

**A HISTORY OF AVIATION  
IN SOUTH DAKOTA**

By

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## PREFACE

Among the many pioneers who participated in the development of aviation, the barnstormer was perhaps the most colorful. Most aviation historians have emphasized national events, technological trends, or have been concerned with aviation economics. As a result, the "gypsy" flier was almost completely ignored by other writers. In this thesis the author has attempted to present a story of the struggle and hardships of these aviation pioneers and their efforts to keep aviation alive in the decade after the first World War. The author also presented a brief survey of ballooning and gliding experiments during the 19th century. The national developments in aviation were presented in the thesis when these developments had an influence upon aviation in South Dakota.

The author is indebted to numerous persons, organizations, and bureaus of government for the information herein recorded. Many have submitted data through personal interviews and letters, and others were helpful in the compilation of historical information. Particularly helpful were Lynn V. Hanson, Director of the South Dakota Aeronautics Commission, C. Q. Mateer of Pierre, John Moodie of Lead, Clyde W. Ice of Newcastle, Wyoming, Chester Wage of Ferney, Mrs. Earl Jones of Sioux Falls, Floyd Barlow of Lake Shore, Vermont, and several others.

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## CHAPTER I AVIATION PRIOR TO KITTY HAWK

In 1903 the world had come to the crossroads in industry, technology, science, and, above all, transportation. A new age had been inaugurated: an age that would see in the course of fifty years the development of an airplane powered by a turbojet tube type unit capable of sending through the air a machine built to withstand the high pressure resistance of the atmosphere at a rate two times the speed of sound.

However, a survey of the development of the flying machine makes it clear that the modern airplane is not a structure which has been evolved in a short time, but is the result of hundreds of years of experiment and trial. Kites, balloons, and parachutes have all contributed to its construction.<sup>1</sup>

Among the early efforts to fly were those made in the fifteenth century by Leonardo da Vinci. It is clear that da Vinci understood a number of the complex problems involved in flight and that his experiments and speculations deviated little from the later gliding experiments carried on in the nineteenth century in Europe and America.<sup>2</sup>

Three hundred years later, attention was being focused upon lighter-than-air experiments, rather than gliders. The Academie des Sciences, commissioned by the French Government to continue its experiments with ballooning, accomplished an historic flight on August 27, 1783. Professor J. A. C. Charles, a member of the Academie, caused much excitement among observers when his captive balloon rose from a courtyard above Paris. The news of this flight was first brought to the attention of the American people in January, 1784, by the Boston Magazine.<sup>3</sup> A two-page article entitled "Explanation of the Air Balloon" and accompanied by a picture showing an aerostat complete with aerial oars and rudder featured the ballooning experiment.<sup>4</sup>

In the United States many years passed before ballooning approached the popularity it enjoyed in Europe. There were, however, two significant ascensions made in this early period. Peter Carnes of Bladensburg, Maryland, accomplished the first captive balloon ascension in the United States on June 24, 1784.<sup>5</sup> A few years later the famous French balloonist Jean Pierre Blanchard came to America. On January 9, 1793, he ascended from a stone courtyard in Philadelphia in his free balloon and landed in New Jersey about an hour later. He made several flights over other cities in the United States before returning to Europe.<sup>6</sup>

Between 1784 and 1830 aerial activity in the United States was dominated by enterprising Frenchmen. Of this group the most outstanding was Eugene Robertson who made several flights in 1825 and 1826. In New York he made the acquaintance of Charles Ferson Durant who, after studying under Robertson, became "the first citizen of the United States to make a profession of aeronautics..."<sup>7</sup> His most

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<sup>1</sup> Octave Chanute, "Langley's Contributions to Aerial Navigation," Smithsonian Miscellaneous Collections, Government Printing Office, Washington, D. C., 1908, p. 32. Also see Octave Chanute, "Recent Progress in Aviation," Annual Report of the Board of Regents of the Smithsonian Institution, 1910, Government Printing Office, Washington, D. C., 1911, p. 147.

<sup>2</sup> For a full discussion see The Notebooks of Leonardo da Vinci, translated by Edward MacCurdy, Reynal and Hitchcock, New York, 1939, pp. 403-502.

<sup>3</sup> Jeremiah Milbank, Jr. The First Century of Flight in America, Princeton University Press, Princeton, New Jersey, 1943, p. 4.

<sup>4</sup> Ibid., p. 107. Benjamin Franklin, who witnessed this experiment, was in correspondence with friends in London at the time. In an exchange of letters with Sir Joseph Banks, Franklin gives his views on the subject of ballooning. See Albert Henry Smythe, The Writings of Benjamin Franklin, Macmillan, New York, 1907, Vol. IX, pp. 79-83.

<sup>5</sup> Ibid., pp. 10-22.

<sup>6</sup> Carol Frey, The First Voyage in America, The Penn Mutual Life Insurance Company, Independence Square, Philadelphia, 1943, pp. 1-54.

<sup>7</sup> "Durant, Charles Ferson," Dictionary of American Biography, Vol. V, p. 540. Also see Milbank, p. 49.

outstanding flight took him from New York over Staten Island and into New Jersey.<sup>8</sup> He made a total of thirteen ascensions. He was noted also for several scientific publications and the invention of a portable barometer which he used for judging altitude.<sup>9</sup>

The major achievements in the science of aerodynamics in the United States during the nineteenth century were chiefly the results of the work of Richard Clayton and John Wise. Richard Clayton demonstrated the feasibility of long-controlled flight on April 8, 1835, when he ascended from Cincinnati and after a nine and one-half hour flight landed in Monroe County, Virginia, 350 miles distant.<sup>10</sup>

John Wise overshadowed all other Americans with his pioneering experiments with flight during the nineteenth century. From 1835 until his death in 1879, Wise devoted his life to the scientific aspects of ballooning. In his numerous flights he studied meteorological conditions and the effect of storms upon flight. He discovered that the prevailing winds at an altitude of three miles blew from (east to west). This observation led him to believe that an air voyage from America to Europe was possible. To test this theory, he began a voyage from St. Louis to New York on July 1, 1859. His flight ended in disaster when he hit a storm over Lake Ontario and was forced down near Henderson, New York, having traveled 804 miles. This record flight was not broken until 1900.<sup>11</sup>

His major contributions other than his 443 ascensions<sup>12</sup> included the development of a rip panel and cord which transformed the balloon into a parachute, a durable balloon varnish, and discoveries in meteorology. His writings included A System of Aeronautics (1850) and Through the Air (1873).<sup>13</sup>

Meanwhile, numerous experiments with powered airships were in progress in the United States.<sup>14</sup> One of particular interest to South Dakotans was an experiment carried on by Henry Heintz at Elkton between 1897 and 1903. Heintz was born in Luxemburg in October, 1848. After spending some time in Paris, he emigrated in 1871 to the United States, settling in 1878 on a homestead near Elkton, South Dakota.<sup>15</sup>

Apparently Heintz was a gifted inventor; at any rate, his neighbors around Elkton regarded him as such. It is also probable that he had some training in engineering and scientific research. He was said to have built a windmill that ground feed, pumped water, and powered various other machines about his farm.<sup>16</sup> Heintz conceived the idea of constructing an "airship" and applied for a patent which was granted on April 20, 1897.<sup>17</sup> In order to further his experimentation, he announced the formation of the Northwestern Aerial Navigation Company on February 28, 1902. A prospectus published by him did not specify who the eminent scientists were, but referred to his experimentation as follows:

Many eminent and scientific authorities have examined and considered the features which characterize this invention as unique in the history of experiment in aerial navigation, and have invariably expressed surprise and admiration at the practicability of design, the simplicity of detail

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<sup>8</sup> Milbank, p. 50.

<sup>9</sup> "Durant, Charles Ferson," Dictionary of American Biography, Vol. V, p. 540.

<sup>10</sup> Milbank, p. 54.

<sup>11</sup> "Wise, John," Dictionary of American Biography, Vol. V, pp. 428-29.

<sup>12</sup> Milbank, p. 97.

<sup>13</sup> "Wise, John," Dictionary of American Biography, Vol. V, pp. 428-29.

<sup>14</sup> An airship is a lighter-than-air craft propelled and directed by an engine and propeller. The flights made by John Wise were accomplished with free balloons without the use of motive power.

<sup>15</sup> George W. Kingsbury, History of Dakota Territory, S. J. Clark Publishing Company, Chicago, 1915, Vol. V, P. 184.

<sup>16</sup> Sioux Falls Argus-Leader, December 21, 1953. Heintz served in the South Dakota state legislature in 1890.

<sup>17</sup> The patent certificate is on display in the Brookings County Courthouse. The patent number is 508,941.

and completeness with which every possible contingency has been provided for in the conception of this machine.<sup>18</sup>

The prospectus further described the machine as a semi-rigid balloon powered with an engine attached with belts to "parachutes". According to Heintz, the parachutes had a lifting capacity sufficient to raise the ship and cargo to any height desired without the aid of the balloon.<sup>19</sup> He referred to the utility of his "airship" by explaining that the semi-rigid balloon carried a "car" (gondola) with staterooms for passengers and storage.<sup>20</sup>

The Northwestern Aerial Navigation Company was incorporated at Pierre at a capitalization of two million dollars, divided into two million shares with a nominal value of one dollar each. Heintz estimated the cost for building the airship at about \$30,000 and indicated an urgent need of funds to carry out the project. The By-Laws of the company were published March 14, 1902.<sup>21</sup>

According to a release by the local newspaper on January 23, 1903, the "Heintz Airship" was not yet completed, but the engine was on hand and ready for use. Frank Wolf, a mechanic from Aurora, was in charge of the construction, according to the news story.<sup>22</sup> The prospectus of the company stated that the deadline for completion of the project was 1903. Heintz planned to enter the machine in the St. Louis Exposition that year.<sup>23</sup> No records are available regarding further activity on the project, but presumably the work ended without success in 1903.

By early 1900 more important developments with heavier-than-air machines were in progress. The experiments of Otto Lilienthal in Germany and Octave Chanute and Samuel Pierpont Langley in the United States were particularly outstanding. These men, in addition to others in the United States and in Europe, helped provide a foundation for powered flight.

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<sup>18</sup> Elkton Record, February 28, 1902.

<sup>19</sup> Elkton Record, February 28, 1902.

<sup>20</sup> Loc. Cit.

<sup>21</sup> Ibid., March 14, 1902.

<sup>22</sup> Ibid., January 23, 1902. Some engines were used in some of the earlier experiments with powered flight. When the gasoline engine was perfected in the last quarter of the nineteenth century, it replaced the other engines in use at the time.

<sup>23</sup> Thomas Scott Baldwin, the noted American aeronaut, won the coveted prize at St. Louis in 1903.

## CHAPTER II THE FORMATIVE YEARS

At the turn of the century all the components of the airplane, including the gasoline engine, had become known; yet the elusive combination needed for a practical machine was still to be discovered. There were two reasons for this. First, the successful balloon experiments led to a continuous and mounting activity in this area of experimentation, which in all probability moved the science of aerodynamics in the wrong direction and limited aerodynamics to the narrower field of lighter-than-air research. The second reason was that most experiments in heavier-than-air flight were made with models, which were misleadingly successful.<sup>1</sup>

When the principles learned through experiment with small models were applied to larger models, there resulted a failure either in design or structural stability. These failures demonstrated that until basic laws regarding the flight of a heavier-than-air machine were firmly established and until structural design and flight control could be developed to meet the requirements necessary to carry man aloft, flight would be restricted to trial and error, with many failures.<sup>2</sup>

In this connection, the gliders of Otto Lilienthal and the work of Octave Chanute contributed immeasurably toward the accomplishments in aerodynamics during the 1890's and set the stage for other heavier-than-air developments which immediately followed. Lilienthal, a German inventor and aviator, began his experiments with gliders in 1891. After about 2000 successful glider flights, he successfully demonstrated that a plane carrying the weight of a man could remain aloft. He made innumerable studies of wind currents and their effects on a plane surface, drawing up charts to preserve his findings. These charts were to contribute substantially to the future success of Orville and Wilbur Wright.<sup>3</sup>

Of even more importance to Americans was the work of Octave Chanute. A civil engineer who began his experiments with gliders in 1889, he continued to experiment with the flying machine until his death in 1910. The years 1896 and 1897 saw him complete several hundred flights from the Dunes near Lake Michigan. Like Lilienthal, he was interested in the scientific aspects of flight; as a consequence, he formulated mathematical tables on "variations of air currents."

Chanute learned at least one principle from watching the sparrow. "When the latter (the sparrow) approaches the street," Chanute recalled, "he throws his body back, tilts his outspread wings...and on the cushion of air thus encountered he stops his speed and drops lightly to the ground. So do all birds; we tried it with misgivings, but found it perfectly effective."

The first gliders built by Chanute were of the monoplane type, but he soon turned to "five-plane gliders," later to develop into three-deckers, and finally into the famous "Chanute biplane" with movable surfaces. The latter weighed twenty-three pounds, but carried a weight of 178 pounds while in flight.

In addition, Chanute made several contributions to aerodynamic research. His writings on the subject included two books, Aerial Navigation (1891) and Progress in Flying Machines (1894), and a paper which he delivered before the Board of Regents of the Smithsonian Institution in 1910 on "Recent Progress in

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<sup>1</sup> There were later wind tunnels and countless other devices for testing scaled models. Work of designers and aeronautical engineers became, therefore, less subject to error.

<sup>2</sup> Jerome C. Hunsaker, Aeronautics at the Mid-Century, Yale University Press, New Haven, 1952, p. 9.

<sup>3</sup> See Octave Chanute, "Recent Progress in Aviation," Annual Report of the Board of Regents of the Smithsonian Institution, 1920, Government Printing Office, Washington, D. C., 1911, passim, for a discussion of early developments in powered flight.

Aviation.”<sup>4</sup> His encouragement of others engaged in the science of aerodynamics and his active participation in the accumulation of scientific data regarding the science of aviation were among his greater accomplishments. Moreover, he actively encouraged Samuel Pierpont Langley, Orville and Wilbur Wright, and later Glenn Curtiss.

