



TWA Museum at 10 Richards Road, Kansas City, Missouri 64116



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Sincerely,

Carol Emert, Archivist
Zana Allen and the many Archives Department volunteers

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This History of T.A.T. in its beginnings is the property of Aurel J. Knarr who resigned from the U.S. Weather Bureau in Washington D.C. in the Spring of 1929 to join T.A.T. in the development and operation of its' weather Bureau. I was assigned at Columbus, Ohio, as meteorologic and operated this' station until the Spring of 1930, when I resigned to re-ent the U.S. Weather Bureau.

COAST - TO - COAST

By

PLANE AND TRAIN

A History of the
Conception-Organization-Development-Operation of

TRANSCONTINENTAL AIR TRANSPORT, INC.

C O N C E P T I O N

An envelope scrawled across the back with a rough pencil sketch bearing a slight resemblance to the map of the United States, was passed from one to another of the four men who sat informally in the small room.

The originator of the sketch, from his place on the bed, watched the others closely as they inspected his handiwork, but made no comment until the envelope was returned to him.

"If you like the idea," he said quietly, "it's just a job of work. If you don't, there's no harm done."

The speaker was Colonel Paul Henderson, former assistant Postmaster General and now Vice President of National Air Transport, air-mail carrier.

In the audience was Colonel Charles A. Lindbergh, who just the week before had returned from his flight to Paris. His youthful features bore worried lines as a result of the tremendous public acclaim which followed his flight. He was the youngest of the group.

The other men in the room were C. M. Keys, banker, capitalist, and President of the Curtiss Aeroplane and Motor Company, and Mr. Chester W. Cuthell, attorney and director of a number of aeronautical companies.

The room was in the Engineers Club in New York. Colonel Henderson glanced at his artwork. Marked on it were the names of several cities. At other places were penciled question marks with a line connecting the cities and the question marks. "Air Line" was scribbled above the connecting line.

"We're not ready to fly all night yet," Colonel Henderson said, "but we can use the railroads at night and fly by day. I figure we can make the trip from here to California in two days."

"And I believe now is the time to think about it while the whole country is talking and thinking aviation. I believe, too, it should be a passenger line only."

"It will require considerable time," Colonel Lindbergh warned. "There isn't an airport on that route with the facilities for transport service."

"And how do you know you can interest the railroads in an air line?" Mr. Cuthell inquired.

"I don't know for certain," replied the originator of the plan, "but I do know that General Atterbury and the Pennsylvania railroad have been in touch with aviation for some time. As I see it, we have two immediate jobs--sell the Pennsylvania and raise some money. I don't believe either one will be difficult."

"No trouble at all about raising the money," Mr. Keys promised.

The four men studied the rough map more closely and from their study came a definite plan for the first air and rail passenger line, organized for transcontinental service.

The line as finally put into operation differed only in minor details from the line as it appeared on Colonel Henderson's envelope. The question marks on the envelope were erased and Dodge City, Kansas, and Las Vegas, New Mexico, put in their place. Columbus, Ohio, was definitely chosen as the transfer point between rail and plane, and Los Angeles and San Francisco chosen as the dual western terminal. The Pennsylvania and Santa Fe railroads were decided upon as the logical rail connections.

As it went into operation a year and a half later, Transcontinental Air Transport, Inc., which was determined upon as the name of the venture,

had been changed in only three places. Dodge City was replaced by Waynoka, Oklahoma; Las Vegas was replaced by Clovis, New Mexico, and service was not immediately begun to San Francisco as originally planned.

In all its major features, T A T, as it was to become known, was as conceived by Colonel Henderson and discussed by the group in the Engineers Club.

Little difficulty was encountered in selling General W. W. Atterbury, president of the Pennsylvania Railroad, on the place of the air line in the general transportation system of the United States. Santa Fe officials, likewise, were interested. The company was incorporated and underwritten for \$5,000,000 which was subscribed without payment of the usual brokerage commissions and fees.

The financial group back of the organization included the Curtiss Aeroplane and Motor Company, the Wright Aeronautical Corporation, Blair and Company of New York and a group of Middle Western Bankers headed by Knight and Bixby of St. Louis. A directorate of men with previous aeronautical or transportation interests were chosen and officers elected. The officers, who later formed the executive committee, were Mr. Keys, President; Colonel Henderson, Vice President; Henry G. Hotchkiss, Secretary; and J. A. B. Smith, Treasurer.

