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AIR FREIGHT — THE FIRST SEVEN YEARS

*John C. Emery**

THE history of transportation reveals a significantly consistent pattern. It is one of constant change, constant improvement in speed, capacity and usefulness, and constant replacement or augmentation of the older forms of transportation by the new. It is a pattern of change which matches and has shaped the pattern of constant development of the world's natural resources and the evaluation of its industrial economy.

In the Twentieth Century, and especially in the United States, change in transportation has occurred at a relatively dizzy pace. Perhaps this is because two World Wars were experienced in this interval. It is a notable fact that wars have produced many basic improvements in transportation facilities. To wage a war, a nation requires more and better transportation immediately, and history shows that the nation which wins wars is the one in which transportation has managed the best and fastest response to the multiplied demands placed upon it.

World War I not only witnessed but caused the birth of what we call intercity truck transportation. The motor truck as a vehicle for local transport had already come into common use, but not until war requirements overstrained our railroads at home and demolished the railroads of Northern France was a motor truck designed, and the technique of its use devised, for heavy-duty basic transportation over fairly long hauls. Truck transportation as we think of it now, symbolized by huge tractor-trailer combinations moving night and day across the whole face of the United States, has grown from seed planted and nurtured by the necessities of World War I.

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By a precise parallel, air freight transportation came into being because of the special problems and requirements of World War II, truly global in its proportions. Trains, trucks, and ships had the deadweight capacity to carry the tonnage even of that world conflict, but they lacked the speed necessary to make available in a matter of hours on any battle front the many tools of war which could not be produced in ample supply. For example, a navy would become largely inoperative without spare parts for internal combustion engines, and almost to the end of World War II such engine spares were in critically short supply. Not only planes, of which we had many, but transport planes having a capacity measured in tons, were a necessity and they were provided, to deliver such things as engine parts fresh from the factory to any part of the world where they were needed, not in weeks or months but in days and hours. In that sequence of events, air freight transportation was conceived and born.

In both air freight and truck transportation, one may observe an especially interesting parallel process of conversion from a military to a commercial basis. After World War I, there were many surplus trucks, not well designed for business usage but reasonably adaptable to it, which could be bought cheaply. There were also many restless young men who had learned, in uniform, how to operate, maintain and employ these trucks. The result of this combination was exactly what one would expect. The restless young men bought the war-surplus trucks and went into business. Today's truck transport industry is the result.

Precisely the same thing happened after World War II. There were surplus transport aircraft, loosely suitable for commercial use, which could be bought for a small fraction of their initial cost. And again there were many restless young men who had learned in the service how to fly, maintain, and move freight with them. Like their truck-driving fathers, they saw the same opportunity to employ commercially the equipment and skills they had been taught to use in their war-supply role. So the surplus men

bought the surplus aircraft and founded the commercial air freight business.

Air freight transportation's precise date of birth is a subject of argument. Air express service, essentially indistinguishable from air freight, had gained a small foothold some years before Pearl Harbor. At least one passenger airline published its initial air freight tariff in 1944, and a little air freight moved in 1945. But it was in 1946 that there became visible the first clear signs that a new industry was on the way. Freight airlines, and cargo planes of passenger airlines, were noticeably active for the first time in that year. For this reason, it seems appropriate to describe what had gone before as merely labor pains, and to conclude that air freight transportation was indeed born early in 1946.

On this premise, then, this newest medium of cargo movement has had seven years so far to try its wings and to seek a place for itself in the national transportation system. What has air freight accomplished in this time? A few statistics provide a partial answer to this question. Unfortunately both the newness and the nature of air freight carriers have combined to confuse the statistical record. There are freight-carrying passenger lines, other all-cargo airlines, and still other so-called irregular air carriers hauling freight as well as passengers. From these varied and sometimes rather casual sources, statistical reports are likely to lack completeness and accuracy. For the purpose here, the reports of the Civil Aeronautics Administration of the Department of Commerce are taken as official, and the writer has drawn in particular on a report by that office issued in October, 1952.*

A comparison of air freight route maps for 1946 and for 1952 would provide little contrast. This is because the route pattern of the older airlines was fairly complete and comprehensive even prior to 1946, and virtually all of these became freight routes as