Meanwhile, Langley was engaged in the building of models powered with midget engines of several different types. One model was driven by carbonic acid gas, and three others with steam. Langley built five of his "aerodromes" before meeting with any measure of success. On May 6, 1896, he was rewarded by the celebrated flight of his "Aerodrome #5," which flew a distance of 3000 feet over the Potomac River. Alexander Graham Bell, who was invited to witness the event, commented favorably on the experiment in an article for the Aeronautical Annual of 1897. This model was followed by a similar one that was flown in November of the same year.<sup>5</sup>

These activities led the federal government to make an appropriation to the Smithsonian Institution for the development of a machine of sufficient size to carry a man. With this aid, Langley continued his work. By 1903 he completed the controversial machine that played a major role in the patent difficulties which later developed between Glenn Curtiss and the Wright brothers.

During this time the Wrights became interested in aerodynamics as a hobby. In 1900 they wrote Octave Chanute asking for information regarding construction of a flying machine, which he obligingly furnished. The subsequent experiments and exchange of ideas led to a warm friendship between them and also to an understanding that any scientific information heretofore unknown would be shared with other experimenters in aerodynamics. The Wrights complied with the agreement until 1903, when they began to perceive the commercial possibilities latent in the flying machine.<sup>6</sup>

Throughout the summer of 1903 the Wrights worked on their gliding machine. They perfected a method of control which incorporated the heretofore unknown principle of "wing warping." This principle replaced the need for shifting the body first to one side and then the other to attain balance. This was a revolutionary development in the science of aerodynamics, because it gave the designer a mechanical control capable of directing flight. By autumn the Wright brothers had attached the motor and propeller to their flimsy machine, and on December 17 they made the historic heavier-than-air flight at Kittyhawk, North Carolina.

Throughout this period there were others actively engaged in allied pursuits which were to add continuity to the revolution in transportation. Henry Ford had successfully powered his "horseless carriage" with an engine in 1896 and thus set the stage for an industry which was to blossom into one of the greatest achievements of the machine age. Thomas Scott Baldwin had been engaged in aerodynamic activities since 1880. In 1903 Baldwin became fascinated with dirigible balloons, but he needed a suitable motor to drive the ship forward. While in California, he accidentally discovered a motorcycle built by Glenn Curtiss. He immediately went to Hammondsport, New York, where Curtiss was manufacturing these speedy motorcycles, purchased one of Curtiss's engines, and returned with it to San Francisco. He attached the engine to his airship, called the "California Arrow," and subsequently won the \$25,000 prize offered at the Louisiana Purchase Exposition at St. Louis.

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<sup>4</sup> "Octave Chanute," Dictionary of American Biography, Vol. IV, pp. 10-11.

<sup>5</sup> Octave Chanute, "Recent Progress in Aviation," Annual Report of the Board of Regents of the Smithsonian Institution, 1910, Government Printing Office, Washington, D. C., 1911, pp. 146-47.

<sup>6</sup> Loc. Cit.

Through Baldwin's machine Glenn Curtiss became known as America's sole builder of engines for airships.<sup>7</sup>

Meanwhile, feverish activity in the building of air machines had developed. Both in America and in Europe scores of plane builders were engaged in the construction of numerous weird-looking contraptions. Construction and design ran the gauntlet from simple kites to complicated bird-type machines, powered with numerous types of engines.<sup>8</sup> Included in this group of builders was Glenn Curtiss, who in 1907 was still tinkering with the motorcycles which had won for him the title of "the fastest man in the world."

Curtiss became associated with Alexander Graham Bell and others who had been experimenting with kite-type planes. They organized the Aerial Experiment Association, a move which launched Curtiss on his career in aerodynamics.<sup>9</sup>

The three younger members of the association decided to build three planes, each being responsible for one experimental model. The first two models were not outstanding in either construction or design and consequently failed to meet with the expected results. The third ship under the direction of Glenn Curtiss was more noteworthy. It became known to the world as the "June Bug." Curtiss, more interested in the science of aviation than spectacular "grandstanding," incorporated in his plane most of the outstanding features known to the aeronautical world.

Realizing that possible litigation might tie his hands and prevent his further research, Curtiss deviated from the Wright system of "wing warping" and developed the aileron in preference to the "wing-warping" technique.<sup>10</sup> On June 28, 1908, he made his first two flights in the "June Bug," receiving much favorable publicity.<sup>11</sup>

As a result of Curtiss's achievements and upon the announcement that he would compete for the Scientific American trophy, the Wright brothers, who had placed a cloak of secrecy over their own work, enjoined Curtiss with an order to suspend all activities involving the use of his plane for money-making purposes. The Wrights subsequently proposed that Curtiss might continue his operations provided he enter into a licensing agreement with them, but Curtiss refused.<sup>12</sup>

During the years that followed Curtiss became one of the leading manufacturers of aircraft. He developed the first plane to fly from a warship, and in 1911 he took off from San Diego harbor in the first pontoon-equipped plane. In the fall of 1910 he moved a portion of his operations to San Diego, California, where he set up a flying school. From this school and the one at Hammondsport, New York, came most of the

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<sup>7</sup> Lloyd Morris and Kendall Smith, Ceiling Unlimited, Macmillan, New York, 1953, pp. 79-81.

<sup>8</sup> An excellent discussion of these planes, together with illustrative plates can be found in Octave Chanute, "Recent Progress in Aviation," Annual Report of the Board of Regents of the Smithsonian Institution, 1910, Government Printing Office, Washington, D. C., 1911.

<sup>9</sup> Morris and Smith, pp. 82-83.

<sup>10</sup> The ailerons on these early models consisted of planed surfaces attached to the plane between the two wing surfaces. The aileron was used as a means to control the lateral balance while in flight. After 1911 Curtiss leased or sold his planes to various companies without the aileron. The technique of installing the aileron at the scene of the performance was used to obviate any liability regarding the manufacture of planes with adjustable controls.

<sup>11</sup> Octave Chanute, "Recent Progress in Aviation," Annual Report of the Board of Regents of the Smithsonian Institution, 1910, Government Printing Office, Washington, D. C., 1911, pp. 148-51

<sup>12</sup> Smith and Morris, pp. 88-89.

daring fliers who demonstrated their prowess to accident-loving throngs when they appeared at numerous public gatherings across the nation.<sup>13</sup>

On September 1, 1910, Glenn Curtiss organized the Curtiss Exhibition Company with Jerome Fanciulli as promotion agent and general manager. His booking office was in New York. Fanciulli arranged dates, engaged fliers, and handled all the machinery for the flight exhibitions.<sup>14</sup>

Among the daring exhibitionists flying for the Curtiss Company at this time were Hugh Robinson from St. Louis, Missouri. Others included Cromwell Dixon; Charley Walsh; Lincoln Beachey, the famed "loop-the-loop" artist; and Floyd Barlow, who later became a resident of South Dakota.<sup>15</sup>

Exhibition flying was introduced into South Dakota at this time. In the spring of 1911 the Curtiss Exhibition team was engaged by members of the South Dakota Stockmen's Association to perform at their annual convention at Rapid City on April 10, 11, and 12.

For a designated fee Curtiss agreed to give at least three flights and assigned Hugh Robinson to be the pilot for the event.<sup>16</sup> Accordingly, on April 6, 1911, assurances and directions were sent from Curtiss in the form of a telegram from Salt Lake City.

Robinson leaves Friday for Rapid City. Aeroplane in route in charge of Mechanic Shackelford. Secure tent or shelter thirty by forty. Prefer fields to ballpark.

G. H. Curtiss<sup>17</sup>

Mechanic Shackelford and the plane arrived by freight on Saturday, April 8, 1911. The machine was uncrated, and by noon of the following day the "flying birdcage" was assembled. Word was spread abroad that the public was invited to inspect the flying machine. Since this was the first aeroplane ever to visit South Dakota, it caused considerable excitement. Intense enthusiasm was manifest among the spectators who had gathered around the tent provided by the sponsors.<sup>18</sup>

Flights were not scheduled for April 8, but Robinson made a test flight to ascertain whether the machine was in flying condition. He taxied the plane "...a distance 250 yards south of the tent, and after carefully looking it over...took his seat." The motor was started, "...the propeller whirred, a short run over the ground followed, and with the impetus gained, the aeroplane rose into the air."

The Rapid City Journal gave a full report of the event:

A complete circle of perhaps a half mile was made at an average elevation of about two hundred feet; Another half turn, and the aviator brought the machine to the ground, a little too suddenly, for one of the wheels was broken and some other slight damage resulted. The time spent in the air was

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<sup>13</sup> During the First World War these two aerodromes were among the first used for training pilots. See Chapter III for a brief discussion of the war period.

<sup>14</sup> Clara Studer, *Skystorming Yankee: The Life of Glenn Curtiss*, Stockpole Sons, New York, 1937, p. 284.

<sup>15</sup> *Evening Huronite*, June 30, 1937. The sources for the exploits of other fliers mentioned are found in the various letters and articles cited throughout this thesis. Barlow in 1956 is South Dakota's only member of the "Very Exclusive Early Birds Club."

<sup>16</sup> *Rapid City Daily Journal*, April 4, 1911. Cross-country flights were never made at this time. During this period the planes were dismantled and shipped in crates to the locality where the flight was to take place.

<sup>17</sup> *Rapid City Daily Journal*, April 8, 1911.

<sup>18</sup> "Flying Birdcage" was the name applied to these early model aircraft. The name became popular because of the nature of construction and materials used to build the machine.

three minutes, and the first aeroplane flight in South Dakota had been made. This was an event of some importance. Rapid City had demonstrated that she had the enterprise to secure the first attraction of this kind ever offered in the state, and the experimental flight had guaranteed that there should be no disappointment for the crowd of people that will be here today to witness the flights advertised on the program.<sup>19</sup>

Because this event was considered the major attraction of the program scheduled for the Stockmen's Convention, considerable disappointment was shown by the residents and visitors when the three flights planned for April 10 were not immediately concluded. The characteristic prevailing winds prevented flying earlier in the day, but when "... the evening calm had settled over the area," two flights were made by Robinson. The local newspaper again gave a full account:

By six o'clock... the elements had sufficiently subsided...and messengers were sent over the town advising the inhabitants that the aeroplane would go up in twenty minutes. As a result, everyone rushed from their homes and from the streets to the hillside south of town, to get a glimpse of the machine in midair. They were not disappointed, for two flights, though not of...spectacular order were made before dark... The aeroplane during both flights gained a height of probably three or four hundred feet and covered a distance of a half or three quarters of a mile. Owing to the fact that the wind had not entirely settled and was inclined to be somewhat treacherous ...attempts at spectacular work were considered risky...and therefore, were not made, much to the disappointment of those who were watching.<sup>20</sup>

Even though spectacular, considering the newness of aviation, Robinson's exhibitions were not at the time considered outstanding, nor were they daring. His caution was evidently motivated by the large number of fatalities which occurred in 1911. A number of his colleagues, as well as some who were competitors, had recently been killed as a result of reckless flying.

The success of the Rapid City event led the State Fair Board to engage the Curtiss Exhibition Company for the State Fair at Huron on September 11, 1911. In announcing the forthcoming event, the Board said:

Glenn H. Curtiss' famous birdmen will perform their many aeroplane maneuvers on the opening day September 11th. These include a five mile race with a seventy horse-power automobile over the race track. This will be the greatest event ever attempted in South Dakota, in fact, in the entire west, assuring the public of an aviation meeting at our own state fair second to none. Aeroplane flights every day of the fair, morning and afternoon...<sup>21</sup>

In an effort to draw larger crowds the Fair Board announced that some prominent personality from three cities of the state would be selected to "soar in the clouds" with the celebrated "birdmen." In accordance with this plan, Aberdeen, Rapid City, and Watertown were each requested to designate one day in honor of the respective cities.

The first passenger so honored was Tom Sweeney of Rapid City, chosen by C. N. McIlvaine, Secretary of the Fair Board, to represent the Black Hills area.<sup>22</sup> In a letter to Sweeney, McIlvaine assured him that the event was of Historical significance and was an honor shared by "only a few people in their lifetime." The

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<sup>19</sup> Rapid City Daily Journal, April 11, 1911.

<sup>20</sup> Rapid City Daily Journal, April 13, 1911.

<sup>21</sup> Rapid City Daily Journal, August 22, 1911.

<sup>22</sup> Rapid City Daily Journal, August 17, 1911.

other two gentlemen selected to "try the new method of locomotion" were R. Baskerville, who was chosen to "aviate" on "Watertown Day," and W. M. Owsley who represented Aberdeen.<sup>23</sup>

The advertising campaign by the State Fair Board electrified the public. The huge crowds which gathered at the fair each year were assured of a sight heretofore unparalleled in South Dakota. Little attention was given Jimmie Ward, who had received all the favorable publicity, but the exploits of his colleague, Cromwell Dixon, were unique for exhibitions of this period and compared favorably with exhibitions held elsewhere in the nation.

Besides Ward and Dixon, Hugh Robinson was also present at Huron. The Daily Huronite carried a captioned photograph of the famous aviator on September 22 and enumerated some of his exploits.<sup>24</sup>

It might be noted that this type of work was quite dangerous; as a consequence, the salaries paid were high. Pilots usually received \$20 weekly and \$50 for each flight during an exhibition. In addition, they received all travel, subsistence and shelter expenses while on circuit.<sup>25</sup>

During the exhibitions Dixon, "the bird-boy," was so effective and the crowds so enthusiastic that the Fair Board was determined to detain him beyond the agreed time limit. The Curtiss Company, however, had made arrangements for exhibitions in North Dakota. Curtiss ordered Dixon and his manager to leave Huron on the nine o'clock northbound Milwaukee train. The fair management, loath to have him leave, obtained a writ of attachment on his plane and succeeded in getting him to remain.<sup>26</sup>

These flights conducted in 1911 were the precursors of several staged during the following year. In 1912 the Business Club of Deadwood engaged Art Smith of Fort Wayne, Indiana, to perform in connection with a fund-raising campaign for the Deadwood auditorium. Originally, the Deadwood organization had contacted a Curtiss pilot by the name of Cooper, who had completed about 400 successful flights. After one look at Deadwood Gulch, however, he returned to the East without performing. Contact was next established with an aviator by the name of Andrews, but he was injured in a crash about a week before the scheduled flights.<sup>27</sup> Art Smith, a "nineteen year old daredevil," was therefore engaged through the Mars-Fowler Aviation Company of Kansas City.

