

*Twenty Years*  
*of*  
*Progress*



**1940 - 1960**

# Commercial Aircraft or Military, Rohr Serves Entire U.S. Industry



**ELECTRA**—Above, propjet power packages are manufactured by Rohr for Lockheed's Electra, medium range airliner. Below, a Strategic Air Command B-52 long range bomber is shown being refueled in air by a SAC KC-135 jet tanker. Both are Boeing planes and both carry jet engine pods and other components manufactured by Rohr.



**HERCULES** — Rohr - Built propjet power packages and other components are used on the Lockheed C-130B Hercules. The Hercules is employed by the Air Force, Navy, Coast Guard and Marine Corps in a variety of personnel and cargo transport jobs. Rohr maintains plants in Chula Vista, Riverside, and Auburn, Wash.



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# 'Rohr Plant to Employ 1000'

## 'First Unit To Be Ready December 15'

(Reprinted here is a story from a Friday, Nov. 1, 1940 issue of the Chula Vista Star, tracing progress made on construction of the new Rohr Aircraft Corp. plant on 10 acres of bayfront land.)

A total of 1,000 men, working in two 10-hour shifts, will be employed by the Rohr Aircraft Corp. by the middle of 1941, it was announced yesterday by Fred H. Rohr, president, as work was being rushed on erection of the corporation's first factory unit here.

The structure, which is to be of fireproof steel construction, will be 250 by 150 feet, and is to be completed by Dec. 15. Walter Treppe is the contractor. When fully equipped, said Rohr, the building will represent an investment of more than \$100,000.

Meantime, as work surged ahead on the local plant, the company, which was incorporated under the laws of California, on Aug. 6, 1940, and which began operation Sept. 10, is quartered in a three-story building at 371 Eighth Ave., San Diego, where work on more than \$1,000,000 worth of contracts from large plane manufacturers is being car-

ried on pending completion of the Chula Vista factory.

One of the largest building permits ever issued at city hall was obtained by Rohr Aircraft Corp. for its \$50,000 factory. The fee was \$50. Herb Bryant, city clerk, pasted the duplicate permit in the window.

Although organized primarily to fill plane parts and assembly subcontracts from large Southern California companies, the charter of the Rohr concern permits it to engage in the manufacture and sale of a wide range of products, including complete planes of its own design. A wholly owned California corporation, it is reported 95 per cent of its issue stock is held by Chula Vistans and San Diegans.

Fifty experienced key men are directing the activities of the company, said Rohr and his associates, and production is reported well under way on plane engine nacelles, which are composed of cowlings, preheaters, firewalls and other parts. Equipment in operation includes four drop hammers.

### GROWTH RAPID

Although the San Diego plant can accommodate more than 300 men, officials of the corporation said that the growth of the firm has been so rapid that it was necessary to erect a modern factory. Accordingly, because of the public spirit shown by Chula Vistans, and because of the ideal conditions here for a plane plant and airport, the corporation purchased a 10-acre tract near the bayfront and took an option on an additional 10 acres.

Looking into the future, Rohr and his associates yesterday voiced the opinion that expansion of the nation's air forces will continue for "from five to 10 years," and they said that if this materializes "further factory space will have to be provided."

"Since the payroll of the Chula Vista factory will exceed \$100,000 a month at its

peak," they added, "the increased revenue to the business houses of Chula Vista will be considerable, and no doubt many of the employes of the company will establish their homes in Chula Vista."

### Rohr Growth Over Past 20 Years

Fiscal Year	Gross Sales	Net Earnings	Federal Taxes	Cash Dividends
1941	\$ 1,493,488	\$ 295,471	\$ 256,885	\$ 22,500
1942	6,665,913	429,867	700,926	326,250
1943	39,099,742	883,826	3,073,886	435,000
1944	70,658,893	1,825,703	3,443,483	435,000
1945	53,081,803	1,066,837	3,289,889	435,000
1946	6,069,100	390,043	521,748	—
1947	7,163,483	372,563	214,221	—
1948	7,828,581	503,571	281,000	—
1949	24,674,488	1,233,709	742,000	—
1950	27,869,112	1,455,155	909,000	84,323
1951	26,233,548	968,108	1,442,000	454,707
1952	41,322,184	1,151,811	2,600,000	600,000
1953	63,005,624	1,533,285	3,573,000	600,000
1954	101,604,448	3,510,811	5,175,000	750,000
1955	82,407,804	3,269,009	3,535,000	990,000
1956	90,027,159	3,144,634	3,500,000	1,260,000
1957	115,765,922	3,727,737	4,000,000	1,260,058
1958	147,538,056	4,022,474	3,930,000	1,310,881
1959	191,272,128	2,586,300	2,509,154	1,649,454
	\$1,103,781,476	\$32,370,914	\$43,696,192	\$10,613,264

*Congratulations*  
**ROHR Aircraft Corporation**  
*on your 20<sup>th</sup> Anniversary*

Your industry has played a very important part in the tremendous development of our city . . . and the South Bay Area . . . Congratulations! A job well done.

## Your Chula Vista Community Hospital

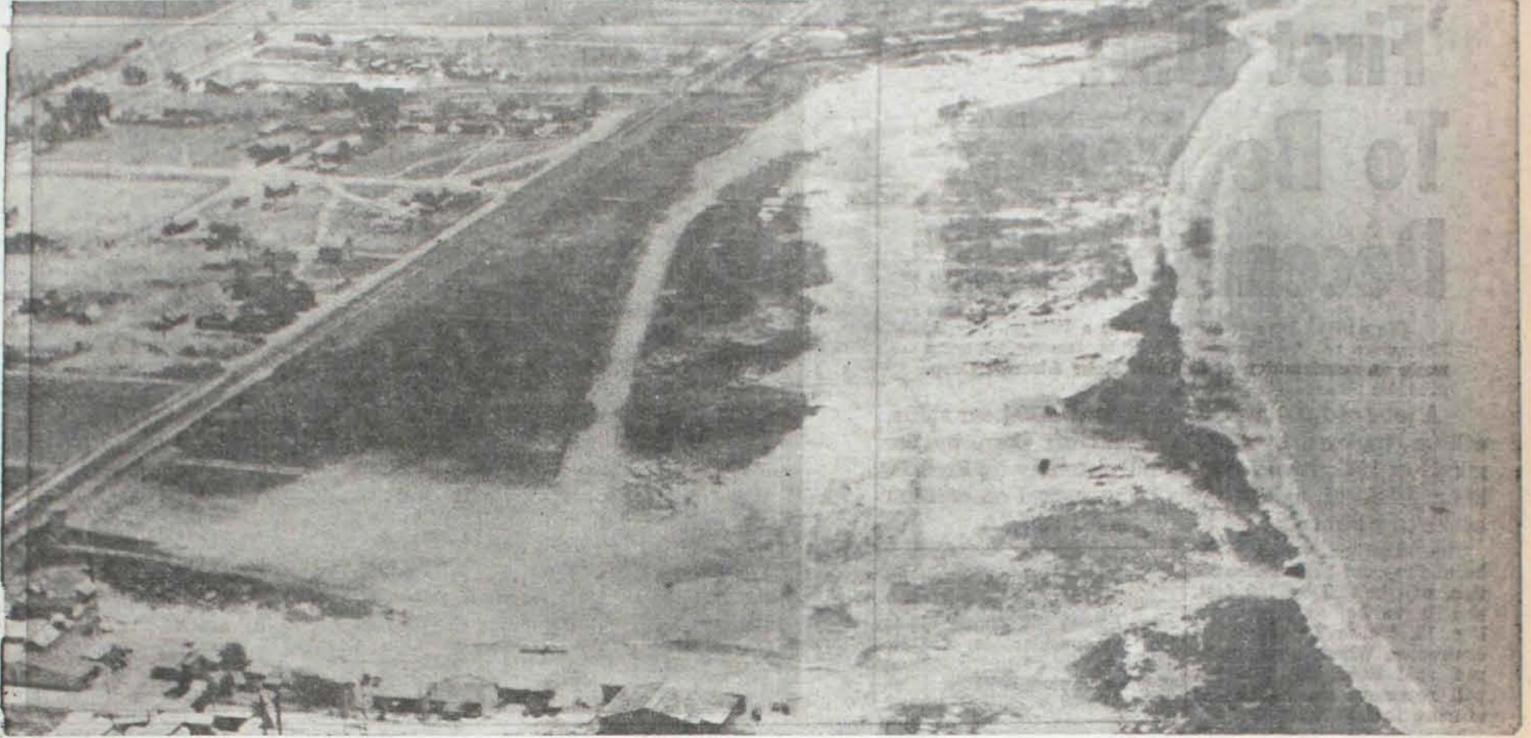
Is also proud to be a part of this active, growing community and again pledge our continued efforts to better serve those of the South Bay Area.



Our Motto is Kipling's Quotation:

*"Not as a ladder from earth to heaven  
 Not as a witness to any creed  
 But simple service simply given  
 To their own kind in their common need."*

# Out of the Celery Fields of Chula Vista



**BEFORE** — This is the way it looked then — a small dirt airstrip between South Bay and Chula

Vista farms selected as the site for Rohr Aircraft's main plant and corporate headquarters back in

1940. In these days the population of Chula Vista was a mere 5,000. Rohr was to change all this.

(This history of Rohr Aircraft is reprinted through the courtesy of August, 1960 issue of the Rohr Magazine. —Ed.)

The Winter of 1940-41 was California's wettest for many years. Reservoirs were filled, the ground was soaked, streams were running bank full, and the hillsides were green with lush grass that sprang up, as if by magic, from hitherto parched and dusty fields. The rain that came down steadily during January and February was welcomed by everyone.

Everyone, that is, except a small contingent of executives and workmen engaged in the interesting task of moving Rohr Aircraft Corporation from a rented building in the wholesale district of San Diego into the first structure on its present site in Chula Vista.

This was a 37,000 square foot factory building, and its vast expanse of floor space caused some of these engaged in the moving task to wonder if perhaps they hadn't over-built. The building was situated in

a muddy field at the lower end of San Diego Bay, on the outskirts of Chula Vista, which then had a population of about 5,000. Between the Company's new property and the business district were hundreds of acres of celery and tomato fields, and lemon groves. Sloshing through mud and across duck-board walks, the moving task force carried the last of the Company's equipment and materiel into the new building, and Rohr Aircraft Corporation, five months after its founding in August, 1940—was in production in its permanent home.

#### RENT BARN

Office space was obtained in a rented barn in an adjoining field, and the patter of winter rain on the corrugated iron roof frequently drowned out the clatter of typewriters and adding machines as the new Company's small office staff recorded the transactions that already were beginning to increase. Greater office efficiency could have been maintained, some of the old timers recall, had the rain stayed outside. But holes in the metal

roof let in vast quantities of water, and bookkeepers and typists divided their time between machines and emptying buckets and pans which surrounded them on desks, tables and the floor.

All of which is a far cry from the scene that greets the visitor now, 20 years later, when he visits the Rohr main plant and corporate headquarters, or any of the Company's three other plants. The original building now is but a small part of one of the factory structures, and this, in turn, is surrounded by 40 other buildings, all with a total floor space of 1,351,200 square feet, on 156 acres of land. In addition, the plant at Riverside occupies 645,190 square feet on 95 acres; at Auburn, Washington, 49,271 square feet on 48 acres, and 28,525 square feet at Winder, Georgia. The latter is on land leased from the city of Winder; all the rest of the land occupied is owned by the Company. The total square footage of floor space occupied by the Company is 2,074,186, on 299 acres of Company own-

ed land.

Fred H. Rohr founded the Company on an idea that the aircraft industry needed a "feeder plant," one that furnished parts and assemblies, the creation of which required specialized skills and equipment, to airframe manufacturers. He believed, and later proved, that the Company could provide these specialized components at a cost lower than that for which the prime contractor could produce them.

First products of the new company were cowl panels for the Hudson bomber, then being built by Lockheed. After the Company moved to its new location, it began the manufacture of power packages for the B-24, which was being made by Consolidated Aircraft Corporation (now Convair).

This was the first time a sub-contractor had been entrusted with the manufacture of a power package, but the idea was so successful that by 1945 Rohr had delivered 31,760 units for the B-24, 5,607 for the PB4Y2, and 520 for the PB2Y3, for a total of 37,887.

#### POWER PACKAGE

Power package manufacture then became the Company specialty and since additional factory space was necessary, a continuous building program began. By war's end, more than 600,000 square feet were under roof, and employment had climbed to 9,800.

With the end of the war there came a lull. Government contracts for aircraft were cancelled and Rohr employment immediately dropped to 675. Large areas of the plant were closed down completely. Although the Company had not been formed as a "war baby," like all other manufacturers, in virtually all industries, its facilities had been diverted to military production.

#### THE LULL CAME

The lull that came with the end of the war had been foreseen by the Company's management and now began exploration of the demand for commercial products. As a step in this direction, the Company joined and became a subsidiary of International Detrola Corporation — which later changed its name to Newport Steel Corporation — and renewed its search for products that it could make. Interna-

tional Detrola was operating five other plants in the middle west, making radios, refrigeration equipment, machine tools, furniture and steel. From this variety of products it was believed that Rohr would be able to participate in a commercial market that would continue to flourish.

It worked out differently, however. Rohr's reputation for quality aircraft products, economical and prompt production, had been observed by airframe builders, several of whom were receiving large orders from the airlines to replace equipment now worn out and obsolete.

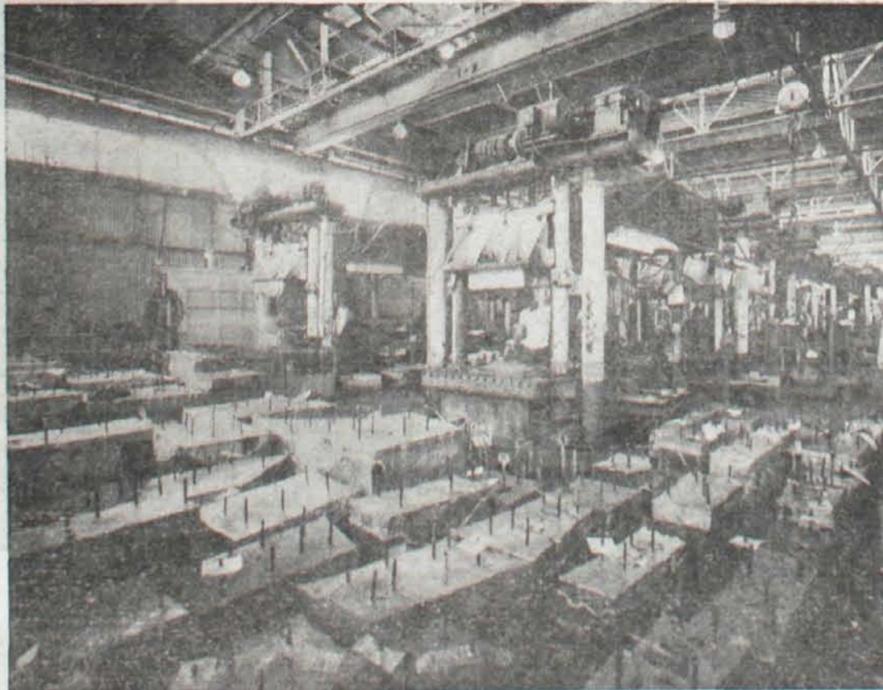
#### TURN TO ROHR

Convair, Boeing and Lockheed, all of whom were creating and manufacturing new transports turned to Rohr for power packages and other assemblies, such as exhaust systems, and oil and fuel tanks. The Boeing Stratocruiser, the Convair Liner, the Lockheed Constellation series and, later on, the Douglas DC-7 went into production, and Rohr became so busy with orders that the Company had neither time nor space to consider other commercial products. Employment moved up and sales, which had dropped to \$6,069,100 in 1946, from a high of \$70,658,393 in 1944, began moving up and in 1949 his \$24,674,488.

At that time, in 1949, Rohr and a group comprised largely of those in active management of the Company, organized a new corporation (bearing the same name) and purchased the assets from Newport Steel Corporation, which then ceased to have an interest in the Rohr organization. Since then, no other Company has owned any part of Rohr Aircraft Corporation.

#### ORDERS INCREASE

With the outbreak of the Korean war in 1951, military orders increased rapidly and in 1952 the Company established a second plant at Riverside, California. Then, as an added service to customers — in this case Lockheed at Marietta, Georgia — an assembly plant was opened at Winder, Georgia in 1954. Also, to better serve Boeing, a second assembly plant was opened at

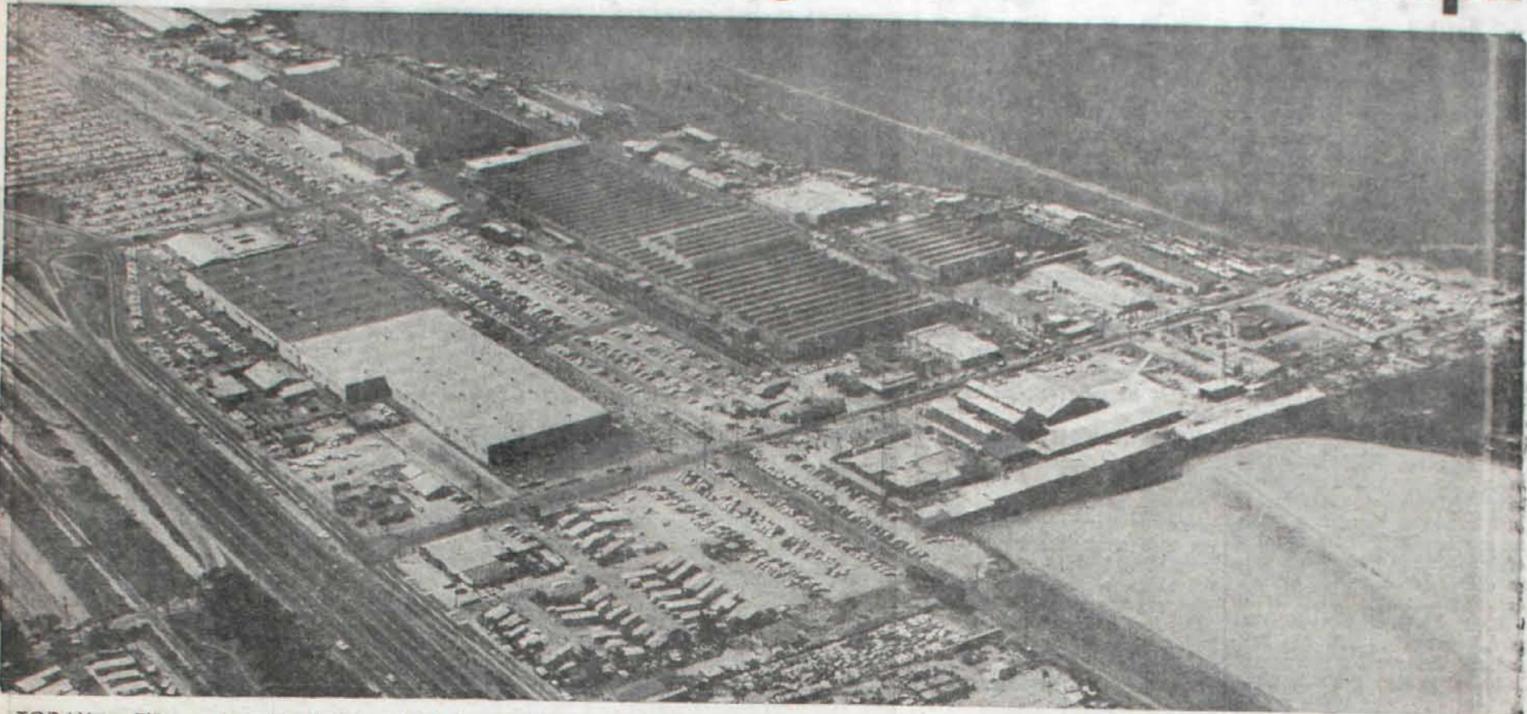


**DROP HAMMER** — Dies for the forming of sheet metal parts await service on the battery of drop hammer in Rohr's fabrication area. The drop hammer was a revolu-

tionary development of Fred Rohr's and represents a major advancement in the handling of sheet metal for industry.

(Continued Next Page)

# Into Twenty Thrilling Years of Triumph



TODAY — This most recent photograph of the Rohr Aircraft Chula Vista plant shows the result of 20 years of continuous expansion and growth. The plant consists of 41 buildings, all with a total floor space of 1,351,200 square feet on 156 acres of land, a far cry from yesterday.

Auburn, Washington in 1956.

During the war, production had been the main objective but now it was found that the experience gained during those early years could be employed to advantage in the design of components required by major customers. Consequently, there began a steady and consistent expansion of the Engineering Department, with the result that design responsibility was included in an increasing number of contracts. The laboratories also were expanded, and testing and research became of increasing importance as aircraft moved swiftly into a more complex era and the turbojet began replacing the old piston engine.

### NOISE PROBLEM

As one example of this, the

Company realized that with the coming of the jet transport the problem of noise would be a major factor confronting airlines, particularly in the vicinity of airports. Research began on sound suppression, along with studies of thrust reversal systems which would slow down the jet aircraft to a speed that would enable them to land on existing runways.

Meanwhile, other companies, too, were engaged in similar studies. Rohr engineers came up with a combination sound suppressor/thrust reverser. The principles in this design were incorporated in the thrust reverser now being manufactured for and used on the Lockheed JetStar. Boeing came up with its own ss/tr designs for use on the 707 series and because, among other rea-

sons, of Rohr's experience in this field of research, awarded the contract for their manufacture to this company. The company also designed and manufactured prototype thrust reversers for military airplanes, and these, too, have met the needs for better control of these high speed aircraft in making a landing approach.

### USE OF TITANIUM

Research in the use of titanium was one of the company's "firsts," with the result that today Rohr is one of the largest users of titanium in the aircraft industry. This temperamental metal, it was discovered, must be formed at elevated temperatures and to accomplish this Rohr engineers and technicians created special tools for this purpose.

Brazed stainless steel honeycomb was another product in which the company pioneered. Its light weight, high strength and numerous other advantages of this type of structural panel quickly proved it to be the answer to many aerodynamic problems that confronted designers and engineers. It is extensively used in supersonic military airplanes and the company has expanded its facilities to meet growing demands as aircraft speeds increase.

### CORE MACHINES

In preparation to meet the increasing use of honeycomb materials the Company, under the personal direction of Fred Rohr, designed and built several core making machines which now are turning out quantities of this material, the

production of which has heretofore been limited. These newly designed machines are regarded as an important breakthrough in a field that will permit the Company to keep pace with the demand which surveys indicate will continue to increase as the age of super-sonic flight develops.

The Company also has made rapid strides in the use of numerical controlled machines tools and production methods. In addition to operating nine numerically controlled machines, the Company also has installed an E.C.S. Digimatic Director, and is installing a Univac Solid State 80 computer, which will enable Rohr not only to produce more economically tools and production parts, but to offer (Cont. Inside Back Cover)



HISTORIC ERA — Production of these Consolidated (now Convair) B-24 bomber power packages established Rohr's role as a major subcontractor in the aircraft industry. Rohr built 37,887 power packages for the various models of this World War I heavy bomber.

**COLORFUL CAREER**

# Rohr Plays Active Role In Aviation 35 Years

CHULA VISTA — For 35 years Fred H. Rohr, founder and board chairman of Rohr Aircraft Corp., has played an active and important role in the progress of aviation.

And today, when most men of his age and position have retired or abandoned the manufacturing plant for the office, Rohr is as close as ever to the production machines and techniques employed by his company in the manufacture of aircraft, missile and rocket components.

A long standing fascination with the problems of sheet metal fabrication and forming has brought him recognition as the developer of a number of processes, techniques and machines employed throughout the industry today.

Rohr was known as a sheet metal expert when he first joined the budding aviation industry in San Diego in 1925. At that time wood, fabric and glue were giving way to sheet metal in the construction of aircraft and his knowledge of this new material soon put him in a key position.

**HAND FORMING**

Hand forming of sheet metal parts for aircraft proved slow and expensive and Rohr's impatience with such methods led to development of a Rohr-designed drop hammer to do in minutes what had taken hours to complete by hand.

One memorable event in Rohr's career came in February, 1927, when young Charles Lindbergh came to San Diego

with the design for a monoplane to carry him across the Atlantic Ocean. Rohr had been in charge of all sheet metal work for the Ryan Aeronautical co. when it was sold to Benjamin F. Mahoney and had remained with the company after the sale. He formed a small team of experts who worked day and night on the production design and manufacture of Lindbergh's historic "Spirit of St. Louis."