Colonel Lindbergh was asked to become an active member of the organization and accepted the position of chairman of the technical committee. Others appointed to the committee were Mr. C. S. (Casey) Jones, President of Curtiss Flying Service; Mr. William B. Mayo, Chief Engineer of the Ford Motor Company; and Major Thomas J. Lanphier, former commander of the First Pursuit Squadron of the U.S. Army.

The public announcement of the new line resulted in wide comment to the effect that "when the railroads go into aviation there must be something to it."

The paper work and the legal preparations completed, it became, in Colonel Henderson's words, "just a job of work". There were many technical problems to be solved before the new service could be presented to the public. Airport sites must be selected and airports constructed; flying equipment must be selected and accessory equipment installed. Ground work facilities far in advance of any provided by other air lines was insisted upon and an efficient personnel was gradually assembled.

Through the entire preparatory period ran a policy as stated in the words of Mr. Keys. "We begin operations only when we are properly ready."

II.

P R E L I M I N A R Y S U R V E Y

The first official act of the directorate was the allocation of the capital fund. Two million dollars went to operating accounts, one million to meteorological investigations and two million to a general reserve.

A temporary office was opened in the Carlton Hotel, Washington, D. C. on October 1, 1928. Colonel Henderson was in charge and his general instructions were to prepare the line for operation.

The most important phase of the preparation is indicated in the large proportion of the capital fund allocated to meteorological investigations. The weather always had been considered a treacherous flying hazard but until the organization of T A T nothing so far-reaching had been attempted toward eliminating the hazard. The investigation covered the entire section of the United States traversed by the T A T route and resulted in the installation of a far-flung net work of observation stations directly on the flying route and to either side of the route.

Operating in close conjunction with the weather bureau were the two systems of communication--the radio chain and the tele-type system--by means of which weather reports could be concentrated at a central point and, when necessary, transmitted to pilots aloft.

Proceeding simultaneously with the weather investigation were surveys of the proposed route to determine the cities to be served. Many factors were considered before the route-cities finally were selected.

Colonel Lindbergh made several trips across the continent inspecting proposed airport sites and their possibilities. When the

line was first conceived, there were no airports available which met his rigid requirements.

Colonel Lindbergh's requirements may be outlined briefly in five sections, as follows:

1. Adequacy in size, due considerations being given to altitude.
2. Flying conditions--Safety, advantageous terrain and meteorological advantages.
3. Accessibility with reference to the town in which the port was located.
4. Cost of putting the field into condition
5. Service available at the field of the cost of getting them there--electric power, water, gas, etc.

In general it was developed by Colonel Lindbergh's surveys and those of other officials, that cities from Wichita Eastward could and would provide municipal airports meeting Colonel Lindbergh's requirements. West of Wichita it was necessary for the Company to provide its own fields.

The cities as finally selected as the T A T route were Columbus, Indianapolis, St. Louis, Kansas City, Wichita, Waynoka, Clovis, Albuquerque, Winslow, Kingman, Los Angeles and San Francisco. The more Southerly route through Waynoka and Clovis, rather than through Dodge City and Las Vegas, was chosen because of the greater flexibility of the operating schedule and the possibility of easier connections with the Pennsylvania "American" on the Eastbound flights.

An engineering party headed by Donald Bartlett, now assistant general manager and assistant secretary, left Washington on November 23 to make purchases of the necessary sites on the Western division. The party selected and purchased sites at Dodge City, Las Vegas, Gallup, King-

man and Winslow. The party returned after a month with the data on which construction specifications for the fields and for the T A T hangar at Columbus, were based.

Late in December 1928, an active construction program was begun under the direct supervision of Mr. J. V. Magee as Chief Engineer. Mr. Magee, although a chemical engineer by education, had entered aviation in 1922, when, as special assistant to the Postmaster General, he undertook the task of lighting the transcontinental airway between Chicago and Cheyenne, Wyoming. He later made a survey for the post office department of the proposed airmail route between the United States and South America. The route which he suggested at the end of his survey recently was adopted and is now in operation. He came to T A T from the E. I. du Pont de Nemours Company.

Through the late Fall and Winter months of 1928 a personnel gradually was assembled in the temporary offices in Washington. In October, Mr. T. B. Clement, formerly passenger manager for the International Mercantile Marine Company, Philadelphia, was appointed Traffic Manager of the line. He conducted a traffic survey of the territory served and appointed three regional traffic managers. Henry W. Conner, formerly General Manager of the Rapid City Power Company, Rapid City, South Dakota, became Eastern Traffic Manager; J. W. Brennan, Washington representative of the Missouri Pacific lines, was appointed Central Traffic Manager; and H. W. Beck, of the Santa Fe railroad became Western Traffic Manager. Two assistants to the Traffic Manager, G. E. Everett and Pat Murphy, former newspaper men, were placed in charge of advertising and publicity, as a part of the activities of the Traffic Department.