The machine which Smith was to use was shipped to Deadwood over the Northwestern Railroad. It was a Curtiss biplane weighing approximately 750 pounds and powered by a Gnome six cylinder engine of fifty horsepower. Like all Curtiss planes of this period, it had adjustable wing tips which were installed at the scene of the flight.

Arriving about the 29th of July, Smith proceeded to inspect the so-called aviation field at the site of the local fairgrounds. After careful consideration of the potential dangers from the rough field provided by his sponsors, he informed them that he considered the flight too dangerous. Therefore, at 2:00 A.M. on July 31 Smith and the local committee began a search for a more suitable field. At dawn a smooth meadow was found about two miles from town. At 2:30 in the afternoon the young aviator was aloft, flying at the breath-taking speed of fifty miles per hour. When he landed, he blew a tire and broke a strut, thus ending the activity for that day.

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<sup>23</sup> Rapid City Daily Journal, August 17, 1911; Yankton Press and Dakotan, August 30, 1911.

<sup>24</sup> Daily Huronite, September 22, 1911.

<sup>25</sup> Smith and Morris, p. 116.

<sup>26</sup> Daily Huronite, September 12, 1911. State Fair records show that Scott, manager of the fliers, received \$2,250 for giving the exhibitions.

<sup>27</sup> Daily Huronite, September 12, 1911; September 15, 1911.

For the next two days Smith was grounded as a result of either fog or high winds. The weather cleared by August 3, however, and the aviator provided a "thriller."<sup>28</sup> After consulting with his sponsors, Smith agreed to take off from the hayfield and to land in the ball park. Such a feat had previously been considered an impossibility on account of the hills and the air currents in the vicinity.<sup>29</sup> Disregarding these factors, however, Smith got his plane aloft and flew into Deadwood Gulch. Flying at an estimated sixty miles per hour, he circled the city several times and made a successful landing in the ball park. That evening he was the toast of the town. "The modest young aviator was presented with a gold medal," made from scrapings of the Trojan Mine, "...upon which his name and the facts of the epic flight were inscribed."<sup>30</sup>

Another flier, Floyd Barlow, was introduced to South Dakota at an aerial exhibition staged at Yankton on August 12, 1912. Born at Monticello, Wisconsin, his parents later settled in the vicinity of Clear Lake, Iowa.<sup>31</sup> At the age of eighteen he went to California where he found employment with the White Motor Company of Los Angeles, being subsequently sent to San Diego on company business. While on this assignment, Barlow met Glenn Curtiss, whom he convinced that he had the potentialities of a pilot. Barlow, accordingly, quit his job in Los Angeles and began taking flight instruction. By June, 1911, he had been graduated from the Curtiss Flying School at North Island in San Diego harbor. He was immediately employed by Curtiss, but remained at San Diego until the next year, when he joined the exhibition team.<sup>32</sup>

His first assignment was at Spencer, Iowa, sixty miles from his home town of Clear Lake. His parents had not been aware that he had become a pilot. When they were notified of the forthcoming event at Spencer, they journeyed there to witness the flights. It was on this occasion that Barlow experienced one of the two minor crashes in his flying career. His first take-off ended in a minor crash in the middle of a corn field.<sup>33</sup>

Arrangements for Barlow's appearance at Yankton were made by D. B. Gurney, a director of the Yankton Commercial Club, through the Curtiss Company offices in New York.<sup>34</sup> On August 23 and 24, 1912, Barlow made four successful flights from the Yankton College athletic field in a Curtiss "pusher." The second flight involved two landings. He flew to the South Dakota State Hospital, landed there, and took off again toward the city. This flight was made for the benefit of the inmates of the Hospital.<sup>35</sup> Commenting on these flights, Barlow observed that the State of South Dakota "...had the honor of furnishing him with the smallest field he ever used in his exhibition days." The field was 300 by 150 feet.<sup>36</sup>

Barlow continued to exhibit Curtiss planes throughout the Middle West during 1912 and 1913. In 1914 he flew under the management of W. H. Picken, who at the same time, was manager for Barney Oldfield, a famous automobile racer of the era. Barlow was attracted to South Dakota, especially the Black Hills area, and he became a resident of the state in 1915. He laid aside his career in aviation for a brief period and

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<sup>28</sup> The above material was based upon a letter from Tom Parker to the South Dakota Aeronautics Commission, January 25, 1950, Deadwood, South Dakota.

<sup>29</sup> Sioux Falls Argus Leader, August 7, 1912.

<sup>30</sup> Tom Parker, Letter to the South Dakota Aeronautics Commission, January 25, 1950.

<sup>31</sup> Vermillion Plain Talk, September 23, 1912.

<sup>32</sup> Floyd Barlow, Letter to the author, March 12, 1954.

<sup>33</sup> Evening Huronite, Huron, South Dakota, June 30, 1957.

<sup>34</sup> Sioux Falls Argus Leader, August 15, 1912.

<sup>35</sup> Sioux Falls Argus Leader, August 26, 1912.

<sup>36</sup> Nellie Z. Willhite, Letter to the author, May 20, 1954.

returned to the automobile business. During this time Barlow was located at Deadwood where he had employment with the Fiske Tire and the Kilker Auto Companies.<sup>37</sup>

In addition to the featured flights described above, the state Fair Board, gratified by the successful exhibition of 1911, decided to engage aviators for the 1912 State Fair. By this time this type of entertainment had become quite popular.<sup>38</sup> Because of competition with other state fair boards in scheduling well-known fliers, a co-operative arrangement was worked out with the neighboring states of Iowa and Minnesota.<sup>39</sup> Through this concerted action the South Dakota Fair Board contacted the National Aeroplane Company and engaged three aviators flying two biplanes and a monoplane.

In order to publicize the occasion, Secretary McIlvaine of the State Fair Board arranged for Hugh Jaynos, a prominent citizen of Pierre, to fly in the monoplane. Arrangements were also made for an automobile caravan of fifty cars to carry citizens from the Pierre area to Huron. McIlvaine made similar arrangements with citizens of Sioux Falls and Watertown.<sup>40</sup> Two of the fliers were from abroad, Marcel Tournier, a Frenchman, and Studensky, a Russian.<sup>41</sup> Bad weather prevented spectacular acrobatics, but the formation flying by the three aviators was considered unparalleled for South Dakota.<sup>42</sup> The flying attraction drew the largest attendance ever assembled in South Dakota State Fair history up to that time.<sup>43</sup>

Any discussion of the events of this spectacular period of exhibition flying in South Dakota should point out that these activities reflected the trend across the nation. Moreover, these exhibition flights were important to the aviation industry. This is indicated by the fact that the Curtiss Exhibition Company with its troupe of thirteen daredevil aviators grossed nearly one million dollars. The Curtiss Company made 541 appearances in 210 cities and towns during 1911 and 1912.<sup>44</sup> All these flights greatly stimulated interest in aviation, undeterred by a climbing death rate among fliers.<sup>45</sup>

The story of aviation in South Dakota during this period is not complete without an account of the activities of Saxe P. Gantz and Frank Auckerman, both of whom witnessed the exhibition flights of Hugh Robinson at the Stockmen's meeting in Rapid City in April, 1911.<sup>46</sup>

Upon meeting Robinson, Gantz had questioned him regarding schools for flight training and was advised to contact a school located at Kinlock Park, eighteen miles north of St. Louis. Here Gantz went for training.<sup>47</sup> After one month of instruction he became discouraged with the type of equipment offered and decided to purchase his own machine. Because the \$5,000 price asked for a new Curtiss seemed too high to him, he decided to build his own ship.<sup>48</sup> With the aid of two helpers he completed construction of a biplane by August, 1911.<sup>49</sup> Modeled after a Curtiss "pusher," the plane was powered with a fifty-

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<sup>37</sup> Floyd Barlow, Letter to the author, March 12, 1954.

<sup>38</sup> Sioux Falls Argus Leader, September 3, 1912.

<sup>39</sup> Sioux Falls Argus Leader, August 31, 1912; Annual Report of the Board of Agriculture, State Publishing Co., Pierre, South Dakota, 1912, p. 41. The total cost for the attraction was \$1788.94.

<sup>40</sup> Sioux Falls Argus Leader, September 3, 1912.

<sup>41</sup> *Ibid.*, September 10, 11, 1912.

<sup>42</sup> Annual Report of the Board of Agriculture, State Publishing Co, Pierre, South Dakota, 1912, p. 41.

<sup>43</sup> Sioux Falls Argus Leader, September 11, 1912.

<sup>44</sup> Smith and Morris, p. 119.

<sup>45</sup> Studer, p. 295. Prior to 1910 only forty-three fatalities due to activity were reported. During the next three years, when exhibition flying entered a new phase, the deaths increased to thirty-three, seventy-seven, and sixty-three respectively. The statistics for 1913, however, extend only to September. Vermillion Plain Talk, September 23, 1912.

<sup>46</sup> Rapid City Daily Journal, October 30, 1949.

<sup>47</sup> Saxe P. Gantz, Personal interview, June 18, 1954.

<sup>48</sup> Rapid City Daily Journal, October 30, 1959.

<sup>49</sup> Saxe P. Gantz, Personal interview, June 18, 1954.

horsepower, four-cylinder, Roberts Motor, bought at a bargain price of \$1,150 at Sandusky, Ohio. The plane had a wingspread of thirty-two feet and was "pushed through the air" with a seven-foot propeller.<sup>50</sup>

His first attempt to fly the aircraft ended in a "pancake" landing from forty feet up; this nearly terminated his aspiration for a career in aviation.<sup>51</sup> After making numerous repairs and engaging in several weeks of testing, Gantz made a number of successful flights. Eventually he was commissioned by the Clinton County Fair Board at Breese, Illinois, to make four exhibition flights for \$200 each. Recalling one of these flights, Gantz later stated:

I left the ground easily and went up without any trouble. I flew all around and then flew down by the grandstand. I waved at the huge crowd as I flew by and it seemed that every man, woman, and child waved back at me. It made me feel so proud that I was pleasing them, and it surely warmed my heart. The next two flights were uneventful, and so I had successfully completed my first exhibition flights which incidentally were my last.<sup>52</sup>

After these flights Gantz crated his plane and returned to St. Louis. Several days later he received a telegram informing him that his mother had died. That same night the shop which housed his plane burned. Discouraged by these events, he returned to Rapid City and gave up aviation. Gantz later considered his decision to have been wise, because "...most of the boys who were then flying met sudden death."<sup>53</sup>

Frank Auckerman was an eighteen-year-old youth from Sturgis, South Dakota. Like Gantz, he attended the Stockman's celebration at Rapid City in 1911, and he likewise became interested in flying after seeing Hugh Robinson perform. Determined to become a pilot, Auckerman went to Hammondsport, New York, where he enrolled in the Curtiss Flying School in June of 1912. Upon receiving his diploma in September, 1913, he returned to Sturgis. For about three years he did no flying, but in 1916 he and his brother Burt purchased a Curtiss "pusher" at Hot Springs. This plane had been the property of an exhibitionist, Andrew Hartman, who had found it necessary to sell the machine following an expensive law suit that grew out of a failure to fulfill the terms of a flying contract.

After several flights with the newly purchased plane, Frank Auckerman persuaded Burt to solo. Even though Burt had little training, he took off, circled the field twice, and then tried to land. The result was disastrous. Although Burt was not killed, the plane was a "pile of wreckage." This ended Frank Auckerman's career as a flier.<sup>54</sup> Saxe Gantz and the Auckerman brothers are believed to have been the first South Dakotans to own planes. The Auckerman machine, moreover, was the first plane to crash in South Dakota.

By 1915 the exhibition business was becoming so popular that many young fliers were purchasing their own equipment and entering the exhibition business. A direct result of this development was the lowering of fees for exhibition flying, followed in turn by an increase in the number of flights made in the more rural areas of the country. The effect in South Dakota was increased interest in staging aviation events in smaller communities. One such event was scheduled by the Clay County Fair Association at Vermillion for September 7-10, 1915. The association had contacted Joseph Penhayn, "one of the world's greatest

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<sup>50</sup> Rapid City Daily Journal, October 30, 1949. The name "pusher" was given to planes of this period, because the pilot's seat was mounted in front of the engine and propeller. They were also called "flying birdcages."

<sup>51</sup> Douglas Airview News, Douglas Aircraft Company, Inc., Tulsa, Oklahoma, September 24, 1943.

<sup>52</sup> Saxe P. Gantz, Personal interview, June 18, 1954.

<sup>53</sup> Saxe P. Gantz, Personal interview. During the Second World War Gantz was employed by the Douglas Aircraft Company at Tulsa, Oklahoma.

<sup>54</sup> Evening Huronite, June 30, 1937.

aviators," who agreed to make daily "airship flights" during the fair. Unfortunately, however, Penhay cancelled the engagement a few days before the fair because his company had lost three planes in crashes. As a last resort, the Fair Board engaged a balloonist. He made two successful flights, but they were not considered spectacular.<sup>55</sup>

The major flying event of the year occurred during the State Fair at Huron. Art Smith, who had flown at Deadwood in 1912 and was therefore well known, was engaged for the occasion. The dangerous antics of Smith at the Panama Pacific Exposition and his success in holding thrill-crazed spectators at a Chicago event had won him wide acclaim as second to none in exhibition flying. His contemporaries labeled him "the comet of the air."<sup>56</sup> The State Fair Board's intention to engage "the most daring aviator of all time" was announced in August in the leading newspapers. His program was advertised to include:

Ten straight up and over loop-the-loops in absolute succession from an altitude of about 2,500 feet; roll-over loops, finishing within 300 feet of the ground...causing the machine to roll over sideways wing over wing until upside-down...<sup>57</sup>

Before Smith's arrival he was the victim of a crash that demolished his plane but left him without serious injury.<sup>58</sup> The accident was publicized widely by the press, adding interest to the scheduled flights at Huron.<sup>59</sup>

The aeronaut's baggage included his crated plane, a hodgepodge of fancy smoke pots, and a midget racing car. His manager, W. S. Baster, stated at this time that Smith would give the people of South Dakota a demonstration that they would never forget."<sup>60</sup> South Dakota's air conditions were considered ideal for sensational flying, and Art Smith did everything expected of him. Regarding his first flights, the editor of the Huronite commented:

Without any of the fuss or frills which were connected in the popular mind with such exhibitions, Smith climbed into his machine ... and was soaring toward the business district of Huron. Returning to the grounds he passed several times in front of the stands, climbing steadily upward. After a flight of fifteen minutes, he swooped towards the ground and having gained the necessary speed, looped-the-loop three successive times, captivating the crowds by his absolute fearlessness...<sup>61</sup>

Smith informed the Fair Board that on the final day of his flights he would inscribe "Huron" across the sky. In addition to his flying exhibitions, Smith demonstrated his midget auto racing car. He considered auto racing much more dangerous than flying, but added this performance for good will.<sup>62</sup> The celebration was concluded on the night of September 17 with Smith "decorating the skies with scrolls and loops of fire," while the audience in the grandstand was said to have been held breathless with suspense.<sup>63</sup>

The spectacular activities described in this chapter had several important effects upon aviation. In the first place, exhibition flying supplied a continuity in the development of aerodynamics. The recognition given Glenn Curtiss for his exploits and the acclaim given other pilots flying Curtiss planes prompted Curtiss to

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<sup>55</sup> Vermillion Plain Talk, September 9, 1915.