**PLANT MANAGER**

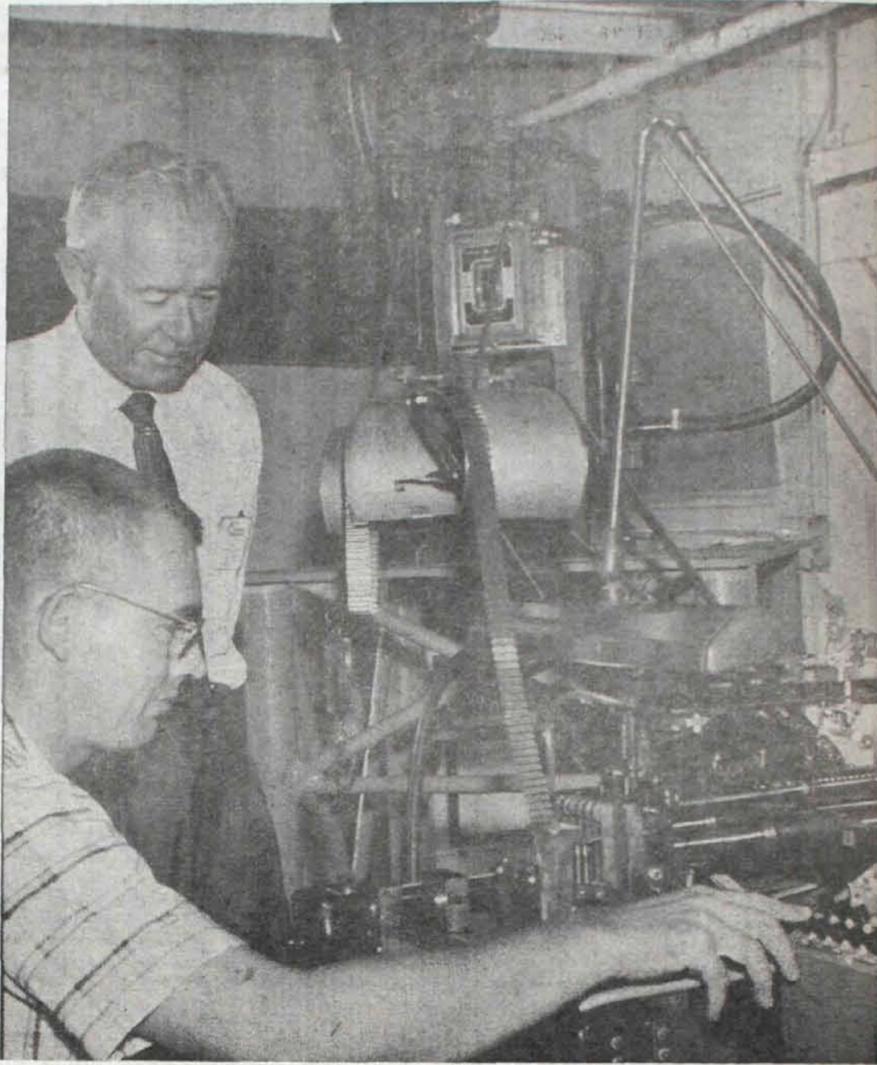
A year after Lindbergh's flight, Rohr moved to Solar Aircraft as factory manager, where he remained until 1932. By this time his drop hammers had become known through the industry and the Boeing Airplane Co. called Rohr to Seattle to install the first battery of drop hammers in the Boeing plant. After serving Boeing in several capacities over a period of three years, Rohr returned to San Diego to become factory manager at Ryan.

Airplanes were becoming more complex and the industry was being stimulated to new concepts by war in Europe when Rohr began developing the idea of a feeder or subcontracting plant that would specialize in the manufacture of major parts and assemblies for the prime manufacturers.

**QUITS RYAN**

In August, 1940, Rohr resigned from Ryan and set

(Continued Page 13)



**WATCHES WORK** — Fred H. Rohr, chairman of the board and founder of Rohr Aircraft, inspects operations on one of the honeycomb core machines developed under

his personal supervision. They are now in production. This process solved the problem of heat resistance at high air speeds.

**BOB'S COFFEE SHOP & BOB'S INTERNATIONAL**

## EXTEND BIRTHDAY GREETINGS TO . . .

# ROHR

**AIRCRAFT CORPORATION**

To the area's largest aircraft industry, we salute Rohr on their 20th birthday.

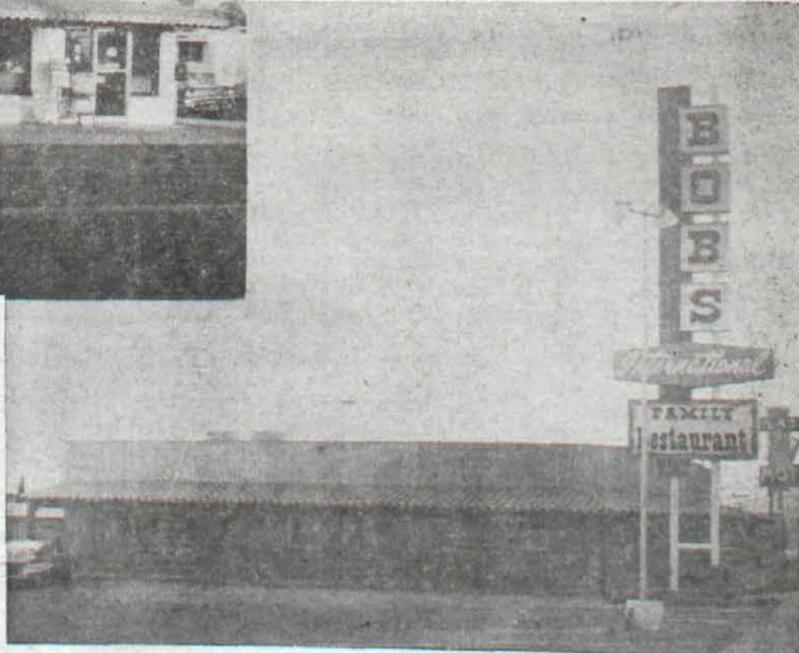
You have carved your niche in the aircraft field in a few short years . . . A record of which you can be proud and may you continue to make your mark for Rohr and the South Bay area.



"Bob's" takes this opportunity to 'thank' the folks of Chula Vista and South Bay for their patronage. We never dreamed 12 years ago, when we established our first shop, that we would have several restaurants from which to serve you.

It is our desire to serve you the best in the atmosphere you will enjoy.

Thanks again, for your patronage!



**BOB'S COFFEE SHOP & BOB'S INTERNATIONAL**

100 Broadway - Chula Vista

**FAMILY RESTAURANT**

778 Broadway

*Congratulations*

**ROHR**

**ON YOUR 20TH ANNIVERSARY**

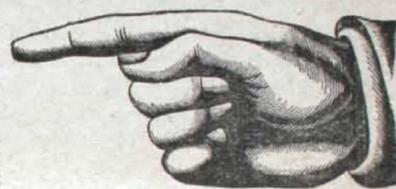
We take pride in your outstanding contribution to our community as one of the dominating industries in the nation.



**We, too, have something to crow about!**

**QUALITY . . .**

"There is no substitute for quality" . . . and that is why we sell only U.S.D.A. graded "CHOICE" grain fed steer beef, tender aged to bring out the most delicate flavor; Fresh Eastern grain-fed Pork; Milk Fed Veal; Choice Lamb, plus Grade A Poultry. All these quality meats are available in our self service counter, or especially cut if you prefer personal service.



**At Garden Farms Market, our reputation has been built by offering you the very highest in quality — an incomparable selection and a warm desire to serve you.**

**SELECTION . . .**

Nowhere can you find a larger variety and selection of National Brand foods and related items to choose from, than on Garden Farms shelves. And, each and every item, from soup to nuts, is conveniently displayed for your easy shopping selection.



**Next time you are shopping, come in and visit our friendly store. We try so hard to please you.**

**COMPETITIVE PRICES . . .**

It isn't necessary to be the biggest store in town to offer the lowest prices! Our cooperative Orange Empire truckload buying enables us to bring you the lowest everyday shelf prices, as well as outstanding weekend specials. Garden Farms has the prices that are hard to beat!



all this, and Orange Stamps too!



**JAY PUGH and BILL MOORE**  
CO-OWNERS

- |               |                |
|---------------|----------------|
| Bob Starr     | Mary DeMitchel |
| Ann Parker    | Leo Gotham     |
| Ralph Fetty   | Kitty Summers  |
| Don Shaw      | Eddie Corbett  |
| Willie Colvin | Mike LaPlante  |

**370 'E' Street**

**Chula Vista**

5491 RI TSUGUA YATERUHT

# NOW OPEN 2 Great Businesses to Serve You

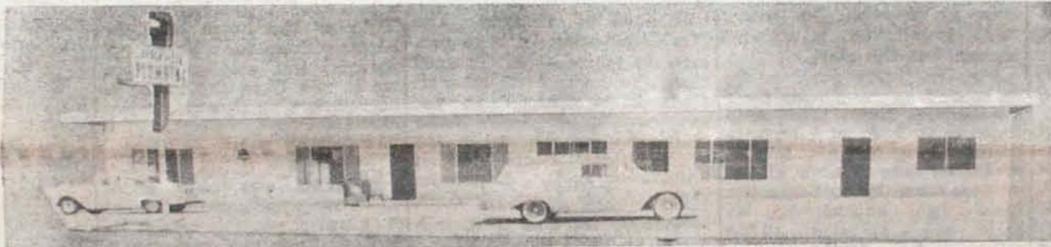
## CHULA VISTA PLUMBING

HAL JOHNSON and KENNY JOHNSON, PARTNERS



Chula Vista Plumbing is now open at 741 E Street with complete facilities for all types of plumbing contracting and repairing. We have Day and Night and Pacific Glass water heaters at the most reasonable prices available. We also carry a complete supply of American Standard plumbing fixtures.

Hal Johnson has been in the plumbing business in Chula Vista since 1946. Call GA-2-0133 for service day or night.



## SOUTH BAY TRAILER SALES

MERLE PALMER, OWNER



South Bay Trailer Sales has now moved to its new and larger location at 711 E Street. You'll find these brands of new trailers: Rollaway, Thunderbird, Nashua, Empire and Crestline. We also handle trailer insurance, rentals, towing supplies and service. Stop in soon and see this great selection of large and small trailers. Open evenings 'til 9. Our phone number is HA 0-1800.



**We Extend our Sincerest Congratulations to  
all Rohr Aircraft Employees on your 20th Anniversary**

## AN EDITORIAL

## TWENTY YEARS OF INFLUENCE — — —

Two score years ago Chula Vista's bay front was selected as the permanent home of Rohr Aircraft Corp. Today this institution with three other plants is recognized as one of the nation's foremost airparts production plants. In fact, Rohr has been proclaimed as the world's leading producers of power packages for aircraft and virtually all of the major airlines of the world are equipped today with parts bearing the Rohr trademark.

In 20 short years Rohr Aircraft has not only developed a world-wide reputation for itself, but has proven to be a good neighbor and a community builder. Rohr officials have given freely of their time and resources of the corporation in virtually every worthwhile development within the community.

During these years Chula Vista has grown from a quiet, easy-going citrus and vegetable growing community of some 5,000 souls to a hustling, growing city of 45,000. It would be difficult to find many developments within the community which have not been influenced by Rohr and always on the good side of life.

It was during these years that Chula Vistans have learned that industry does play a most important part in the development of the economic life of a community. They have learned that under the influence of private enterprise they have found a new friend to help pay the tax bills which have influenced the construction of a new, modern Civic Center and Public Library as well as more and better schools, improved fire protection

and policing as the community has developed.

Rohr Aircraft employes, under the leadership of some officials, have played a most important part in the development of community activities for the young folks. It was Ken Maynard, conservation manager, who headed up the campaign committee which made the municipal swimming pool and gymnasium possible . . . it was Rohr representatives who played important parts in the creation of the Chula Vista Boys' Club . . . and, it was Rohr influences which pioneered the huge community-wide Halloween parties. There is no end to the Rohr participation in individual youth activities, such as sponsoring Scout troops, all kinds of hard and soft-ball activities, while at the same time it developed a 100-acre recreation center for its own employes and families in Sweetwater Valley. Kyle Stewart, security officer at Rohr, has long been identified with city planning, while James L. Hobel, industrial relations manager, has served as mayor and a member of the City Council, and there is a long list of Rohr employes who have served as president and directors of the Chula Vista Chamber of Commerce as well as the Junior Chamber of Commerce.

Rohr Aircraft has indeed been a good neighbor and 20 years later the community can be justly happy and proud of this influence . . . and oneness.

May the next 20 be as gratifying and pleasant. —W. R.C.

Mayor Tells  
Pride in Rohr

ROBERT McALLISTER

"It gives me a feeling of great pride, as mayor of Chula Vista, to have this opportunity to acknowledge the 20th birthday of Rohr Aircraft Corp. and to salute this fine company for what they have meant and will mean to our community.

"Many of their contributions, which were of tremendous benefit to the people of this city, are a matter of record, whereas others are not.

"It is a well known fact that Rohr, represented by some of their many capable leaders, has always been ready to take an active role in civic affairs.

"Certainly a point, which should be reiterated is the number of people employed by them plus the tax valuation of their facilities which

have a direct influence on the well being of our community and its people.

"Many other attributes could be enumerated, however suffice to say that the city administration, businessmen and citizens will join me in commending Rohr Aircraft Corp. for a job well done this past 20 years.

"We are extremely proud of its founders and all other personnel with them. In conclusion, I would like to say I hope and pray that almighty God will continue to bless their endeavor and that we have Rohr Aircraft Corp. as a part of our community for many decades to come."

## Odd Fact

A 75-year-old grandfather of seven graduated from a Lancaster, Calif., high school this year and announced plans to go on to college.

## Sly Dust Blast Booth Placed

Installed earlier this year, a new Sly dust blast booth and dust collector is now in service for sandblasting stainless steel and other work in process at the Chula Vista plant.

The installation, located west of Building 4, includes a 12 by 24-ft. booth and an 8 by 12-ft. tower collector unit located adjacent, 15 feet off the ground.

The sandblast booth is served by two blast tanks located in a 12-ft. pit below the booth to handle 150 cubic feet of air per minute at 60

psi through each nozzle. Air is also supplied to the operators' helmets at 6-lb. pressure. Lights rimming the room illuminate the working area.

Work is rolled in through a vestibule from Production in Building 4, and when finished, rolled out through swing steel doors at the west end of the booth.

Remote control regulators permit operators to control pressure at the nozzle according to the type of work being handled.

The adjoining dust collector tower is equipped with a heavy-duty Brecht exhaust fan with 30-hp motor drive capable of handling up to 10,000 cfm., and with a shaker which cycles with the exhaust system to shake exhaust dust from the collector bag and down into a hopper, where it may be drawn off into carts for disposal.

Heavier grit from the blast operation falls through metal floor grating in the booth and may be re-used.

Congratulations  
Rohr Aircraft Corporation

on your

Twentieth Anniversary

C. C. ALLEY, REALTOR

Congratulations!  
Rohr Aircraft

& Its Employees

on your

20th Anniversary

We at Delbert's extend our hand in appreciation for a job well done . . . May there be many more years of progress and success for Rohr Aircraft Corporation and its employees in Chula Vista.

We at Delbert's are proud too, for the part we have played in the development of this fine community during the last ten years and pledge our continued efforts to better serve it in the future . . .

**DELBERT'S**

DEPARTMENT STORE

333 THIRD AVE.

Chula Vista

# Communications Key to Counterpunch In Case of All-Out Global Warfare

There are many ways to prepare for a counterattack in this age of jets, missiles, and weapons that almost defy the imagination.

In the Strategic Air Command, they do it this way:

The bomber force is 2000 strong, supported by aerial tankers that pass along enough fuel to enable the bombers to reach any target in the world and return.

The missiles are rapidly becoming operational, with the Atlas already on alert at Vandenberg Air Force Base, California.

The force is dispersed over five continents, spread out to the point that it cannot be destroyed in a surprise attack.

The crews train constantly, adapt to new tactics and procedures, and frequently must prove their skills to strict evaluation boards. A portion of them are on alert round-the-clock with planes fueled and loaded for immediate takeoff.

## READY TO FIGHT

The men and the hardware of SAC are ready to fight a war they hope will never come. Their primary job is to remain so strong and so alert that the enemy is discouraged from touching off a conflict. But if we are attacked, SAC must deal the counterblow that will bring victory.

To throw that retaliatory knockout punch, another vital ingredient of warfare is required — quick, reliable, and secure communications. Without the means to contact the worldwide force in seconds, SAC's vast arsenal would be crippled.

That's why the command started building a global network in 1946, the year SAC was created.

## KEPT PACE

As the organization was growing to its present strength of 260,000 personnel at more than 70 bases, this communications system was keeping pace. At any time, day or night, General Thomas S. Power, SAC's Commander in Chief, has the "trigger" to

throw his bombers and missiles into the communists' heartland if directed to do so.

To show how communications could guarantee SAC's retaliation, let's pose a fictional situation that could, some day, become the real thing:

At 4 a.m., the highly-sensitive Distant Early Warning Line radars around the Arctic rim pick up a swarm of blips — the signal that attack on this nation is probable. Word is immediately flashed to the North American Air Defense Command at Colorado Springs.

Over a special closed circuit television network between NORAD and the always active SAC Command Post at Omaha, the warning is flashed, and the controller on duty whips into action.

## HOT LINE

He lifts a brick red telephone on his desk in the underground war room. Before the receiver reaches his ear, the subordinate controllers at every SAC base throughout the world are on the "hot line," ready for orders.

The message is concise. The acknowledgment, in the form of electrical signals from each base back to Omaha, completes the vital exchange in fewer than 20 seconds. On every SAC installation, klaxons scream out the alert.

Men in flying gear, asleep in special quarters near their top-security flight lines, leap from their beds and race to their waiting aircraft. Missile crews, on duty in their blockhouses, stand-by to begin the brief final countdowns on their pre-targeted, 10,000 miles per hour ICBMs.

By 4:15, a part of SAC's blow is on the way to the enemy.

## 40,000 COMPUTATIONS

Reports on aircraft movement, operations, personnel, damage estimates and other areas of wartime concern begin flowing steadily from all the bases into an IBM 704 computer in the SAC Command Post. The machine rapidly digests and evaluates

them at the rate of 40,000 computations per second. The results are quickly posted on map panels in the war room.

Seated in a balcony overlooking the room are General Power and his key staff officers, surveying the reports, making rapid but studied decisions, and issuing the orders that direct the SAC bomber force, now on its way to the target under "Positive Control."

This procedure sends the bombers to designated points well short of Soviet territory. If they do not receive specific coded orders to proceed to targets, they will return to their bases. The missiles have not been launched because they cannot be recalled or diverted once they leave their pads.

## REVIEW SITUATION

In Washington, the President and the Joint Chiefs of Staff review the situation. The nation is under attack. A special "hot line" to SAC is used to flash the message: "Go!"

The SAC controller reaches for a hand microphone on his desk. It is the key to a new global radio system, nicknamed "Short Order," that links the Command Post with every SAC bomber in flight, regardless of location. The "Go-Code" — the signal to proceed to target — is beamed through a series of 45,000-watt transmitters situated at the headquarters of SAC's three numbered Air Forces in the United States: Second AF at Barksdale AFB, Louisiana; Eighth AF at Westover AFB, Massachusetts, and Fifteenth AF at March AFB, California.

Missiles and bombers head for their targets.

## TELEPHONES HUM

More than 60 long-distance telephone lines hum between the Command Post and all SAC stations. These are backed up by a worldwide teletype network, "backing up" the voice of communications systems.



By J. E. RHEIM  
President, Rohr Aircraft Corp.

## Rheim Explains Choice of CV For Rohr Plant

CHULA VISTA — Twenty years ago we selected Chula Vista as the home of Rohr Aircraft Corp. for a variety of reasons, but chiefly because we simply liked the town. It was pleasantly situated, it was clean and progressive, and it had room in which to grow.

Although Chula Vista's population was only about 5,000, we were certain that as it grew it would retain its best features and incorporate them into an expanding city.

Now eight times larger than it was 20 years ago, Chula Vista has done precisely that. Its growth has been orderly in contrast to some communities which failed to plan as they expanded.

## GOOD CITIZENS

Good citizenship, of course,

## Rohr Has Reduced Bank Indebtedness

Since the beginning of the current fiscal year, August 1, 1959, Rohr Aircraft Corporation has reduced its bank indebtedness by \$9,000,000, bringing it down from \$40,000,000 to \$31,000,000. During the same period the Company also has voluntarily reduced its bank credit line by \$10,000,000 from \$45,000,000 to \$35,000,000.

These reductions in borrowed money and the credit line result in a saving of \$567,500 a year in interest costs.

The Company in July paid its 55th cash dividend, the 41st consecutive quarterly dividend since payments were resumed in 1950. In the last four years stockholders received \$5,480,393, or slightly more than half the amount paid out as cash dividends in the past 19 years.

is the answer to Chula Vista's orderly, consistent growth. In our 20 years here we, too, have tried to be a good corporate citizen, and the thousands of our people who have settled here, purchased homes, entered into active community life, also have been good citizens.

We have been proud to help in providing better schools, playgrounds, cultural and civic facilities. Naturally, there have been growing pains as in any city that has expanded as rapidly as has this one.

But, mindful of the fact that by working together toward the common goal of the highest community standards even the most difficult problems can be solved, we have tried to assist in every way we can.

We look forward to many more pleasant years in Chula Vista because we have not been disappointed in the community we first selected as our corporate home.

Three Cheers to all the employees at Rohr Aircraft on Your Twentieth Anniversary

**BUDDY'S LIQUOR HOUSE**

500 Broadway in Mayfair Market GA-2-4236

**Congratulations!**  
ROHR AIRCRAFT & EMPLOYEES  
on Your  
**20th Anniversary**  
Our Heartiest Best Wishes for Many Future Successful Years  
Dawson's Aquaria Nursery  
317 K St. GA-2-2534

**YOUR COMPLETE GARDEN CENTER**

to all Rohr Aircraft employees . . . our warmest congratulations on your 20th anniversary

**THE LEADER DEPARTMENT STORE**

THURSDAY, AUGUST 18, 1960  
WA MONTGOMERY  
Cong  
Best  
FROM  
TWO GRE

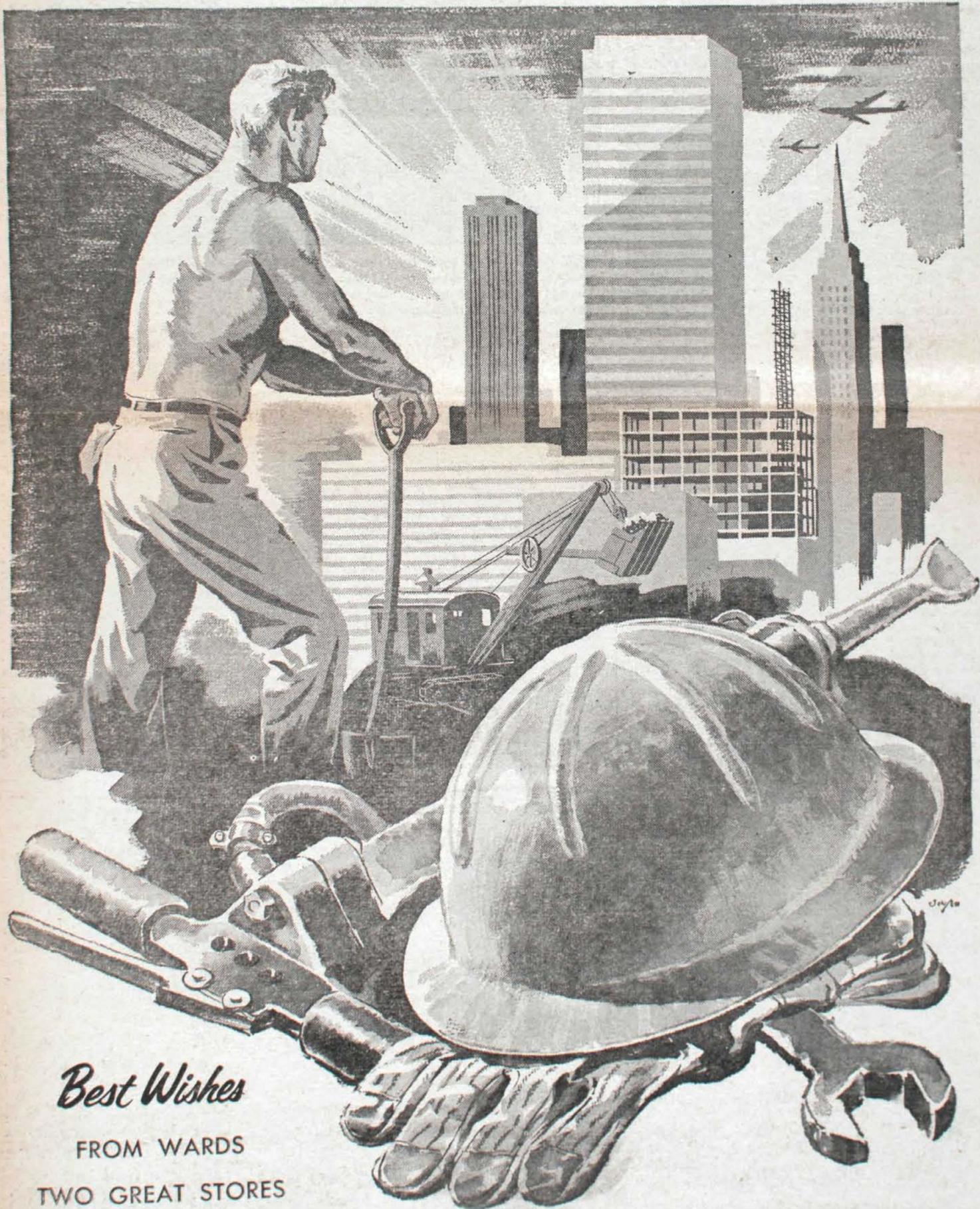
**WARDS**  
MONTGOMERY WARD



National City, 1100 Highland, So. Bay Plaza  
San Diego, 8th and B Street, Downtown

# Congratulates Rohr Aircraft Corp.

## on it's 20th Anniversary



*Best Wishes*  
FROM WARDS  
TWO GREAT STORES

# Practical Research at Rohr Attempts

Prepared for the Star-News by Larry Peeples, Editor, Rohr Magazine

Research, obviously, embraces many things. But the popular concept today suggests the white coated chemist in his sterile laboratory, the nuclear physicist at his reactor or the space scientist at Cape Canaveral.