Actual details of airport and hangar construction on the western division between Clovis and Waynoka, where it was necessary for the company to provide its own airports, was placed in charge of John A. Herlihy, Construction Engineer. It was possible for Mr. Herlihy to oversee the work only by the use of airplanes. His activities lay over a stretch of 1,200 miles, much of it desert and mountain country. In some cases daily flights of 600 to 900 miles, with stops at two or three ports were required.

Special soil treatment also was necessary and had to be developed to suit the soil structure at each airport. The runway surface decided upon for Waynoka, Clovis and Winslow, for example, was a four-inch base saturated with oil. At Kingman, oil was spread heavily over the natural soil and allowed to settle. Then it was disced and the process repeated several times.

The field at Albuquerque was leased from the Aircraft Holdings Company of New York after it had been equipped and enlarged to meet T A T specifications. Albuquerque airport, with an altitude of 5,200 feet, is the highest landing field on the route and it was essential that a large landing area be provided.

During construction activity by the Company's engineers on the western division, the Eastern municipalities which were to provide airports had instituted the necessary political procedure. Columbus, St. Louis, Kansas City and Wichita each passed bond issues of sizeable amounts to make available the necessary funds. Progress was halted in the cases of Kansas City and St. Louis by an appeal to the Missouri Supreme court for a ruling on the legality of such a bond issue. The ruling was favorable and construction contracts for runways and accessory equipment were let early

Included in the construction problems was that of developing an air passenger station for each of the cities, particularly on the western division. On the eastern division the municipalities in most cases were to provide the passenger stations. Eugene Vidal, acting for the Company and with the assistance of J. F. Brozo, architect of Albuquerque, designed and let contracts for the construction of the western division stations. They were of hollow tile construction and of Indian and Spanish type architecture--a novel contribution to the field of Transportation and a welcome resting place for T A T passengers.

At the outset, inauguration of the service had been planned for May 1929, but delays for which the weather was accountable and the necessity of developing new types of equipment, postponed the starting date several times. The postponements were dictated, too, by the original policy of starting only "when we are properly ready."

III.

WEATHER AND COMMUNICATIONS

The construction of the T A T weather bureau resolved itself into the problem of providing for the pilot, answers to four questions which he continually asks.

The questions are:

1. What conditions prevail at my destination?
2. What conditions will be encountered en route?
3. What changes are likely and where may they occur?
4. At what altitude will the most favorable flying conditions be found?

To provide the answers a net work of weather reporting stations located directly on the route and as far as 150 miles to the north and south of the route were deemed necessary. Surveys to determine the number and location of the reporting stations were begun in the late Fall of 1928 under the direction of Dr. Carl Rossby, professor of Meteorology, Massachusetts Institute of Technology.

Dr. Rossby's weather studies throughout the section traversed by the line were of immediate value in the construction of the airports as well as forming the foundation of the entire weather system. Runways were laid out in the direction of the prevailing winds as found by Dr. Rossby, and were of a type to withstand the most severe climates.

The weather bureau as finally organized consisted of 79 stations distributed to form a weather reporting band approximately 200 miles wide and 2,000 miles long--the length of the flying route. Ten of the stations were equipped according to the specifications of the United States Weather Bureau and were made meteorological bureaus. The

remainder were observation stations with all the equipment necessary to determine and describe prevailing conditions. Each observation station was assigned to the territory of a meteorological bureau and instructed to report at definite times to the bureau. Special reports were ordered made when necessary.

Following the preliminary work, Mr. Loyd A. Stevens of the United States Weather Bureau was appointed Senior Meteorologist in charge of the bureau, and with instructions to have the system operating smoothly when the service began.

Agents of the Pennsylvania and Santa Fe railroads were instructed in weather observations and became a part of the system. The established stations of the United States Weather Bureau also became integral parts and were tied in closely with the T A T bureau. Much credit for the success of the T A T bureau must be given to the associated railroads, the government Weather Bureau and the Daniel Guggenheim Fund, from which much valuable information was obtained.

Instantaneous and constant communication between the bureaus and their dependent observation stations and between the bureaus and the pilots aloft were an absolute necessity--the nerve system of the weather bureau. Ground communication was provided by an extensive tele-type system. Communication between the earth and the pilot aloft was made available by a two-way radio communication system which became a part of the Airways Communications of the government. The combined systems permit weather information and other communications to proceed across the continent always ahead of the pilot.