*"Domestic Air Cargo Forecast, 1955 and 1960," a study of the Program Planning Staff, Office of the Administrator of Civil Aeronautics, October, 1952.

well as passenger and mail channels. The all-cargo airlines and the irregulars had no choice but to duplicate in the main the air-route coverage of the passenger lines. Even maps reflecting capacity for movement of air freight on various routes would show less change in seven years than one might expect. The lines would be a little thicker on the transcontinental trunks, but still narrow to the point of invisibility on the others. There are broad areas of the United States where even today cargo aircraft are seen, if at all, only rarely, such freight service as there is being provided by combination passenger-cargo equipment.

In the number of cargo aircraft available for freight lift, there has been a similar lack of the substantial growth which one would expect from a new medium of transportation. In January, 1948, the Civil Aeronautics Administration reported 89 cargo aircraft in operation by passenger and cargo airlines. In August, 1952, according to the same source, this number had grown to only 110, a modest expansion indeed for a dynamic new carrier industry.

However, this does not tell the whole story. In 1950 over 60 cargo aircraft of the large 4-engine type were diverted from domestic commercial use to become the backbone of the trans-Pacific Korea airlift, and few of them have been returned from this priority assignment. Furthermore, larger, faster combination aircraft have been installed by the dozen on many domestic routes, and each of these can carry, in addition to passengers, as much freight as the older, all-cargo plane types. Regardless of the cargo type statistics, therefore, the capacity available has grown sharply over the last seven years in spite of such handicaps as the diversion of commercial equipment to military support.

Otherwise there could not have been such a large growth in the volume of air freight transported. In 1945, the last pre-air freight year when military shipments were the major source of domestic air cargo, 22,000,000 ton miles represented the commercial air lift score within the United States. Nearly all of this moved as

air express. In 1946, air cargo ton miles increased to 82,600,000, and less than a third was air express. Six years later, in 1951, the Civil Aeronautics Administration air cargo ton-mile figure, counting all types of carriers, was 245,500,000, a gain of 197 per cent over the base year of 1946. Official totals for 1952 are not yet available, but they unquestionably will represent a gain over 1946 air freight ton miles of at least 250 per cent.

For an accurate perspective in pondering this rapid rate of growth, it is necessary to compare the air freight record with that of other carriers. How does the air freight gain compare with the growth registered in the early years of truck transportation? What part of the total domestic freight transportation is accommodated now by air? The answers to these questions may be a little deflationary.

The statistics of truck transportation are fully as dubious in their accuracy as those of air freight, and they go back only as far as 1925. With that year as a base, a percentage gain equivalent to that of air freight's first seven years was not attained by intercity truck transportation until nearly fifteen years had passed. A major factor tends to destroy the validity of this comparison, however. It is that 1925 was not such a base year for intercity trucks as 1946 was for air freight. Long-haul truck transportation was well under way in 1925, with an indicated total of over 11 billion — not million — ton miles. It would be inaccurate, therefore, to conclude that air freight has grown faster in its first years than did over-the-road truck transportation.

Actual embarrassment must result to an air freight enthusiast from a determination of air cargo's current place in the entire domestic freight transportation picture. From various official sources, the Civil Aeronautics Administration report referred to tabulated the ton miles of intercity freight transported by all types of carriers in 1951. The railroads headed the list, with 654,000 millions of freight ton miles. Motor trucks were credited with

137,000 million ton miles. Even electric railroads had 1,000 million ton miles, for one-tenth of one per cent of the over-all total of a million million ton miles. Air freight, with 246 million ton miles was not even shown in the percentage column, so small in comparison was its less than one-quarter of a tenth of one per cent. If you wish to visualize the freight tonnage of the United States as a carpet, and a huge one at that, air freight is still not so much the fringe on the carpet as merely the outer edge of the fringe.

Not even so invidious a comparison as this needs to be discouraging to the air freight industry or any of its proponents. The largest cargo plane in service today has a capacity less than half of that of one modern railroad box car, and less also than that of most highway tractor-trailer combinations. Numerically, over half the cargo aircraft now in domestic commercial service can lift at one time only six tons. With only a few more than 100 cargo aircraft available in total, and with these accounting for 57 per cent of the total lift available to freight, it is not surprising that air freight ton-mile figures look small in comparison with those of the older, surface carriers.

