have a 2,500 B/D capacity.

The third of these new Unifining licensees, Aurora Gasoline Company of Detroit, Michigan, will build a unit to process 7,700 B/D of high sulfur gas oils.

from C. E. Swift

● TRANSPORTATION & DISTRIBUTION

A plan recently approved by management for the handling of Company automotive vehicles will result in the consolidation of all such vehicles into one automotive investment account. This change will have no effect on the physical operation of vehicles but will provide a more uniform and simplified accounting procedure for use in administrative control. Vehicle assignment and usage by an operating department will be charged for in the future on a time and mileage basis and will include all costs. Automotive Department responsibilities continue the same as in the past, and the complete operating control of each vehicle also continues to rest with the department to which the vehicle is assigned.

A recent application of cathodic protection involved the joint installation by Union and two other companies of a common rectifying station to protect the pipe lines of each company in the Cholame Flats area east of Shandon in San Luis Obispo County. This area has such highly corrosive soil conditions that it has been used by the Bureau of Standards for many years as a

testing ground for metals, pipe coverings and other materials normally installed underground. Prior to the installation of our cathodic protection station, and due to lack of power in the area, each company used a wind-driven generator to obtain partial cathodic protection for its own lines.

Other joint protection arrangements include an installation at Shell Beach near Avila by Union and Southern Counties Gas Company where a single cathodic unit protects our 12-inch Santa Maria and 8-inch Orcutt lines as well as the Gas Company's 8-inch natural gas line from Santa Maria.

from E. L. Hiatt

● PURCHASING

As a result of the recent steel industry labor agreement, there will be no interruption in present prompt deliveries of manufactured steel products. Tubular goods, containers, structural steel and the countless other items depending on basic steel should continue to be readily available from mills and vendors' stocks, making it unnecessary for buyers to carry large inventories.

While we are assured of continuing steel supply, we are faced with increased costs. Competition will undoubtedly force mills to absorb some cost increases. However, preliminary estimates by Purchasing indicate a \$300,000 increase in costs of steel goods required annually for our normal operations.

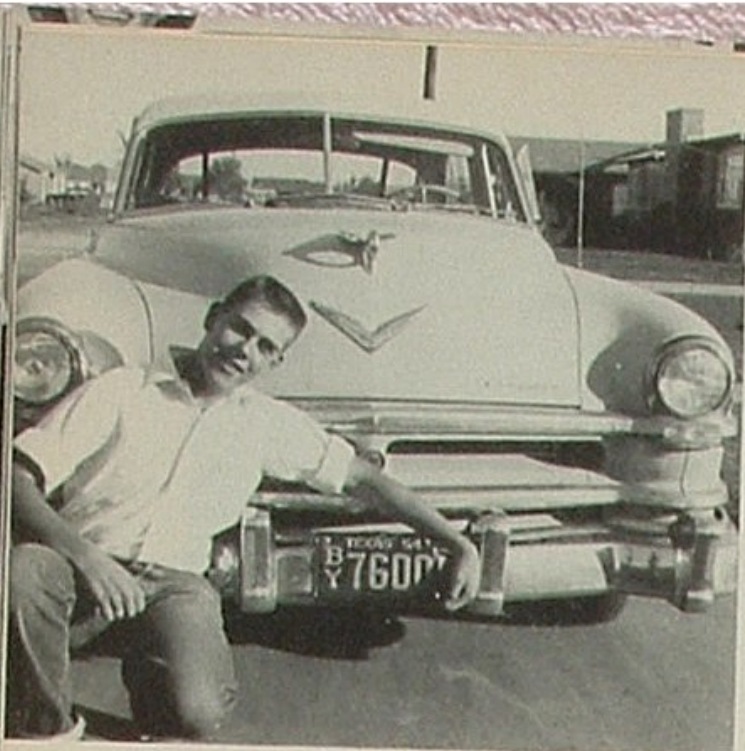
Increased steel prices will also be reflected in higher costs of new units. Construction projects underway at Oleum, Cut Bank, Santa Maria and Los Angeles will be affected, requiring a larger investment of Company funds for their completion.

from C. S. Perkins

Officials of Maruzen Oil Company, Ltd., Japan, visited Union Oil facilities in Los Angeles and San Francisco Bay areas during June. Seen at Oleum Refinery on June 28 are Manager John W. Towler, R. Izumi of the Sanwa Bank, San Francisco Branch, Maruzen's Foreign Representatives W. Posch and Director M. Nambu, our Foreign Sales Representative Bob Dowling and Martin Manders, Assistant Superintendent Compound at Oleum.