<sup>56</sup> Vermillion Plain Talk, August 19, 1915.

<sup>57</sup> Loc. Cit.

<sup>58</sup> Daily Huronite, September 1, 1915.

<sup>59</sup> Loc. Cit.

<sup>60</sup> Daily Huronite, September 15, 1915.

<sup>61</sup> Daily Huronite, September 16, 1915.

<sup>62</sup> Loc. Cit.

<sup>63</sup> Daily Huronite, September 18, 1915.

engage in what was then large-scale construction. These planes and their prototypes appeared at the various county or state fairs and popularized flying. Second, the revenue received from public exhibitions gave the infant industry the financial aid it needed for growth. This financial support found expression in the further improvement of the airplane as a flying machine.

Finally, the flight activities of the period focused attention upon aerodynamic research. The lessons learned in the shop and on the field served to verify some of the basic principles of aerodynamic construction. Many of the concepts held before this time proved unsound and were therefore discarded. These principles involved air flow on plane surfaces and the development of control mechanisms. Fuselages were being enclosed. Tractor power was replacing the "pusher" power used on the earlier Wright and Curtiss models. In short, scientific aeronautical data were assuming massive enough proportions to permit engineers to substitute proved principles for the trial and error methods of the earliest inventors.

Toward the end of the period, however, American technical genius was surpassed by developments in Europe. In peace time the improvement of the airplane and its accessories had slowly continued as individual capital was cautiously venturing into a hazardous new field. With the coming of war, however, together with the amazing new uses to which the flying machines were put, the improvement of the airplane became not only a business venture but also a project of major national importance.

### CHAPTER III THE INTERLUDE, 1915-1920

During the period from the Kitty Hawk flights in 1903 to the outbreak of World War I, aeronautics had progressed without direction, supervision or constructive aid from the federal government, financial or otherwise. Nor was aid furnished by local or state political units.

When the United States became faced with a possible involvement in war, however, President Wilson appointed an Advisory Committee for Aeronautics to study aviation problems and to submit recommendations to Congress for legislation regarding national aviation policy. In addition, the Aircraft Production Board was created, and military aviation was placed under the command of the army.

The Advisory Committee had been appointed April 2, 1915, the first organizational meeting was held April 23, and rules and regulations for the conduct of its duties approved by the President on June 14. Perhaps its most important task was the coordination of governmental and private efforts. As a result, it sought to act as a clearing house for new developments in scientific research and invention. It later recommended concrete legislation designed to place aeronautics on a sound basis and to provide the physical facilities required for the national defense.<sup>1</sup> These recommendations demanded urgent action because the combined services had only four airfields at this time and aviation technology and production lagged far behind the other major world powers.<sup>2</sup>

The following year the committee began consultations with the Post Office Department, which had been toying with the idea of using the aeroplane as a means of transporting mail in the Pacific Northwest and in Alaska. The discussions resulted in a recommendation for legislation authorizing the postal department to establish experimental airmail routes to determine whether it was desirable for the government to promote airmail service.<sup>3</sup>

As a result of these recommendations and subsequent experimentation, airmail service was inaugurated between Washington, Philadelphia, and New York in 1918. The route was flown by army pilots for a few months until the postal department took over with its own equipment and personnel. This marked the beginning of aerial transportation of mail in the United States and was a milestone in the history of airmail development.<sup>4</sup>

In addition, the National Advisory Committee for Aeronautics submitted various reports and recommendations to Congress between 1911 and 1918. It also assumed the responsibility for investigating various aspects of aviation, including the establishment of ground schools for the army, the problem of airplane design, the transcontinental mapping program, civil air transport development, the building of landing fields, and other important areas of aviation development.<sup>5</sup>

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<sup>1</sup> First Annual Report of the National Advisory Committee for Aeronautics, 1915, Government Printing Office, Washington, D. C., 1916, pp. 7-8.

<sup>2</sup> Fifty Years of Aviation Progress, National Committee To Observe the 50<sup>th</sup> Anniversary of Powered Flight, James H. Doolittle, Chairman, pp. 10-12.

<sup>3</sup> Annual Report of the National Advisory Committee for Aeronautics, Government Printing Office, Washington, D. C., 1917, p. 26.

<sup>4</sup> Annual Report of the National Advisory Committee for Aeronautics, Government Printing Office, Washington, D. C., 1919, p. 26

<sup>5</sup> Annual Report of the National Advisory Committee for Aeronautics, Government Printing Office, Washington, D. C., 1918, passim.

In March, 1916, when the Aviation Section of the Signal Corps was established, the combined army-navy air fleet comprised thirteen airplanes. Eight of these belonged to the army.<sup>6</sup> A year later when the United States declared war, the Air Service of the American army had a strength of only sixty-five officers and about 1,100 enlisted personnel. Of this number, some had seen service in Mexico, and the rest were either recent graduates of the Curtiss Flying School at San Diego, California, or still under instruction. None of them had ever flown a modern war plane of the type then used in Europe, and the majority had been trained on a system of controls differing from those used on the battle front.<sup>7</sup> About 200 training planes were owned by the Air Service, but none of them belonged to a type considered fit for service in Combat. Nor were planes of such a type manufactured in the United States at this time.

In May, 1917, Clemenceau, the French prime minister, cabled the American Government to urge it to form a flying force of 4,500 airplanes to be on the front during the campaign of 1918. This program, it was stated, would necessitate 5,000 pilots, 50,000 mechanics, and a monthly construction of 2,000 planes and 4,000 engines by American factories.

The program urged by the French Government was recommended by the Aviation Section of the Signal Corps and the Aircraft Production Board. It was subsequently approved by the General Staff in Washington and became the basis for the development of American military aviation.. Before the end of the year a zone of advance was organized under the command of Colonel William Mitchell, its work consisting chiefly of planning and studying air service tactics and strategy.<sup>8</sup>

The fall of 1917 was occupied particularly with the establishment of schools and training centers sufficient in number to provide for training air service personnel near the front. To meet the immediate emergency, it was necessary to take advantage of the schools already established in England and France by the Allied Powers.<sup>9</sup>

The training program consisted of a thorough physical examination, including the "equilibrium test" given in a "Spinning chair, " and extensive ground training which included aerodynamics, the theory of flight, and some training in aviation mechanics. Flight instruction followed the ground training exercises. This was divided into three phases: preliminary flight and solo, acrobatics, and advanced bomber or pursuit training.<sup>10</sup> From pilots so trained, plus those who had served with the Escadrille Americanna in France, two complete American squadrons, the 17th and the 148th, were formed. These two squadrons served under the Royal Air Force until November 1, 1918.<sup>11</sup>

The American Command purchased 2,676 planes from the French. These were used by American fliers until May, 1918, when they were finally supplied with American built aircraft. From that date to the end of hostilities in November, American forces received 1,879 American planes of all types. The first American squadrons equipped with American planes crossed the German lines on August 7, 1918.<sup>12</sup>

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<sup>6</sup> Fifty Years of Aviation Progress, National Committee to Observe the 50<sup>th</sup> Anniversary of Powered Flight, James H. Doolittle, Chairman, p. 12.

<sup>7</sup> Reports of the Commander in Chief, A. E. F., United States Army in the World War, 1917-1918, Vol. 15, Part I, Government Printing Office, Washington, D. C., 1948, p. 257.

<sup>8</sup> Report of the Commander in Chief, A. E. F. United States Army in the World War, 1917-1919, Vol. 15, Part I, Government Printing Office, Washington, D. C., 1948, pp. 236-39.

<sup>9</sup> Ibid., pp. 235-62

<sup>10</sup> Dr. J. D. Always, Personal interview, Aberdeen, South Dakota, January 28, 1956.

<sup>11</sup> Report of the Commander in Chief, A. E. F., United States Army in the World War, 1917-1919, Vol. 15, Part I, Government Printing Office, Washington, D. C. 1948, pp. 235-62.

<sup>12</sup> Ibid., Vol. 12, Part I, pp. 4-5.

By this time the effectiveness of air power was fully understood, and air tactics and strategy were being directed toward maximum potential for the destruction of enemy aircraft during air combat.

These war activities were shared by various South Dakota fliers and air service personnel. While no complete list is available, a number of South Dakotans can be mentioned as having shared these experiences.<sup>13</sup> Those who served with the French and English air forces before their transfer to American squadrons included the Halley brothers, Russell and Walter, and Walter Smith, W. W. Spain, and Douglas Stillwell.

Captain Russell Halley, who came from Rapid City, was one of the first American fliers to serve abroad. He was assigned to the Escadrille Americaine in France and subsequently received the Croix de guerre for the distinguished service he rendered the French Army. During the 1920's he was to be connected with the first large, locally owned airline in South Dakota. He later served on the South Dakota Aeronautics Commission and various other committees connected with the promotion of aeronautics in South Dakota.

Lieutenant Walter Halley, Russell's brother, who was also from Rapid City, was in the original group of one hundred Americans who went to England in September, 1917. He remained with the Royal Air Force for ten months. In July, 1918, he was transferred to an American squadron at Clermont-Ferrand, France, where he served as an instructor with his brother. In October, 1918, Walter Halley was assigned to the front, where he was attached to the 11th Bombardment Squadron. Following the armistice, he remained in the Army of Occupation, and during the 1920's he became one of the founders of the Rapid City School of Aviation and of Rapid Airlines.<sup>14</sup>

Lieutenant Walter Smith, a native of Pierre, served in various capacities both at home and abroad. Following the war, he was connected with the United States Mail Service. He became a national figure on August 10, 1920, when he pioneered the Minneapolis-Chicago airmail route in a Martin Bomber. He was killed in a crash while carrying mail over the Cleveland-Chicago airmail route on September 8, 1922.<sup>15</sup>

Captain W. W. Spain, originally of Sioux Falls, was the first South Dakotan to serve in the army air service. Spain entered military aviation in 1916 when he was selected for a flight training course offered by the Curtiss Aeroplane Company at its Newport News training field in Virginia.<sup>16</sup> He was chosen from the South Dakota National Guard. Spain's instructors at the field included Victor Caristrum and the famous Captain Thomas Scott Baldwin, a former balloonist. Shortly thereafter, Spain returned to Redfield, South Dakota, to prepare for active service on the Mexican border with the 4th South Dakota National Guard.<sup>17</sup> In August he was transferred from San Benito, on the Mexican border, to an air training center at Chicago.<sup>18</sup> Here he was one of eight men taking instruction from the Royal Air Force.<sup>19</sup> During the winter the training school was moved to the South where Spain made his first solo flight.<sup>20</sup> Shortly thereafter he became an instructor at Chanute Field.

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<sup>13</sup> The information concerning World War I Air Service personnel was obtained from Doane Robinson, South Dakota, Vol. II and III, The American Historical Society, Inc., Chicago, 1930, passim, and from various other sources cited elsewhere in this study.

<sup>14</sup> Robinson, Vol. II.

<sup>15</sup> Sioux Falls Argus-Leader, September 8, 1922.

<sup>16</sup> Ibid., April 17, 1916.

<sup>17</sup> Ibid., July 3, 1916.

<sup>18</sup> Ibid., August 18, 1916.

<sup>19</sup> Ibid., December 7, 1916.

<sup>20</sup> Sioux Falls Argus-Leader, April 14, 1917.

In February, 1918, Spain went to France. His entire service in France was devoted to flight instruction. He returned to the United States on February 1, 1919, and was released from the army on February 3, 1919, after twelve years of duty.<sup>21</sup> Later, in 1928 and 1929, Spain was connected with the Black Hills College of Aviation. Lieutenant Douglas Stillwell was another flier who was identified with the French air force. He served on the Meuse-Argonne front with the 12th Aero Squadron. Stillwell was from Sioux Falls.

In addition to the individuals mentioned above, Major H. R. Eyrich, Lee M. Parrish, and Lieutenant Harold Tennant served with distinction either at home or abroad during the war period. Major Harold R. Eyrich was a civil engineer connected with the construction of airfields during the war. In this capacity he helped in the construction of Selfridge Field in Michigan, Scott Field in Oklahoma, Door Calstrom Airfield in Florida, Taylor Field in Alabama, Souther Field in Georgia, and Payne Field in Mississippi. Major Eyrich also served as a consultant for the Engine Plane Maintenance branch of the Air Services in Washington, D. C. Following the war, he became connected in various ways with mining interests in the Black Hills.<sup>22</sup>

Lee M. Parrish enlisted in the Air Service in April, 1917. He served with the 41st Air Squadron in the United States and later served in England, France, and Germany. Parrish was discharged in June, 1919, but subsequently reenlisted and worked with the 88th Air Squadron at Langley Field, Virginia. In the fall of 1919 Parrish and Captain H. H. George participated in cross-country flights from New York in pioneering activities in the formation of transcontinental airways. He was discharged from the service on June 29, 1920, and returned to South Dakota where he continued his interest in aviation. Parrish lived at Redfield from 1920 to 1937. During most of this time he carried on barnstorming activities in the Redfield area. He died in Sequim, Washington, in 1942.<sup>23</sup>

Lieutenant Harold Tennant, a native of Elk Point, was a student at the University of South Dakota when the United States entered the war. He enlisted in the Balloon Corps at Fort Omaha in 1917, but was transferred later to various other fields in the United States. Following the war, he served in the Air Service Reserve. After returning to South Dakota, Tennant became a leading figure in South Dakota aviation.<sup>24</sup>

From Aberdeen the following men served in the Air Service during World War I: Dr. James D. Always, Charles M. Baldridge, C. A. Bremer, Harold E. Cochrane, Laverne F. Douglas, Leo R. Erwin, W. P. Fenner, Delbert Gallett, Oliver Gottschalk, Jack and Bill Harrison, Thomas E. Harrison, Jack Holmes, Arthur J. Ohm, Henry F. Pabst, George A. Reidel, Ernest C. Rhodes, Matt Stroh, William M. Tillery, Stanley M. Tiffany, Earl T. Vance, Eugene L. Vidal, Morris D. Voedisch, and Joseph Williams. From neighboring areas came Rollie S. Hartwell, Stratford; Fred Hays, Aldro Mobbitt, Edward S. Robins, and Theodore Wagner of Hecla; Henry E. Nelson and Ernest S. Ottum of Groton; J. H. Brintigam, Westport; and Joseph R. Cain, Huffton.<sup>25</sup>

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<sup>21</sup> Ibid., March 14, 1919.