There are no Jonas Salks, Enrico Fermis or Werner von Brauns at Rohr but scattered through the two manufacturing plants at Chula Vista and Riverside are highly trained and experienced men in laboratories and shops conducting research on projects vital to the company—and possibly to man's efforts at a new dimension of flight.

While the visitor to either plant is most likely to see and be impressed by huge numerically controlled machines and intensely busy assembly areas concerned only with today's production, there is an equally impressive story in the quieter areas nearby where tomorrow's problems and products are being analyzed.

### NOT ACADEMIC

Since Rohr is a subcontractor serving the entire airframe industry, the company's research is tied more closely to the drop-hammers, autoclaves, machine tools and welder's torches than to the almost academic approach found in many industries.

The bulk of this effort must be labeled applied research, with emphasis upon materials and manufacturing processes. Much of it is concerned with existing, immediate problems. There is a constant search for methods that will bring faster, better and more economical production of existing products. But, side by side with this very direct applied research, goes an effort to anticipate the needs of the industry.

Essentially, the company's research and development effort is concentrated in four major areas. These are the applied research already mentioned, research aimed at advancing competence in the present product line, efforts at expanding the present product line and research into possible diversification outside the present product line.

### MORE FORMAL

Although research of a sort has gone on since the company's beginnings, events of recent years have led to a more formal approach to research and development efforts—and to greater emphasis upon expanding the corporation's technological capacities.

"In this era we need to have more than a working knowl-

edge of the materials and processes with which we deal. We must have a fundamental knowledge if we are to give our customers the services they require," one of the corporation's leading engineers explained. "We must maintain and advance the corporation's technical status if we wish to hold a solid competitive position."

Such attention to the company's technological position has paid off many times. Perhaps the most widely known result has been the company's acknowledged leadership in the development of jet engine sound suppression and thrust reversal equipment. Several years before the physical arrival of the turbojet transports, Rohr saw the need for this equipment and started studies in the character of jet engine noise. Problems of thrust reversal were examined simultaneously.

### ROHR HAD KNOWLEDGE

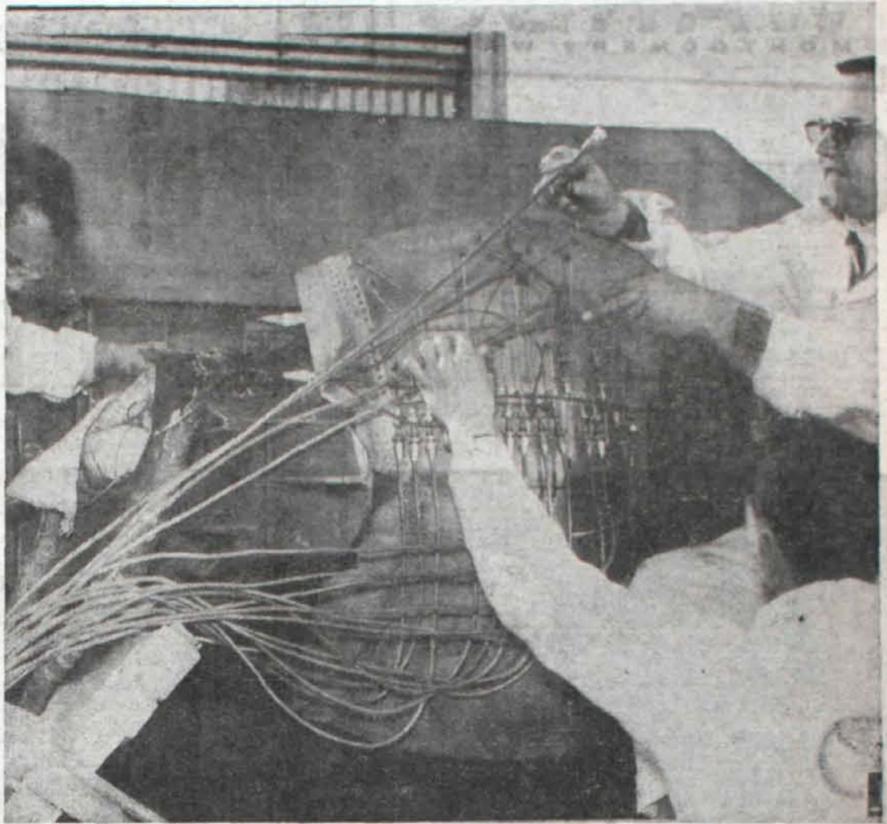
Thus, when the delivery of the first commercial jets became imminent and the need for thrust reversal and sound suppression devices became apparent, Rohr already had a body of fundamental knowledge to draw upon. Further knowledge was gained through work with the Boeing Airplane Company's engineers in the development of the Boeing 707 series sound suppressors and thrust reversers. Rohr has built this equipment for the entire 707 series.

Rohr was called upon, too, to design and build for North American Aviation the first modulating, in-flight thrust reverser for a jet fighter-interceptor. This F-100 thrust reverser was developed entirely through Rohr research efforts as part of a glide path control system being tested by North American. In spite of the many inherent problems in development of a device of this kind, the unit performed up to expectations in test stand trials and on the aircraft.

Again Rohr was able to draw upon its fund of research information when Lockheed Aircraft Corporation asked the company to design and build thrust reversers for the JetStar, Lockheed's high performance executive-military transport. Thrust reversal data gained in tests and studies performed several years before proved invaluable in the development of the reverser to serve with the four JT-12 turbojet engines mounted on the aft fuselage of the JetStar.

### METAL BONDING

Another field in which Rohr has gained recognized leader-



RESEARCH — Rohr research into the field of jet engine thrust reversal led to development of this thrust reverser assembly for the Lockheed Jet Star. Here engineers are in-

stalling instrumentation in one phase of the test stand trials that proved the efficiency of this design.

ship through painstaking research has been in adhesive bonding of metals. Constant experimentation in this field has produced a valuable fund of knowledge, both of the adhesives that may be used and of the metals that may be bonded. This research has branched out from the bonding of aluminum to aluminum, either sheet stock or honeycomb, to successful bonding of stainless steels, titanium and other metals, as well as various non-metallic materials. Such research led to the recent development of an Arctic shelter building now under test by the Air Force. This building, a prototype shelter designed for possible use on the Air Force DEWline, involved bonding of stainless steel skins and paper core and served as an example of the versatility of Rohr-Riverside research and development personnel. Along with research into the properties of metals and adhesives goes study of many possible core

materials, such as paper, plastic or fiberglass.

Coupled with this research into materials, processes and new applications for adhesive bonding, Rohr's technical developments in brazing stainless steel honeycomb sandwich panels gives the company a leading position in the field of advanced structural materials.

### HONEYCOMBS

Realizing that advanced airframe structures on the horizon would call for materials capable of combining high strength with light weight and resistance to skin friction and jet engine heats, Rohr's management several years ago pointed company research and development toward better, more economical stainless honeycomb structures.

Research in this field led the company to a number of major breakthroughs in the technology of stainless honeycomb panel production. In the past two years Rohr has brought the time consumed in brazing stainless honeycomb

panels from 23 hours down to less than an hour—and has improved product quality in the process. The latest development in this research program has been the completion and successful testing of a new type of brazing chamber employing graphite cloth as a heating element. Not only does this chamber produce a startling reduction in brazing time, it also eliminates much of the costly expendable tooling long associated with stainless honeycomb panel manufacture. Development of this new process climaxes some three years of Rohr research effort with graphite heating elements of various kinds.

### NATURE OF METALS

Research into the nature of metals—how to form, machine, weld and cure them for maximum properties—has been Rohr's forte for many years. Through research of this kind the company has been able to lead the industry in many vital production

(Continued Next Page)

## ROHR OFFICIAL SAYS

# Aircraft Industry Is Becoming Competitive

CHULA VISTA — Rohr Aircraft Corp. is becoming more and more competitive-minded, Floyd Zimmerman, chief of manufacturing research, told members of the Chula Vista Rotary Club recently.

"There was a time," Zimmerman said, "when a company was able to do well by merely offering a good product at a reasonable price. This is not so true any longer. The aircraft manufacturing business has become competitive."

Zimmerman said Rohr came through the recent transition period of cutbacks on aircraft production "better than most companies of our type."

He said Rohr has created a sales department for the first time in its 20 year history, has expanded engineering and

research departments, and is looking around for new items to produce "not necessarily aircraft parts."

Zimmerman emphasized that research plays one of the most important roles now in manufacturing, in keeping Rohr and sister companies "ready to deal with the future."

Zimmerman addressed the Rotary Club in conjunction with Rohr's celebration of its 20th year in Chula Vista this month.

## Fulwiler Says Rohr Was Start

"The Rohr Aircraft Corp. has been and will continue to be a pillar for Chula Vista's growth and economy.

"When Rohr located here 20 years ago Chula Vista started to grow into a city.

"We wish to congratulate Rohr and his fine organization and express our appreciation for the services the company and employees have given the city by assisting Chula Vista to have fine schools, recreation facilities, and industrial development."

### Odd Fact

After a fireman from Honiton, England, had run two blocks to the fire house to answer an alarm, he discovered that the fire was at the hotel he had just left.

## Growing Together



As Rohr grows, so does the community. Your Sanitary Service is constantly keeping pace with the city's growth, endeavoring at all times to serve you better.

We Are in Business for Your Health

**Chula Vista Sanitary Service**  
305 Center St. GA-2-1126

# To Anticipate Needs of the Industry

areas. Outstanding results in this field have been the company's pre-eminence in high strength weldments, the forming of titanium and ability to handle without difficulty such advanced "Space Age" metals as Rene 41 and A-286.

As faster speeds and greater heats are encountered by aircraft, missiles and rockets new alloys will be developed to give structural components the strength they need to withstand these stresses. Rohr's engineers keep a close eye on these developments and whenever a new alloy appears to have potential applications in which Rohr might become involved, samples are obtained for study. Thus, when a contract comes along involving such a new material, Rohr is in a position to bid upon the job intelligently.

These, of course, are only a few of the research and development operations carried on as continuing programs designed to maintain and improve the company's competence in its product lines.

### EXPANDS RESEARCH

Looking further into the future, Rohr is directing its research efforts toward expansion of capability—toward greater technical capacity over a broader field of production. In this way Rohr plans to stay abreast of the ever expanding needs of the company's customers.

The machinery for this multiple approach research and development effort embraces several nominally separate but closely related and sometimes overlapping groups.

A new laboratory now being completed at the Riverside operation indicates the increased emphasis being placed upon the problems of adhesive bonding of conventional aircraft and missile materials and on developing or finding adhesives and processes suitable for new and different materials. Since Riverside

contains the company's only adhesive bonding facilities, the research and development operations there are devoted largely to the bonding process. The facilities also are employed by a materials and process engineering group, which applies its efforts to existing production problems.

### MOST MODERN

The laboratory is equipped with the most up-to-date equipment available, including in addition to the analysis and testing apparatus a variety of pilot bonding and heat treating facilities. Here it is possible to conduct complete analysis of a new adhesive, exploring its chemistry and testing it through a complete bonding process. The same is true of both metallic and non-metallic skin and core materials.

With its new facilities and expanded staff the Riverside engineering development laboratory has started to plow its way through a long list of research and development projects suggested by company management, the customers or an obvious need to advance the state of the art.

In its engineering and design research groups, engineering laboratories and manufacturing research operations the company employs chemists, metallurgists and engineers of all kinds—structures, design, aeronautical, welding,

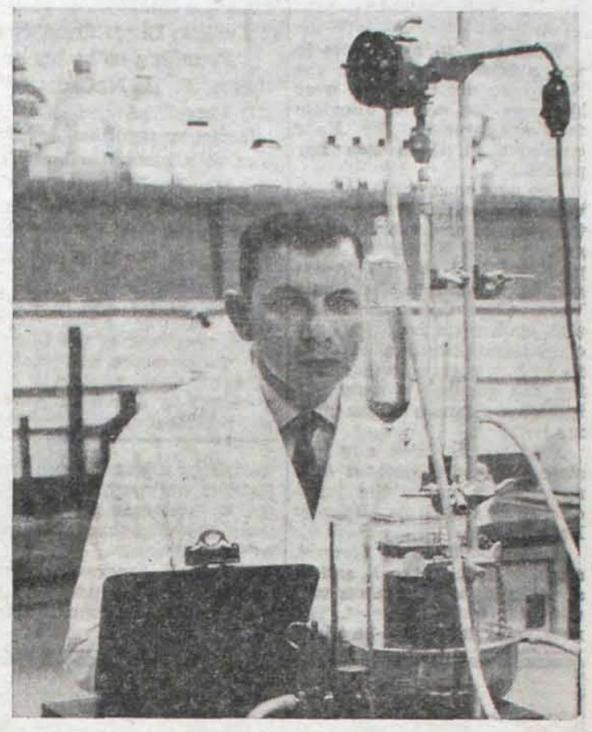
plastics, testing and others—to cope with the many present and future problems.

### FULLY EQUIPPED

Fully equipped laboratories at Chula Vista and Riverside provide testing facilities for engineering production and manufacturing research, as well as the personnel and equipment for continuing research projects. A question from manufacturing research personnel can lead to study of the properties of a new metal, while a production department may hear of a new de-grease solution and ask the laboratory to run tests and make a recommendation on use of this solution for a specific job in the plant.

Frequently such information may be found in one of the engineering libraries maintained at Chula Vista and Riverside for just this purpose. Expensive and time consuming tests can be avoided whenever the answers can be found in a reliable technical journal or trade magazine. Research time can be saved when some of the data can be gained in the library rather than in the laboratory. These libraries are stocked with reference books, manuals and periodicals covering the various fields in which Rohr is involved. Trained librarians maintain the library files so that needed data can be located instantly.

Thus research at Rohr takes the form of quiet study in a library, careful testing and analysis in the laboratory or production type operations in the shop areas. In any case, the objective is to expand the scope of Rohr technology.



LAB AT WORK—Chemical analysis of adhesives is a vital part of Rohr's research into new and better methods of bonding metals and plastics.

## Rohr Plays Active Role in Aviation

(Continued from Page 6)

about putting his ideas to work. Incorporation papers were issued on Aug. 20, 1940, and soon after a three-story warehouse building was leased in San Diego and the installation of machinery started. Rohr's first orders came from Lockheed—still a major customer.

Rohr's subcontracting idea has since paid off in the manufacture and sale of more than 60,000 aircraft power packages and pods, as well as thousands of other components for aircraft, missiles and rockets.

The ingenuity and drive that led to the formation and growth of his manufacturing firm continues to demonstrate its effectiveness, not just in the affairs of the business corporation but also in the development of new production methods and equipment.

### NEW MACHINE

Rohr Aircraft recently went into production with a new machine to produce better stainless steel honeycomb core material for use in critical components on high performance aircraft. The machine was developed over a period of years, with Fred Rohr not just supervising but participating actively in the design, construction and testing of the first models.

A piece of sheet metal, now stainless steel, hold just as much fascination for Rohr today as it did in 1927 when he formed by hand the sheet metal parts for the Spirit of St. Louis.

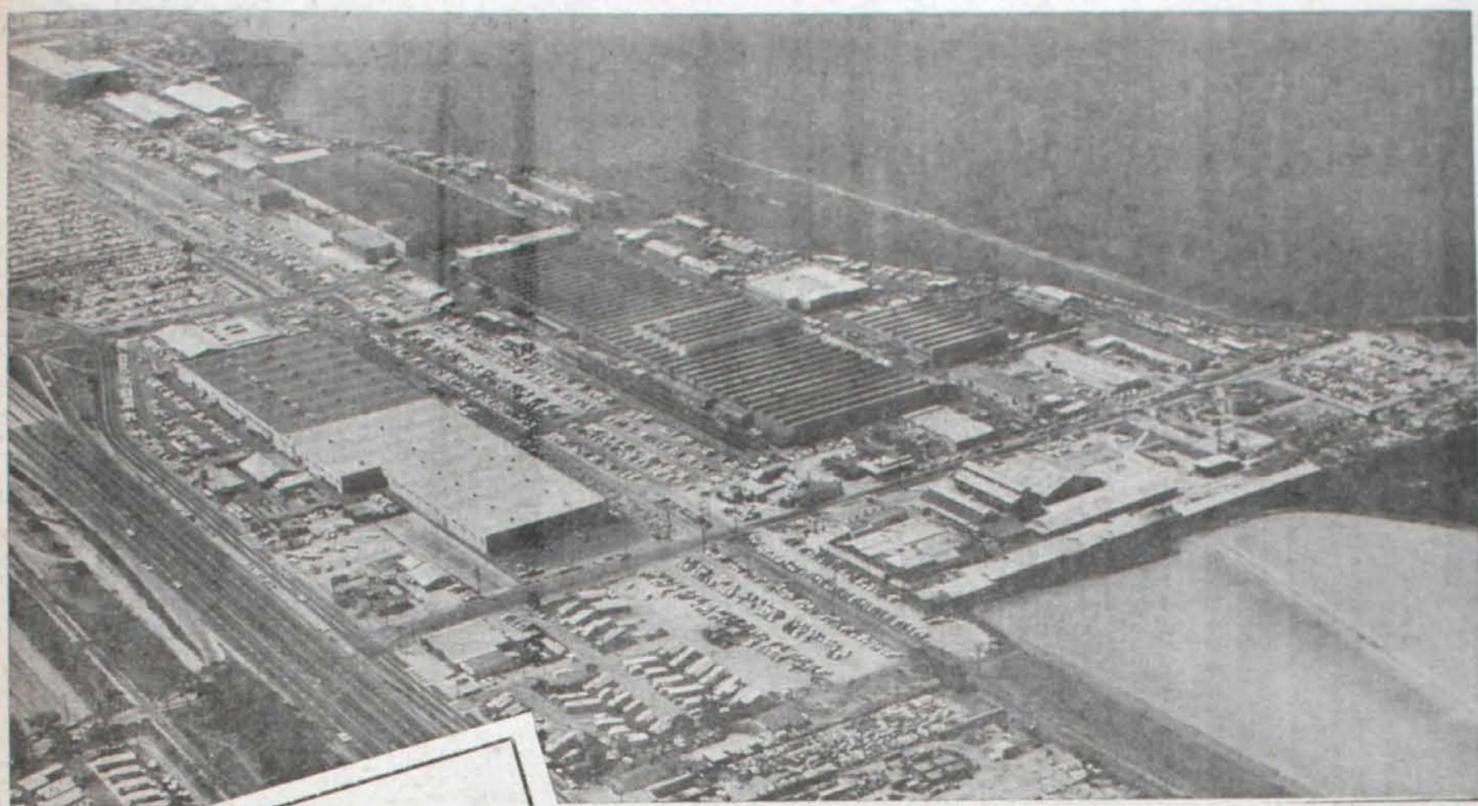
# Service . . .

to our country; its peoples and traditions. This is the great story of Rohr Aircraft Corporation 20 years in Chula Vista.

We at Raffee's extend best wishes to all Rohr employees during this memorable occasion and are looking forward to many more pleasant anniversaries.



234 Third Ave. - Chula Vista



Chula Vista  
**Star-News**  
 Extends  
**BEST WISHES**  
 TO . . .

# Rohr Aircraft Corporation

ON ITS

## 20th Birthday Anniversary

August 20th is a day ROHR AIRCRAFT can be proud . . . This day marks the 20th Birthday for one of the nation's large aircraft manufacturers. To have this industry in our South Bay area has added greatly to our economy. Without ROHR, South Bay could not have progressed in growth as rapidly as it has in the past few years.

From those of us who have gained from ROHR . . . We take this opportunity to salute Rohr Aircraft Corporation and we wish them continued success and growth during the years ahead.



TO BE WELL INFORMED LOCALLY—  
YOU MUST READ . . .

# Chula Vista Star-News

EVERYONE IN THE SOUTH BAY  
AREA READS A BAY CITIES  
PUBLICATION.

Copyright

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## Work Progress Noted on 101 Overpasses

Work is now in progress to widen traffic facilities at the E and H street bridges over Highway 101, and to alleviate traffic congestion for Rohr employes at these two key points.

The new construction, which will increase the traffic lanes to three, was originally suggested by J. E. Rheim, Rohr president and general manager, in a letter to the Chula Vista City Council, stating that inadequate facilities have caused concentration of traffic in a few areas, and pledging the company's assistance initiating requests to the state for revision.

Paid for by both city and state funds, the current construction is under the jurisdiction of the State Highway Department.

According to K. O. Stewart, security officer, the E and H street bridges themselves will not have to be widened. The new third lane will be made

## Dinner to Honor Rohr's Five Founders Tonight

CHULA VISTA — A commemorative dinner honoring the founders of Rohr Aircraft will be held tonight at the San Diego Country Club beginning at 6:30 p.m.

Founders to be honored include Fred H. Rohr, Joe Rheim, F. E. McCreery, K. W. Maynard and E. M. (Al) Lacey.

Special recognition in the form of a plaque and a lifetime membership in the Chula Vista Chamber of Commerce will be paid Fred Rohr, chairman of the board of the 20-year-old company.

Chairman for the affair is Dick Halferty and David Phair, president of the Chamber of Commerce, will preside.

Twenty-year pins will be presented by James L. Hobel, past president of the chamber.

possible by eliminating one pedestrian walkway per bridge, and by suspending the other along the side through cantilever construction.

Work will progress concurrently on both bridges and is expected to take approximately four weeks.

Principal speaker will be Dwight W. Kidder who was president of the chamber 20 years ago when Rohr was founded in Chula Vista. He will review the development of Rohr and Chula Vista over those 20 years. Kidder also is former manager of Fredericka Manor and is a former city councilman.

A testimonial will be given by Mayor Robert McAllister.

Other speakers will include Major R. H. Fleet, a longtime friend of Fred Rohr's, who founded Consolidated Aircraft (now Convair), and Dewey Kelly, vice-president of Pacific Southwest Airlines.

Rheim, current president of Rohr, will make two presentations, followed by a response from Fred Rohr.

Attendance of 200 persons is expected at the dinner.

## Rohr Is Major Nat'l Advertiser Regularly

CHULA VISTA — Nationally known and nationally conscious, Rohr Aircraft Corp. regularly carries its advertising message and along with it the name of Chula Vista, through the medium of several major business, financial and industrial publications.