Eleven European scientists making a nation-wide survey of air pollution control problems were guests of the Company at Los Angeles Refinery on July 20. Four of the distinguished visitors are seen in the photo with our General Superintendent of Operations Robert A. McKean, left. The group—from Belgium, Denmark, France, Germany, Netherlands, Portugal and United Kingdom—expressed keen interest in our efforts to prevent air contamination.





Jimmie Atwill



Sam Hoover



Louie Bevill

Union Oilers

TEXANS TOTE TESTIMONIAL TABS

Thanks in large measure to having the wife of a County Chief Tax Collector on our payroll, Union Oilers at Midland, Texas, have managed for several years to corral at least one of "the finest" license numbers in Texas. This year the tax man must have really wanted to keep peace with the missus. At any rate, Union Oil cars in this area are rolling testimonials in support of quality products. Introduced photographically are Jimmie Atwill, son of Manager of Operations E. R. Atwill, with his 7600 tab; Accountant Sam Hoover, Royal Triton 5-20 supporter; Materials Expediter Louie Bevill and his unabbreviated '76; Receptionist Jo Bennett, who plugs for Royal Triton 10-30; and Johnnie Dyer, son of Landman H. M. Dyer, who has landed No. 76 several times in a row.

Enthusiastic loyalty of this sort is winning our Midland people a handsome new office building, seen below under construction.