The tele-type network--the teletype machine is a combination typewriter and telegraph transmitter and sender--was installed on wires

leased from the American Telephone and Telegraph Company. Every city on the route was connected and in several cases duplicate machines were installed to permit communication between a central office and an airport or between a field and a commercial telegraph office.

The private wires of the two railroads likewise became units in the system. Reports from off-line observers were transmitted over railroad wires and relayed to the bureaus over the teletype network.

Traffic reports, reservations, plane movement orders and all the necessary communications between officials of the Company and field managers or traffic representatives are carried over the teletype line in addition to the weather reports. It has been found a convenience to passengers as well as a necessary operating facility.

Construction and equipment of the radio stations was under the direction of Mr. E. W. Proctor, Radio Engineer, who had installed the radio facilities of National Air Transport airmail line. Radio licenses were applied for in October 1928 and granted in due course.

Mr. Proctor installed seven private stations--at Columbus, Indianapolis, Waynoka, Clovis, Albuquerque, Winslow and Kingman--on the same specifications used by the Department of Commerce stations which already had been installed at St. Louis, Kansas City and Los Angeles. The stations were equipped with two kilowatt transmitters which operated on either voice or code, on 600 to 900 meters. In addition, direction finders were installed at each station which enabled the ground operator to give a pilot aloft his direction and course. Transmitting installations were put aboard all planes so that the pilot might transmit as well as receive messages while in flight. The plane transmitters were placed at the disposal of passengers for emergency commercial

messages.

The weather bureau with its two communication systems operating in conjunction, thus has solved several problems which faced airline operators for some years:

It placed detailed weather information in the hands of the pilot before each takeoff.

It provides a means of informing the pilot aloft of bad weather ahead.

It permits the pilot to ask ground stations for special weather reports.

It makes possible the transmission of operating orders to pilots aloft and is a means of informing the pilot of his direction and bearing.

It provides facilities for instantaneous communication between officials at the central office and their assistants thousands of miles away.

The bureau and its coordinated systems of communication is, in a word, the highest achievement ever attained in air transport.

IV.

L I G H T I N G and E X T R A O R D I N A R Y E Q U I P M E N T

Although no night operations were contemplated for some time after service was inaugurated, it was anticipated that a time would come when lighted fields and airways would be found necessary. Planes arriving after their scheduled time, or the early arrival of twilight in the winter months, would bring about occasional but brief periods of night flying.

All fields, therefore, and the entire airway were ordered equipped with the most modern lighting devices. Standard airport lighting systems had not been then developed but certain types of equipment were available which could be coordinated into a suitable standard and which would at the same time meet the specifications of the Department of Commerce.

Edwin J. Stotler, an electrical engineer of wide experience, accepted the task of lighting the airports and airways. The standard, as decided upon by Mr. Stotler for T A T airports, consists of obstruction lights, field boundary lights, approach lights for the runways, flood lights and ceiling lights. The ceiling light as its name implies, is designed to indicate the height of the clouds above the earth.

The red obstruction lights have been placed on hangars, passenger stations, radio towers and other buildings or obstructions which might interfere with safe landings. The boundary lights, which are white, were placed around the entire edge of the field and reveal the area of the airport. Approach lights in green are set at each end of the various runways and are operated on separate circuits. The circuits are so arranged that

the lights indicate which runway to use and which direction to head the plane in landing.

The fields not owned outright by the Company also were equipped for night operations in accord with the strict requirements laid down so that every field used by T A T goes far beyond the Department of Commerce specifications.

The Department of Commerce had certain portions of the T A T airway recommended for lighting but had not sufficient funds to proceed with immediate construction. The Company therefore assumed the cost and responsibility of lighting those portions not already recommended. Even the territory between Clovis and Waynoka on which the Santa Fe railroad is used, was lighted.

Twenty revolving beacons on towers fifty-one feet high and seventy-two blinker lights on twenty-foot towers now light this portion of the route with a beacon or a blinker every three miles. The beacon lights obtain power from local electrical plants where available, or use power from Kohler generating plants where necessary. The blinkers obtain power from acetylene tanks and flash in a code which informs the pilot of the location of the light. An interesting feature of the installation is the automatic operation of clocks which turn the lights on at dusk each day and off at daylight;

Repeated surveys by the technical committee of flying equipment available at the moment, dictated the choice of the Ford Tri-Motor all metal monoplane, powered with three Pratt and Whitney Wasp motors, each of 425 horse power. The planes originally were designed to carry twelve or fourteen persons but as an added safety factor and to permit each passenger more room, T A T installed only ten seats in each plane.