Among them are Time, Fortune, Newsweek, Nation's Business, U.S. News & World Report, The Wall Street Journal, Barron's, Forbes, Aviation Week, Aerospace Engineering, SAE Journal and Western Aviation.

Rohr's advertising "stresses the company's capabilities over a wide range of manufacturing effort. It shows the physical facilities and technical skills that enable Rohr to meet the needs of any prime contractor in the aerospace industry, and the diversified talents that pave the way to wholly new products in an even wider field."

### Household Hint

Slipcovers and curtains will last longer if you wash or clean them before they get too dirty.

## SB Savings Keeps Pace

CHULA VISTA — Keeping pace with the impressive development of Rohr Aircraft Corp., the city's major industry, the South Bay Savings & Loan Assn., oldest in the area, is celebrating 34 years of service to both Chula Vista and National City.

The firm was chartered on May 25, 1926, as the Chula Vista Building and Loan Assn., with offices at 306 Third Ave.

Its founders were E. Melville, James R. Scott, C. C. Inskeep, W. H. Peters and Mark T. Skinner. Melville was president and Scott vice-president.

The company now has assets of about \$24 million. It employs 30 people and has a payroll of more than \$10,000 per month.

### Words of the Wise

It is not who is right, but what is right, that is of importance.

—(Thomas Henry Huxley)

*Your Business-Managed  
Water Company Salutes the  
South Bay's Largest Business*

*Hearty  
Congratulations  
to*

## ROHR AIRCRAFT

On the Occasion of its  
**TWENTIETH  
ANNIVERSARY**

Little drops of water  
Little grains of sand  
Help a mighty industry  
In our pleasant land.

Industry uses water — lots of water . . . and sand, too, in the form of abrasives. While we don't sell sand, we do provide the water used by Rohr Aircraft in its manufacturing processes.

It is our hope that the fine association between Rohr and California Water and Telephone Company will continue into the far-distant future. We are most happy to extend a hearty "Congratulations — well done, Rohr!"

**California**

*Water & Telephone Company*  
YOUR BUSINESS MANAGED WATER COMPANY

## One Quarter Century of Service In the Insurance Business



We are proud to join our own 25th Anniversary celebration with Rohr Aircraft's 20th year in Chula Vista.

In order to serve you better, we have recently been appointed as representative for the following two fine companies: Peoples Home Life Insurance Company of Indiana, owned by the Home Insurance Company and the Hartford Accident and Indemnity Company, a member of the Hartford Group.

May we continue to serve you?

DWIGHT GOVE      BILL GOVE  
MELVIN COWHERD      JUDY ADAY  
NANCY HOEFERT      KAY HOLZER

Life Insurance Dept.

RAY BEARDSLEY, L.L.B., Mgr.  
HOWARD OLSEN, La Mesa  
DON CUSHMAN, Chula Vista  
RALPH FRENCH, La Jolla  
JOHN BEARDSLEY, San Diego

We Are Proud of  
These Fine Companies . . .

- Royal-Globe Group
- Ohio Farmers Companies
- New Hampshire Co.
- Pacific Fire Ins. Co.
- Glen Falls Companies
- Pacific Automobile Ins. Co.
- Lloyd's of London
- America-Fore Loyalty Group
- Hartford Accident & Indemnity Co.
- The Franklin Life Insurance Co.
- Peoples Home Life Ins. Co.



## Dwight Gove Agency, Inc.

283 "G" Street      Chula Vista      GA-2-0149

# Rohr Assists Junior Achievement Business

If you know any teenagers, you've undoubtedly heard of Junior Achievement—national education program to help young people learn how to organize and run their own small-scale business enterprises.

**What you may not know is that Rohr has acted as 'senior' business firm to a total of 18 J.A. companies during the past nine years.**

Currently, two companies are sponsored: the Venetians, who make rockhound style jewelry, and Handi-Hampers, Unlimited, manufacturers of all-purpose wooden baskets. Each company is guided by three Rohr employees.

### ROHR ADVISORS

The Venetians are advised in sales techniques by W. J. Indseth of Purchasing, in production by D. B. Stephens of Plant Engineering, and in business principles by John Rygh of Budgets.

Rohr's other J.A. company, Handi-Hampers, Unlimited, has Jack Krieger of Material Control, R. N. Norris of Primary Fabrication, and G. V. Snover of Cutting and Punch Press supplying advice on business, production and sales, respectively.

Why is Rohr interested in the welfare of Junior Achievement companies? For several reasons.

Young people obtain a realistic understanding of business organization and operation, build self-confidence and develop leadership ability. All of these benefits are also of direct benefit to industry, strengthening the economic system that helps all business grow.

### EVERYONE LEARNS

The Rohr employees who advise the companies also learn — they must be prepared to supply exceptional leadership in the overall operation of an actual business.

Here's how J. A. companies work: Each firm, composed of approximately 15 teenagers from schools all over San Diego, organizes in the Fall as a corporate structure. Members elect a board of directors, pick a work force and sales staff, and decide on a product. The business is capitalized at a total of \$100 with shares selling at 50 cents.

Funds are used to buy raw materials, lease equipment and pay rent. At the end of the school year, the business is liquidated, and like any other enterprise, dividends are paid to shareholders if the company has been successful. Seventy-five to eighty per cent of all J. A. companies are. At Rohr, only one J.A. company has ever gone broke.

The advisors stress that that's really all they are — they make suggestions, but no decisions, and they're available to explain factors involved in solving business problems.

Although Junior Achievement is organized on a national level, companies are in competition with one another, and each group differs in its methods.

According to Indseth, the Venetians initially had trouble selecting a product, and got into a bad way, financially.

**Thus the Achievers learned the importance of selecting a good product. Diversified rockhound jewelry turned out to be ideal — it moves fast, is easy to assemble, doesn't cost much to produce, and there's always a good market for it.**

Members of Handi-Hampers, Unlimited, on the other hand, found that the manufacture of only one item with

a variety of uses saves money and materials, is extremely simple to produce, and has a wide market. Their all-purpose basket can be used for everything from holding clothes pins or garden tools to service as a decorative table ornament.

### GAIN EXPERIENCE

The advisors spend about six hours of their own time each week on J.A. work. They meet with the Junior Achievers one night a week for two hours, and spend an additional four hours performing such tasks as auditing the accounts and reviewing the company's procedures.

They notice a big change in the youngsters as the year goes by.

**"The Achievers have tremendous energy, and are difficult to guide at first," commented Krieger. "But that same energy, when channelled, has a lot to do with the success of their ventures."**

# Some Cold to Rohr's Plans for CV Plant

CHULA VISTA — Community leaders and the City Council of 1939 who listened to plans of Fred Rohr for an aircraft plant on the bayfront were somewhat less than excited about the project, Robert T. Conyers, 70, a former councilman and civic leader recalls.

"As I remember, there were some who were not enthusiastic at all," Conyers said. He identified the late Claude V. Brown, then a city councilman, as the "spark plug of the Rohr deal."

"Claude really pushed the idea when practically everyone else was cold, then it got

rolling pretty well," Conyers, of 20 San Miguel Dr., said.

Indseth is impressed by their intense interest, "but it doesn't last unless you keep them busy all the time."

All the advisors agreed that most teenagers mature tremendously during their year's exposure to the adult world of business.

Former City Mgr. Herb Bryant who in 1939 was a councilman, recalls meetings in the old Chamber of Commerce offices in the building now occupied by the Mark Money Real Estate firm, where Rohr's plans were talked over.

"I recall vividly Mr. Rohr coming down and meeting with us," Bryant said in a telephone interview from his Hemet home. "Some of us had hopes that the Rohr industry would prove a real asset to Chula Vista. It certainly proved out that way."

Bryant noted a unique economic fact evident in 1941 when assessed valuation of the rapidly growing Rohr industry surpassed that of \$4 million for the city itself.

He said money from Rohr's progress virtually built the new Civic Center. "I made out the budget on our expected income for the year and surpluses went into a building fund for the Civic Center," he said. "When we built we paid cash."



I.A. of M. LOCAL No. 755  
**SALUTES**  
**Rohr Aircraft Corp.**  
 AND THEIR  
**EMPLOYEES**

WE extend Best Wishes to the Rohr industry on their 20th birthday. The International Association of Machinists has had the pleasure of working with Rohr for many years and are glad to be the labor organization associated with this Company.

WE also salute the employees — an important segment of working men and women who add greatly to this area's economy, for it is Labor's earnings and savings that make up the capital to create the "more of everything" that symbolizes our free enterprise and democracy.

WE salute Rohr Aircraft Corporation and their employees!

The INTERNATIONAL Association of Machinists  
 LOCAL NO. 755



**"You're a volunteer fireman, but aren't you carrying it a bit too far?"**

# Rohr Aircraft Brings 'Sleepy CV' To Life Despite Cool Resistance

By GENE GOSCH

Mgr., CV Chamber of Commerce

CHULA VISTA—"Hey, you Okie and you Arkie, too, get out of Chula Vista — we don't want you in our nice little village of 5,000," was the general attitude of most people 20 years ago, according to the old-timers here who today recall Chula Vista as it was when Rohr came to town. Not only did they not want "foreigners" from other of the 48 states but likewise they did not want any people walking down the streets with greasy overalls and, of course, they did not want any noisy clatter of factory machines to disturb the sleep of Chula Vista.

"Smokestacks? We dare anybody to bring them into Chula Vista. Our town is clean and beautiful with many pretty orange and lemon groves and we want to keep it just like it is."

### SHOPPING AREA

Chula Vista was the shopping area for the South Bay area in those days and their customers were employees from Otay Ranch, the South Bay Dairies, the many truck garden farms, the two packing plants and Chula Vista's only industries which were Tycrete,

owned by Roland Tyce, the Western Salt Co., Nelson-Sinan Co., owned by Paul Steen, and many trucking companies which hauled hay, cattle, and some produce. These industries were "clean," noiseless, and not too big.

What happened when Fred H. Rohr, Joe Rhein, F. E. McCreery, K. W. Maynard, E. P. Campbell, who has since died, and E. M. (Al) Lacey, founders of Rohr Aircraft Corporation, started talking about a factory in Chula Vista? The few natives who live here today report that there were mixed emotions as there was talk of possible war and such a factory could be good for the community. Even the people, who thought that it might be good, wanted these workers wearing dirty clothes to live elsewhere. Of course, those against Rohr or any factory coming into our town were very outspoken and would be willing to stand up and fight to keep industry out of Chula Vista. Chula Vista was indeed a frontier with a new frontier facing the town

—the modern airplane warfare. Those persons, who were willing to fight to keep industry from coming to town, did not know quite what to do about it. Also, they were baffled but firm in their convictions that they were happy with Chula Vista "just the way it is."

### SIX FOUNDERS

The six founders of Rohr got acquainted with many townspeople and proved to be regular guys just like the rest of the people in Chula Vista especially when they had to struggle to make a living while they had all their money tied-up in the new 20,000 square foot building.

Dwight Z. Kidder, president of the Chula Vista Chamber of Commerce from 1940 to 1946, worked hard to get everyone thinking well of the new Rohr factory. He also worked closely with the five founders of Rohr and deserves much credit for his efforts. Rohr quickly outgrew this building and within two months, work was started on a new 37,000 square foot build-

ing, which they moved into during February 1941.

Today, Rohr's square footage reaches nearly a million and a half square feet. Only during the last year, they leased 11 acres of Chula Vista's Tidelands to be a pioneer in developing our Tidelands.

### WHAT IS ATTITUDE

What is the attitude of Chula Vista today on "Industrial Development?" In a town of nearly 45,000, San Diego county's second largest city, no doubt there are still a few persons who do not want "dirty" industry or even clean. However, the majority realize that industry does not hurt a town and that you can get good, clean new industries by being selective. On October 27, 1959, Chula Vista voters proved that they wanted industry by voting five and a half to one for the development of our Tidelands and voted to spend a million and a quarter dollars to make it possible.

Your Chamber of Commerce established its first industrial development committee in December 1958 when Dick Halferty appointed Dr. William Nelson as chairman of this committee. The committee had to start from scratch by developing facts and figures for an industrial brochure, which they had printed in color and

has been proclaimed outstanding at Chamber of Commerce state and national meetings.

### COMMITTEE

Dr. Nelson's committee also developed a prospect list and has made several meetings. For the first time in history, Chamber of Commerce representatives, Charles E. Brown and Dick Halferty made a trip east to call on prospects. Other persons have made calls on prospects within California.

The original committee found that the work was too much for one committee to do. At the beginning of this year, the committee added a co-chairman to assist Dr. Nelson. He was William Link, who is a school principal in Chula Vista but also a former factory owner in Arkansas. These two men are co-chairmen of the industrial development steering committee. Three sub-committees were set up with Dick Halferty as chairman of the existing industries committee; E. A. Hommerand, chairman of the industrial information committee, and Charles E. Brown, chairman of the new industry committee. Presently, the committees are developing a new prospect list and bringing the old one up to date.



DAVID PHAIR

## Phair Singles Out Benefits

CHULA VISTA — David Phair, president of the Chula Vista Chamber of Commerce, said that when we think of the Rohr Aircraft factory during the last 20 years, we should think of how Rohr has benefited all of us.

He said that Rohr has created more good jobs at home here in Chula Vista. Rohr has built local growth and prosperity and has helped greatly on our tax rate, which benefits everybody in Chula Vista.

The chamber president pointed out that Rohr has attracted skilled and varied talents to Chula Vista, as well as aided many charities and community affairs. Rohr has given strength to city-wide campaigns for solving critical problems.

Phair asked, "Have you ever stopped to think what a good neighbor Rohr Aircraft has been and is today?"

He said that without the support of this civic-minded, community-conscious firm, we would not enjoy such a high degree of local prosperity or such progressive growth. The skilled talents of Rohr executives and officials have contributed much to Chula Vista.

He concluded, "We are proud of Rohr Aircraft Corp. in Chula Vista."

National City  
**PENNEY'S**  
ALWAYS FIRST QUALITY

1021 Highland Ave.  
NATIONAL CITY  
Phone GR-4-3313



# CONGRATULATIONS ROHR

## FROM YOUR FRIENDLY NATIONAL CITY

# PENNEY'S

### YOUR COMPLETE FAMILY SHOPPING STORE



## WE THANK YOU FOR YOUR PATRONAGE

Thank You . . . Our many customers and friends who have made Penney's your family store. Penney's has been serving this area since Jan. 5th, 1955 with first quality merchandise and friendly service.

Merchandise to suit your every need. Charge it now at Penney's — Use our easy charge plan and all at our same low prices. Free check cashing service, plenty of free parking.

# Rohr Products Are Highly Diversified

The best testimonials are unsolicited.

At the end of an extended visit to the Rohr-Chula Vista plant some time ago, an engineer from another firm told several of his associates at Rohr:

"I don't know quite how you do it, but I'm convinced you guys can build anything."

A look at the list of current contracts makes it apparent that the visiting engineer was very nearly correct. The growing complexity of aircraft and the expanding horizons of the flight industry have wrought surprising changes in a company devoted to serving that flight industry.

Today, along with its traditional production of aircraft components of all kinds, Rohr is building a variety of assemblies for rockets, missiles, space programs and the array of electronic gadgetry that operates, supports or monitors the various vehicles. Some of these products are in the research and development stages but most of them are being manufactured to meet specific customer requirements.

### ARRAY GROWS

Constant research—on both improvement or expansion of present product lines and development of new products and capabilities—keeps the array of Rohr products growing steadily.

Research into advanced bonding methods at the company's Research and Development Laboratory at Riverside has led Rohr into active participation in some of the newest space programs. Construction of fins for the Atlantic Research Corporation's new Iris rocket—a sounding rocket for NASA—spurred further research into new manufacturing processes for products of this type.

Rohr's advanced adhesive bonding techniques also have resulted in construction of prototype radar reflectors, wave guide system components and other structural portions of radar, telemetering and communications systems.

One of the most promising recent products of Rohr research is development of bonded helicopter rotor and tail rotor blades, some with honeycomb core. Tests have indicated a promising potential for these strong, light and precise blades.

Rohr has for some time been building adhesively bonded structural components for the North American Aviation Hound Dog Missile pylon and recently produced an extremely complex electrical harness for use in connection with the Project Mercury "man in space" program.

Nor are all of the advanced products aimed at the conquest of space. In recent months Rohr has built several components for the General Electric Company's atomic Energy Commission. These large and complex assemblies called for extremely precise welding. Work for U. S. Army Ordnance has included production of parts for artillery weapons, as well as heat treating of 76 MM rifle barrels.

An electrical circuit analyzer for "ringing out" complex wiring harnesses was developed by the company's engineers and Electrical Department as a proprietary product and present plans call for offering this unit for sale in the near future.

While most of Rohr's products fall into the "hardware" category, the company has embarked recently upon a new type of service. Rohr's leadership in the numerical control

programming of machine tools has received recognition through the industry and the Numerical Control Department now is performing programming services for other firms. Under this program, Rohr can take the customer's blueprints or drawings and turn out finished magnetic tapes or cards ready for use on a machine tool director unit, can carry the job through to the finished parts or can provide any portions of this service.

### VALUABLE

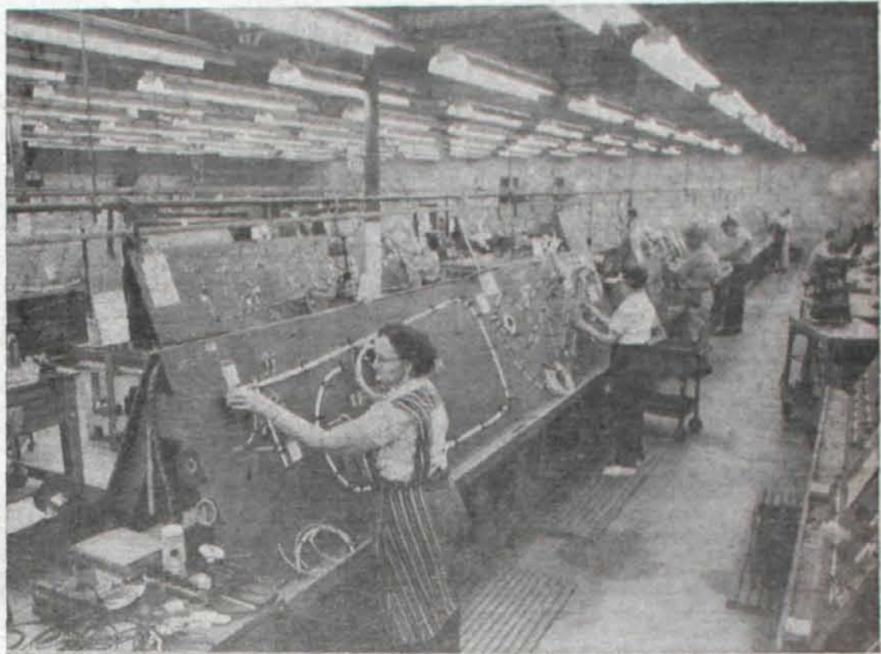
Such numerical control programming service is considered a valuable offering to firms capable of providing their own machine tools but unable for several possible reasons to set up the necessarily elaborate and highly specialized programming facilities. Programming services are being made available not just to other aero-space firms but to any manufacturing concern in a position to utilize Rohr's advanced programming techniques.

The company also is experimenting with a number of entirely new manufacturing processes aimed at contracts in areas heretofore untouched. One of these is the development of filament winding techniques for production of non-metallic rocket engine cases. The Riverside Research and Development Laboratory has conducted these studies and has produced highly encouraging results.

Along with research and development work aimed at new products, Rohr's efforts also are aimed constantly at new and better ways of producing the items in the current product line.

### EXAMPLE

An outstanding example of this type of development is the advancement made in the production of brazed stainless steel sandwich structure. Rohr has been producing stainless honeycomb sandwich panels for several years. Currently



HARNESSES — Complex aircraft electrical harnesses are manufactured in Rohr's electrical department. The major aircraft

sub-contractor is celebrating its 20th anniversary as a Chula Vista industry this week.

these strong, heat resistant assemblies are being manufactured for Convair's Mach II B-58 bomber—now a part of the Strategic Air Command's deterrent bomber force—and the high performance McDonnell F4H-11. The F4H-11 Phantom is one of the Navy's new supersonic fighter interceptors. Rohr also holds a contract to produce stainless honeycomb components for the North American B-70, a bomber now in the developmental stage designed for full mission operation at three times the speed of sound.

The variety of products grows constantly, while Rohr's production, engineering and research personnel work to stay ahead of developments in an industry making daily technological advances.

## SOUTH BAY COMMUNITY HOSPITAL

EXTENDS

HAPPY

20<sup>th</sup>

BIRTHDAY

TO SOUTH BAY'S AIRCRAFT GIANT

# ROHR

AIRCRAFT CORPORATION

The story of Rohr Aircraft is the Horatio Alger story of American industry. From a 20 by 20 garage to a plant now covering more than 600,000 square feet is living proof what can be accomplished from a humble beginning in 1940.

We wish Rohr and their employees only the best in the years ahead and we are proud to have this organization in Chula Vista.



In a few short months, another structure will be completed for the folks of Chula Vista and The South Bay Area.

### THE SOUTH BAY COMMUNITY HOSPITAL

We will complete the first 54-bed wing of the hospital February 1, 1961, which will be the first stage of a 90-bed hospital. The hospital will be complete in every detail meeting American Hospital Association requirements.

The building will be of brick and will be air-conditioned. Oxygen supply lines to every room and the most modern surgeries in the area... there will be numerous modern facilities throughout the building.

You are invited to watch us grow with the South Bay area.

## SOUTH BAY COMMUNITY HOSPITAL

435 H St. -- Chula Vista

IT IS A PLEASURE FOR  
**Lawrence C. Kuebler**  
REAL ESTATE  
TO EXTEND  
**CONGRATULATIONS**  
TO OUR NEIGHBOR  
**ROHR** Aircraft Corporation

It is a pleasure for us to extend Birthday Greetings to Rohr. To have your plant here has added greatly to the growth of Chula Vista.  
May we wish you the best during the next 20 years!



BUY A HOME BEFORE SCHOOL OPENS!

Let us show you the many wonderful homes now ready for occupancy. One of them is exactly the home you dreamed of owning... and is priced to fit your pocketbook.

We are as close to you as your telephone. Call us today!

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# From Out of the Celery Fields

(Continued from Page 5)  
flexible and effective programming and numerical control production services to users of numerically controlled machine tools. This service is capable of accepting a customer's blueprints or loft data and producing a complete package, including tool design, tool make, part programming, computer processing, tape or card preparation and part machining.

Rohr's Riverside plant has established a reputation for leadership in the field of adhesive bonding of metals. Extensive research into the properties of adhesives, plastics and metals has given the Company versatile bonding capabilities with applications in aircraft, missiles, radar and wave guide reflectors and many other advanced products.

In numerous other areas of production the Company also has diversified its operation, such as the manufacture of atomic reactor tubes for the Atomic Energy Commission, the re-conditioning of gun barrels for the Army, missile and rocket components, and electronic harness for the Mercury "man in space" project.

In addition to the Company's research and development programs for specific production projects, it also maintains continuous research into methods of manufacture, with the result that in this rapidly developing era of aerospace activity it is ready to meet the challenges that arise. Rohr Aircraft Corporation has been for 20 years, and continues to, be a manufacturing and service organiza-

tion for the vitally important aerospace industry.

It is interesting to note, too on the Company's Twentieth Anniversary, that the men who slogged through the mud in the rainy winter of 1940 to establish a new factory, still are active in its management. In addition to Fred Rohr, now chairman of the board, there are J. E. Rheim, president; B. F. Raynes, senior vice presi-

dent; A. F. Kitchin, vice president, administration; F. E. McCreery, vice president, engineering; F. H. Rohr Jr., assistant vice president; I. Dagan, manager of quality control; Guy M. Harrington, treasurer; and scores of others who have risen to responsible positions in the Company. To name them all would be impossible under existing space limitations.

As One "Old-Timer" to Another

CONGRATULATIONS

# ROHR

On Your Twentieth Birthday

It has been our privilege to work with the men and women of Rohr Aircraft for the past two decades. We believe there is no finer group anywhere.



CLEANERS & LAUNDRY

"Sparkling Bright Personalized Care"

Main Plant - 48 Bdwy. Chula Vista

Telephone - GARfield 2-6123



From one "Twenty Year"

Business to Another

BEST WISHES

# ROHR AIRCRAFT

and Continued Success

in the Great Air Age.