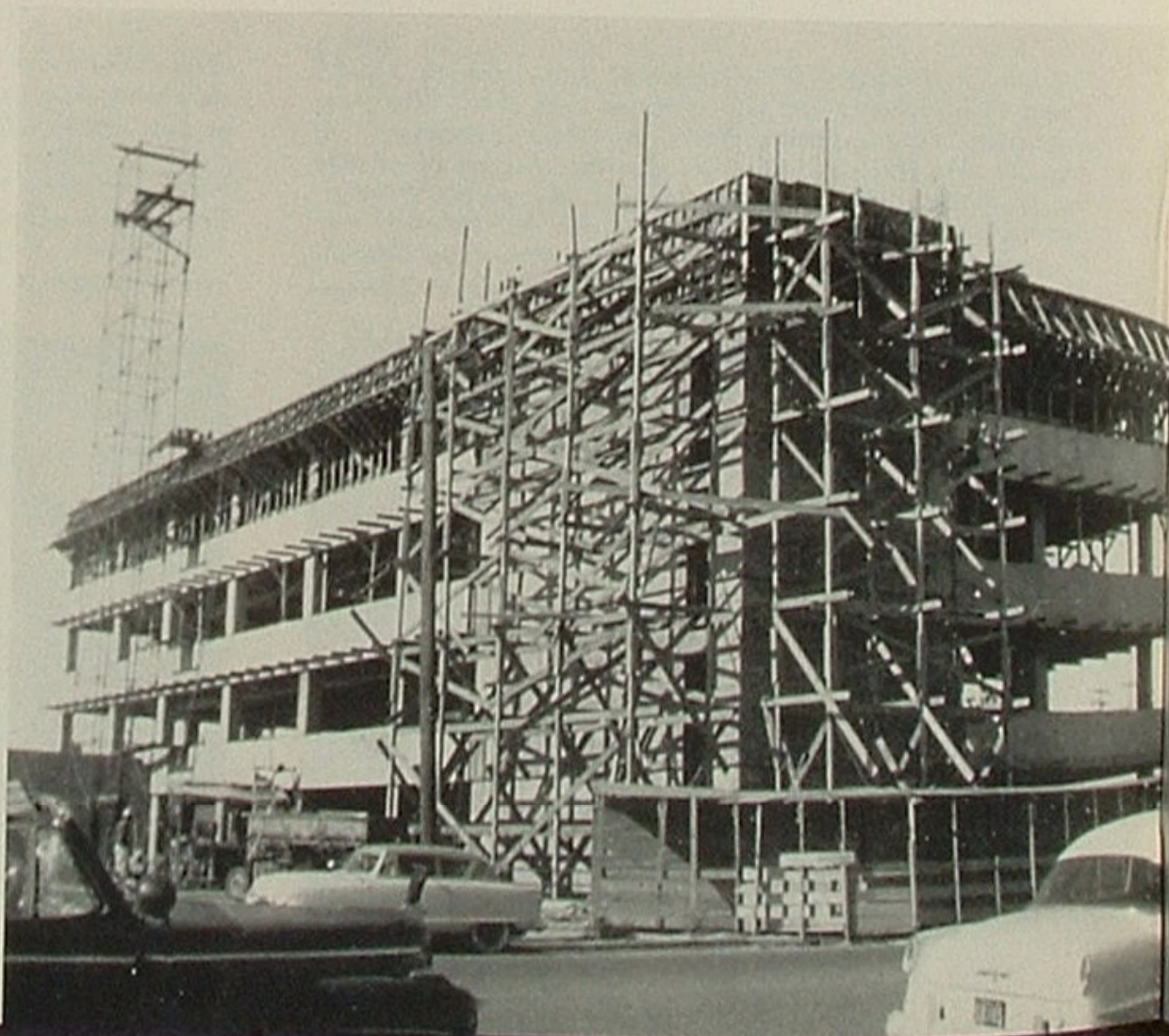
From M. B. Fine



Jo Bennett



Johnnie Dyer





SOUTHWEST TERRITORY rewarded top-notch sales teams of the Long Beach-San Diego Sales District at recent dinner meetings held in Long Beach and Mexicali. In the photo upper left, pennant winners C. S. Swan and Tom McDougall are presented their cashier-check awards by, from left, Territory Manager J. W. Miller, DSM A. R. Ousdahl and, extreme right, Manager Wholesale Sales H. W. Bragg. Surprise speaker at the Pacific Coast Club dinner in Long Beach was the nationally known James A. Worsham, above, who is proud of having been born in Seventy-Six, Missouri. A subsequent victory feast at Mexicali for some 25 members of the winning sales team was touched off by steak matadors, from left, F. A. Culling, H. W. Bragg, A. R. Ousdahl, J. M. Rodriguez, J. M. Rodriguez, Jr., and C. S. Swan.

from Jack McFarland



CENTRAL TERRITORY also honored outstanding salesmanship by presenting Club 100 memberships to men of the Sales Services group who, though not assigned to direct sales, nevertheless accepted marketing objectives and exceeded their goals. Territory Manager F. K. Cadwell, extreme right, made presentations to all men shown holding medalions. The group, reading clockwise from Mr. Cadwell's left, included C. M. McMaster, R. B. Rose, F. C. Barr, O. L. Tobey, R. H. Seward, M. E. Lamborn, F. H. Kellogg, E. E. Richard, J. J. Grunewald, J. N. Bateman, R. W. Newell and T. W. Proudfoot.

from Ethel Cline



ON TOUR



▲ **EDMONDS REFINERY** spelled out its hospitality in writing when the Desk and Derrick Club of Seattle expressed a wish to visit Washington's only refinery. Several Union Oil women are members of the Club and our Kay Kesner, extreme right, is vice president.

▲ **KATHY NOLAND**, daughter of Credit Manager Richard Noland at Portland, has charmed the City of Roses. During her four months' residence there, she has twice served as class mayor of her third grade in school, and was chosen to represent Portland's Northeast District No. 1 in the Junior Rose Festival of the famous Portland Rose Parade.

from Gudrun Larsen



▲ **ART ERICKSON**, district purchasing agent at Seattle, was extremely modest about catching this 42-pound halibut with light tackle. "Many larger ones in the sea!" he explained.



▲ **ROTARIANS** at Yorba Linda seem bent on selecting Union Oilers for their president. In July, Milton W. Lee received the gavel from outgoing President N. G. Allison, right. Both are in our Research & Process Dept.

from Paul Doyle

ON TOUR



▶ **D. D. CLEM**, resident manager at Walla Walla, and Mrs. Clem are justifiably proud of their son Daniel, right, commanding officer of the Civil Air Patrol Cadet program in Walla Walla, and now in Mexico City as an exchange cadet.