Ten planes were purchased in the first order, their interior finish and equipment designed particularly with the comfort of the passenger in mind. A wall light was placed above each seat and a dome light in the ceiling for use on dark days. At each window were hung curtains harmonizing with the interior decoration. A wash room with running water was installed in the rear of the cabin as well as shelf space for the supplies needed by the Courier and for the meal containers. Ten complete spare motors were ordered from Pratt and Whitney and are stored in the overhaul bases at Columbus and Los Angeles.

"It takes more than airplanes and pilots to start an air line," has become an axiom in the air transport industry. Nowhere is its truth indicated more clearly than in the records of automotive equipment of T A T. On the records are eight tractors, eleven gasoline refueling trucks, thirteen Aerocars with power units, eleven passenger cars and eleven trucks. The cost of the automotive equipment is carried at \$126,095.

The Aerocar, a new type of trailer for passenger use between airports and downtown sections was developed for the particular demands of T A T and other air lines. It has a seating capacity of fourteen persons and is equal in comfort to the most expensive passenger automobile. The gasoline refueling truck was also developed at the request of T A T and has a pumping capacity of sixty gallons a minute from each of two tanks.

Total expenditures exceeding three millions of dollars were made during the fourteen months preceding operations. The actual flying equipment accounted for only \$813,000 of this amount, showing the extent of ground preparation found necessary before "we were properly ready".

V.

T R A F F I C

At its conception, Transcontinental Air Transport was organized largely as a coast-to-coast carrier, and it was believed a large part of its traffic would move over the entire route. It was believed, too, that its service would be of value to the relatively limited population immediately adjacent to the line.

As General Traffic Manager, however, Mr. T. B. Clement had different ideas of the line's function. Only a small part of the traffic movement, he believed, would be of a coast-to-coast nature. The bulk of it would be between intermediate cities on the route and largely on the eastern division between Columbus and Waynoka.

The scope of the service, Mr. Clement was convinced, was not limited to cities immediately on the route, but extended to cities far from the route. Chicago traffic moving to the West coast, for example, could well be served by a rail connection through Kansas City. Travelers between Denver and the East, as another example, would find the service valuable as a time saver, and many cities through the Southwest might make use of T A T and its rail associations in traveling to and from Eastern markets and financial centers.

A schedule of these "off-line possibilities" compiled by the entire traffic department staff and presented at a meeting of the Board of Directors just before operations began, proved the line had been organized to serve the traveling public better than anyone had believed.

Mr. Clement brought to T A T from his steamship experience a number of convictions which differed from general railroad practices.

He believed, for example, that a large force of traffic solicitors such as those maintained by railroads and steamship companies, was not justified nor necessary for T A T. The particular function of the T A T traffic force, as Mr. Clement saw the problem, was not to solicit travelers direct but to carry on a program of education among railroads and other agencies which maintain the larger forces. Such an organization plan, however, did not mean that traffic representatives were to overlook any opportunities for direct sales work.

For traffic department purposes the United States was divided into three regions, Eastern, Central and Western and a Regional Traffic Manager placed in charge of each with offices in New York, St. Louis and Los Angeles. Each Traffic Manager--Mr. Conner, Eastern region, Mr. Brennan, Central Region and Mr. Beck, Western region--was assigned a small number of traffic agents and each agent assigned a definite territory in which to carry on his educational and solicitation work.

The extensive traffic departments of the two originally associated roads and those railroads which later entered into operating relations with the air line--the Norfolk and Western; the New York, New Haven and Hartford, and others--were kept in close touch with traffic developments. They have been invaluable in building the traffic volume of T A T.

Many traffic details, such as fare to be charged, manner of making reservations, the type of tickets which should be used, the manner of checking baggage and the allowable baggage limit, and the extraordinary service that might be rendered passengers, were the subject of considerable thought during the organization period.

The fare for the combined movement from coast to coast was estab-

lished at \$351.94 which was a combination of the rail fare plus a charge of approximately fifteen cents per air mile for the air portion. Higher proportionate rates were established for intermediate movements. The fare included luncheons and light refreshments, morning and afternoon aboard the planes, transportation to and from airports, and an insurance policy for each passenger.

It included, too, the very direct personal services of the Courier, whose duties combined those of a steward and a conductor, and who was a part of the crew of each plane.

A scheme of making reservations through the established offices of the Pennsylvania and Santa Fe railroads was worked out and has proved most effective. The teletype network has a most important part to play in the reservation scheme, permitting information of space available always to precede the plane across the country.

