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The Month in Focus

By HUGH COLVIN

West Coast Industrial Leadership

ENGINEERS and scientists differ widely from chambers of commerce and other civic and commercial organizations in their analyses of the problems and possibilities of industrial development in the Far West. Their interest, however, is none the less vital because progressive, expanding industrial activity will provide more jobs for engineers, more research problems for scientists, and more significance to a background of technical education in the West.

The fateful, but as yet unanswerable, question as to whether the Pacific Coast and Rocky Mountain states can actually maintain and nourish large-scale industry in a period of severe postwar economic competition with other geographic areas was raised again recently in an issue of *Fortune* magazine devoted entirely to this section of the country.

Noting that wartime urgencies plus availability of hydroelectric power and other basic resources has resulted in tremendous impetus to Western industry in the last six years, the magazine repeats the locally obvious fact that a major portion of such growth in employment, factory floor space, etc., has been in aircraft, shipbuilding, and other predominantly wartime endeavors. Further, even these industries have relied to an important degree on "imported" parts and materials.

It is imperative for the present that we devote our energies to the successful prosecution of the war. But even in doing so few individuals and almost no private industry can afford to abstain completely from postwar planning. It does not require an academic degree to foresee widespread economic and social turmoil after the cessation of hostilities, and industrial adjustments must also be many and complex.

The interrelationships within industry are extremely significant but frequently difficult to evaluate. The West has shown that in addition to several large-scale extractive industries based in natural resources, it can support many small enterprises producing specialized or locally-needed commodities. Some of these products compete successfully in national and international markets. The manufacture of oil-field tools and equipment, pumps, diesel engines, scientific instruments, gas heating equipment, and other items has shown continued growth. Branch plants of Eastern factories have been established to engage in fabrication and assembly of many products.

But will we see heavy industry of the type and importance found in the Pittsburgh, Detroit, Cleveland, Philadelphia, or Chicago areas? Can the steel mills at Fontana and Geneva, the aluminum and magnesium reduction plants, mills, and foundries of southern California and the Pacific northwest continue to operate? Can the West support a modern tin-plate mill? Can its ports retain some of the shipbuilding and ship repair business that they enjoy today? Can an integrated textile industry be established in California? The answers to some of these questions seem already obvious and other answers seem to have become political footballs.

In future articles as it has in the past, *Engineering and Science* will endeavor to cover western industrial and technological developments as thoroughly as is consistent with its policy of editorial balance. This month's contents, for example, all bear rather directly on the future of the Pacific Coast.

China and Her Engineers

The West has always coveted the prospects of the Oriental market as a stimulus to its own industry. The development of industrially primitive China, arising out of the agonies of prolonged warfare, is a hopeful but not yet clearly focused picture. Certain it is that development of a sufficient quota of Chinese engineers, scientists, and technical men must precede any major application of American tools and methods; and that only after modern systems of communication and transportation and trained personnel are available can China become an industrial customer of the West. E. Harrison King's experiences in China and his close contacts with present developments make his article on Chinese engineering interesting and timely. It is a matter of considerable gratification that many of China's most promising young men have received their technical training at the California Institute and that their achievements in and for their native land have shown the greatest degree of capability.

Los Angeles as an Air Center

If they are to maintain their status, the metropolitan centers of tomorrow must be geared to the transportation and communication medium of the times. For an area

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provements; they are listed in recommended order of priority:

Class 4 (Major Air Terminal)—1

Map Key

(4) San Gabriel Valley Airport.

Class 4 (Seaplane Terminal)—1

(5) Los Angeles-Long Beach Seaplane Base.

Class 2 (Feeder Airports)—15

(14) Lomita Airport.
(15) South Whittier Airport.
(19) Pomona-Claremont Airport.
(21) Puente Airport.
(24) Buffalo Springs Airport (Catalina Island).
(26) Reseda Airport.
(27) Quail Lake Airport.
(28) Black Butte Airport.
(29) Point Dume Airport.
(30) Palos Verdes Airport.
(34) Downtown Landing Field.
(35) Arroyo Seco Landing Field.
(37) Covina Airport.
(38) Joshua Airport.
(39) Antelope Airport.