▶ **RUSSELL L. LUKE**, top Union Oil salesman in his field, was presented Northern California's "Sammy" award this year to the applause of 1200 San Francisco sales executives. In the presentation spotlight were, from left, DSM J. H. McGee, J. H. Patrick, Salesman Luke and L. C. Doyle.

from T. W. Proudfoot

▶ **30-YEAR MEN** W. R. Van Kleek of Beaverton and A. J. Peterson of Portland admit that time has served only to sharpen their appetites for a good anniversary cake.

from Gudrun Larsen



▶ **FRED OLSNESS**, right, resident manager at Spokane, is seen receiving the champion's cup from President Cecil Griffith of the Spokane Central Lions Club. Fred entered a speaking contest witnessed by 3,000 convention delegates at Vancouver, B.C., and came away the winner.

from Gudrun Larsen



▶ **SKILLED GUARDIANS** in the event of atomic warfare are, from left, Union Oilers P. F. Lueth, C. E. Wilson, Lorene Peterson, B. T. Anderson, Irene Wheeler, R. W. Rhines and A. Grenall. With some 15 other Company employees from Brea Research Center and Santa Fe Springs, they have completed a 36-hour night course at Fullerton Junior College in radioactivity detection. The course, sponsored by the Orange County Civic Defense organization, sought volunteers who were equipped with a good scientific background.

from Paul Doyle





▲ **INSIDE EUROPE** at the moment are, from left, Valerie Griffel, Nancy White and Mildred Miller, Southwest Territory girls who have promised us some unusual photos and stories about their travels.

from Jack McFarland

▶ **BLUE BLAZES** is the name of an exceedingly fine hydroplane built and piloted by Thomas B. Caldwell, research attorney for the Supreme Court of California. Using 7600 gasoline exclusively, Mr. Caldwell won eight first places and one second out of 10 races in 1953 and, in Seattle, set the present straightaway record for 136-cubic-inch hydroplanes at an average speed of 72.914 miles per hour. An honorary Union Oiler!

from W. H. Jamieson



▲ **EVELYN FOX** of our Bakersfield office, also charter member and president of the Bakersfield Desk & Derrick Club, is shown (second from left) meeting the advanced business-education students at Bakersfield

High School. Her props are an oil well core and a sample of crude oil. Speaking on "Opportunities for you in Business" she performed a highly-appreciated service for community and company.

from Lorraine Cosmer



▲ **"LUCKY'S" FIVE** comprised of, from left, Virginia Head, Marius Soules, Lucille Scoff, Thomas Luckham and Mollie Shapiro lived up to their title by winning first place trophy and individual statuettes presented by the San Francisco Union Oil Bowling League. Their motto: "Lick 'em with Luckham!"

from Ethel Cline

ON TOUR

Retirements



A grateful Company and host of well-wishing employees are bidding farewell to the following Union Oilers who have concluded long careers of Company service and are retiring:

HAROLD S. PRIOR

Oleum Refinery
Employed 4/23/18—Retired 8/1/54

HELEN WHITHAM

Sales Service
Employed 6/10/18—Retired 8/1/54

EDWARD C. CHAMBERS

Southwest Territory
Employed 4/18/22—Retired 8/1/54

THOMAS P. HANSON

Northwest Territory
Employed 10/20/27—Retired 8/1/54

In Memoriam

On May 31, 1954

ADOLPH E. ANDERSON

Los Angeles Refinery
Retired 6/14/44

On June 11, 1954

GEORGE E. SPAULDING

Oleum Refinery
Retired 7/1/39

On June 12, 1954

WILLIAM E. GUALDONI

Oleum Refinery
Out of service 8/24/50

On June 15, 1954

LORA FARRAN

Comptroller's
Retired 4/1/30

On June 17, 1954

MARION C. TINDALL

Oleum Refinery

On June 18, 1954

EDWARD BROADWAY ROUSE

Southwest Territory
Retired 8/1/33

On June 6, 1954

PAUL E. STANLEY

Los Angeles Refinery



SERVICE BIRTHDAY AWARDS

AUGUST 1954

TAX

Austin, Clarence E., Home Office 45

MARKETING

Cole, Wiley A., Santa Barbara 40
Ketels, Vivian C., Sacramento 30
Toner, Lawrence E., Seattle 30
Whitlock, Arthur L., Seattle 30
Lamborn, Marvin E., San Francisco 25
McCullough, Frank C., Los Angeles 25
Oliver, Henrietta, Home Office 25
Olsness, Fred W., Spokane 25
Schmitz, Leroy C., Portland 25
White, Joe W., Seattle 25
Morsman, Dean B., Portland 20
Myers, Frederick A., San Diego 20
Hulford, Norma E., Seattle 15
Shaw, Golda Mae, Los Angeles 15
Edwards, Elmer E., Phoenix 10
Fain, John M., Jr., Oakland 10
Gedge, George D., Honolulu 10
Herman, Leonard L., Phoenix 10
Jolliffe, Lorna W., Seattle 10
O'Brien, Robert E., Oakland 10
Pretzer, John William, Sacramento 10
Wadlow, Ray Walter, Wilmington 10