<sup>22</sup> Robinson, Vol. II, p. 450.

<sup>23</sup> Mrs. Meta Parrish, Letter to the author, January 26, 1956. A map showing the route taken by Parrish on his transcontinental flight from New York to San Francisco in the fall of 1919 was lent to the South Dakota Aeronautics Commission by Mrs. Parrish. It is an unusual map because of its size. The map is eight inches wide and thirty feet long. It shows only that portion of the country over which the planes were flown.

<sup>24</sup> Harold Tennant, Scrapbook, Sioux Falls, South Dakota.

<sup>25</sup> Brown County South Dakota in the World War, 1917, 1918, 1919, Buckbee-Mears, St. Paul, Minnesota, is a valuable source book for the men who served in the war from that area. It was lent to the author by the Alexander Mitchell Library, Aberdeen, South Dakota.

Serving in similar capacities from other parts of the state were Major Henry W. Harmes of Mitchell; Hiram H. Rowe, A. W. Stevenson, Charles L. Hyde. and Chris Merkle of Pierre; Sharon R. Mote, Carl H. Leedy, Jim Ewing, and Harold Hanley of Rapid City; Harmon Kopperud, Lake Preston; Glenn Levitt and George F. Sherwood, natives of Clark; Ralph Johnson of Hetland; Andrew E. Foley, Watertown; Albert E. Haskell and Emil Loriks from Huron; F. C. Poulson, Castlewood, and Francis Regan and Alexander D. Reid of Sioux Falls. Albert Senn, a Deadwood publisher, and Holton Davenport, an attorney at Sioux Falls, conclude the list of fliers and other personnel who were connected in various ways with military aviation.<sup>26</sup>

Some writers believe that World War I had a negative effect upon the progress of aviation. Allan Ladd Smith, for example, felt that the war stimulated the aviation industry like a drug and that the reaction was depressing and painful. He stated that the war ended commercial progress and that the returning pilots did not contribute toward the promotion of commercial aviation following the war. Smith, moreover, was of the opinion that the enormous surplus of aircraft which flooded the American market following hostilities deterred the manufacture of new models.<sup>27</sup>

While some of these influences were no doubt present, it should be recognized that the tremendous impetus given by the war to the aviation industry far outweighed the negative effects resulting from the war. The technological developments and the training of a number of young fliers were positive contributions. At the same time it must be emphasized that prior to the war the airplane's utility was not yet fully understood and that commercial aviation still lay in the future.

A serious problem arose from the huge surplus of planes and parts which remained unused during the war. When these surplus materials were made available to returning pilots, manufacturers of aircraft objected strenuously. This protest was registered with the government, and it was publicized in various articles and advertisements in the periodicals and newspapers of the period.

According to C. M. Keys, Vice President of the Curtiss Company, salvage equipment was being sold for a fraction of the original cost. On June 12, 1920, the Curtiss Company announced it would stop the manufacture of motors and accessories as a result of the failure of Congress to protect its market from the "dumping of British machines."<sup>28</sup>

The effects of the sale of this surplus upon the manufacturers are quite evident. Even without this competition, it is questionable whether the domestic market could have absorbed the output the American aviation industry was potentially capable of producing. In any event, a cutback from normal wartime operations was inevitable.

A summary of the significance of the war period reveals several outstanding contributions. First, the feeling of a sense of insecurity in 1915 led to the creation of the National Advisory Committee for Aeronautics, resulting in provisions for a cross-patenting system and a long-range plan for aerodynamic research. Second, the war resulted in the training of thousands of pilots and service personnel who were later available to instruct other young men interested in flying. A third contribution was furnished directly by the fliers themselves, who subsequently built their own facilities or were instrumental in molding

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<sup>26</sup> The names in this chapter are not a complete record of all the participants during the First World War. These names were submitted to the writer by various individuals including Chris Merkle of Pierre, L. V. Hanson, Director of the South Dakota Aeronautics Commission, and Dr. James D. Always, Aberdeen. Various scrapbooks, letters and pamphlets cited elsewhere added other names.

<sup>27</sup> See Allen Ladd Smith, Airways; The History of Commercial Aviation in the United States, Knopf, New York, 1942, passim.

<sup>28</sup> Aberdeen Daily American, June 12, 1920. Only a few British planes actually appeared in the United States. Most of the foreign planes used in the United States following the war came from Canada and were Curtiss models manufactured there.

public opinion sufficiently to induce civic groups or municipalities to furnish airport facilities. A fourth contribution was the radical departure in aircraft design away from the flimsy open-air monstrosities constructed of a jumble of struts and spars covered with fabric and lacquer which were common prior to the war.

Finally, the importance attached to aviation during the war led to a public realization of the tremendous value of the airplane. Though exhibition flying had kept the plane in the public eye, the war led to a greater understanding of the airplane's utility. The public began to view flying from a more utilitarian point of view and supported the numerous local boys who returned home with their services for hire. The Mail Service and cross-country flights also helped to stimulate enthusiasm for commercial aviation.

## CHAPTER IV THE TRANSITIONAL PERIOD, 1919-1929

Most of the people in the United States had never seen an airplane by 1918, but 200,000 members of the army and navy air services had come to know the plane intimately during the war. About 20,000 of them had been flying officers. After the war a fairly large number of these adventurous young men bought war surplus planes at a fraction of their original cost to become "gypsy flyers" or "barnstormers."<sup>1</sup>

Working alone or with a friend, the gypsy would go to any place where an airplane might offer an opportunity for profit. This usually meant a carnival or county fair where ready-made audiences were available for flying exhibitions and as potential customers for sight-seeing flights. When the market was exhausted, he flew to another town. The fee ranged from \$12.50 or more for a ten to fifteen minute flight immediately following the war to two or three dollars later in the 1920's. All he needed was a plane to carry himself and a passenger, a field from which to operate, and a little publicity. The gypsy was usually his own salesman, mechanic, rigger, and weatherman.

This was the ballyhoo phase of aviation. Barnstorming, exhibition stunt flying and fixed-base operations were important features of American aviation.<sup>2</sup> The stress and strain on structural design and materials was a perpetual problem to technicians and designers. Stunting and acrobatics uncovered weaknesses in design, thereby paving the way for technical progress. The average flier, however, was probably but little aware of such a contribution. To him, barnstorming and exhibition stunt flying provided a feasible means for economic support.

The barnstorming stunt flier holds a unique place in the history of aviation because of his dominance in the decade following the war. He was an itinerant gypsy flier, whose work called for a pilot with a combination of daring, love for adventure, and skill. Local assistance was necessary in the form of a cow pasture for landing and people willing to pay for rides. This last requirement seemed to present no difficulty at the time.<sup>3</sup>

It was through the barnstorming stunt flier that aviation made the transition from war to peace. He exhibited his war surplus plane, his skill, and his daring to many who had never seen a plane, and he became the idol of thousands in the more remote areas of the country.

The gypsy also demonstrated to a reluctant public that the flying machine had a place in modern transportation. Although subjected at times to heavy criticism near metropolitan areas where fixed-base operations had become the rule, he was particularly popular in the Middle West where he brought before the public a machine which prior to the war had been regarded as a plaything.<sup>4</sup>

Many contemporaries of the barnstormers, however, looked upon them with considerable disfavor and blamed them for all the ills of the industry. This is apparent in a critical comment made by the Aeronautical Chamber of Commerce in 1922.

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<sup>1</sup> Fifty Years of Aviation Progress, National Committee To Observe the 50<sup>th</sup> Anniversary of Powered Flight, James H. Doolittle, Chairman, 1953, p. 17.

<sup>2</sup> See Chapter II for a discussion of the exhibition activities before the war.

<sup>3</sup> In a personal interview at Newcastle, Wyoming, on February 22, 1954, Clyde Ice, noted South Dakota flier, in referring to his experiences, stated: "I circled a town, headed for a cow pasture, and a gathering assembled as quickly as I landed."

<sup>4</sup> A fixed-base operator was an individual, partnership, or corporation which operated regularly from one base. See Chapter V for a discussion of "fixed-base operations."

In singing the praises of the 125 fixed-base fliers operating that year, the organization stated that the fixed-base flier had been "...embarrassed by the gypsy, whose irresponsible flittings had left a trail of fear as well as astonishment."<sup>5</sup>

The Aeronautical Chamber of Commerce reasoned that the heavy death toll resulting from aircraft accidents was primarily due to the lack of caution displayed by these itinerant fliers. By 1924, however, the same body reluctantly accepted the gypsy flier as a factor of importance to civil aviation. In a review of civil aviation developments, the Aircraft Year Book for 1924 stated its belief that

...in the 'gypsy' flier, American aviation finds at once elements of strength and weakness. The gypsy is the pioneer. Good or bad, he is all of aviation that hundreds of communities have ever seen. His intentions are commendable and if, in his operation, he prejudices opinion, it may be said with equal justice that in other phases of operation, he has made a contribution. That is, in all phases except where casualties are concerned.<sup>6</sup>

During 1922 aircraft accidents and the casualties resulting therefrom were subjected to a thorough investigation by a special committee of the federal government. The committee reported 124 accidents which had occurred during the previous year. Forty-three of these were in the Middle West, but no accidents were reported for South Dakota.<sup>7</sup>

It might be assumed that barnstorming and stunting, which included rope-ladder stunts, wing-walking, and hair-raising parachute jumps, were but reflections of the social behavior manifest in other areas of the "Roaring Twenties." The individual flier, however, appears to have turned to ballyhoo performances in an effort to keep the economic wolf from the door. This was particularly true of fliers in South Dakota.

Barnstorming and stunting began in South Dakota immediately following the war, when discharged service personnel returned to civilian status. Wishing to capitalize on their experiences and training, these pilots bought surplus "Jennies," Stinsons, and other types of aircraft and went into business.<sup>8</sup>

Meanwhile, however, exhibition flights were being made by army pilots as a feature of Victory Loan drives to stimulate government bond purchases. The first Victory Loan Aerial Circus to visit South Dakota arrived in Aberdeen from Bismarck and Fargo on April 24, 1919. The squadron of ten army pilots flying American and foreign model planes were under the command of G. E. Stratemayer, who had headed the First Aero Squadron during the war.<sup>9</sup>

The planes were transported to Aberdeen on nine flatcars and transferred to a hayfield south of the city, where a simulated aerial battle was held. C. A. Bremer and E. C. Rhodes served on a committee which arranged for the show. Captain Fred Hatterscheidt acted as commander of the local guard organized to protect the planes from curious onlookers.<sup>10</sup>

From Aberdeen the Victory Loan Aerial Circus continued its journey across the state to Redfield and Sioux Falls. Captain W. W. "Billy" Spain, famous South Dakota flier mentioned in an earlier chapter,

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<sup>5</sup> Aircraft Year Book, 1922, Aeronautical Chamber of Commerce of America, Inc., New York, p. 7.

<sup>6</sup> Aircraft Year Book, 1924, p. 104.

<sup>7</sup> Aircraft Year Book, 1922, p. 36. Secretary of Commerce Herbert Hoover was chairman of a committee which studied problems relating to aviation. The industry desired regulation by the government and had asked the Commerce Department to investigate its activities.

<sup>8</sup> The Curtiss model war training plane was popularly called the "Jenny" by fliers.

<sup>9</sup> Aberdeen Daily American, April 20, 1919.

<sup>10</sup> Ibid., April 23, 1919.

joined the group at Aberdeen and flew to Redfield. This was the first cross-country flight ever attempted in South Dakota; a few months later they became common.<sup>11</sup> After the Redfield show the planes were carried by rail to Sioux Falls where another sham battle was held on April 26.<sup>12</sup>

An Aberdeen auctioneer, H. M. Baird, was one of the earliest South Dakotans to participate in these activities. Baird is said to have been the first businessman of the state to own a plane following the war.<sup>13</sup> Baird purchased his new Curtiss at Minneapolis, Minnesota, early in February, 1919. During the period between April 20 and April 29, Baird and his pilot, Lieutenant C. M. Larson, made flights to various towns and cities in Minnesota and South Dakota. All these appearances were undertaken in the interest of the Ninth Victory Loan District and supplemented the exhibitions of the army pilots. Baird made patriotic speeches at public gatherings in each town visited, helping, it is estimated, to promote bond sales totaling half a million dollars.<sup>14</sup>

When Baird and Larson returned to Aberdeen, they used a pasture near the Howard home in the "Highlands" as a landing field. During these flying activities, Baird carried the first letter received at Aberdeen by plane.<sup>15</sup> On May 24 the Baird plane was flown to Ellendale, North Dakota, for a soldiers' homecoming celebration. As a friendly gesture Baird arranged to have Lieutenant Misfelt, a flier from Ellendale, perform for his fellow citizens.<sup>16</sup> Misfelt was subsequently employed by Baird as a mechanic.