# GLENN'S

A  
COMPLETE MARKET

# CONGRATULATIONS to

# ROHR

WE ARE ALL PROUD OF YOUR TWENTY YEARS OF OUTSTANDING AVIATION ACHIEVEMENTS

# South Bay Savings

& Loan Association

MAIN OFFICE: 3rd & Roosevelt, Chula Vista, HA 0-5000

BRANCH: 8th and C Avenue, National City, GR 7-3111

18, 1960

UNITY HOSPITAL

'S AIRCRAFT GIANT

# HR

ORPORATION

Aircraft is the Horatio  
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UNITY HOSPITAL  
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ow with the South Bay area.

UNITY HOSPITAL  
Chula Vista

# We grow Together



Historical Collection  
Union Title Insurance Company, San Diego, Calif.

THE PALM TREES ARE BIGGER NOW. The "main strip," Third Avenue, Chula Vista, after the city was chartered in 1912 was nothing more than a wide dirt road. Trees were planted after the flood of 1916. And the trees, like business and industry, have grown and prospered through the years.

A NEW NAME — A NEW LOOK



1940 - 1960



TODAY, THIRD AVENUE, CHULA VISTA like its industrial neighbor, Rohr Aircraft Corporation, is a busy, thriving member of the community. Like Rohr, Third Avenue, now sporting a new name, Shoppers Square, looks to a bright future. Together with Rohr, Shoppers Square has raised its horizons. Continued prosperity for industry, business and the City.

## 110 THIRD AVENUE STORES AND SERVICES

extend warmest congratulations to Rohr Aircraft Corporation upon its 20th Anniversary. And the sincere wish that the forthcoming decades will continue to see Rohr one of the dominating industries in our great American economy.

### LISTED ARE SHOPPERS SQUARE STORES SUPPORTING COMMUNITY ACTIVITIES

Al's Cigar Store	Chula Vista Barber Shop	Ferrantelli's	James Hall College of Beauty	Norman's Fountain Lunch
Stanley Andrews Sporting Goods	Chula Vista Florist	Franklin's	J. Jessop & Sons	Paul Miller Co.
The Apothecary Shop	Chula Vista Lumber	Frazer's	Tony Kantrud Chevron Service	Peter's Home & Garden Center
Atlas Travel Service	Chula Vista Merchants Delivery Service	F. S. Rasco Co.	King Jewelers	Ray's Shoe Store
Ballard & Brockett	Chula Vista Pharmacy	Fuller's Plumbing	Lane's Men's Wear	Recht's Shoes
Bank of America	Chula Vista Photo Studio	Fuson's Garage	Lawson-Schiller	Rogers Shoe Repair
Bay Cities Publishing Co.	CV Sanitary Service	Gem Jewelry	La Bella Pizza Garden	Scott Printing
Bay Security Patrol	Chula Vista Shoe Mart	George's Bakery	The Leader	Security First National Bank
Mrs. Bennett's Bakery	Chula Vista Stationers	Glenn's Market	Logan Paint & Linoleum	See's Candy Shops
Berner-Judd	Chula Vista Sweet Shop	Dwight Gove Agency, Inc.	McClendon Jewelers	Silver Dollar Cafe
Bernes Furniture & Appliance	Cornell's	Guilbert's Pharmacy	Marsi's	Sprouse Reitz
Bill's Drive-In	Crown Auto Supply	Syd Hall Hardware	Melhorn's Music	Standlee's Cake Shop
Bob's Liquor	Courtney Sporting Goods	Hathaway's	Mel's Root Beer	State Farm Agency
Bookfinders	Dean's	Helm Bros. Buick	Merriman Signs & Displays	Valdon Hosiery Shop
Burnett Furniture	Delbert's	Higgs Jewelers	Miller's Lunch	Van's Holland Imports
Burri Flying A Service	Dock's Dutch Luncheon	The Highlander	Monterey Shop	Vogue Theatre
Camille Shops	Dorman's, Chula Vista, Inc.	Hoffman's Service	Mueller's Florist	William's Men's Wear
Center Street Barber Shop	Earl's Shoe Mart	House of Fine Spirits	Nancy's Deb-U-Teen	Winstead Brothers
Central Federal Savings & Loan	Ellmers	House of Music	Niederfrank's Supreme Ice Cream	Yardage City
	Eyer Printing Co.	Hunt's for Toys		Your Barber Shop
	Fabric Land	Irving's		Zontek Cafe
		Ivy's for Gifts		Zurcher's Rexall Drugs

SEE THE STAR-NEWS BACK-TO-SCHOOL SHOPPERS SQUARE SECTION FOR GREATER SAVINGS!

Only the store that displays the official emblem is a PLEDGED store. Membership guarantees service, confidence, and dependability. It is a pledge to serve the community.

**ROHR**

*Magazine*

August 1960



**50th**  
**ANNIVERSARY**

**ROHR**  
AIRCRAFT CORPORATION

**1940 - 1960**

# BEATING THE BEES

## Rohr's New Honeycomb Core Machine Eases Production Problems

**W**HEN men started pushing the speed of airplanes up toward the speed of sound it soon became apparent that more than one barrier would be met before aircraft could fly at Mach II or Mach III. They realized that better power plants alone would not suffice to get a plane to supersonic speeds much over Mach I.

It was apparent that even the sturdy structures of the subsonic or Mach I jets would come completely "unglued" at high Mach numbers. The aluminum structures were certain to fail when they encountered the skin friction temperatures generated by such speeds. Sonic vibrations also had to be overcome. And all of this has to be done without substantial increases in weight.

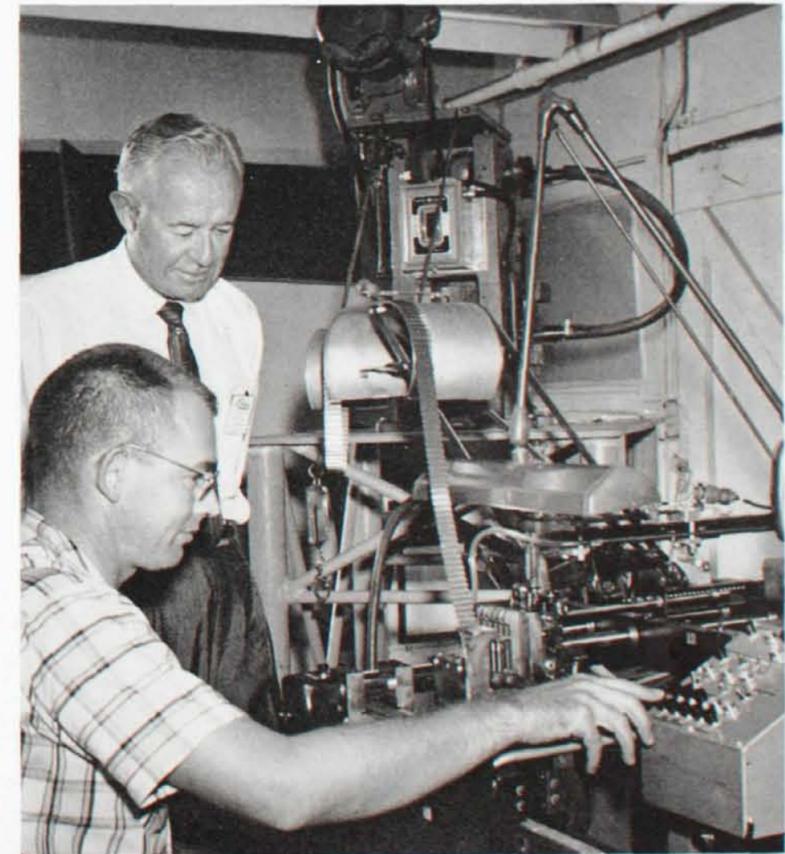
Stainless steel offered the heat resistant qualities and the strength needed at all temperatures but the material was too heavy when used in the same way as lighter metals. Many companies, Rohr among them, experimented with various materials and structures and eventually the brazed stainless steel honeycomb sandwich structure was hit upon as the best solution to the heat, sonic vibration and strength-weight problems.

It was found that strips of stainless steel foil as thin as .005 of an inch could be welded together into a

honeycomb and then brazed to thin skins, or face sheets, also of stainless steel to form an extremely strong, light and heat resistant structure. Using this material in the critical heat areas of a Mach II aircraft, the in-

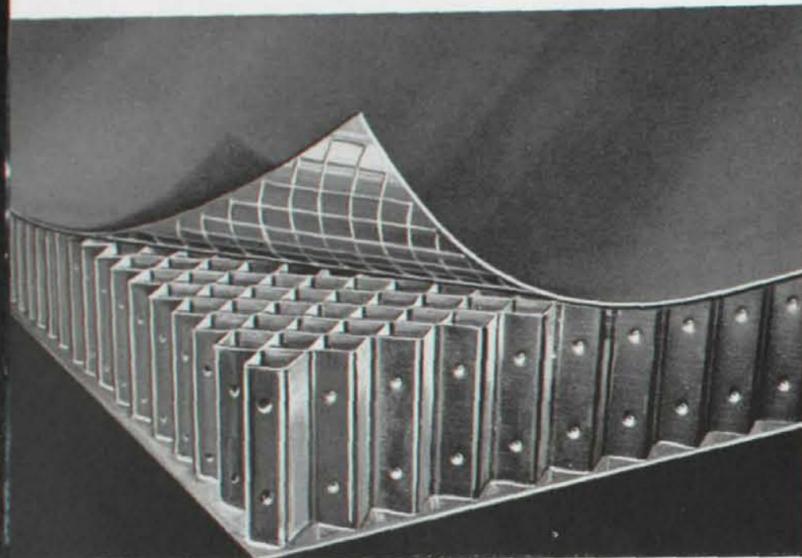
dustry learned, would give the required protection.

Rohr and several other companies have been producing stainless honeycomb panels of this kind for some time. Rohr builds such panels for the



Fred H. Rohr, chairman of the board, inspects operations on one of the core machines developed under his personal supervision. They are now in production.

The heart of Rohr's new honeycomb core machine. Every cell is welded precisely and uniformly.



Structurally strong brazed honeycomb sandwich panels require perfectly formed core.

Convair B-58 Mach II bomber and for the McDonnell F4H II Phantom, a Navy interceptor. The Mach III B-70 bomber being developed by North American Aviation will employ substantial quantities of stainless honeycomb sandwich material—a large portion of it from Rohr.

Engineers see many potential applications for the material in the aircraft, missile and space field. But frequently the same engineers have made every effort to avoid using stainless honeycomb structures because of cost and production problems. The core has been difficult and slow to manufacture. Brazing processes have been long and costly. Inspection is difficult. Core dimensions have been limited.

Along with research into new and faster brazing methods—which have resulted in some promising developments—Rohr has had a continuing program for several years pointed at a machine that would make better core faster.

Several such machines now are in production and the results indicate that the development program—personally supervised throughout by Chairman of the Board Fred H. Rohr—may point the way toward more

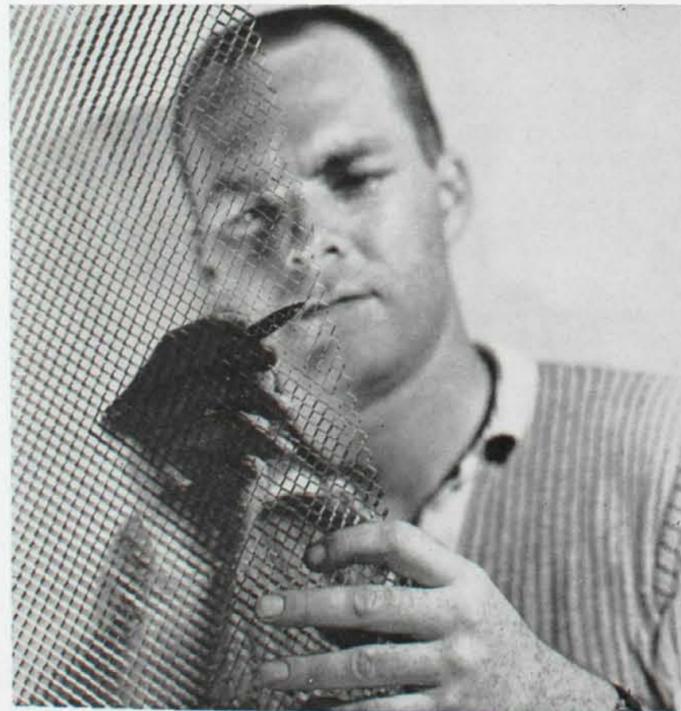
universal use of this surprising material.

Not only do these new Rohr machines make better core faster, they can

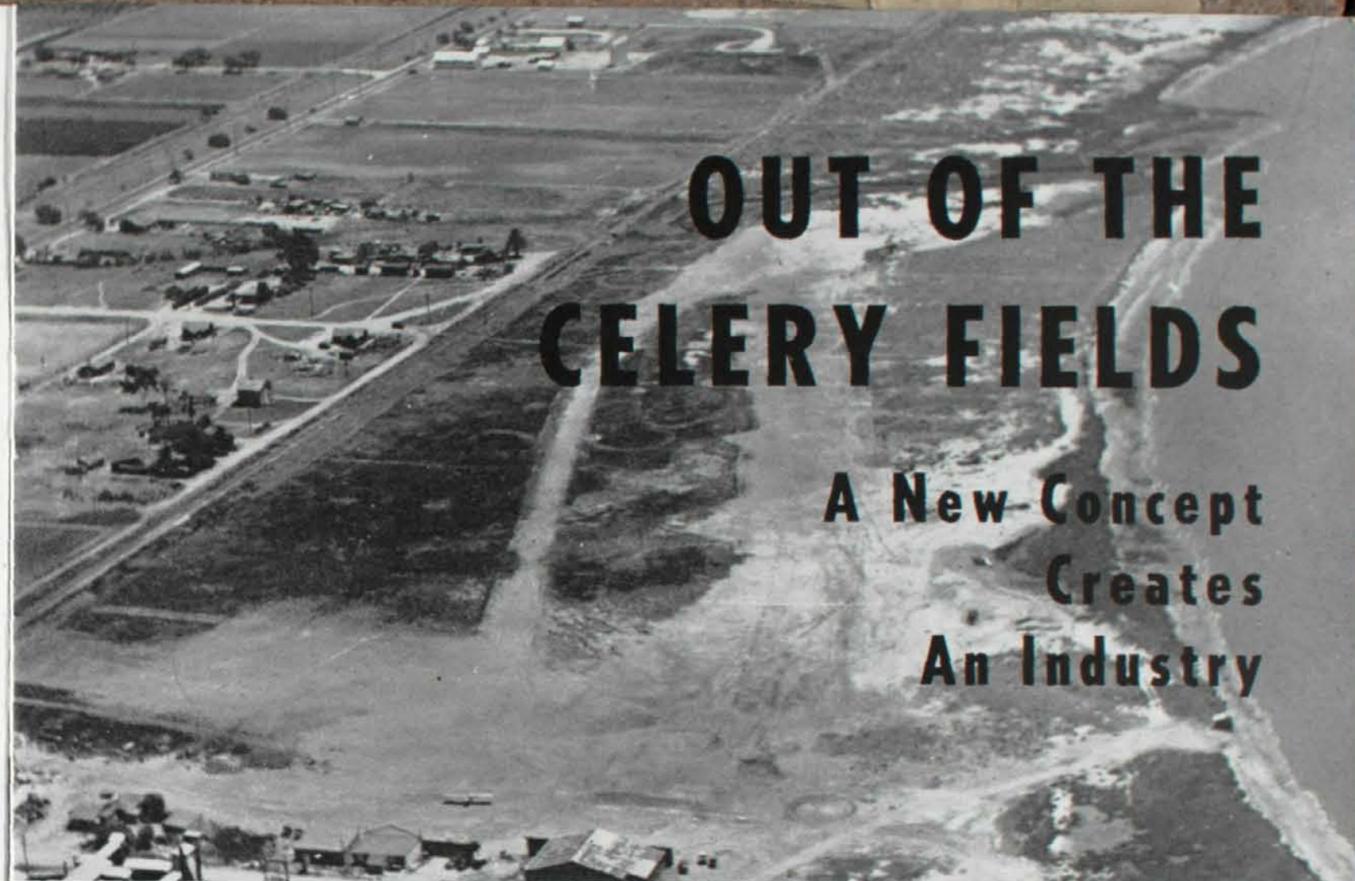
make it in continuous sections of almost any desired length or width. This is a decided advantage in the production of large airframe surfaces, since the previous practice of welding together small sections of core increased weight, production time and the possibility of built-in flaws.

Core produced on these new machines has a new degree of uniformity—with each square cell just like the next one—and closer tolerances on thickness. The machine can produce core in any thickness up to five inches and in any cell size from 3/16 inch to 3/8 inch. Core can be perforated where required.

Although the machines have been operating on a production basis a relatively short time, the core has been accepted, after rigid inspection and testing, by several major airframe producers and is being used in sandwich panels being built by Rohr for some of our most advanced aircraft.



Absolute uniformity of core structure is apparent in this close-up view.



# OUT OF THE CELERY FIELDS

## A New Concept Creates An Industry

A small dirt airstrip between South Bay and Chula Vista farms was the site selected for the main plant and corporate headquarters of the company.

**T**HE Winter of 1940-41 was California's wettest for many years. Reservoirs were filled, the ground was soaked, streams were running bank full, and the hillsides were green with lush grass that sprang up, as if by magic, from hitherto parched and dusty fields. The rain that came down steadily during January and February was welcomed by everyone.

Everyone, that is, except a small contingent of executives and workmen engaged in the interesting task of moving Rohr Aircraft Corporation from a rented building in the wholesale district of San Diego into the first structure on its present site in Chula Vista.

This was a 37,000 square foot factory building, and its vast expanse of floor space caused some of these engaged in the moving task to wonder if perhaps they hadn't over-built. The building was situated in a muddy field at the lower end of San Diego Bay, on the outskirts of Chula Vista, which then had a population of about 5,000. Between the Company's new property and the business district

were hundreds of acres of celery and tomato fields, and lemon groves. Sloshing through mud and across duckboard walks, the moving task force carried the last of the Company's equipment and materiel into the new building, and Rohr Aircraft Corporation, five months after its founding—in August, 1940—was in production in its permanent home.

Office space was obtained in a rented barn in an adjoining field, and the pater of winter rain on the corrugated iron roof frequently drowned out the clatter of typewriters and adding machines as the new Company's small office staff recorded the transactions that already were beginning to increase. Greater office efficiency could have been maintained, some of the old timers recall, had the rain stayed outside. But holes in the metal roof let in vast quantities of water, and bookkeepers and typists divided their time between machines and emptying buckets and pans which surrounded them on desks, tables and the floor.

All of which is a far cry from the

scene that greets the visitor now, 20 years later, when he visits the Rohr main plant and corporate headquarters, or any of the Company's three other plants. The original building now is but a small part of one of the factory structures, and this, in turn, is surrounded by 40 other buildings, all with a total floor space of 1,351,200 square feet, on 156 acres of land. In addition, the plant at Riverside occupies 645,190 square feet on 95 acres; at Auburn, Washington, 49,271 square feet on 48 acres, and 28,525 square feet at Winder, Georgia. The latter is on land leased from the city of Winder; all the rest of the land occupied is owned by the Company. The total square footage of floor space occupied by the Company is 2,074,186, on 299 acres of Company owned land.

Fred H. Rohr founded the Company on an idea that the aircraft industry needed a "feeder plant," one that furnished parts and assemblies, the creation of which required specialized skills and equipment, to air-



Rohr outgrew these early quarters in the San Diego warehouse district in a matter of months.

frame manufacturers. He believed, and later proved, that the Company could provide these specialized components at a cost lower than that for which the prime contractor could produce them.

First products of the new company were cowl panels for the Hudson bomber, then being built by Lockheed. After the Company moved to its new location, it began the manufacture of power packages for the B-24, which was being made by Consolidated Aircraft Corporation (now Convair).

This was the first time a sub-contractor had been entrusted with the manufacture of a power package, but the idea was so successful that by 1945 Rohr had delivered 31,760 units for the B-24, 5,607 for the PB4Y2, and 520 for the PB2Y3, for a total of 37,887.

Power package manufacture then became the Company specialty and since additional factory space was necessary, a continuous building program began. By war's end, more than 600,000 square feet were under roof, and employment had climbed to 9,800.

With the end of the war there came a lull. Government contracts for aircraft were cancelled and Rohr employment immediately dropped to 675. Large areas of the plant were closed down completely. Although



The Rohr-Chula Vista plant in 1941 was beginning to look like a sizeable industry.

This most recent Chula Vista plant photograph shows 20 years of steady growth.



the Company had not been formed as a "war baby," like all other manufacturers, in virtually all industries, its facilities had been diverted to military production.

The lull that came with the end of the war had been foreseen by the Company's management and now began exploration of the demand for commercial products. As a step in this direction, the Company joined and became a subsidiary of International Detrola Corporation — which later changed its name to Newport Steel Corporation—and renewed its search for products that it could make. International Detrola was operating five other plants in the middle west, making radios, refrigeration equipment, machine tools, furniture and steel. From this variety of products it was believed that Rohr would be able to participate in a commercial market that would continue to flourish.

It worked out differently, however. Rohr's reputation for quality aircraft products, economical and prompt production, had been observed by airframe builders, several of whom were receiving large orders from the

airlines to replace equipment now worn out and obsolete.

Convair, Boeing and Lockheed, all of whom were creating and manufacturing new transports turned to Rohr for power packages and other assemblies, such as exhaust systems, and oil and fuel tanks. The Boeing Stratocruiser, the Convair Liner, the Lockheed Constellation series and, later on, the Douglas DC-7 went into production, and Rohr became so busy with orders that the Company had neither time nor space to consider other commercial products. Employment moved up and sales, which had dropped to \$6,069,100 in 1946, from a high of \$70,658,893 in 1944, began moving up and in 1949 hit \$24,674,488.

At that time, in 1949, Rohr and a group comprised largely of those in active management of the Company, organized a new corporation (bearing the same name) and purchased the assets from Newport Steel Corporation, which then ceased to have an interest in the Rohr organization. Since then, no other Company has owned any part of Rohr Aircraft Corporation.

With the outbreak of the Korean war in 1951, military orders increased rapidly and in 1952 the Company established a second plant at Riverside, California. Then, as an added service to customers—in this case Lockheed at Marietta, Georgia—an assembly plant was opened at Winder, Georgia in 1954. Also, to better serve Boeing, a second assembly plant was opened at Auburn, Washington in 1956.

During the war, production had been the main objective but now it was found that the experience gained during those early years could be employed to advantage in the design of components required by major customers. Consequently, there began a steady and consistent expansion of the Engineering Department, with the result that design responsibility was included in an increasing number of contracts. The laboratories also were expanded, and testing and research became of increasing importance as aircraft moved swiftly into a more complex era and the turbojet began replacing the old piston engine.—continued next page

### Bank Loans Reduced

Since the beginning of the current fiscal year, August 1, 1959, Rohr Aircraft Corporation has reduced its bank indebtedness by \$9,000,000, bringing it down from \$40,000,000 to \$31,000,000. During the same period the Company also has voluntarily reduced its bank credit line by \$10,000,000, from \$45,000,000 to \$35,000,000.

These reductions in borrowed money and the credit line result in a saving of \$567,500 a year in interest costs.

The Company in July paid its 55th cash dividend, the 41st consecutive quarterly dividend since payments were resumed in 1950. In the last four years stockholders received \$5,480,393, or slightly more than half the amount paid out as cash dividends in the 19 years, covered in the above table.

### 20 YEARS OF SALES, EARNINGS, TAXES AND DIVIDENDS

Fiscal Year	Gross Sales	Net Earnings	Federal Taxes	Cash Dividends
1941	\$ 1,493,488	\$ 295,471	\$ 256,885	\$ 22,500
1942	6,665,913	429,867	700,926	326,250
1943	39,099,742	883,826	3,073,886	435,000
1944	70,658,893	1,825,703	3,443,483	435,000
1945	53,081,803	1,066,837	3,289,889	435,000
1946	6,069,100	390,043	521,748	—
1947	7,163,483	372,563	214,221	—
1948	7,828,581	503,571	281,000	—
1949	24,674,488	1,233,709	742,000	—
1950	27,869,112	1,455,155	909,000	84,323
1951	26,233,548	968,108	1,442,000	454,707
1952	41,322,184	1,151,811	2,600,000	600,000
1953	63,005,624	1,533,285	3,573,000	600,000
1954	101,604,448	3,510,811	5,175,000	750,000
1955	82,407,804	3,269,009	3,535,000	990,000
1956	90,027,159	3,144,634	3,500,000	1,260,000
1957	115,765,922	3,727,737	4,000,000	1,260,058
1958	147,538,056	4,022,474	3,930,000	1,310,881
1959	191,272,128	2,586,300	2,509,154	1,649,454
	\$1,103,781,476	\$32,370,914	\$43,696,192	\$10,613,264



Rolling a Convair PB2Y-3 up the hangar ramp during the early years of World War II (above). The planes were towed down the bay to have the power packs installed at Rohr. Below, the big Navy patrol bomber in flight.