EXPLORATION & PRODUCTION

Barnds, Clarence M., Whittier 35
Foster, Harold M., Orcutt 30
Lenz, Adolph C., Orcutt 25
Burkhead, Wayne Z., Texas 15
Waincott, Gerral W., Orcutt 15
Bourret, Joseph J., Jr., Texas 10
Dane, Nolan N., Dominguez 10
Daniels, Morris J., Dominguez 10
Fredrick, Ray T., Dominguez 10
Gastal, Jacob C., Louisiana 10
Grace, Emilia, Home Office 10
Hart, Russell Y., Orcutt 10
Hoff, Adolph F., Montana 10

AUTOMOTIVE

Klassen, Dick F., Santa Fe Springs 35
Dockrell, Albert C., Emeryville 30

MANUFACTURING

Costa, Louis L., Oleum 30
Bennett, Thomas J., Bakersfield 25
Charlesworth, Ellis L., Oleum 25

Cooper, Robert L., Oleum 25
Dunn, James H., Wilmington 25
Golay, William H., Wilmington 25
Humm, Joseph, Oleum 25
LeFebvre, Clarence I., Oleum 25
Sogard, Donald A., Wilmington 25
Heywood, Walter T., Wilmington 20
Mason, Elmer W., Oleum 20
McIntyre, William A., Wilmington 15
Wildenhain, Johannes M., Wilmington 15
Avila, Jesse C., Oleum 10
Barber, Gerald, Wilmington 10
Baker, Orin R., Wilmington 10
Campbell, Thomas V., Wilmington 10
Deal, Stanley L., Wilmington 10
DeFigueiredo, Francisco, Oleum 10
Middleton, Carl W., Wilmington 10
Roberts, Clarence V., Oleum 10
Shaw, James E., Oleum 10
Snead, Roscoe R., Wilmington 10
Stuckman, Arthur, Wilmington 10
Toland, Lloyd I., Wilmington 10

PIPELINE

Kirby, Ernest S., Santa Fe Springs 30
Williams, Ronald A., San Luis Obispo 25
Haney, Paul T., San Luis Obispo 10
Kincaid, John R., Santa Fe Springs 10

PURCHASES

Meley, Aldon V., Santa Fe Springs 30
Hulihan, Stella, Home Office 10

COMPTROLLERS

Noland, Paul K., Colorado 25
Elderkin, George P., Colorado 15

RESEARCH & PROCESS

Allison, Nelson G., Brea 25
Porter, George L., Brea 25
Gentle, William D., Brea 20
Dugan, Edward C., Brea 10
Engvall, Inez W., Brea 10
Wood, Forrest O., Brea 10

TREASURY

Craig, William R., Home Office 15

MARINE

Martin, William M., Wilmington 10

On June 28, 1954

JAMES WALTER MURRAY

Field Department
Retired 10/31/44

On June 20, 1954

LEIL EUGENE McVEY

Los Angeles Refinery

On July 2, 1954


ALFRED C. POWELL

Field Department

On July 6, 1954

ROBERT A. KING

Field Department



WHAT DID IT COST TO CREATE YOUR JOB?

If you're an average U.S. factory worker—\$12,000.

If you're a rough carpenter, it took approximately \$350 worth of tools to set you up in your trade.