Baggage limits were set at 30 pounds free allowance and a detailed schedule of charges for excess weights worked out. For trunks and heavier pieces, the railroads established a special baggage tariff under which the pieces moved to arrive at destination a few days after the passenger.

A unique service which later received many favorable comments from passengers were the luncheons served aloft each day between St. Louis and Kansas City on the Eastern division and between Winslow and Kingman on the Western division. The luncheons were prepared by the Fred Harvey Company, operator of the justly famous Santa Fe dining car service, and placed aboard the planes in specially designed containers.

A diri-gold table service was developed for each passenger to harmonize softly with the lavender table cloth and napkin. The meals themselves consist of cold meats, sandwiches, salads, coffee, tea or milk

and fruits.

For the night passage on the Santa Fe railroad, Mr. Clement arranged for a set-out Pullman car to be waiting at Waynoka and Clovis, ready for occupancy immediately after dinner.

The confidence felt in the regularity and reliability of the T A T service by railroads and other existing means of travel has been indicated repeatedly by their willingness to enter into ticket selling agreements and in some cases very close operating agreements. Before two months operations were completed, at least a dozen first class railroads had requested permission to hold and sell T A T tickets in connection with their own. Steamship companies, also, particularly the International Mercantile Marine Company and the Matson Steamship Company, offered circle tours in connection with the air and rail service of T A T. Tourist and travel agencies throughout the United States and Europe were active in soliciting traffic movements via T A T.

A tremendous volume of newspaper, magazine and motion picture publicity followed the inauguration of service on July 8 and continued with only slight abatement through the early months of operation. The publicity in connection with the advertising campaign, the very generous advertising efforts of the Pennsylvania railroad and the sales efforts of the traffic personnel, filled the planes to 37 per cent in the second month. An accident to one of the planes in New Mexico caused a slight decrease in traffic in September.

VI. .

P E R S O N A L

A distinct personality has been injected into T A T by the type of men composing its personnel. From field clerk in the smallest city on the route to the men occupying the highest executive positions they are a handpicked group. Not one was appointed to his position without a personal interview with his superiors. They were picked for their personality as well as for their ability in the special line. Almost without exception, letters received from passengers who have made use of the line, have made mention of the high type of its personnel.

Colonel Henderson directed the appointment of the members of the T A T staff during the very early days until the details became cumbersome. Then employment problems were placed in the hands of department heads.

Mr. Magee was advanced from his position as Chief Engineer to Vice President and General Manager in recognition of his work during the construction period. Donald Bartlett, who head the first party into the western territory to locate and purchase field sites, was made Assistant General Manager.

For the very important position of General Superintendent, the field of the air mail lines was resorted to and the position went to Paul Collins, veteran air mail pilot with some 7,000 flying hours on his record. His flying had taken him into all kinds of weather conditions, had caused him to make decisions which T A T pilots might sometimes be called upon to make. His responsibilities called for a thorough understanding of pilots and the problems which faced them.

His most important job at the outset was the selection of pilot personnel. The task was divided between Mr. Collins, Mr. John A. Collings, who later became superintendent of the Eastern division, and Colonel Lindbergh. The group as finally selected after a nationwide survey constituted beyond question the finest group of flying men ever assembled.

They were divided into two classes, First and Second Pilots. The first pilots were recruited from other commercial air lines, mail lines, from airplane manufacturing companies and from the military service. The second pilots all are graduates of the army training camp at Kelly field.

These men composed the originally selected pilot personnel of T A T

Clifford V. Abbott	N. A. Laurenzana
Amberse M. Banks	Vernon R. Lucas
J. S. Bartles	Harry W. McGee
Edward A. Bellande	Lester D. Munger
Otis F. Bryan	Wesley Philippi
Dean W. Burford	George C. Price
Harry E. Campbell	Carl W. Rach
William M. Campbell	Fred G. Richardson
Edwin A. Dietel	Paul P. Scott
Earl W. Fleet	Stephen R. Shore
H. H. Gallup	Morley F. Slaght
John A. Guglielmetti	Moye W. Stephens, Jr.
Howard E. Hall	J. B. Stowe
Ben O. Howard	F. V. Tompkins
Theodore R. Howe	St Clair D. Welsh
Thomas B. Hoyer	H. J. Zimmerman
Noble G. Hueter	

Mr. Welsh, shortly after inauguration of service, was promoted from first pilot to Superintendent of the Eastern Division.