Class 2 (Feeder Seaplane Base)—1

(40) Cabrillo Beach.

HOW MANY AIRPLANES WILL THIS PLAN HANDLE?

This number of additional airports (18), together with expansion and improvement of existing airports, may sound ambitious, but when one considers the fact that only one additional major air terminal, one new major seaplane terminal, and 16 Class 2 (small feeder type) terminals are involved, it may not even be adequate for immediate postwar needs. Of the less than 40 land airports listed, one was used before the war exclusively by the Navy, nine are remote, and three are private factory fields, leaving only 25 for ordinary civilian and commercial use. "These 25 must harbor practically all civil airplanes in the county. At least two of the major air terminals will be required to accommodate transport planes, and heavy transport traffic may ban the private flier from their use. Two feeder airports are proposed as taxi or local stations with limited storage facilities. One is a special site more adaptable for factory or military use. Therefore, about 20 airports can provide accommodation and hangar space for private flying," says the "Master Plan."

The planners further estimated that the capacity of these airports, if provided with single runways, is: 3 large airports—300 airplanes; 17 smaller airports—1,000 airplanes.

This number of airplanes is little more than twice the number of civil airplanes in use in Los Angeles County in 1939. Further expansion would be possible by improving and expanding all existing airports, or adopting a more ambitious plan. Some airports have been improved since the war.

SOME PLANNING NOW UNDER WAY

On the more optimistic side, it is encouraging to note that such civic groups as the aviation committees of the Los Angeles and Pasadena Chambers of Commerce have succeeded in getting the Los Angeles County Board of Supervisors to appropriate funds for a revision of the "Master Plan for Airports," now under way at the Regional Planning Commission's engineering office under the able direction of Taylor Suess. Also, the City of Los Angeles Department of Airports, under the guidance of the Board of Municipal Airport Commissioners and the newly created Aviation Ways and Means Committee, is planning a large-scale expansion for the Los Angeles Municipal Airport.

WHERE DO WE GET THE MONEY?

The stumbling block is, of course, money. To complete the full plans for the expansion of the Los Angeles Municipal Airport alone will call for at least $25,000,000. Investments in private and municipal airports in Los Angeles County by 1940 had reached only about $12,000,000, and the Regional Planning Commission originally estimated that an additional $16,000,000 (exclusive of the Los Angeles Municipal Airport) would be required to complete its plans.

This is still a modest sum when compared with the cost of improving harbors and highway systems. Private capital cannot do a large part of this financing. Except for some of the large ones, few airports can be made entirely self-supporting. Various proposals for federal aid, state and local bond issues, aviation gasoline tax, and license fees are currently being made. Because aviation has rapidly become big business, the whole issue of airport development may get well snarled in politics.

A FEW SUGGESTIONS

The creation of a County Airport Authority with power to act, soliciting the help of the Federal government, adequate planning, land acquisition before speculation in land for airports can become too prevalent, and a realistic approach to the fact that the aviation industry is already paying a big local and state tax without benefit of state and local funds for airports are a few of the first steps which can be taken now. We must get down to earth before we can get Los Angeles into the air.

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which has grown up literally with the aircraft industry, Los Angeles' air terminal situation is notoriously unsatisfactory. T. C. Coleman's authoritative article relates the problem of providing suitable freight and passenger handling facilities, then presents some possible solutions. It has been said that only a dozen fields in the world are adequate for handling B-29 bombers, and that postwar commercial transports will be even larger than these giants of the sky. The strategic value of early action to attain Mr. Coleman's objectives is thus quite apparent.

ELECTRIC UTILITIES MEET WARTIME PROBLEMS

The article by Alex A. Kroneberg, senior electrical engineer for the Southern California Edison Company, appearing in this issue, discusses problems met by Mr. Kroneberg's company in satisfying ever-increasing demands of war industries for electric power. The April issue will present a very informative discussion by Alan Capon on the solution of municipal utility problems arising from the dramatic aircraft-accelerated growth of Burbank. Ten years ago Burbank was a typical residential, marketing, and small-scale manufacturing center in the suburban fringe of metropolitan Los Angeles. Today it is a booming aircraft-production center with greatly enlarged domestic and industrial demand on its municipal utilities. Tomorrow, what?