Air freight is, always will be and should be a relatively expensive medium of transportation. The relatively small load which even the largest airplanes can lift, and their great speed, are combined guarantees of the accuracy of that estimate. The speed will tend to create traffic, while the cost will tend to keep it away. In combination, they mean that air freight may never handle a large percentage of the domestic freight tonnage, and certainly will not do so until the airlines and their customers are equipped to capitalize the potential value of the airplane's speed. On this point, more will be said later. Meanwhile, it is offered as a firm basis for avoiding any discouragement over the fact that air freight, after seven years, has yet to dominate the national freight transportation field.

To round out the record of what has been accomplished thus

far, mention should be made of the sources of air freight traffic thus far developed. There is still an unhealthy degree of concentration in this regard, whether sources are considered as geographical or industrial. Geographically, some 56 per cent of total air cargo tonnage originates in the Middle Atlantic, Northeastern and East Central states. Another 14 per cent comes from the Pacific Coast, and largely from California. The remainder of 30 per cent is well scattered by region of origin, the range being from 2.1 per cent in the Kentucky-Tennessee-Alabama-Mississippi area, through 5.1 per cent in Texas, to 8.4 per cent in the eight South Atlantic states from Delaware on the North through Florida at the South.

The commodities carried by air freight, while varied, tend to bulk around a few items. The statistics on this point are fragmentary in the extreme, even the latest Civil Aeronautics Administration report referring to various incomplete calculations in 1948, 1950 and 1951. From the official figures, weighted by personal observation, it seems safe to estimate that well over half of all air freight tonnage is represented by wearing apparel and the products, parts and components involved in manufacturing and servicing such things as automobiles, electronic equipment, aircraft and radio-television instruments. The traffic in cut flowers, advertising and printed matter, drugs and biologicals and a few animals such as baby chicks, is also perceptible, but not much more than that. Of the scores of other commodity items that fly as air freight, none is yet of any significant volume.

This fact about the current narrow market for air freight is not surprising. The main sources of air freight tonnage, as they have been penetrated in seven years, are the main sources also of the less-than-carload and less-than-truckload tonnage of the older surface carriers. In its first years, air freight has concentrated, as all new types of carriers invariably do, on already existent traffic. Air freight is still almost completely in the "take-away" stage of its development. As a competitor of older carriers, it has found railway express service most vulnerable, with high and rising rates

and a transit speed much slower on longer hauls than the air can easily provide. Air freight has made calculable inroads on railway express traffic, and the commodities most prominent in the breakdown of air freight tonnage are those which historically have made up most of the express tonnage.

In the creation of traffic and in competition with other kinds of surface carriers, air freight has yet to register even initial results. The "creation" stage will come in due course. Every new kind of carrier creates traffic, which comes into existence because of its peculiar capabilities. Air freight in time will create new traffic, but it has not done so in its first years. Whether air freight will successfully compete for freight now carried in truck and rail freight service is a point on which there has been much argument. Indirectly air freight may some day take freight from rails and trucks, but it has not done so yet, and it will never do so directly.

In summary, then, one sees as the result of air freight's first seven years a tiny but growing element in our national transportation system. Relatively, from any realistic point of view, the results thus far directly achieved by air freight are trivial. In capacity, sale of transportation product, revenue, profit and impact on the national economy, air freight is no more than a dot on the domestic landscape. Quantitatively, this is simple truth. But qualitatively — that is another matter. Qualitatively and still largely as a potential, air freight has registered a degree of progress and outlined a positive expectation for the future which gives full meaning and purpose to the companies and the individuals who have labored so determinedly for seven years to bring air freight into its own.

To attempt to express air freight's future in terms of dollars of revenue or tons or ton miles is to invite a repetition of the embarrassment into which most air freight prognosticators have fallen. In 1946, with numerous wise men in attendance at air freight's birth, the estimates of what might be the infant's future were

many and varied. These forecasts had only one thing in common, namely, that all were wrong and all on the high side. At that time, the range of estimates on air freight ton miles to be carried in a year by 1950 stretched from a fairly realistic low of 253 million to a fanciful high of 5 billion. Actual 1950 ton miles were 229 million.