The next few months were active ones for Larson. On June 4 Larson returned to Aberdeen after a five-day series of flights at Watertown, Randolph, and other communities where he staged celebrations for returning soldiers. At Randolph he had carried fifteen passengers.<sup>17</sup> Baird purchased his second plane at this time, and he employed Lieutenant Merkle as the pilot. Merkle had been a familiar figure in the Aberdeen area prior to the war. He was a former football star and later became the physical education director at the Northern Normal and Industrial School.<sup>18</sup> Merkle entered the air service in November, 1917, and subsequently became a pilot. He was discharged in February, 1919, at Washington, D. C., and became connected with Baird shortly after returning to Aberdeen.<sup>19</sup>

Merkle and Misfelt became involved in a serious accident in June. Sometime in May, 1919, soldier homecoming celebration officials in Edmunds County made arrangements with Baird for a race between his plane and a Stutz sport car owned by "Babe" Ward.<sup>20</sup> During a trial run over the twenty-seven mile course on June 18, Merkle lost control, and the plane fell in an Aberdeen cemetery. Misfelt was the only passenger; both men sustained minor injuries and were hospitalized. Ward wrecked the Stutz on the same day when he lost control on the Mina curve west of Aberdeen.

On June 20, two days after the Merkle accident, C. M. Larson returned from Minneapolis with a new plane for Baird. An exhausting schedule, arranged in advance by Baird, included exhibition flights at Watertown, Cresbard, and Turton. Next he was scheduled to perform at the Fourth of July celebration at Webster. On July 5 and 6 Larson was scheduled for flights at Ledgerwood, North Dakota.<sup>21</sup> This was an

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<sup>11</sup> Ibid., April 25, 1919.

<sup>12</sup> Daily Argus-Leader, April 26, 1919.

<sup>13</sup> Aberdeen Daily American, April 30, 1919.

<sup>14</sup> Brown County South Dakota in the World War, 1917, 1918, 1919, Buckbee-Mears Company, St. Paul, Minnesota, 1919, p. 155.

<sup>15</sup> Aberdeen Daily American, April 29, 1919.

<sup>16</sup> Ibid., May 23, 1919.

<sup>17</sup> Aberdeen Daily American, June 4, 1919.

<sup>18</sup> Ibid., June 5, 18, 20, 1919.

<sup>19</sup> Brown County South Dakota in the World War, p. 97.

<sup>20</sup> Aberdeen Daily American, May 23, 1919.

<sup>21</sup> Aberdeen Daily American, June 20, 1919.

unusual schedule, but Baird was an unusual man. He was generally regarded as an outstanding promoter, businessman, and civic-minded individual.<sup>22</sup>

Meanwhile, aviation activities were taking shape in other parts of the state. At Huron Lieutenant Charles Ward and Lieutenant Merle Hagen announced plans to make that city an aviation center. To raise sufficient funds for the purchase of a plane, the two fliers sold two hundred advance rides for ten dollars each.<sup>23</sup> By the end of June, Ward and Hagen had raised the necessary funds with which to purchase a Curtiss and gone into business.<sup>24</sup> Their new company was called the Huron Aerial Rapid Transit Company. This company made an impressive record during the next few years in the Huron area.<sup>25</sup>

In June, 1919, Lieutenants Jack Tutt and Jack Salway, two British fliers, appeared on Chautauqua programs in various towns, mostly in the southeastern section of the state. The localities visited by these fliers included Garden City, Marion Junction, Sioux Falls, Tyndall, and Yankton. Their flights caused considerable astonishment among the rural population of the area. According to one newspaper account of the period, some mistook the airplane for a "bird of prey" and took to flight. On the other hand, D. C. Walsh, manager for the two fliers, commented that most rural people were familiar with the sight of a plane and merely displayed curiosity and a remarkable hospitality.<sup>26</sup>

Other out-of-state fliers who visited the Sioux Falls area during this early period included A. R. and M. E. Collander, R. M. Warfield, and Warren Anderson, all former army pilots. They were members of the Sioux City Flying Club and had six planes in operation in the Sioux City-Sioux Falls area at this time.<sup>27</sup> Warren Anderson continued his aviation activities around Sioux City and Sioux Falls, and for more than a decade remained active in Iowa, South Dakota, and Nebraska.

Another scene of aerial activity was Fort Pierre, where an aviation company called the Fort Pierre Aero Company was organized on July 8, 1919. C. E. Coyne, Arnold Rowe, and A. W. Stevenson incorporated the company for \$5,000. Stevenson and Rowe had been commissioned pilots during the war and were familiar with acrobatics. They announced that contracts had been secured with practically every city and town in western South Dakota which were planning celebrations that season. The company claimed exhibition and stunt flying, passenger flights, and aerial advertising as their specialties. These were typical activities of the period.<sup>28</sup>

In 1920 Pierre was paralyzed as a result of damaging spring rains which had washed out the rail lines between Pierre and Blunt. Stevenson immediately began a passenger shuttle service to relieve the transportation bottleneck.<sup>29</sup>

Hiram Rowe later joined the government airmail service and died when his plane exploded over La Crosse, Wisconsin, on February 9, 1921.<sup>30</sup> In 1927 Stevenson was located at Dillon, Montana.<sup>31</sup>

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<sup>22</sup> Telephone conversation with Frank Suttle, Aberdeen, South Dakota, March 15, 1956.

<sup>23</sup> Aberdeen Daily American, May 1, 1919.

<sup>24</sup> Evening Huronite, June 30, 1919.

<sup>25</sup> Sioux Falls Argus-Leader, July 19, 1920.

<sup>26</sup> Sioux Falls Argus-Leader, June 17, 18, 1919.

<sup>27</sup> Ibid., August 4, 1919.

<sup>28</sup> Sioux Falls Argus-Leader, July 9, 1919.

<sup>29</sup> Ibid., May 18, 1920.

<sup>30</sup> Ibid., February 10, 1921.

<sup>31</sup> Aircraft Year Book, 1928, p. 509.

Another landmark in early aviation history was a cross-country flight from Minneapolis to Tyndall in July, 1919, by Lieutenant Lloyd Peterson and Louis F. Chaladek. The latter was a Tyndall druggist. They bought the plane in Minneapolis and flew it back to South Dakota. This nonstop flight between Minneapolis and Sioux Falls was cited as the first cross-country flight ever made between these two cities.<sup>32</sup> Little is known about the activities of Peterson after this time.

Another barnstormer of major importance was Earl T. Vance. Vance returned to his native city of Aberdeen in the summer of 1920 with a new Curtiss he had purchased in St. Louis. He had entered the armed forces in 1917, being subsequently transferred to the Air Service Section of the Signal Corps. One of the nation's earliest graduates in military aviation, Vance remained in this country during the war as an instructor, training pilots at various training stations in the South.<sup>33</sup>

Shortly after his arrival at Aberdeen, Vance announced his plans to establish headquarters for a flying service at Baird Field, located south of the city limits.<sup>34</sup> Two days later he placed the following advertisement in the local newspaper:

TIME FLIES---WHY DON'T YOU?  
YOUR TIME IS YOUR MOST VALUABLE ASSET. CONSERVE IT  
Fly where you are going.

An airplane will be kept at Baird's Aviation Field for the convenience of the public.

Airplane joy rides--one dollar a minute--ten minutes minimum. Cross country flights--  
Intended for people who value their time. One dollar per mile. 25 mile minimum.

Exhibition fights--Public gatherings. Includes aerial acrobatics, parachute jumping,  
aerial advertising and flight instruction.<sup>35</sup>

One of his first activities was in connection with a service rendered the American Legion Post at Aberdeen. The local post wished to have Aberdeen named the permanent state headquarters and, as a part of its campaign, engaged Vance to distribute advertising by air at the Legion Convention at Watertown.<sup>36</sup>

Local patronage at Aberdeen, however, was not sufficient, and Vance was, therefore, obliged to barnstorm throughout the surrounding territory in search of prospective riders. These activities took him to virtually every small town and village in the northern half of the state. Some of the towns he visited during this period included Miller, Highmore, Onida, Redfield, and Mobridge.<sup>37</sup>

While on a barnstorming tour of the Miller area in the fall of 1920, Vance became acquainted with Clyde W. Ice, a man destined to play a leading role in South Dakota aviation. The two formed a team, and during the months which followed Vance (the aviator) and Ice (the ticket seller) barnstormed into practically every hamlet in northern South Dakota and into North Dakota and Montana as well.<sup>38</sup>

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<sup>32</sup> Sioux Falls Argus-Leader, July 25, 1919.

<sup>33</sup> Aberdeen Daily American, July 28, 1920.

<sup>34</sup> A pasture north of the livestock sales pavilion was established in 1919 as the Baird Landing Field. This field was used intermittently for several years by itinerant fliers. The eastern half of this plot has since become a residential area.

<sup>35</sup> Aberdeen Daily American, July 30, 1920.

<sup>36</sup> Ibid., August 24, 1920.

<sup>37</sup> Clyde Ice, personal interview, February 22, 1954.

<sup>38</sup> Loc. Cit.

Being a "free lancer" and needing more "elbow room," Vance moved his operations to Montana in 1921. At Miles City he formed a connection with the Miles City Aero Club and operated an L-shaped field leased from the federal government. His operations in Montana became quite extensive. In 1921 he carried a thousand passengers for a total of 85,000 miles.<sup>39</sup> The Aeronautical Chamber of Commerce cited Vance as an example of an operator who had "...established commercial flying in an area where business, as in other mountain states, was remote from the centers of East and West alike ...."<sup>40</sup> Vance later moved his operations to Great Falls, where he established the Vance Commercial Airport.<sup>41</sup>

Vance remained at Great Falls for a number of years, but returned to South Dakota during the depression. In 1937 he gained an aerial mapping contract with the federal government. Throughout 1937 and 1938 he photographed hundreds of South Dakota farms, then under the wheat and corn acreage allotment programs. He was still flying at the beginning of the Second World War, which he entered as a Major in the Air Force, serving at various air bases across the country. His aviation career ended during the war when he died from a heart ailment aggravated by a badminton game.<sup>42</sup>

Fliers such as Vance laid the groundwork for the modern developments in aviation. They brought the airplane to the remote areas of the country, established airports, and trained other fliers to carry on their work. This was particularly true of Clyde W. Ice, who, becoming actively identified with aviation, made it his life work.

Born in 1889, Clyde W. Ice lived most of his early years at Miller, South Dakota. He saw his first airplane in 1915 at the South Dakota State Fair where Art Smith was making exhibition flights. He made a more direct connection with aviation shortly after the First World War when an exhibitionist from Chicago shipped "an old crate" into Ruskin Park, near Forestburg. The exhibitionist was engaged to make exhibition flights to draw additional crowds to the amusement park. Ice relates, "The fellow was crippled in the war, and couldn't crank the plane. When he found I had a strong back and was anxious to get my hands on that thing, he let me help him." They worked on the plane for a whole day, but apparently faulty ignition prevented it from starting. Ice had been promised a ride but was fortunate that he did not succeed in getting the plane started. The next day, when the crowd was gone, the flier took off and, while landing in a tall wheat field, turned over, nose first.<sup>43</sup> The pilot was not injured.

Shortly after this Ice took several rides as a passenger with Jay Geehan. In this connection Ice relates that the returning war flier had the attitude that " ... just a few superhuman people could fly an airplane."

His active participation in aviation began in 1920, as noted earlier, when he became a ticket seller for Earl T. Vance. Vance needed a ground man to coordinate ticket selling with prospective flights during his barnstorming activities. Ice, expressing the personal enthusiasm he felt in his first experience as a ticket seller, relates:

I walked out there and asked Vance how to sell tickets. I knew most everyone around, and I thought I could do a land office business. So we started from there. I sold everyone I met and they thought I knew something about flying. I pretended like I knew what it was all about, and I had

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<sup>39</sup> Aircraft Year Book, 1922, pp. 18-19.

<sup>40</sup> Ibid., p. 7.

<sup>41</sup> Aircraft Year Book, 1930, p. 540. In 1930 Great Falls had two airports, the Great Falls Municipal and the Vance Commercial Airport.

<sup>42</sup> Clyde W. Ice, Personal interview, February 22, 1954.

<sup>43</sup> Clyde Ice, Personal interview, February 22, 1954.

been around flying machines and could talk shop. Holy Smokes! I sold a tremendous number of tickets.<sup>44</sup>

During the succeeding months Ice and Vance continued their barnstorming tour of the "cow country" of western South Dakota in a J.N.-4-D Curtiss training plane. At this time flying became an obsession with Ice, and his determination to learn the necessary skills led him to observe every move his companion made while in flight. He watched the controls, the dial panel, and other devices relating to the operation of the plane.

On one of their cross-country flights from Miller to Onida, Ice made his own first flight and landing. The vivid story of this event is best told by Ice who recalls:

Before leaving for Onida, I asked Vance if he would let me fly, and he said, 'Sure. Sure, be glad to.' So he got me into the back seat and we took off for Onida. I just started feeling it out ...he was sitting there not paying any attention...I had never had hold of the controls before, but it didn't take long to find out what made it go. When we approached Onida, Vance didn't do anything, just sat there, so I sized this pasture up, and circled it a couple of times. I thought he would take hold of the controls and bring it in, but he just reached over and shut off the motor and shouted; 'Land her, land her!' Gosh! He nearly scared me to death. I didn't know how to land it, but we went down and hit the ground 'ker-plunk!' It jumped a couple of times and, believe it or not, Vance never touched it.<sup>45</sup>

Ice later stated that he could not understand how the plane held together, but observed that had he just held it off a little longer he could have made a perfect landing. It was some time before Ice learned that the pilot was supposed to get the tail down in order to land properly.

Ice made his first three-point landing at Gettysburg, South Dakota. He recalls the incident:

While landing, I came in a little too high, and it scared me; so I pulled it back a little. The plane sat down slick as a whistle. So I just remembered that I had the stick pulled back and I started holding it off after that. That's when I started making three-point landings. I sure hauled a lot of youngsters before I learned this; kind of a bad trick to play on the kids, but I learned to fly flying kids.<sup>46</sup>

In order to accumulate funds to purchase a plane of his own, Ice sold automobiles throughout the spring and Summer of 1921. During a sales trip into North Dakota, he came across a damaged Lincoln Standard at Oaks, and immediately traded two used automobiles for the plane. He ordered two new wings which he installed, and he also made the other necessary repairs. When he had the plane in flying condition, he returned to South Dakota and engaged O. K. Schneider, a flier from Redfield, to check the condition of the machine.