Colonel Lindbergh had this to say concerning pilots in a report of his Technical Committee:

"Transcontinental Air Transport has exercised the greatest possible care in the selection of its pilots and the final appointments have been made after a study of several months. The entire nation was included in a survey of personnel. As a result the average flying time of our first pilots is about 3,000 hours including an average of 500 hours on tri-motors alone.

We have, in as far as possible, assigned these pilots to the particular part of the country with which they are familiar both as to topography and weather conditions. A thorough study of weather conditions over a given route for a period of time is an inestimable asset to any pilot and to the Company."

One other member of the T A T personnel recruited from the air mail ranks proved the value of extensive experience before he had been with T A T for many days. He was Luther Harris, purchasing agent, an expert mechanic and thoroughly acquainted with all the equipment necessary for the stock supplies of the Company. F. G. Betts was later appointed Mr. Harris' assistant.

J. B. Bayard, Jr. left his studies in the University of Illinois in the middle of a semester to take charge of the drafting department of the company. He was one of the first employes and a member of the first survey party. It is an interesting part of the Company's history that he was not able to leave his drafting table to see the actual operations until almost three months after inauguration.

Field manager, field clerks, mechanics, radio operators and meteorologists and Couriers gradually were assembled and sent to their operating bases. The Courier personnel, who were under the direction of Mr. Parker B. Sturgis, Chief of Transportation, are a very definite and important part of the traffic department. Their's is the most direct contact with the passengers both aboard the planes and on the ground.

Two young women also were to have major roles to play in the development of the air line. Miss Earhart, already mentioned as assistant to the General Traffic Manager, was the first appointed. Later Miss Margaret Bartlett was appointed Traffic Agent with headquarters in San Francisco. She is a pilot and formerly was associated with the Aviation Country Clubs.

VII.

"THE DAY WE ARE PROPERLY READY"

Weather inclemencies, political necessities and difficulties of construction conspired to delay the final starting date of T A T. When first organized the inauguration date was tentatively fixed as May 1, 1929. Postponements were necessary to June 1, June 15 and finally to July 8.

But before the service was presented to the public, rigid tests were made of every phase of operations in a two weeks "dress rehearsal". Planes were flown over the exact schedules that were to be followed in regular operation; the weather bureau was tested for its ability to foresee and warn pilots of storms impending; the radio apparatus was found to function satisfactorily and pilots and ground crew became acquainted with the necessary operating routine.

The first flight over the regular schedule began on June 20 with four planes leaving the termini. Only employes were permitted aboard the planes during a preliminary four-day test. Then on June 24 the dress rehearsal itself began. Friends of the Company, Pennsylvania Railroad officials, newspaper men and women, and directors of the Company boarded the planes to see the plans of more than a year in operation.

A record of 100 per cent performance was established for the dress rehearsal period. Not the slightest flaw appeared in the plans. Pilots avoided several severe storms on radio advice from ground stations and became acquainted with the terrain of the territory over which they flew, selecting emergency landing fields against the time a forced landing might suddenly become necessary.

Planes flew more than 50,000 miles and carried 261 passengers during the dress rehearsal period.

From opposite sides of the continent two men who have played important parts in the development of commercial aviation—Colonel Lindbergh and Robert P. Lamont, Secretary of Commerce—gave the signals for the actual start of T A T service.

From an office in Los Angeles, Colonel Lindbergh pressed a button which flashed a signal across the continent to the concourse of the huge Pennsylvania Station in New York on the afternoon of July 7. The signal started the Airway Limited on its way to Columbus to connect with the inaugural T A T plane.

From his office in Washington, Secretary Lamont pressed a button signalling the take-off for the inaugural plane from Columbus next morning.

Four planes—two from Columbus and two from Los Angeles—made the inaugural flights each bearing its load of passengers who had been fortunate enough to obtain seats. Colonel Lindbergh was at the controls of the first plane to leave Los Angeles. He piloted his plane only as far as Winslow and, waiting there for the first Westbound ship next day, piloted it into Los Angeles, thus being the first pilot to take a regular T A T ship off the airport at Glendale and the first to land a regular ship there.

Elaborate ceremonies marked the inauguration both in New York and Los Angeles.

In New York a huge crowd filled the lobby of the Pennsylvania Station as the City of New York, T A T plane on exhibition in the station, was christened by Miss Earhart. Further ceremonies were held at the

christening of the Airway Limited of the Pennsylvania Railroad. Miss Dorothy Stone, prominent in the theatrical world, formally christened the train.

Christenings also were held in Los Angeles with Miss Mary Pickford and Miss Gloria Swanson, motion picture stars, performing the ceremonies.