Lockheed's Super Constellation, with Rohr power packs, is still in service around the globe.

As one example of this, the Company realized that with the coming of the jet transport the problem of noise would be a major factor confronting airlines, particularly in the vicinity of airports. Research began on sound suppression, along with studies of thrust reversal systems which would slow down the jet aircraft to a speed that would enable them to land on existing runways.

Meanwhile, other companies, too, were engaged in similar studies. Rohr engineers came up with a combination sound suppressor/thrust reverser. The principles in this design were incorporated in the thrust reverser now being manufactured for and used on the Lockheed JetStar. Boeing came up with its own ss/tr designs for use on the 707 series and because, among other reasons, of Rohr's experience in this field of research, awarded the contract for their manufacture to this Company. The Company also designed and manufactured prototype thrust reversers for military airplanes, and these, too, have met the needs for better control of these high speed aircraft in making a landing approach.

Research in the use of titanium

was one of the Company's "firsts," with the result that today Rohr is one of the largest users of titanium in the aircraft industry. This temperamental metal, it was discovered, must be formed at elevated temperatures and to accomplish this Rohr engineers and technicians created special tools for this purpose.

Brazed stainless steel honeycomb was another product in which the Company pioneered. Its light weight, high strength and numerous other advantages of this type of structural panel quickly proved it to be the answer to many aerodynamic problems that confronted designers and engineers. It is extensively used in super-sonic military airplanes and the Company has expanded its facilities to meet growing demands as aircraft speeds increase.

In preparation to meet the increasing use of honeycomb materials the Company, under the personal direction of Fred Rohr, designed and built several core making machines which now are turning out quantities of this material, the production of which has heretofore been limited. These newly designed machines are regarded as an important breakthrough in a

field that will permit the Company to keep pace with the demand which surveys indicate will continue to increase as the age of super-sonic flight develops.

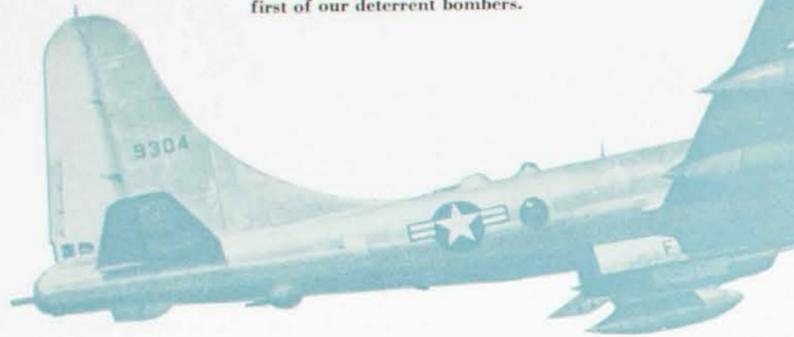
The Company also has made rapid strides in the use of numerical controlled machine tools and production methods. In addition to operating nine numerically controlled machines, the Company also has installed an E.C.S. Digimatic Director, and is installing a Univac Solid State 80 computer, which will enable Rohr not only to produce more economically tools and production parts, but to offer flexible and effective programming and numerical control production services to users of numerically controlled machine tools. This service is capable of accepting a customer's blueprints or loft data and producing a complete package, including tool design, tool make, part programming, computer processing, tape or card preparation and part machining.

Rohr's Riverside plant has established a reputation for leadership in the field of adhesive bonding of metals. Extensive research into the properties of adhesives, plastics and

Rohr's Riverside plant was erected to meet a growing need for power packages and other major components.



Rohr-built power packages appeared on the Boeing B-50—the first of our deterrent bombers.



metals has given the Company versatile bonding capabilities with applications in aircraft, missiles, radar and wave guide reflectors and many other advanced products.

In numerous other areas of production the Company also has diversified its operation, such as the manufacture of atomic reactor tubes for the Atomic Energy Commission, the re-conditioning of gun barrels for the Army, missile and rocket components, and electronic harness for the Mercury "man in space" project.

In addition to the Company's research and development programs for specific production projects, it also maintains continuous research into methods of manufacture, with the result that in this rapidly developing era of aerospace activity it is ready to meet the challenges that arise. Rohr Aircraft Corporation has been for 20 years, and continues to be a manufacturing and service organization for the vitally important aerospace industry.

It is interesting to note, too, on the Company's Twentieth Anniversary, that the men who slogged through the mud in the rainy winter of 1940 to establish a new factory, still are active in its management. In addition to Fred Rohr, now chairman of the board, there are J. E. Rheim, president; B. F. Raynes, senior vice president; A. F. Kitchin, vice president, administration; F. E. McCreery, vice president, engineering; F. H. Rohr Jr., assistant vice president; I. Dagan, manager of quality control; Guy M. Harrington, treasurer; and scores of others who have risen to responsible positions in the Company. To name them all would be impossible under existing space limitations.



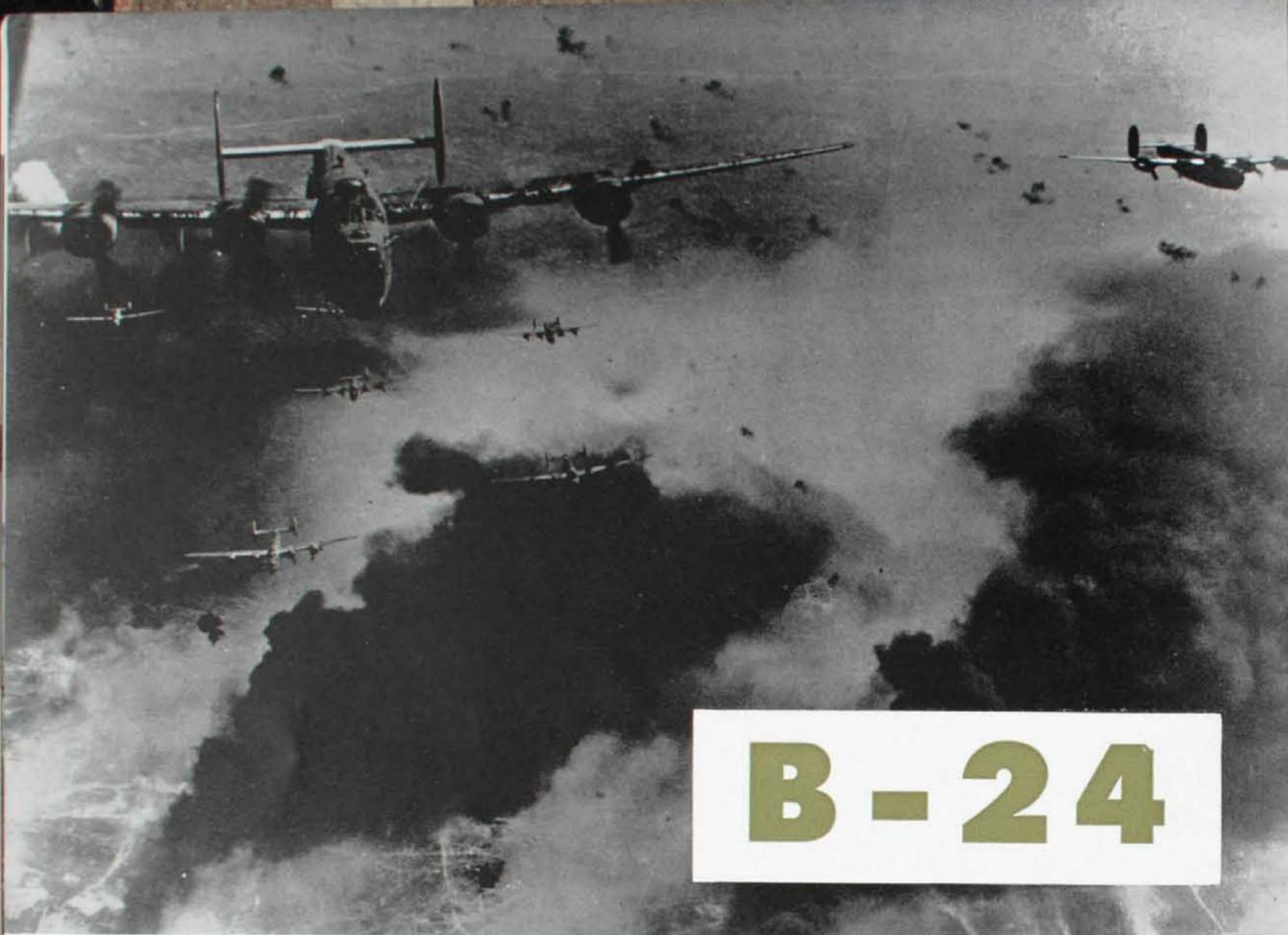
The doughty B-24 of World War II established Rohr's reputation for power packs.



Lockheed's speedy JetStar is the newest plane to carry Rohr jet engine pods.

No abstract sculpture here. Master models in Rohr's pattern shop are as precise as modern methods can make them. These master models are used to translate engineering drawings into actual dimensions and configurations.





**B-24**



**B-58**

Two Convair Bombers Span Twenty Years Of Rohr Contribution To Military Aviation

**M**ORE B-24 Liberator bombers were used in World War II than any other type of four-engined bomber. Approximately 18,000 of the bombers were built.

For these sturdy planes Rohr built 37,887 power packs. This first and largest power package contract established the reputation of the company as a major aircraft subcontractor and also proved the soundness of the Rohr concept of subcontracting complex major assemblies. Rohr built power packages around the Pratt & Whitney engines for all of the various B-24 models.

Formations of B-24s were used on the extremely long-range bombing missions in all theaters of the war—dropping an impressive total of 634,831 tons of bombs. They pounded enemy installations in Europe and Africa, dropped tons of bombs throughout the Pacific zone and played a major role in the successful

battle of the American and British navies against enemy submarines. The Navy flew the Liberator as the PB4Y and a transport version used to carry military personnel and equipment all over the globe was known as the C-87.

Maximum speed of the B-24 was slightly more than 300 miles an hour and the cruise speed was about 230 miles an hour. Operating gross weights ranged from 56,000 to 66,000 pounds — small by today's standards.

The Liberators were heavily armed to enable them to fight off the swarms of fighters that met them in the big raids over Europe. Four power operated turrets carried two .50 caliber machine guns each and two guns were mounted in the waist.

Liberators played their role in thousand plane missions through skies filled with flak and enemy fighters, on solitary submarine patrol

over vast and empty oceans, on low level surprise attacks in the Mediterranean and on long raids against Japanese island fortresses in the Pacific.

The Liberator's maximum range was 3,300 miles and she could haul 8,000 pounds of bombs 2,400 miles. On a short haul the B-24 could pack up to 10 tons of payload.

While the Liberator's performance ratings were not too impressive, even for her time, the durable aircraft earned a reputation for reliability, for a capacity to take punishment and still deliver the payload and get the crew home safely. No single aircraft played a bigger part in the destruction of the military and economic strength of Nazi Germany. Long since out of service, the Liberator occupies a prominent place in the annals of military aviation—and in the memories of thousands of World War II airmen.

**A**MERICA'S newest operational bomber, the Convair B-58 Hustler, no more resembles the World War II bomber than the latter did an aircraft of the Wright brothers.

So fast has the state of the art advanced in flight sciences during the past decade and a half that very few similarities remain. Appearance, performance, construction and even missions have changed drastically. Rohr's participation in the B-58 points up several of these differences—illustrating requirements not even anticipated seriously in the war days of the early '40s. The stainless steel honeycomb sandwich structures Rohr builds for the Hustler must withstand skin friction temperatures generated by speeds "in excess of Mach 2." Today many schoolboys could explain that Mach 2 would be 1,324 miles an hour at the 35,000 foot operational altitude of the Hustler.

All of these factors must be con-

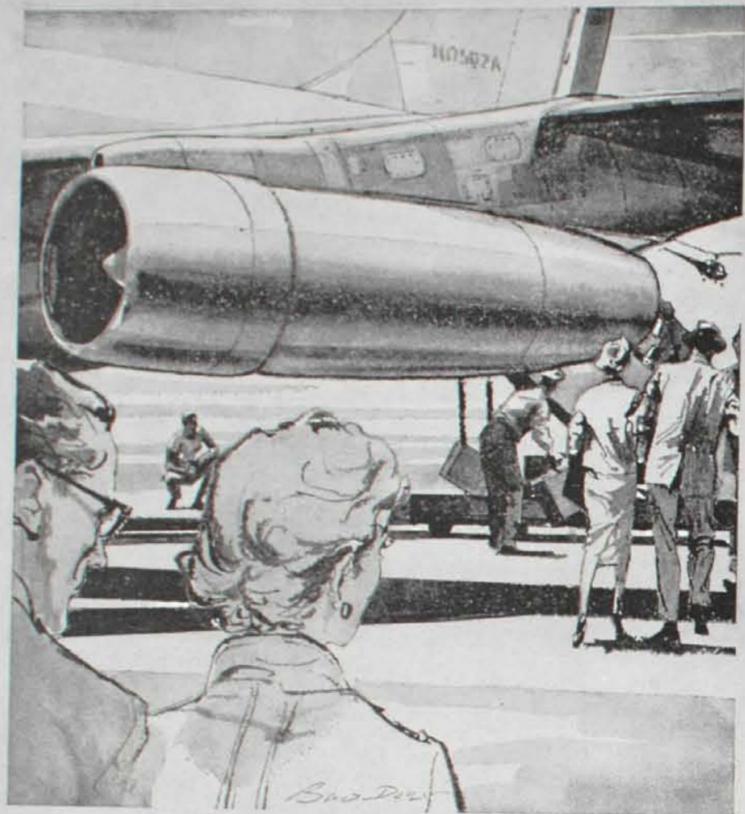
sidered in the design and construction of such planes as the Hustler. Rohr's stainless honeycomb panels are constructed to the most rigid specifications to meet these demands of modern flight. At every step in production it is necessary to maintain the most exact controls so that no flaw in the structure can endanger the plane, its crew or the ultimate mission.

For the B-58 is much more than a bomber as we knew bombers in the B-24 era. It is a complete strategic bomber-reconnaissance weapon system. In the disposable armament pod below the Hustler's fuselage may be a nuclear bomb, a number of conventional bombs or an array of photographic equipment for reconnaissance missions. Special electronic gear also may be mounted in the pod, or a portion of the aircraft's fuel supply may be carried there along with the mission payload. With the de-

structive load dropped and the fuel used up, the Hustler can drop the pod.

The array of electronic and mechanical control systems is so advanced that the B-58 requires only a three man crew — pilot, navigator-bombardier and defensive system operator. Thus the larger, much heavier B-58 is operated by a crew less than a third the size of that required for the B-24. Electronic defensive systems have eliminated the waist gunners, belly gunners and tail gunners who took such a toll of the Messerschmitts and Zeros.

A look at the two aircraft tells the story. The Liberator was the blunt and sturdy club needed to smash the military and industrial power of Nazi Germany. The Hustler is the sleek and deadly arrow designed to deliver a decisive retaliatory blow anywhere in the world. Both show Rohr's ability to meet the needs of the times.



**New package for tomorrow's jet power!**

Greater jet thrust, faster climb, longer range, and more operating efficiency... at lower sound level. That's the story of tomorrow's new jet engines now in production. Rohr's role is the production of complete, ready-to-install jet pods to house these mighty engines. Such complex units are but one of the many major aircraft assemblies built by Rohr—the world's largest producer of components for flight.

Shown above is the famous Boeing 707—soon to fly with the new Pratt & Whitney JT3D-1 turbo fan jet engines.

World's largest producer of components for flight • Main plant and headquarters: Chula Vista, Calif. • Plant: Riverside, Calif. • Assembly plants: Windsor, Ga., Auburn, Wash.



**ROHR THRUST REVERSER**

For the world's best Lockheed jetliner is greater control of creative engineering and production in action.

The world's most advanced turbofan engine has been built by Rohr. A complete, ready-to-install jet pod to house these mighty engines. Such complex units are but one of the many major aircraft assemblies built by Rohr—the world's largest producer of components for flight.

World's largest producer of components for flight

**NEW STRUCTURAL MATERIAL FOR INDUSTRY!**

Can you use honeycomb in your business?

The addition of honeycomb structure provides a lighter, stronger, and more resistant material than any other available. It is used in a wide variety of applications, from aircraft to industrial machinery.

World's largest producer of components for flight

**ROHR PROGRESSIVE METALS**

The value of progressive metal forming is greater than ever. It provides a means of producing complex shapes in a wide variety of materials, from aluminum to steel.

World's largest producer of components for flight

**ROHR MANUFACTURING RESEARCH**

The world's most advanced manufacturing techniques are being developed by Rohr. Our research and development efforts are focused on the production of high-quality, low-cost components.

World's largest producer of components for flight

**ROHR LEADS IN METAL BONDING**

Rohr production lines are currently assembling bonded components into major, ready-to-install aircraft assemblies. An unusually high degree of engineering, tooling and production knowledge are at work on this years-ahead structural program—another reason why Rohr, today, is the world's largest producer of components for flight.

World's largest producer of components for flight

**Talk about a packaging job!**

Over 100,000 jet engines and sub-assemblies are produced by Rohr each year. The precision engineering and production control that go into each engine make it one of the most complex and demanding of all manufacturing jobs.

World's largest producer of components for flight

**ROHR DESIGNED AND BUILT F-100 THRUST REVERSER**

Allows full thrust for more control at slower speeds.

World's largest producer of components for flight

**ROHR DESIGNED AND BUILT THE FIRST TURBOJET ENGINE FOR THE F-100**

The world's most advanced turbojet engine has been built by Rohr. A complete, ready-to-install jet pod to house these mighty engines. Such complex units are but one of the many major aircraft assemblies built by Rohr—the world's largest producer of components for flight.

World's largest producer of components for flight

TIME, FORTUNE, NEWSWEEK, NATION'S BUSINESS, U.S. NEWS & WORLD REPORT, THE WALL STREET JOURNAL, BARRON'S, FORBES—the publications of the business world, the financial world and of current events carry Rohr's advertising message to potential customers and investors. A more direct sales message appears in such publications as AVIATION WEEK,

AEROSPACE ENGINEERING, SAE JOURNAL and WESTERN AVIATION among others.

Since Rohr's customers and potential customers are limited in number and specific in their requirements, the advertising message is aimed where it will do the most good — at the people who are in a position to buy.

Rohr's advertising stresses the company's capabilities over a wide range of manufacturing effort. It shows the physical facilities and technical skills that enable Rohr to meet the needs of any prime contractor in the aerospace industry, and the diversified talents that pave the way to wholly new products in an even wider field.

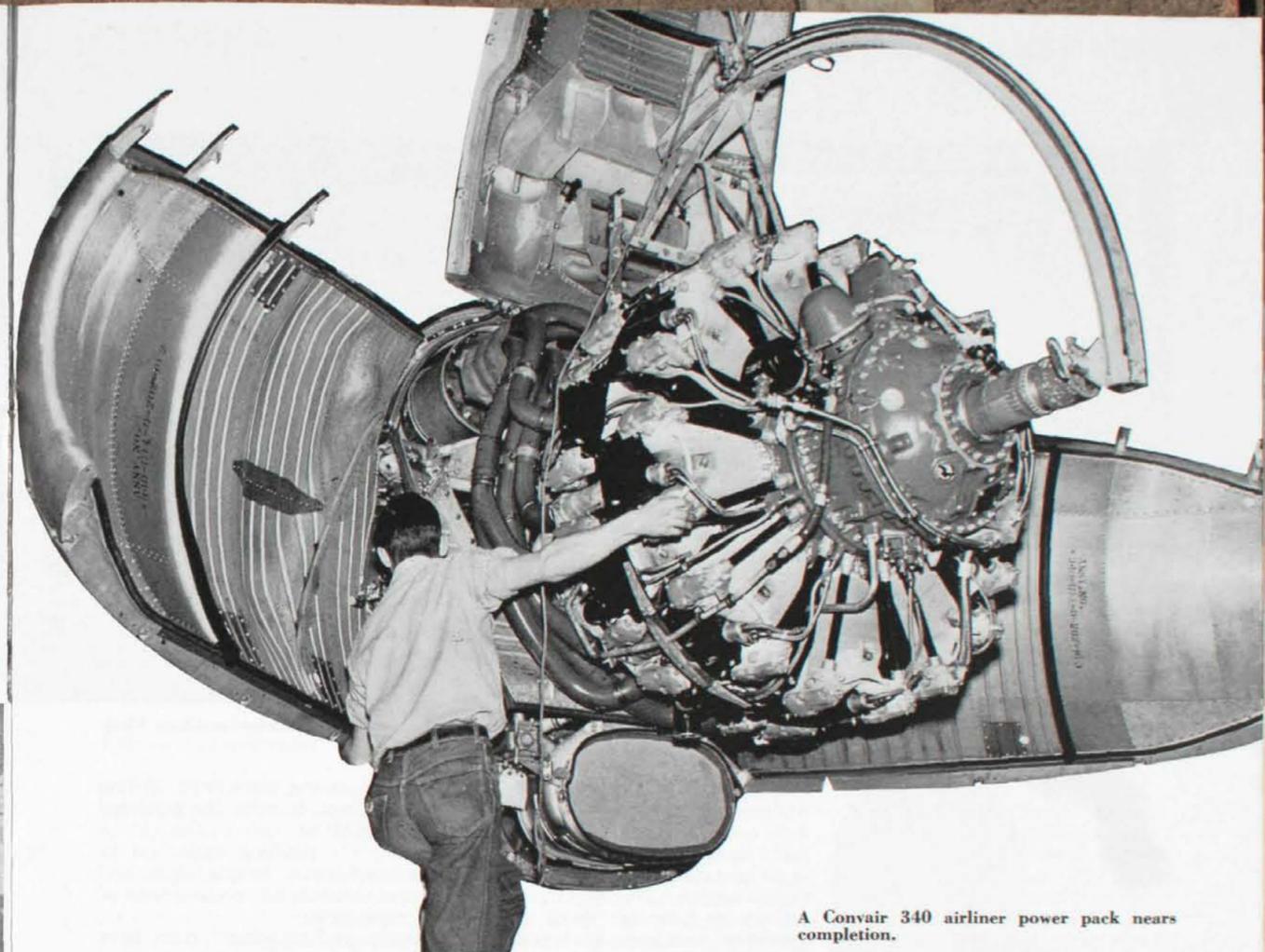
# ROHR'S ADVERTISING GIVES MESSAGE OF WIDE RANGE PRODUCTION CAPABILITIES

# PACKS and PODS



Twenty Years of Aviation History  
Spell Out On Rohr's Production Line

B-24 Liberator power packs were built by the thousands during the war years.



A Convair 340 airliner power pack nears completion.

OF all of the thousands of reports generated by a modern industrial establishment, perhaps none presents so revealing a picture of an industry as does the Rohr Power Pack Accumulation Report.

While engine power packs today represent only a portion of Rohr's production and sales, this report tells a concise story of the company's growth—and also of the transitions in the aircraft industry as a whole over the past 20 years.

The initial entry in the Power Pack Report shows not just the construction of 31,760 power packs for the Consolidated (now Convair) B-24 bomber but also tells a story of the idea on which the company was based and upon which it grew. For Rohr generated the idea that major, specialized aircraft assemblies could be produced more efficiently and economically by a subcontractor than by the airframe producers. The com-

pany's formation and subsequent growth in facilities, employment and sales resulted from this concept.

A Rohr-built power package or pod includes all of the engine build-up components — fuel, oil and air lines, ducting, electrical harnesses and engine auxiliaries—as well as the complex sheet metal structure that surrounds the engine. Jet pods are built for mounting on struts that extend below the wings and these struts, too, are Rohr products.

In the early days of aviation virtually every part of an aircraft was manufactured by the firm whose name the airplane carried. But as aircraft grew more complex and production called for a higher level of mechanical skills and facilities—and as aircraft construction changed from wood and fabric to metal—it became more practical to "farm out" some of the production operations.