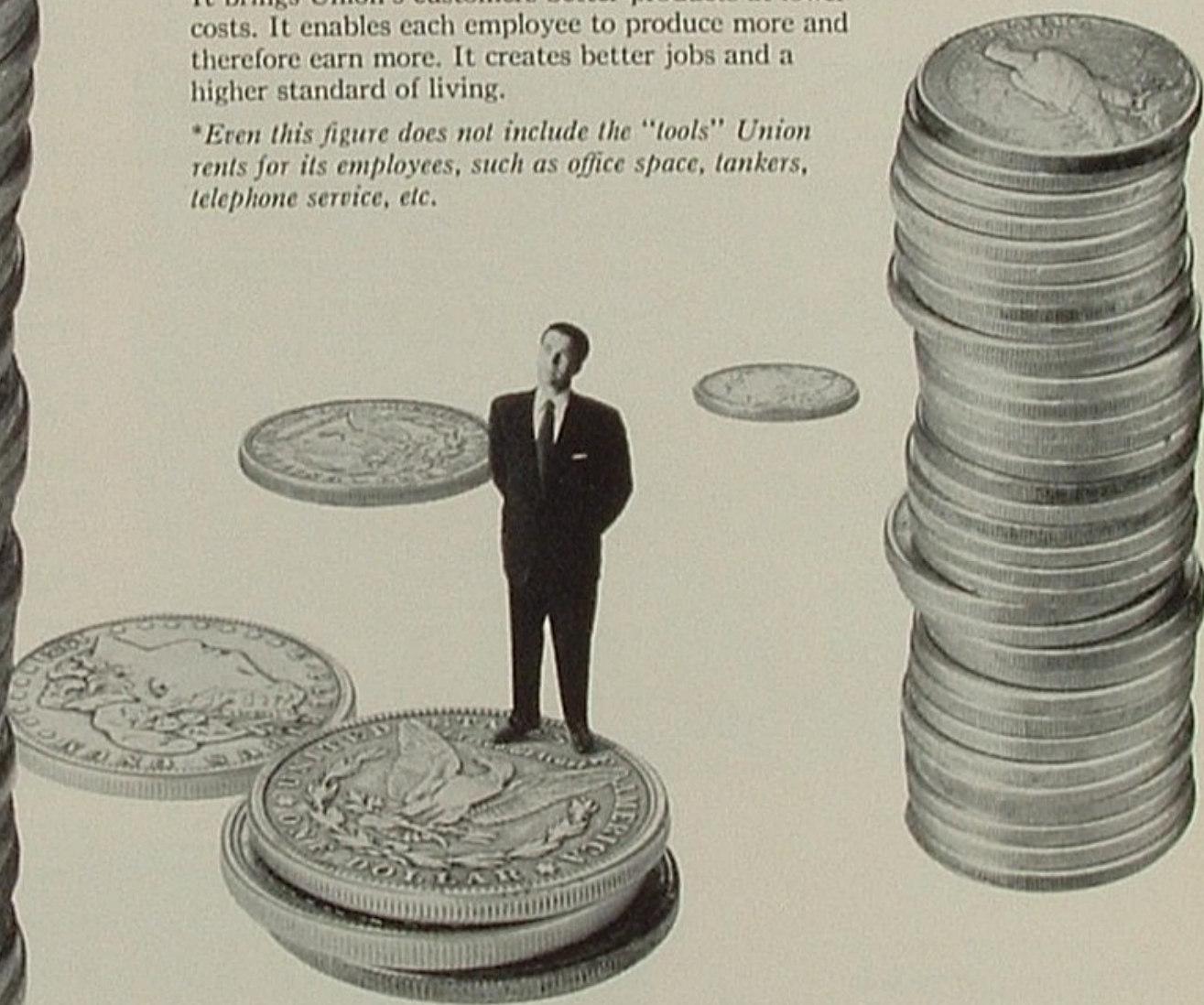
Tools for a garage mechanic cost about \$3,000; for a Washington wheat farmer \$12,500; for a secretary \$300.

But if you work for Union Oil, it took \$77,000 worth of tools in the form of trucks, service stations, refineries, oil wells, etc., to create your job.* Obviously, some of our jobs require considerably less investment than \$77,000 and some considerably more. But this is the average for Union's more than 9,000 employees.

That's big money. But it accomplishes big things.

It brings Union's customers better products at lower costs. It enables each employee to produce more and therefore earn more. It creates better jobs and a higher standard of living.

**Even this figure does not include the "tools" Union rents for its employees, such as office space, tankers, telephone service, etc.*



UNION OIL **76** COMPANY
OF CALIFORNIA

This is one of a series by the people of Union Oil to explain how business functions. Your comments are invited. Write The President, Union Oil Company, Union Oil Bldg., Los Angeles 17, California.