An inauguration breakfast followed the takeoff of the first plane in Columbus with dignitaries of the industrial, aviation and political worlds attending. Mr. Clement of T A T was host.

Mr. Henry Ford, his son Edsel Ford, Mr. Harvey Firestone, and state officials of Ohio were guests at the breakfast.

The City of Columbus officially recognized the inauguration date of T A T with a memorial tablet sunk into the surface of the airport at the place where the first ship took off. On the tablet were the words.

Port Columbus
founded by
The People of Columbus
and dedicated to

THE NAVIGATION OF

THE AIR
July 8, 1929.

The weather bureau had its first test in scheduled operation immediately after the first takeoff from Columbus. A low ceiling hung over the route between Columbus and Indianapolis and unfavorable weather conditions threatened. Reports radioed to the pilots aloft enabled them to avoid the unfavorable condition and arrive in Indianapolis exactly on time.

Passengers aboard the first two planes to leave Columbus were:

The City of Columbus

Miss Anelia Earhart, Assistant to the General Traffic Manager, T A T.
Colonel Paul Henderson, Vice President, T A T.
Paul Henderson, Jr., Son of Colonel Henderson.
Miss Betty Brainerd, Associated Newspapers, New York City
U. Grant Border, U. S. Border and Sons, New York City
Colonel Edgar S. Gorrell, President, Stutz Motor Company, Indianapolis.
Albert A. Garthwaite, Vice President, Lee Tire Co., Conshohocken, Penna.
S. W. Higgins, Dennison Manufacturing Company, Boston, Mass.
Daniel M. Sheaffer, Chief of Passenger Transportation, Pennsylvania Railroad.
J. W. Brennan, Central Traffic Manager, T A T.

The City of Wichita

William Chaplin, Associated Press, New York City
Mrs. John T. Litch, Boston, Mass.
Miss M. A. Salomon, Chamber of Commerce, Brooklyn.
Mrs. G. P. Putnam, New York City
Mrs. F. C. Kenney, Indianapolis, Indiana
E. E. Greiner, Springfield, Ohio
William James Bryant, Nation's Business, Washington, D. C.
Carl Larsen and Charles Tice of Fox Movietone News and Equipment

Those leaving on the first east bound ships from Los Angeles were:

The City of Los Angeles

A. L. Rocklein, Los Angeles Examiner
T. Delapp, Los Angeles Times
Jack Scanlon, Los Angeles
M. D. Schatzman, Los Angeles

Thomas B. Eastland, San Francisco, Director T A T.

R. W. Millar, Banker, Los Angeles

Mrs. Charles A. Lindbergh.

Major C. C. Moseley, Vice President, T A T

Dr. W. J. Furie, Long Beach, Calif.

The City of Philadelphia

Albert Hitchin, Insurance Broker, Los Angeles

R. K. Rochester, Vice President, Pennsylvania Railroad, Philadelphia

Mrs. R. K. Rochester

Charles Walker, Fox News, Los Angeles

Miss Velva Darling, Los Angeles

John B. Auatin, President, Chamber of Commerce, Los Angeles

Turner Wills, Los Angeles.

Telegrams from friends of T A T, high government officials and others of prominence in the business and industrial world, poured into the offices of T A T, each containing its message of congratulation.

One from Colonel Lindbergh to General Atterbury of the Pennsylvania railroad is quoted below for the insight it gives into the organization and future plans of the company.

"I wish to extend my congratulations upon the opening of a new era of passenger transportation. Your decision to place the facilities and experience of the Pennsylvania Railroad behind the development of an air-rail transcontinental passenger line has made possible the construction of a system without parallel either in the United States or in Europe. I believe that the significance of this service lies not alone in the fact that we are bringing the Atlantic and Pacific coasts within forty-eight hours of

each other but rather that it opens the way to what heretofore has been an impossible dream--the elimination of daytime travel. The present service requires two business days to cross the continent. Our night service which is now in the process of organization will require but one and I am confident that the next decade will bring about overnight travel between New York and California over our lines. In other words there will be no loss of time between San Francisco, Los Angeles and New York. From a technical standpoint the four divisions of our system are ready for operation. Every precaution which modern methods have devised has been taken for the safety of our passengers and I feel confident that we start operation today with a system which combines the elements of safety, comfort and rapidity of travel in their highest degree."

"The Day We Are Properly Ready" had come. The full meaning of the phrase had been impressed upon everyone who came into contact with T A T and its organization. The benefits of the long preparatory period were to be felt throughout the life of the Company and were to be reflected in the large number of persons eager to make use of the air-rail service as presented by T A T.