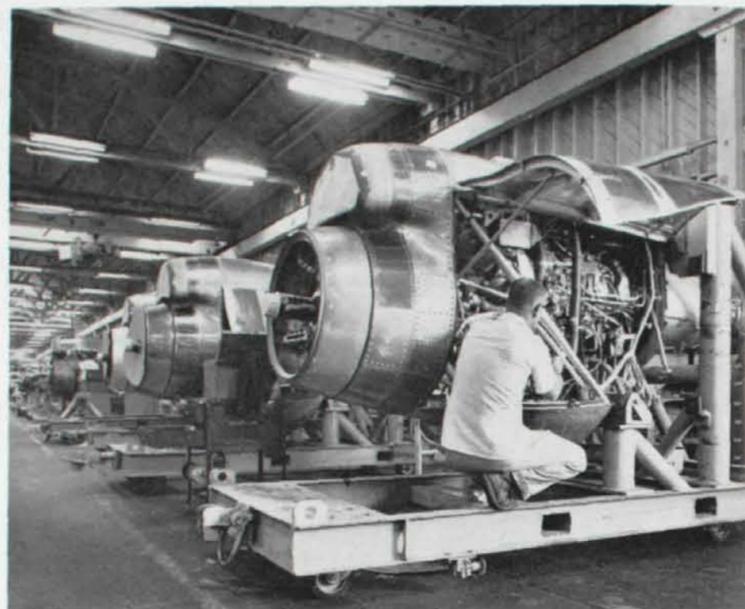
Today's "weapon system" concept

wherein a single firm serves as weapon system manager and coordinates the activities of thousands of subcontractors is a logical outgrowth of this original Rohr idea. A fairly recent estimate indicated that some 15,000 firms would be involved in the production of the North American B-70 Mach III bomber. Rohr is one of these but the Rohr contribution in this case is not a power package but high strength, heat resistant stainless steel honeycomb sandwich structures. The engine lines have changed through the years with advances in propulsion systems, while the company's operations have become increasingly more diversified. But a major part of the company's business still involves jet engine pods and propjet and internal combustion power packs.

In the years since the first B-24 power pack rolled off the production line Rohr has delivered more than



Boeing KC-97 tanker power packs at Riverside.



Lockheed Electra propjet power packs in production at Chula Vista.



Flight testing of prototype turbofans for the new B-52H, with pods built by Rohr, followed this rollout of a fan equipped B-52G at Boeing-Wichita.

60,000 power packages and pods.

These included both production units and quick engine change power packs to be employed as spares for rapid installation in the event of engine trouble. This Q.E.C. system devised by Rohr has saved aircraft operators thousands of hours that might have been lost if planes had to be grounded for the duration of an engine repair job. Qantas Empire Airways carried the "quickie" principle one step further not long ago by adding an extra strut under the wings of its Boeing 707s. Thus, when a Qantas plane was grounded with engine trouble somewhere along the vast routes of this carrier the next plane along could carry a Q.E.C.

unit to it on the extra strut. Within an hour, in some cases, the grounded plane could be back in the air — carrying the troubled engine on its own spare strut. Boeing, Rohr and Qantas collaborated in the design of this equipment.

Spares and "quickies," then, have accounted for a major portion of Rohr's power pack and pod business through the years. Many operators will not put an aircraft into service without having a Q.E.C. unit standing by for immediate installation. The Q.E.C. concept was developed during the days of piston engine predominance and has continued into the era of the propjet and turbojet.

Power packages have changed in many ways since the days of the B-24. There were 1,486 Rohr-built parts in the B-24 power package. More complicated reciprocating engines like those for the Boeing B-50 or the French SE-2010 called for more than 3,000 Rohr-built parts in the engine buildup and nacelle structures. Today Rohr builds some 5,000 parts for the average jet engine pod.

The transition has come through more than two dozen different aircraft models — with a number of power pack or pod variations for almost every model. The B-24 programs involved several variations, in-

cluding the original prototype LB-30 model and the PB4Y2 Navy version. In all, Rohr built 37,887 pods for the various B-24 models.

During the same wartime era Rohr built more than 500 power packs for the Consolidated PB2Y3, a big four-engine Navy flying boat used extensively as a patrol bomber. Another early job was the Wright-Rohr conversion of a dozen power packs for Chicago Southern Airlines. Rohr also participated as a subcontractor to Pratt & Whitney in the construction of power packs for the French SE-2010.

The C-49, a military transport, and 049 commercial liner power pack contracts started a long string of participation in Lockheed multi-engine programs. This series advanced through the 649, 749, 1049 and 1649—the famous Constellation and Super Constellation series. This series of "Connies" accounted for some 4,600 production power packs and spares.

The giant Boeing B-50 long range bomber employed huge Rohr-built power packs weighing some 6,000 pounds each. More than 1,600 of these units were built in the late 1940s.

Convair entered the transport picture in the early '50s with the 240-

340-440 series and the military sister ships the C-131 Samaritans and the T-29 "Flying Classroom."

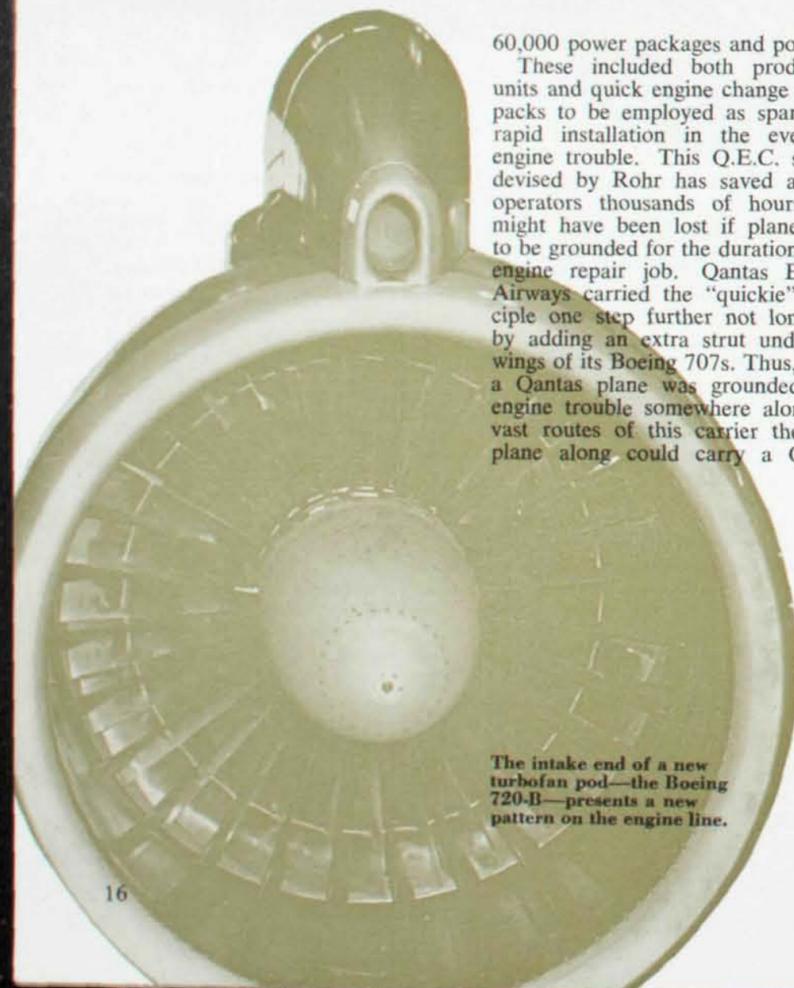
During the same era Rohr built power packs for the Chase and Fairchild C-123 troop carrier and for the Boeing KC-97 aerial tanker. The KC-97 is used as an aerial refueling tanker by the Strategic Air Command and as a military cargo plane under the C-97 designation. Power packs for both of these planes were among the first produced at Rohr's new plant at Riverside, California.

Also during this period Rohr started construction on power packages for the Wright turbo-compounds used in the Navy's P2V-5, 6 and 7 patrol bombers. Still under construction as spares and Q.E.C. units on the Chula Vista engine line these Neptune power packs have helped pile up an unusual record of reliability and endurance. The Neptune still holds the record for the longest unrefueled flight and this Lockheed-built workhorse—with turbojet pods added to the turbo-compounds—is employed operationally as an anti-submarine craft and in several other capacities. Rohr's Q.E.C. units received an unsolicited testimonial during the recent International Geophysical Year activities when one of the assemblies was installed on a downed plane at

the South Pole.

Another long production run started in 1953 when the Douglas DC-7 series power packs were phased into the Rohr engine lines. The last of the "Seven Seas" power packs was delivered in 1958 and in all Rohr built 1,858 production units and spares for the series. The last of the Lockheed Super Constellation power packs also phased out in 1958 as production started shifting over to the propjets and turbojets. Rohr built some 3,000 power packages for the Connies. With the phase-out of the DC-7s, the Connies and the KC-97, the venerable P2V remained the only piston engine power package job in the Rohr plants.

The transition to jets and propjets by commercial airlines followed several years behind the military shift. Rohr was producing the huge twin pods for Boeing B-52 turbojet engines as early as 1953. After several modifications through the years, the B-52 is now in the "H" (turbofan) version and Rohr still is manufacturing the pods and struts for this long range, "missile platform" bomber. The Lockheed C-130 was the first of the propjets in which Rohr was involved. The pods for the Hercules' Allison engines have been manufactured at Chula Vista and mated with



The intake end of a new turbofan pod—the Boeing 720-B—presents a new pattern on the engine line.



Delivery of the first Lockheed JetStar pods to a Lockheed-Marietta representative.



Pods for the C-130B Hercules troop carrier are assembled at Rohr's Winder, Georgia facility.

the engines at Rohr's assembly plant in Winder, Georgia — near Lockheed's Marietta facility. Recently a larger part of the C-130B operation was shifted to Winder.

Most of Rohr's engine line facility today, however, is devoted to propjet and turbojet pods for the new generation of commercial transports. A large part of Rohr's Riverside operation is devoted to the production of turbojet pods for the various members of the Boeing 707 jet airliner

family, and for the Boeing KC-135 jet tanker—a military version of the basic 707 design. Currently the new turbofan engines are making their appearance at Riverside for the "B" versions of the famous Boeing liners. The pods produced at Riverside are assembled and mated with the Pratt & Whitney engines at Rohr's Auburn, Washington assembly plant just a few miles from Boeing's Transport Division operation at Renton.

At Chula Vista today Rohr is

building the turbojet pods for the Convair 880—latest of the jet transports to go into scheduled service—and for Lockheed's propjet airliner, the Electra. The 880 pods and struts are built around General Electric turbojets, while the Electras are powered by Allison propjets. A Navy version of the Electra known as the P3V-1 anti-submarine plane also is in production.

The newest pods on the engine line are the little "Siamese Twin" units for the Lockheed JetStar, an executive-military transport. The high performance JetStar is powered by four Pratt & Whitney JT-12 engines mounted in the twin pods on either side of the aft fuselage. The plane is designed to carry ten passengers in the executive configuration or can be adapted to a variety of configurations for specialized military or civilian usage.

This JetStar program serves as an illustration of Rohr's increasing versatility, in that the pods were designed by Rohr to meet a customer requirement. Similarly, the thrust reversers for this aircraft were designed entirely by Rohr engineers. Through the years Rohr has expanded its capabilities to include an entire design-production package on several power package or pod programs. Many of the programs still involve production to a customer's design and specifications but Rohr now is in a position to offer the entire package where required.



Jet pods and pylons for the Convair 880 are built at Rohr, Chula Vista.

# Jet Age DEPARTMENT STORE

If We Don't  
Have It  
We'll Build It



This reflector for an airborne radar unit is one of many new Rohr research developments.

The best testimonials are unsolicited.

At the end of an extended visit to the Rohr-Chula Vista plant some time ago, an engineer from another firm told several of his associates at Rohr:

"I don't know quite how you do it, but I'm convinced you guys can build anything."

A look at the list of current contracts makes it apparent that the visiting engineer was very nearly correct. The growing complexity of air-

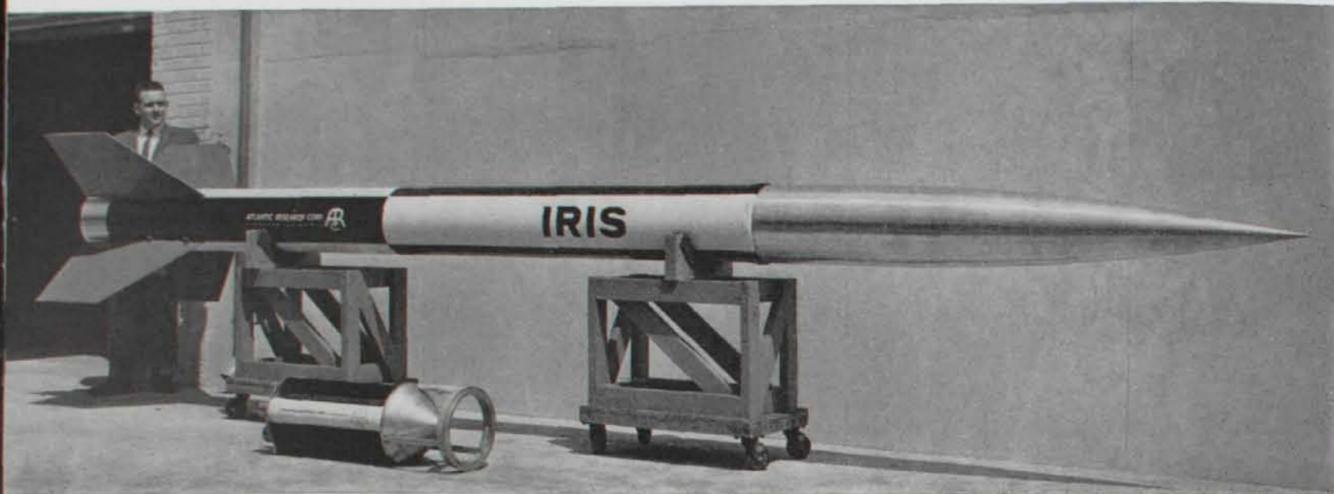
craft and the expanding horizons of the flight industry have wrought surprising changes in a company devoted to serving that flight industry.

Today, along with its traditional production of aircraft components of all kinds, Rohr is building a variety of assemblies for rockets, missiles, space programs and the array of electronic gadgetry that operates, supports or monitors the various vehicles. Some of these products are in the research and development stages but most of them are being

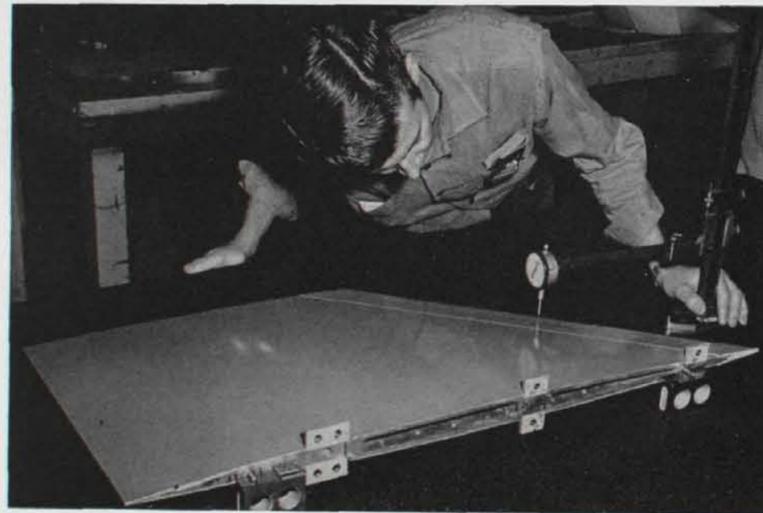
manufactured to meet specific customer requirements.

Constant research—on both improvement or expansion of present product lines and development of new products and capabilities—keeps the array of Rohr products growing steadily.

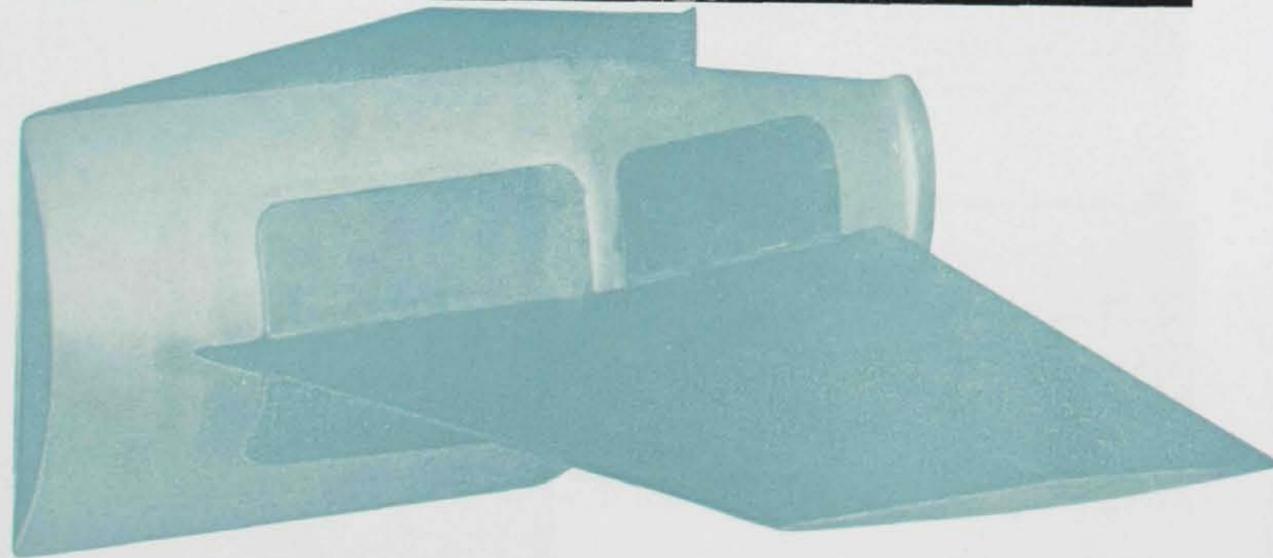
Research into advanced bonding methods at the company's Research and Development Laboratory at Riverside has led Rohr into active participation in some of the newest space programs. Construction of fins



Rohr workman, right, checks critical tolerance on production fin for Iris sounding rocket above.



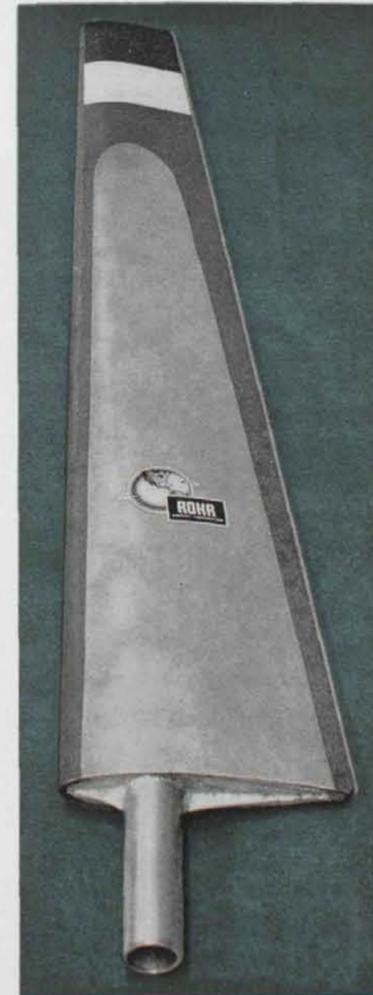
Below a smaller adhesive bonded rocket fin now under study.



for the Atlantic Research Corporation's new Iris rocket—a sounding rocket for NASA—spurred further research into new manufacturing processes for products of this type.

Rohr's advanced adhesive bonding techniques also have resulted in construction of prototype radar reflectors, wave guide system components and other structural portions of radar, telemetering and communications systems.

One of the most promising recent products of Rohr research is development of bonded helicopter rotor and tail rotor blades, some with honeycomb core. Tests have indicated a promising potential for these strong, light and precise blades.



An experimental helicopter tail rotor assembly.

Rohr has for some time been building adhesively bonded structural components for the North American Aviation Hound Dog Missile pylon and recently produced an extremely complex electrical harness for use in connection with the Project Mercury "man in space" program.

Nor are all of the advanced products aimed at the conquest of space. In recent months Rohr has built several components for the General Electric Company's atomic reactor projects for the Atomic Energy Commission. These large and complex assemblies called for extremely precise welding. Work for U. S. Army Ordnance has included production of parts for artillery weapons, as well as heat treating of 76 MM rifle barrels.

An electrical circuit analyzer for "ringing out" complex wiring harnesses was developed by the company's engineers and Electrical De-



Precision welding on a nuclear reactor fuel tube.

partment as a proprietary product and present plans call for offering this unit for sale in the near future.

While most of Rohr's products fall into the "hardware" category, the company has embarked recently upon a new type of service. Rohr's leadership in the numerical control programming of machine tools has received recognition through the industry and the Numerical Control Department now is performing programming services for other firms. Under this program, Rohr can take the customer's blueprints or drawings and turn out finished magnetic tapes or cards ready for use on a machine tool director unit, can carry the job through to the finished parts or can

provide any portions of this service.

Such numerical control programming service is considered a valuable offering to firms capable of providing their own machine tools but unable for several possible reasons to set up the necessarily elaborate and highly specialized programming facilities. Programming services are being made available not just to other aerospace firms but to any manufacturing concern in a position to utilize Rohr's advanced programming techniques.

The company also is experimenting with a number of entirely new manufacturing processes aimed at contracts in areas heretofore untouched. One of these is the development of filament winding techniques for production of non-metallic rocket engine cases. The Riverside Research and Development Laboratory has conducted these studies and has produced highly encouraging results.

Along with research and development work aimed at new products, Rohr's efforts also are aimed constantly at new and better ways of producing the items in the current product line.

An outstanding example of this type of development is the advancement made in the production of brazed stainless steel sandwich structure. Rohr has been producing stainless honeycomb sandwich panels for several years. Currently these strong, heat resistant assemblies are being manufactured for Convair's Mach II B-58 bomber—now a part of the



A missile afterbody section now under development.



Boeing sound suppressor-thrust reverser unit being mounted at Rohr-Auburn.

Strategic Air Command's deterrent bomber force — and the high performance McDonnell F4H-II. The F4H-II Phantom is one of the Navy's new supersonic fighter-interceptors. Rohr also holds a contract to produce stainless honeycomb components for the North American B-70, a bomber now in the developmental stage designed for full mission operation at three times the speed of sound.

Rohr has developed new brazing methods to reduce the long brazing and curing cycle now essential to production of the type of structures needed for high performance aircraft. A new core machine also aimed at production of better and more economical honeycomb core is discussed elsewhere in this issue.

Introduction of the new turbofan engines for commercial and military aircraft has brought Rohr's engineering and production talent into play in the development of new pod and

strut designs and new types of thrust reversers.

Rohr is producing turbofan pods for the Boeing B-52H "missile platform" bomber and the fan versions of the Boeing 707 series airliners, as well as the conventional turbojet pods for Boeing's popular airliners and the KC-135 jet tanker.

The company also is building turbojet pods for Lockheed's new JetStar military-executive transport and for the Convair 880 commercial transport now entering service.

Propjet power packs are being manufactured for the Lockheed Electra commercial transport and for the Lockheed C-130B Hercules troop carrier. The Lockheed P2V Neptune patrol bomber piston engine power packages also occupy bucks on the Rohr engine line.

Rohr's long research into the problems of sound suppression and thrust reversal has brought design and production contracts, along with the production orders on customers' designs. Rohr's engineers designed and tested the thrust reversal equipment for the Lockheed JetStar, which now is in production. The company is building turbojet and turbofan thrust reversal equipment for the Boeing 707s, as well as sound suppressors for Boeing's commercial turbojets.

A variety of other major components for the most advanced and successful military and commercial aircraft are shipped from Rohr's manufacturing and assembly plants. Among these are the 43-foot aft fuselage sections and the horizontal and vertical stabilizers for the Boeing 707s and stabilizers for Boeing's KC-135.

Highly precise control tabs for the 707s and KC-135 are manufactured in Rohr's adhesive bonding facilities at Riverside.

A wide variety of smaller assemblies are produced at both manufacturing plants, including such high strength weldments as the B-52 flap-tracks, small conventional assemblies such as landing gear doors and wing rib chords and many others.