At the end of 1952, the air freight forecasts were more conservative. By 1960, according to the published prophets of airlines and airplane manufacturers, air freight ton miles will be either 370 million, the lowest guess, or 1,350 million, the highest, or somewhere in between.

The Civil Aeronautics Administration planning staff prudently have adopted a middle position. They estimate that by 1955 the air carriers can handle between 375 million and 425 million ton miles, which can be increased by 1960 to something like 600 million to 800 million. They consider that the results, in the main, will depend upon the vigor with which air carriers attack the problem of developing the air freight potential, and that is a wise reservation indeed.

Some other aspects of the Civil Aeronautics Administration forecast are most interesting and can be summarized as follows:

The 1960 volume will require an additional 50 cargo-type aircraft.

The C-46 and the DC-4 types, long the air freight work horses, will remain the backbone of the freight airlift, until gradually replaced by the DC-6A and the Lockheed Constellation type freighter. (Apparently the Air Force and Navy are to continue to monopolize the larger cargo planes which have been developed for them.)

The growth of air freight thus far has been due in the main to the increasing competitiveness of air freight rates, plus a shipper awakening to some inherent advantages of air transport, plus improvement in operating and selling techniques. These are expected to continue to foster growth.

The bulk of the present volume has been diverted from railway express, and no significant change in the characteristics of air freight

traffic is anticipated during the next few years except for a possible special increase in perishable fruits and vegetables.

Any real reduction in air freight rates depends on improved ground handling techniques and the development of an efficient, low-cost airplane designed with freight in mind. Such an airplane is at least five or six years away.

On the basis of his experience in the air freight business, the writer has no disposition to dispute these estimates of what the near future will witness in the air freight field. On the contrary, these quite general forecasts appear to be at least the minimum that one may expect. If they seem almost pessimistically conservative, there is good reason. Much that has long needed to be done still remains for future accomplishment, as essential preliminaries to the development of air freight potentialities. The writer would list these "things to be done" as follows, more or less in his conception of the order of their importance:

1. The complete conversion of air carrier managements to the conviction, and to action in accordance with the conviction, that air freight can be made a source of revenue at least as important and profitable as passenger and mail traffic.
2. The provision, which will be costly, of adequate facilities and personnel for rapid, accurate, economical handling of air freight on the ground. Ground facilities today are rudimentary or non-existent, and this condition prevents either the best performance for or profit from air freight.
3. The extension of the benefits of air freight transportation to the whole United States, off-airline as well as on-airline. The available air freight lift today is far too concentrated, geographically and industrially. It is a well considered opinion that the largest immediate air freight market, of the "take from express" type, is in areas and communities not even touched by airlines.
4. A far larger air freight sales force. Selling air freight service, with performance often handicapped by inadequate capacity and ground facilities and with prices at a premium, is not easy. Not only the traffic already moving at premium rate, but new traffic created by the speed and simplicity of air transport, must be sold by men numerous enough to canvass the whole domestic market and trained to express

forcefully and convincingly to American industry the things which industry wants to do, and can do only with air freight.

5. Last and not least, the general employment of more efficient freight aircraft than the best of those too rarely seen in operation today. The writer specifically excludes lower rates as one of these essentials.

Whatever the degree to which these apparent needs are met and the rapidity with which they are provided, one fundamental fact positively guarantees the future of air freight. It is that the airplane has reduced the size of the map of the United States, as other successful carriers have done before but never so sharply. The history of transportation affords repeated proof that any carrier can and will prosper if it can bring sources and producers and markets closer together. The transcontinental railroad did this, and succeeded. So did the motor truck. So will air freight.

Distance as a factor of importance to industry, which draws raw materials from and sells finished products to the widest possible area which can be traversed in a short time, is measured in terms of days in transit for freight. With surface transportation providing the standard of measurement, the United States has been some eight days in distance from coast to coast. Now air freight has reduced this intercoastal distance to one day, and that simple circumstance is the foundation upon which the air freight business will be built.