When Schneider reached Oaks with his plane, he checked Ice's machine for airworthiness. He also found passengers who wanted to fly back to Redfield with him. Ice and Schneider agreed to divide the passengers equally between them, each receiving seventy-five dollars for fare. Ice, not having flown his newly purchased airplane, told Schneider he was afraid to chance it. Schneider retorted: "Well, sit there if

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<sup>44</sup> Clyde W. Ice, personal interview, February 22, 1954. Jay Geehan made a connection with Leo Stransky of Pukwana in the 1920's. He remained with Stransky for some time. In 1928 Stransky purchased a Ryan Monoplane which he called the "Spirit of South Dakota." Geehan later crashed the plane, and it was sold to a flier living in Wessington Springs.

<sup>45</sup> Clyde W. Ice, personal interview, February 22, 1954.

<sup>46</sup> Clyde Ice, personal interview, February 22, 1954.

you don't want the money or need the money, just sit there." Ice relates that there "...was nobody on earth who could have gotten that Standard off the ground with an OX motor in it," but he thought the problem out and decided to give it a try. Recalling this attempted flight, Ice states:

So I got in there and away I went down the stubble field, and I couldn't even get the tail up. When I got to the end of the field and saw the fence coming up, I reached over and yanked the throttle back, and of course, it just stopped in that soft field....

I made several attempts to get off the ground, and finally rolled a tire off. I was sure tickled when that tire rolled off because I wanted some excuse to get rid of my passengers....

Schneider had a Standard too, but he had a Starr Motor, one they called Blonde Falcon. It had more power than mine. He got off with his two passengers, so I just crawled under the wings of my ship and went to sleep.<sup>47</sup>

After Schneider returned to Oaks from Redfield, the two men purchased a Model-T-Ford tube for the damaged tire on the Ice plane. To make the tube fit the airplane tire, they "...doubled it up and put it into the tire." Blind flying was almost unknown at this time; consequently, when Schneider insisted on returning to South Dakota that evening, Ice began to worry about their ability to reach Miller before dark. Schneider, never overcautious, insisted on leaving immediately. While on the way back, Ice thought of the possibility of having to land in a hayfield owned by Jim Magness at Miller. The field had been freshly mown and was, moreover, spotted with small haystacks which made it dangerous. As it was getting darker by the minute, Ice decided on a big wheat field instead and landed without difficulty.

This was the first solo flight for Ice. The next day he carried his first five-dollar passenger. After that as he related, "I carried all the kids around Miller and Onida at one dollar per head. I surely liked those kids."<sup>48</sup>

Ice continued his activities during the early 1920's, utilizing several war surplus planes which he rebuilt at Miller. Like the other early barnstormers, he engaged in mild forms of stunting for the purpose of drawing a paying crowd.<sup>49</sup> A favorite stunt by Ice and his associates was performed by suspending a rope ladder from the bottom wing of an aircraft. After Ice and his stunt man were aloft, the latter lowered himself on the ladder and hung from the bottom rung by his legs.<sup>50</sup>

This was a popular form of entertainment at county fairs in South Dakota, starting as early as 1920. During the Walworth County Fair at Selby in that year, Art Miller demonstrated his daredevil acrobatics by walking the wings of a plane and hanging "by the heels" from a rope ladder suspended from the landing gear.<sup>51</sup> During the winter months when adverse weather conditions prevented such activities, South Dakota fliers left the state and barnstormed into almost every hamlet from Canada on the north to Mexico on the south. They carried passengers and performed at aerial shows in cooperation with civic groups and organizations; wherever a gathering beckoned, they answered the call with various types of entertainment, particularly serial maneuvers and rides for those seeking thrills.

In 1926 Ice located at Rapid City. In addition to barnstorming, he carried passengers on business trips throughout the Black Hills area. He also made a connection with Carl Rise, owner of the Rise Studios of

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<sup>47</sup> Clyde Ice, personal interview, February 22, 1954.

<sup>48</sup> Clyde Ice, personal interview, February 22, 1954

<sup>49</sup> Letter from Major Howard Ice to the writer, June 29, 1954. Randall and Cecil Ice, the other two brothers, also became pilots. Cecil Ice in 1956 was manager of the airport in Pierre. Randall Ice was killed in a crash while piloting a Western Airlines transport plane at Belle Fourche.

<sup>50</sup> Clyde Ice, personal interview, February 22, 1954.

<sup>51</sup> Walworth County Record, July 17, 1920.

Rapid City. Ice and Rise formed a photographic team and took aerial photographs of scenic places of interest to South Dakotans as well as to tourists. The photographs taken at this time included the City of Huron, the Beadle County courthouse, the State Fairgrounds, scenic views of the Black Hills, and various industrial plants throughout the state.<sup>52</sup>

Aviation activities in the Sioux Falls area began in 1919 when W. T. Cook, an aviator from Sioux City, made plans to establish an aviation school, plane factory, and repair shop at Sioux Falls.<sup>53</sup> In September, 1919, Cook made a connection with the Curtiss Northwest Aerial Corporation of Minneapolis and agreed to establish a branch assembly and organization at Sioux Falls. On October 1, W. T. Cook, R. D. Springer, and John D. Lynch incorporated the Sioux Falls Aircraft Engineering Company for \$50,000, establishing an assembly plant at Fourth and Main Avenue. The company officials also announced their plans to provide passenger service and entertainment as part of their activity.<sup>54</sup> On November 8, 1919, the first carload of airplane parts for the new company arrived in Sioux Falls. The company announced that the twenty tons of parts were sufficient to construct one hundred planes.<sup>55</sup> Shortly thereafter, Cook and Gay D. Thomas, another official of the company, went east to buy additional parts.<sup>56</sup>

Soon after returning to Sioux Falls, Cook began carrying passengers on sight-seeing tours around the area. On October 29 Cook crashed his plane during a tail spin at low altitude. His passenger, Putnam, suffered a brain concussion. Cook was not injured.<sup>57</sup>

During the spring of 1920 the Sioux Falls Aircraft Engineering Company constructed three Canadian Curtiss model planes.<sup>58</sup> In addition, Cook resumed his barnstorming, local scenic rides, and aerial advertising activities.<sup>59</sup> On April 12 Cook sustained his second major accident when his plane crashed in another tail spin. Cook was hospitalized with minor injuries, but his passenger, Ben F. Ramsey, was killed. Cook claimed Ramsey had tampered with the controls.<sup>60</sup>

On May 24, 1919, Cook resumed his exhibition activities with a new plane built at the company plant. During the next two months he barnstormed at various towns in eastern South Dakota, including Flandreau and Pipestone. Cook complained on numerous occasions that Sioux Falls had no landing field.<sup>61</sup> In July he announced that he was moving his operations to Wagner, where local business men had built a hangar. At this time his company had begun the construction of two additional planes.<sup>62</sup> Cook terminated his activities at Sioux Falls in August, 1920, when he closed the factory. He indicated at the time that his efforts at Sioux Falls were little appreciated.<sup>63</sup>

After 1920 the major contribution to aviation in the Sioux Falls area was made by Harold Tennant, war pilot, aviation exhibitionist, fixed-base operator, and barnstormer. Tennant was the most prominent exhibition flier in South Dakota during the 1920's. His associates included H. A. Mundale, originally from

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<sup>52</sup> Sioux Falls Argus-Leader, October 4, 1926.

<sup>53</sup> Ibid., September 11, 15, 18, 1919. M. A. Northrup was manager of the Minneapolis branch of the Curtiss Company, and H. A. Bielgard was sales manager for the Curtiss Aeroplane Motor Corporation of Chicago. These two men came to Sioux Falls on September 14, 1919, to investigate the Dakota sales area. The company, as noted before, had established a branch at Pierre.

<sup>54</sup> Sioux Falls Argus-Leader, October 1, 1919.

<sup>55</sup> Ibid., November 8, 1919.

<sup>56</sup> Ibid., October 13, 1919.

<sup>57</sup> Ibid., October 23, 1919.

<sup>58</sup> Ibid., May 23, 1919.

<sup>59</sup> Ibid., April 9, 1920.

<sup>60</sup> Sioux Falls Argus-Leader, April 13, 1920.

<sup>61</sup> Ibid., June 18, 1920.

<sup>62</sup> Ibid., July 29, 1920.

<sup>63</sup> Ibid., August 12, 1920.

Tonkawa, Oklahoma; Billy Dow of Sioux Falls, a lifelong friend of Tennant; and H. M. Billsby. Three other fliers identified with the activities of Harold Tennant were Ray E. Fuller and Herbert M. Hansen, both from Platte, and Chauncey M. Larsen of Dell Rapids. As noted before, Larson had formerly flown for Baird at Aberdeen.<sup>64</sup>

Exhibition-stunt flying became particularly prevalent in South Dakota in 1924, at a time when this form of activity was already declining elsewhere across the nation. The Aeronautical Chamber of Commerce, commenting in 1925 on aviation progress during the preceding year, stated that a majority of the itinerant fliers had disappeared. Many of them were said to have been killed, while others had wrecked their equipment and credit at the same time. The Year Book of the organization further observed that the morbid public curiosity in stunts or thrills had declined and with this had declined also the available income.<sup>65</sup> Aviation in South Dakota, however, was not affected by this trend, for stunting activities were actually on the increase.

Tennant was a native of Elk Point.<sup>66</sup> After graduation from high school, he attended the University of South Dakota where he enrolled in the School of Engineering. He also took R.O.T.C. training. He enlisted and in February, 1918, reported for duty in the Air Service at Fort Omaha, Nebraska.<sup>67</sup> When released from military service in 1920, he retained the status of a reserve officer. On his separation from military service Tennant returned to Sioux Falls, where he worked for a brief period in a retail establishment.<sup>68</sup>

At this time Tennant decided his future lay in aviation, and he, accordingly, began to think of ways to finance a plane of his own. He purchased a surplus J.N.-4-D (Curtiss Trainer) from the Mercer Company of Marshal, Minnesota, in 1921 and set up an office in the O. P. Moore Grocery Company building in Sioux Falls.<sup>69</sup>

Tennant did not immediately turn to stunt flying; he first barnstormed and carried passengers in various parts of the state. As no landing field with hangars was then in existence at Sioux Falls, Tennant removed the wings at the end of the summer season of 1921 and stored the entire plane in a garage at his home on Prairie Avenue.<sup>70</sup>

During the following winter Harold and his brother Ed made plans for the forthcoming flying season. Ed, who in 1956 still resided in Sioux Falls, never became an experienced flier, but he, nevertheless, also contributed appreciably to the pioneering spirit of early aviation. Early in 1922 the two brothers organized a partnership under the title of Tennant Brothers and soon made an outstanding name for themselves as an expert combination for the performance of acrobatics and stunts.

They began operations in 1922 with two planes, both of them Curtiss "Jennies."<sup>71</sup> Their activities included inter-city charter service as well as barnstorming and aerial circus performances at numerous celebrations and fairs throughout the Dakotas, Minnesota, Iowa, and Nebraska.

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<sup>64</sup> Harold Tennant, Scrapbook, Sioux Falls, South Dakota.

<sup>65</sup> Aircraft Year Book, 1925, p. 115.

<sup>66</sup> Mrs. Earl Jones, personal interview, December 24, 1953. Mrs. Jones is a sister to the Tennant brothers.

<sup>67</sup> A notice of general orders from the Department of War appears in the Tennant Scrapbook.

<sup>68</sup> Mrs. Earl Jones, personal interview, December 24, 1953.

<sup>69</sup> Harold Tennant, Scrapbook; see also the Sioux Falls Argus-Leader, August 8, 1921.

<sup>70</sup> Mrs. Earl Jones, personal interview, December 24, 1953. The writer also had an interview with Ed Tennant who still lives at Sioux Falls (December 24, 1954).

<sup>71</sup> The Curtiss trainer used during the war was known to fliers by various names. All the planes of this type were manufactured in either the United States or Canada.

In their stunting, Harold was the pilot while Ed did the tricks. Stunting involved a combination of expert showmanship and agility on the part of the stunt man, but required no less skill from the pilot who had to keep the safety of his partner in mind at all times. One false move on the part of either performer and sudden death would result. To work trapeze stunts from a rope ladder at a speed of 100 miles per hour was a feat not everyone might relish. If, however, the monetary reward was sufficiently attractive, these two men would perform under such conditions to the satisfaction of all spectators; and they were called back year after year for repeat performances or to demonstrate some newly developed techniques.

In 1923 H. A. Mundale joined the Tennant brothers to form the Mundale-Tennant Company. Mundale, a former war flier from Tonkawa, Oklahoma, had been barnstorming throughout the Midwest. Together with other fliers from the Sioux Falls area he participated in the Argus Leader Aerial Circus engagements held at various towns in the area during August and September of 1922.<sup>72</sup> These engagements, culminating with the Minnehaha County Fair of September 4-8, led to a friendship between Tennant and Mundale.<sup>73</sup>

In June, 1923, the Mundale-Tennant Company obtained a new Boeing seaplane at San Diego, California. After adding the B-1 seaplane to their growing fleet, they announced the addition of several new attractions to their exhibition activities. The added attractions included night parachute drops, night wing walking, and day and night fireworks. In addition, single and double parachute drops were offered as a special inducement to organizations desiring aviation acrobatics as an added attraction at their civic celebrations.<sup>74</sup>

Toward the end of June, Mundale, Harold Tennant, Billy Dow, H. M. Billesby, and other fliers and stunt men organized the Mundale-Tennant Aerial Circus as an additional organization for carrying on operations while away from their home base. The purpose of this new company was to offer aerial exhibitions and acrobatic entertainment at county fairs and other celebrations in the surrounding territory. The company gained considerable popularity in the eastern half of the state and as a result was engaged by numerous civic organizations.<sup>75</sup>

The Mundale-Tennant Company also decided to feature the seaplane at the larger lake resorts in the eastern part of South Dakota. They received their first opportunity for demonstrations with this unique craft when they made arrangements with the resort committee at Lake Madison for a virtual franchise for aerial circus work at the resort starting July 3 and 4, 1923. Similar arrangements were made with Watertown and other lake towns throughout the area.<sup>76</sup>

The calendar of events for the performances at Lake Madison called for short pleasure trips over the lake resort and also parachute jumping, with Tennant parachuting from the plane flown by Dow over the lake at 3000 feet. Water skiing behind the Boeing Seaplane at fifty miles per hour was another stunt performed by the fliers. At the conclusion of the celebration, it was estimated by local newspaper editors that 12,000 people had been in attendance.