The variety of products grows constantly, while Rohr's production, engineering and research personnel work to stay ahead of developments in an industry making daily technological advances.

Rohr designed and built pods and thrust reverser mounted on the JetStar.



Bonded landing gear door assembly for the Lockheed JetStar.



A panorama view of production sequence on 43-foot aft fuselage sections for the Boeing jet airliners.



# The Logbook

TWENTY YEARS ago this month France had fallen and was out of the war, the Nazis had invaded Netherlands, Belgium and Luxembourg, Chamberlain had resigned as prime minister and Churchill had the heart-breaking task of rallying a British fighting force after the disastrous Dunkerque evacuation. The United States was trying, with growing impatience, to remain neutral.

The point in recalling these events is to bring to mind the tremendous changes that have taken place in two decades. Whole concepts of government have undergone drastic changes in many parts of the world and at least half of the population is seething with unrest. Twenty years is but a moment in history, and if the period from 1940 to 1960 is a foretaste of what is to come, this planet could be unrecognizable in another like span of years.

Trying to compare the foregoing with the twenty-year development of the aircraft industry may be a great deal like trying to add apples and oranges and come up with an intelligible answer, but nevertheless there is to some extent a common denominator in linking flight to geo-politics. It is the airplane that has wiped out barriers that once separated continents and peoples, and now the rocket and missile era is shrinking the globe still tighter.

This being the twentieth anniversary of the founding of this Company, it is timely to glance back twenty years. But one has to do it quickly, because to take one's eye off the road for even a moment is to risk missing the direction signs that point to the future.

Twenty years ago the turbojet airplane was a dream on a drawing board, something the military designers hoped would give them a better weapon. It was not until near the end of the war that a few jet fighters began scooting around. And it was 14 years after the war ended before an American jet transport began carrying passengers. The British had tried their Comets, but they developed a bad habit of blowing up in flight, and were withdrawn from service for several years.

When Rohr Aircraft Corporation was founded, as related elsewhere in this issue in greater detail, its first major contract was for B-24 power packages. Compared with those that came along when the jets replaced the old piston engines, the B-24 was simple. True, it had Rohr-made parts, but when the war broke out the design was more or less frozen and engineers were discouraged from monkeying with the original concept, which enabled the builders to set up production lines and shell out completed aircraft like peas from a hulling machine.

Compare one of those airplanes with those of today and you get a picture comparable to trying to compare a 1940 model to the Wright Brothers' contraption of bamboo and baling wire that took off on the sand dunes at Kitty Hawk and flew a distance less than the wingspread of a modern bomber.

Review the last 20 years, note that speeds now are calculated in Mach numbers rather than miles, recall how startling all this would have sounded in 1940, and then try to predict what flying will be like by the year 1980. Man alive, the industry has just gotten started.—ETA.

## ROHR Magazine

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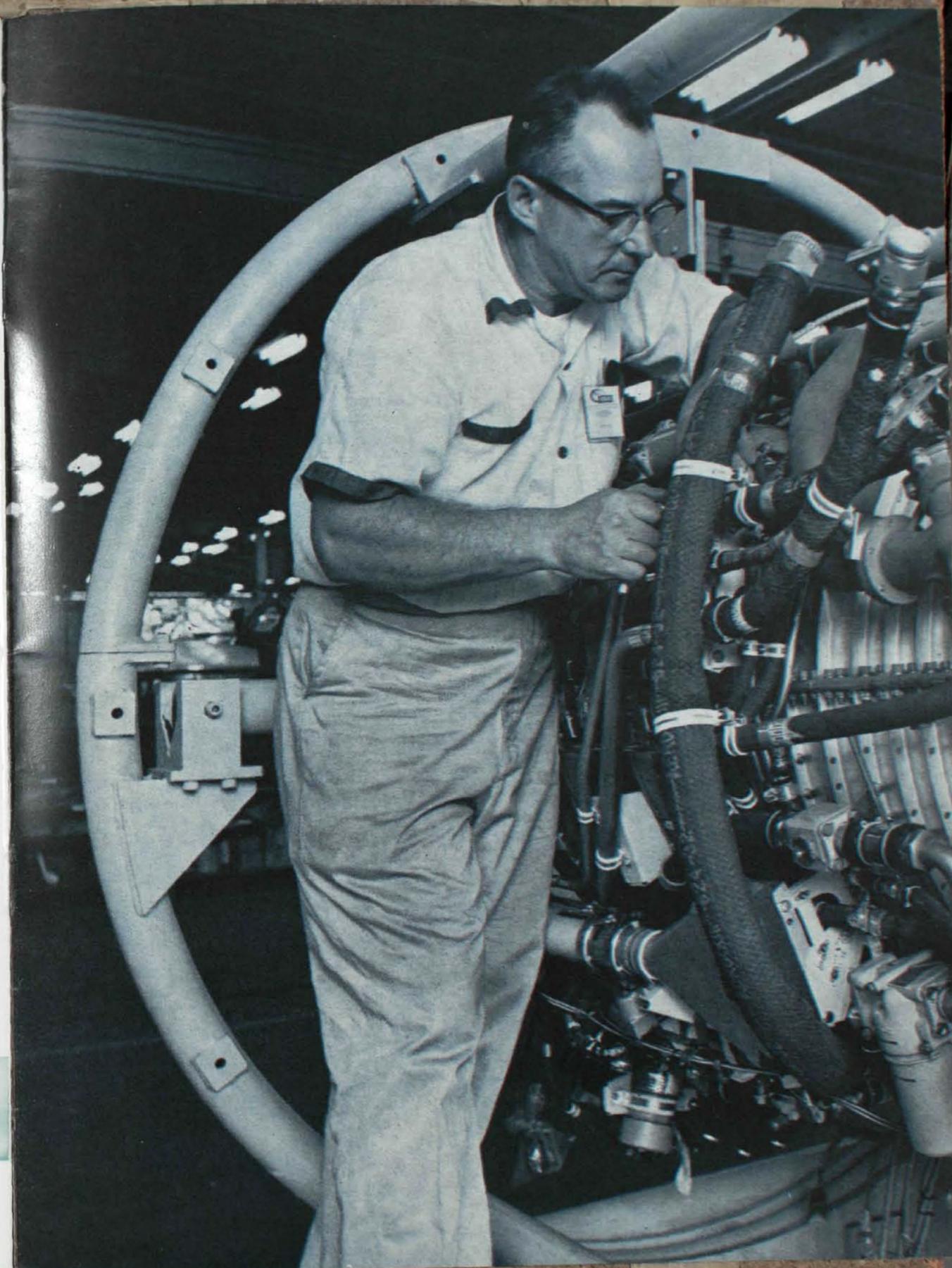
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### ROHR AIRCRAFT CORPORATION

Main Plant and Headquarters, Chula Vista, California; Manufacturing Plant, Riverside, California; Assembly Plants, Auburn, Washington • Winder, Georgia

On the engine line at Chula Vista a skilled Rohr workman installs engine buildup equipment on a General Electric power plant for the Convair 880.

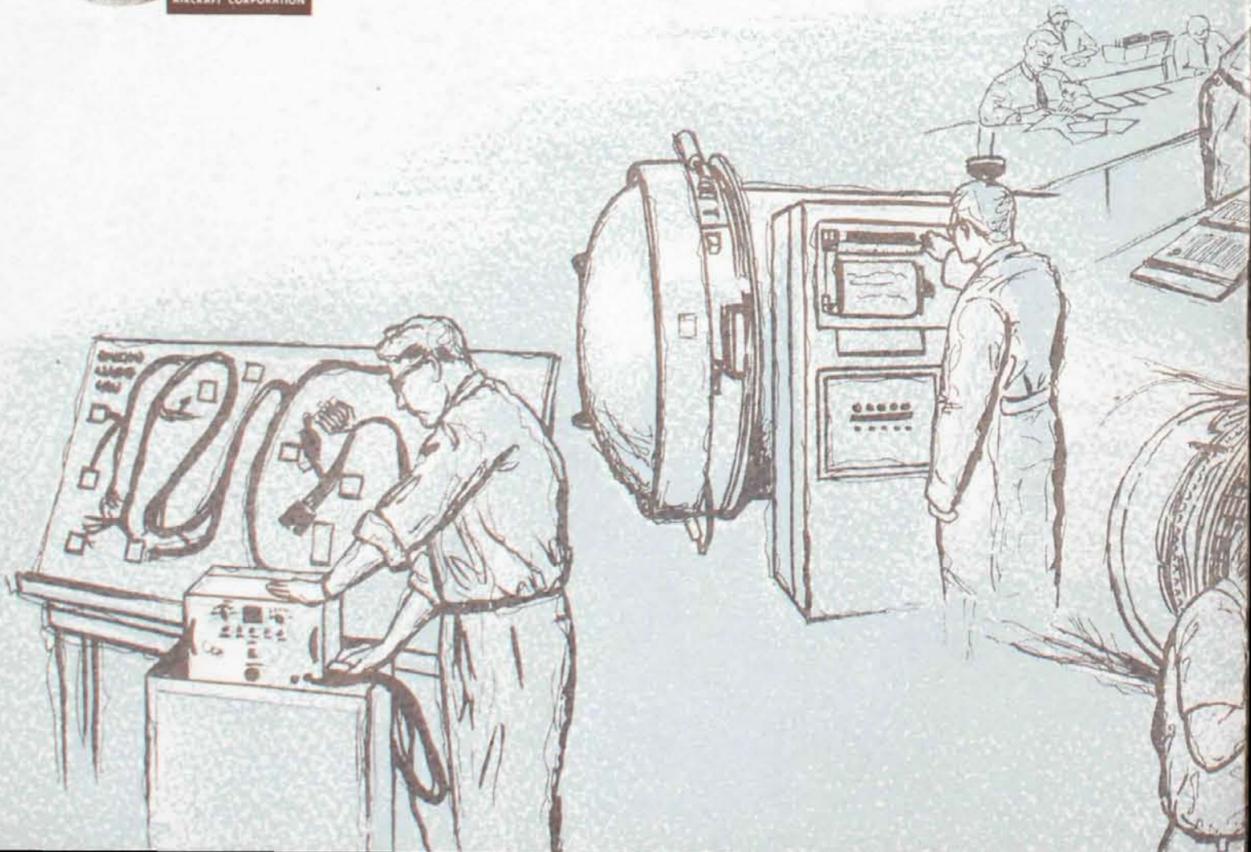


# ROHR AIRCRAFT CORPORATION

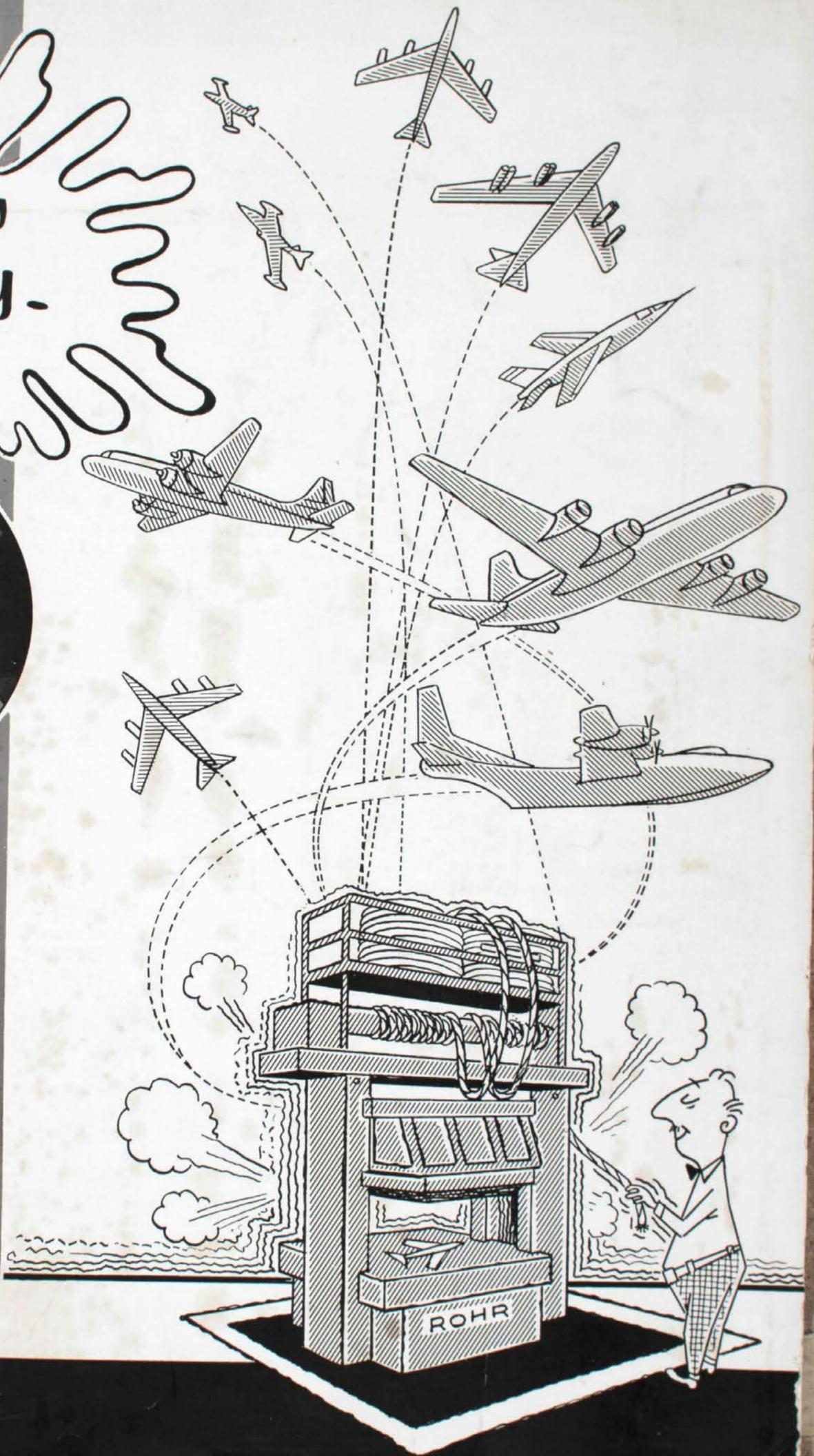
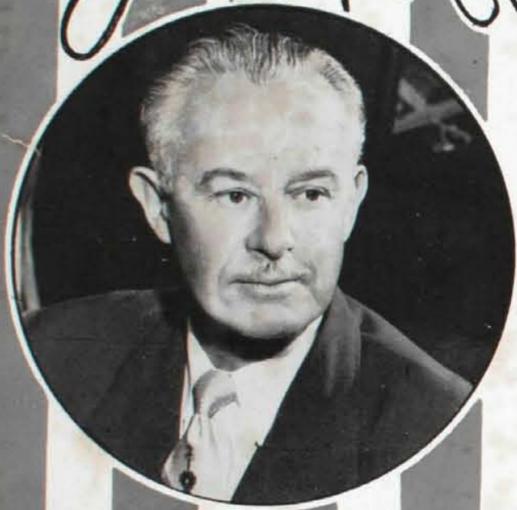
MAIN PLANT AND CORPORATE HEADQUARTERS:  
*Chula Vista, California*

MANUFACTURING PLANT:  
*Riverside, California*

ASSEMBLY PLANTS:  
*Auburn, Washington and Winder, Georgia*



Salute to  
Pappy.



Hotel del Coronado  
Saturday, Oct. 1, 1955



A NATIONALLY FAMOUS TEAM—Even back in 1942 Rohr Aircraft became famous. The plant made it 100% in the first War Bond Drive in just 8 hours. Above is the team, the first in the U. S. to go over the top.

PAYROLL RECORD													PERIOD ENDING <i>Aug. 31, 1940</i>							
CLOCK NO. AND NAME	S	M	T	W	T	F	S	HOURS		EARNINGS			TAXABLE		DEDUCTIONS		PAID			
								ACTUAL	OVER-TIME	RATE	REGULAR	O. T. EXTRA	TOTAL	S. U. I.	F. O. A.	S. U. I.	F. O. A.	OTHER ITEM	AMOUNT	TOTAL
<i>Rohr, F. H.</i>																				
<i>Lacey, E. M.</i>																				
<i>Rhein, J. E.</i>																				
<i>Campbell, E. P.</i>																				
<i>Maynard, K. W.</i>																				
<i>McCreary, J. E.</i>																				

FIRST PAYROLL—There have been a few upward revisions in the rate for those whose names appear above. The total for the Company's first month was \$1,104.74 for the month. August, 1955, payroll was \$2,800,530.90.

BELOW—The Management group at luncheon in 1942. The guest was Maj. Reuben Fleet, then President of Convair, one of our customers. The shirt sleeve custom had not been adopted at that time. That came as business increased.



## HOBOKEN TO CHULA VISTA WITH PAPPY

WHO'S Who lists the important dates and statistics in Pappy's life, but the sketch is pretty dry reading because the editor of Who's Who didn't know Pappy. And to try to write about Pappy without knowing him is like trying to describe the horsepower of a jeep to a South Sea islander who never saw either a horse or a motor car. You use a lot of words, but you get nowhere.

Well, Pappy was born in Hoboken, New Jersey, and the date, so far as this account is concerned, is classified. Anyway, Hoboken didn't look any better then than it does now, so at the age of two Pappy brought his parents to San Francisco. There he attended school, became a sheet metal apprentice, joined the navy and cased both oceans for marlin, albacore and yellowtail.

Out of the Navy, after he had helped make the world safe for democracy, Pappy decided that San Diego was it. So he came down here, by way of Fresno, where he stopped off for a few years to help his father run the Standard Sheet Metal Works.

In San Diego Pappy started another Standard Sheet Metal Works. He got tangled up in the aircraft business by making some gas tanks for a plane then being built by a company now known as RYAN.

The tanks didn't leak and, lo and behold, they fitted. So Pappy joined the outfit and became its sheet metal foreman

Everybody around there was pretty proud of Pappy's sheet metal work and his tanks, and one day a lanky young lad strolled in and got to talking with Pappy. The lad said he was a flier who wanted to go places, but was always running out of gas.

"Bet I can make you some tanks that will hold enough gas to fly anywhere you want to go," said Pappy.

"Bet you can't," said the lanky young flier.

Which was just what the chap should have said because Pappy loves a challenge and this definitely was one.

So Pappy went to work and made some tanks, which he stuck into an airplane that a lot of the boys, including Pappy, had been



Pappy welcomes new employee and convinces her that Rohr Aircraft is not a cold, heartless corporation.

working on at the place now known as RYAN.

"Now get into the darn thing and don't stop until you run out of gas," Pappy ordered the slender young flier.

"Okay, okay," said the s. y. f., as he crawled into the plane, said "contact" to somebody who whirled the prop, and away he went.

Sure enough, Pappy's tanks were big enough. That lanky young flier had to fly all the way to Paris, France, before he ran out of gas. Then everybody learned that he was Charles Lindbergh, and it was Pappy's tanks that had made him famous.

Well, Pappy stayed around the place now known as RYAN for a while, invented the drop hammer, and then went up to Seattle where he held some pretty good jobs with Boeing. But after a few years, during which he didn't catch a marlin or an albacore—

didn't even have time to go fishing—Pappy came back to the place known as RYAN as Factory Manager.

One day, after his umpteenth attempt to teach Joe Rheim how to schedule, and Maynard, Henschel and Dagan the difference between a spot weld and a rivet, Pappy threw down his whip and said:

"Nuts to this. I'm going to start a factory of my own where I can teach these guys. I'll do it if it's the last thing I ever do."

And he did. Joe Rheim now can schedule the b'jesus out of you if you aren't careful, and the other three can stand right up and tell you, without any help from the audience, exactly the difference between a spot weld and a rivet.

Pappy's company did all right, too. It was started in a small way. As a matter of fact (it says here) it was started in Pappy's garage. But it didn't stay there very long because Mrs. Rohr and the neighbors wouldn't stand for it. They didn't think they would mind the drop hammers so much, but those daily lessons in scheduling and the difference between a spot weld and a rivet, were making too much noise. One neighbor said she had to sell her parrot because after listening to one session on scheduling, the bird went around shrieking "that's a crock", plus words describing the crock's content, and the whole thing was nerve wracking.

So, they moved, and after a few months at 8th and J, in San Diego, Pappy brought the whole shebang to Chula Vista and made Joe sales manager. Some of you guys had joined up by then, so you know the rest of the story.



Startled neighbors view birth of Rohr Aircraft Corp.



# PROGRESS

## *Our Most Important Product*

Whether it is planning a new plant, providing food for employees, or bringing existing facilities up to the highest standards, Progress is the guiding watchword of the Rohr organization. Keenly alert to the fast pace of modern industry, the Company is building, growing. A few examples are shown here.



UPPER—After diligent research and visiting some of the nation's greatest aircraft plants, James L. Hobel has designed a new canteen, shown above at the pre-opening ceremony. Note saving in materials and equipment, plus functional features of new canteen.



LEFT—A continuous building program has been under way at Rohr for years. Last year, for example, 47 lean-tos were added to existing structures and 38 mezzanines were installed. The new program, beginning soon, is to add mezzanines to the mezzanines. Shown here is one of the newest projects, still classified.

LOWER—Our products must be delivered on schedule so no expense is spared in keeping Transportation up to date. Here is shown latest equipment, featuring a recently patented horse collar designed to increase harness mileage. Standby equipment and a large inventory of hay is maintained at all times.



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① VIRGIL THORMA ②  
③ ④ ⑤ ⑥  
⑦ J. HOBEL  
⑧ PAT STANZIONE

newest projects, still classified.

LOWER—Our products must be delivered on schedule so no expense is spared in keeping Transportation up to date. Here is shown latest equipment, featuring a recently patented horse collar designed to increase harness mileage. Standby equipment and a large inventory of hay is maintained at all times.



## M E N U

Seafood Cocktail  
French Onion Soup  
Green Salad — Roquefort Dressing (1)  
Assorted Rolls  
Stuffed Baked Potato  
French Cut Green Beans (2)  
Prime Ribs of Beef (3)  
Coffee  
Parfait

(1)—Please do not complain if you do not like roquefort. It isn't so bad if you sprinkle it with lots of pepper, chili powder, mace, thyme, rosemary, and a bit of ginger.

(2)—Well, suppose you *do* get French Onion Soup and French Cut String Beans on the same menu. France is a member of the United Nations, too. Don't be so fussy.

(3)—Now don't forget this menu. Some darn fool may come along in about 25 years and offer \$64,000 if you can remember it.



## PROGRAM

*(Each speaker has been cautioned that he must stay within his allotted time. However, owing to the deep interest the audience is known to have in all of the subjects, a 10-minute question and answer period will follow each address)*

**The Monetary System of the Balkan Countries From 1580 to 1900.**

*(45 minutes)*  
**Harold Altig**

**The Plight of the Connecticut Nutmeg Industry.**

*(30 minutes)*  
**Don Trimble**

**Illustrierte Erklärungen von Flugzeugteilen, Simplified.**

*(40 minutes)*  
**Robert D. Henschel**

**Why Trade Winds Are Preferable to Horse Latitudes in Sailing.\***

*(55 minutes)*  
**Hugh Rush**

**A Scientific Comparison of the Battles of Bull Run and Gettysburg.**

*(50 minutes)*  
**Jack Thompson**

\*Owing to the technical nature of this address the bar and the doors will be closed during its delivery. There is no escaping it.



**A MOMENT OF RELAXATION**—Scene above shows some of the boys relaxing and seeking inspiration after luncheon. Chap at telephone has trouble locating favorite bookie.



PAPPY'S TELLING 'EM—But he's always being interrupted by some Ham trying to get in on the act.



PAPPY LOVES HAWAII—And frequently is visited at his office by charming Polynesian maidens bringing exotic island gifts.



BASEBALL HANDICAP—Slightly higher than in golf, but with a blind umpire and a sly pitcher, why shouldn't it be?



THE TREASURY—Deep in the vaults, the Paymaster checks his cash to be sure he can meet the payroll.



**THE FAMOUS NIGHTHAWKS**—This is the team that worked around the clock to complete the Spirit of St. Louis. Charles A. Lindbergh, center, poses with O. R. MacNeal, at left, Lon Wheeler, Fred Ayres and Fred H. Rohr. Pappy supervised the sheet metal work on plane.

**BELOW**—"There's nothing to it, Joe," said Pappy, as the gang wished Joe Rheim good luck when he went east to take charge of a steel mill. Joe wasn't so sure, but he did all right, with the help of the tearful advice he received in J. L. Stoner's scene below.



the Paymaster checks  
roll.