By 1924 Harold Tennant and his associates had increased their fleet of planes to seven. At this time their equipment included two Lincoln-Standards, one J.N. -4-D, (Curtiss), two Canucks, one Sopwith Camel,

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<sup>72</sup> Sioux Falls Argus-Leader, August 30, 1922.

<sup>73</sup> Ibid., August 24, 1922.

<sup>74</sup> Harold Tennant, Scrapbook. Also see the Aircraft Year Book, 1924, pp. 25-27.

<sup>75</sup> Harold Tennant, Scrapbook. According to a news release of March 14, 1923, in the Argus-Leader, Tennant made a flight over Sioux Falls in a Sopwith Camel fighter plane.

<sup>76</sup> Harold Tennant, Scrapbook.

and the Boeing seaplane.<sup>77</sup> The personnel included Mundale, Harold Tennant, and Billy Dow as pilots, and H. Billesby, Ed R. Tennant, George Maw, and L. D. Reed as stunt men. On its official letterhead at this time, the firm listed passenger carrying, flying instruction, serial advertising, aerial photography, wing walking, rope ladder stunting, parachute drops, and day or night aerial fireworks as its activities.<sup>78</sup>

Mundale and Tennant were also engaged by the town of Lake Andes at about this time to put on a fireworks program at its Tenth Annual Fish Day Celebration. The exhibition progressed beautifully until time for a display of fireworks. While in flight and after igniting the fuse for the display, however, a thundershower hit the town. The explosives became soaked and were made useless by the dampness. The sponsors and fliers alike were disappointed, but an amicable settlement was reached between them with regard to the financial terms of the contract.<sup>79</sup>

The Boeing seaplane was an expensive investment which returned little dividends to its owners. During its second season it was demolished as a result of two major accidents. The first wreck occurred on August 17, 1924. Following a successful flight from Lake Madison to Watertown, Tennant capsized the seaplane while landing on the rough waters of Lake Poinsett. He was forced to abandon the plane, but remained with it until the wind had driven it to shore.<sup>80</sup> The seaplane was subsequently repaired by Tennant and sold to Lester and Ray Campbell and Ray Millard, all of Madison.<sup>81</sup> On October 27, 1924, occurred the second accident when Lester Campbell, a student training under O. K. Schneider at Aberdeen, crashed to his death while attempting to fly the plane from Lake Madison.<sup>82</sup>

In 1925 Tennant engaged Miss Ella Carlson of Sioux Falls as an added attraction for his stunting team. Miss Carlson had become enamored of parachuting and eagerly agreed to join Tennant in an aerial exhibition event at Sioux Falls during the latter part of the flying season. The performance began when Miss Carlson donned helmet, goggles, and leather jacket, the necessary equipment for stunting, and nervously entered the cockpit. On the take-off, C. J. Carlson, a brother, anxiously followed the speeding plane while her father, Ed, stoically waited for the inevitable. After gaining considerable altitude, Tennant made several passes at the field, but Miss Carlson failed to jump. When asked later what had detained her, she replied:

We went round and round, and finally I was ... ready to jump. Tennant said, 'Go,' and I thought he said 'Hold,' so I held on. Again, he said, 'Go' and gave me a little shove. I closed my eyes, held my breath and jumped. Oh! but it's a funny feeling when the parachute opens. When I opened my eyes, we were so close to the earth I thought sure we were in the trees. A second later, and I landed on the shed.<sup>83</sup>

The event was vividly described in the columns of the Argus-Leader:

A vivacious and pretty Sioux Falls girl leaped 800 feet from a speeding airplane yesterday afternoon and though her parachute caught in a tree and dumped her unhurt on the top of a shed, she declares she will be a parachute jumper all her life... Though frightened spectators gasped as

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<sup>77</sup> Loc. Cit. The Sopwith Camel was an English fighter plane.

<sup>78</sup> Loc. Cit. "Canuck" was a term occasionally used by fliers when referring to the Canadian Curtiss model plane.

<sup>79</sup> Undated clipping in the Harold Tennant, Scrapbook.

<sup>80</sup> Madison Journal, August 19, 1924.

<sup>81</sup> The date of the transaction is not known.

<sup>82</sup> Undated article from the Madison Journal; Harold Tennant, Scrapbook; see also Sioux Falls Argus-Leader, October 27, 1924.

<sup>83</sup> Undated clipping in Harold Tennant, Scrapbook.

the daredevil Miss was dumped on the shed, Miss Carlson slid off ... and was jumping up and down in glee when the crowd surrounded her.

When questioned about her experience, she cried: "I'm going to be a parachute jumper all my life. Next time I'll go up 5,000 feet."<sup>84</sup>

With the exception of Henry Mundale, most of Tennant's former associates were no longer with him by this time. The addition of Miss Carlson, together with Gilmar Thompson, a Sioux Falls flier; James Jensen, a Sioux Falls stuntman; and Ray E. Fuller and H. M. Hansen of Platte gave him, however, a new crew of performers.<sup>85</sup>

After opening the 1926 flying season with an air meet at Sioux Falls, Fuller, Hansen, and Tennant arranged contracts with several organizations throughout the eastern part of the state.<sup>86</sup> The first event to be scheduled was the occasion of the Powder River Carnival at Platte, where a contract was negotiated with the local American Legion organization for the usual aerial acrobatics.<sup>87</sup> Ella Carlson's parachute jumping act was given wide publicity through handbills and newspaper releases, and her photograph was prominently displayed.

The event was widely advertised by the Platte sponsors as follows:

We have here one of the most daring little lady parachute jumpers in this part of the state. In co-operation with the big Powder River Carnival staged here for April 5th, 1926, Miss Carlson has promised to appear with her pilot, Harold Tennant, of Sioux Falls, to put on one of the most daring stunts ever pulled off in our city. These people will arrive on April 3rd, and remain here for three days which enables everyone to see this great aeroplane stunt. This couple will pull one of their most daring feats on Monday the 5th, and will be assisted in their work by Ray Fuller and Herb Hansen, of Platte, which will add greatly to the aeronautic program staged for this occasion.<sup>88</sup>

The Disabled American Veterans of Sioux Falls promoted a similar campaign in December, 1926, at Sioux Falls.<sup>89</sup> Unfortunately, little is known concerning the details of this celebration. Another outstanding engagement was scheduled in connection with the Grant County Fair held at Milbank on September 25, 1926. The program was arranged by Harold Tennant and Ray Fuller, whose acquaintanceship with various fliers and stuntmen from Rickenbacker Field at Stevens, South Dakota, enabled them to select top talent for the event. This talent included Captain Jack Hoover, Miss Ella Carlson, and a Miss Peterson, all parachutists; J. Lovel, chief mechanic; and F. Harrington, a stuntman with wide experience.

This aerial exhibition, unfortunately, was marred by one of the most spectacular accidents in the history of South Dakota aviation. The impressive array of performers had thrilled the crowds for two days with their show when misfortune overtook them. While Harrington was going through his routine of wing walking and rope ladder stunt tricks on September 25, he became chilled and numb from the cold autumn air. As a result, he was unable to return to the plane after lowering himself on the rope ladder. When Tennant, who

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<sup>84</sup> Undated clipping in Harold Tennant, Scrapbook.

<sup>85</sup> Sioux Falls Argus-Leader, March 30, April 8, and May 1, 3, 1926.

<sup>86</sup> Harold Tennant sponsored several air meets at Sioux Falls during this period. See Sioux Falls Argus-Leader, May 7, October 7, 1925; May 1, July 1, 1926.

<sup>87</sup> Harold Tennant, Scrapbook. See also Sioux Falls Argus-Leader, April 12, 1926.

<sup>88</sup> An advertisement by the American Legion of Platte, South Dakota, in Harold Tennant, Scrapbook.

<sup>89</sup> Sioux Falls Argus-Leader, undated clipping in Harold Tennant, Scrapbook.

was piloting the plane, discovered the plight of his fellow performer, he remained aloft for half an hour while he and other fliers made desperate attempts to rescue Harrington from almost certain death.

Responding to Tennant's shouts, Harrington slowly made his way toward the plane, but in the meantime he had become entangled in the ropes. Other fliers went aloft in a second plane, and for several minutes flew in tight formation below the stunt plane in an effort to get Harrington into the rescue plane. This attempted rescue failed. In desperation, Tennant headed for a wheat field, where the soft ground and stubble offered Harrington his best chance of escaping death. Throttling to a virtual stall, Tennant pancaked his plane in the field and came to a stop. Crashing to the ground at the end of the rope ladder, Harrington was dragged several hundred feet in a wheat field, but he survived with severe bruises. Harrington may well have been the first victim of such an accident to be able to tell about it.<sup>90</sup>

During the slack season of fall and winter, when there was no steady income from stunting, Tennant and his associates attached themselves to other promoters. At times they were listed as members of several aviation firms. One concern of particular interest to South Dakotans was the Interstate Airway Company of Sioux City, Iowa, based at Stevens across the Sioux River in South Dakota, now North Sioux City. The company, established by Warren Anderson of Sioux City in 1926, began operations with four new 1926-model, five-passenger Lincoln-Standards. The Interstate Airway Company specialized in public entertainment, passenger hop service, and Chamber of Commerce promotion activities. It advertised passenger and stunt rides at three and five dollars, respectively. Harold W. Tennant and Ray Fuller of South Dakota and Cedric Hoskins and T. J. Russel of Sioux City were listed as pilots.<sup>91</sup>

The Interstate Airway Company played a prominent part in a "Boost Sioux City" campaign undertaken in October, 1926, by the Sioux City Chamber of Commerce to promote the city as a trading and industrial center. The campaign included trips by businessmen to cities and towns in the surrounding territory and an "aerial booster trip" to Nebraska, Kansas, Oklahoma, Texas, Louisiana, and Alabama.

The booster campaign was begun in October and lasted about five months. In addition to Tennant and Fuller, the following individuals identified with the firm made the booster trip: Warren Anderson, president and general manager; Ralph Tappen, field manager; Alfred Lecksheild and T. J. Russel, pilots; Joe Austin, mechanic; J. Lovel, motorman; Alfred W. Anderson, assistant field man; and Francis Harrington, stuntman. Additional fliers were engaged as the trip progressed.<sup>92</sup> The cities visited included Norfolk, Lincoln, and Columbus in Nebraska; Rock Rapids, Iowa; Topeka, Independence, and Emporia in Kansas, and many other towns and cities in the state to the south.

Several serious accidents occurred while the trip was in progress. At Hutchinson, Kansas, Jack Harwood, a parachutist employed by the company, lost his life when his parachute failed to open. On another occasion, Harold Tennant crashed his plane during a take-off with two women passengers. No one was seriously injured in this accident.<sup>93</sup>

This Sioux City flying firm on another occasion sustained a serious stunting accident at Stevens. The mishap occurred on September 1, 1927, during a public exhibition at Rickenbacker Field before about two thousand spectators. During the performance C. C. Williams, Sioux Falls parachutist, jumped from a

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<sup>90</sup> Watertown Public Opinion, September 25, 1926.

<sup>91</sup> Sioux Falls Argus-Leader, September 11, 1926. It was while connected with this company that several pilots from South Dakota and other states lost their lives.

<sup>92</sup> Clippings from the Sioux City Journal, The Emporia Gazette, and various other dailies in the Harold Tennant, Scrapbook.

<sup>93</sup> Undated article, Harold Tennant, Scrapbook.

plane flown by James Barrack, falling 1500 feet to his death. Williams had been known to aviation enthusiasts as a fearless performer, and it was believed the accident resulted from carelessness.<sup>94</sup>

During this period the support given aviation at Sioux Falls was more vocal than constructive. From 1919 through 1926 various organizations had formed committees to promote the building of an airport, but all these efforts had failed. Through the efforts of Harold Tennant and his associates, however, a spark of enthusiasm was supplied, and aviation in the Sioux Falls area was kept before the public.

On August 27, 1927, public enthusiasm in the area was given a great boost when Charles A. Lindbergh visited Sioux Falls. When the Lindbergh visit was announced, the Airport Committee of the Chamber of Commerce of Sioux Falls immediately made plans to establish a suitable landing field. The committee stated, however, that it regarded the airport as a "municipal problem" and that arrangements should be made by the city to maintain the field.<sup>95</sup> The problem of a suitable site was resolved on July 19 when a field was selected at Renner, five miles north of Sioux Falls.<sup>96</sup> An airplane hangar was subsequently built at the site.<sup>97</sup>

The celebration in Lindbergh's honor was attended by about fifty thousand people and was termed by press releases as a success.<sup>98</sup> While enroute to Sioux Falls, Lindbergh dropped messages citing the purposes of his flight to the cities of Aberdeen and Huron. After leaving Sioux Falls Lindbergh visited Rickenbacker Field at Stevens. He subsequently appeared at various localities in Nebraska and Wyoming, but returned to South Dakota, resting in Pierre before continuing his tour.<sup>99</sup>

On October 10, 1927, the Airport Committee of the Chamber of Commerce and the Sioux Falls City Commission announced plans to lease the field at Renner for a municipal airport. Moreover, an agreement was made with the W. R. Larson Motor Company which allowed the firm the use of Renner in return for maintenance of the field.<sup>100</sup>

At the same time the Larson Motor Company and the Robinson Motor Company joined forces with Tennant to form the Dakota Airlines. The activities of the new company included airplane sales, passenger service, and flight instruction. Harold Tennant was named manager in charge of operations. J. W. Von Neida of Sioux Falls also joined the firm, becoming sales manager and shop foreman. Knapp Brown became a dominating influence in the new company, later becoming one of its most outstanding personalities.

In November 1927, the Dakota Airlines flight school had about twelve students taking instruction; by the following month this number had increased to sixteen. Miss Nellie Willhite, South Dakota's first woman pilot, attended the school and learned to fly at this time.<sup>101</sup> Miss Willhite soloed on January 13, 1928. Shortly thereafter, her father bought an Eaglerock which she used for private flying.<sup>102</sup>

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<sup>94</sup> Sioux Falls Argus-Leader, September 2, 1927.

<sup>95</sup> Sioux Falls Argus-Leader, September 2, 1927.

<sup>96</sup> Ibid., July 12, 1927.

<sup>97</sup> Ibid., July 19, 1927.

<sup>98</sup> Ibid., August 26, 1927. The Lindbergh tour was sponsored by the Guggenheim Fund for the promotion of aeronautics.

<sup>99</sup> Sioux Falls Argus-Leader, September 2, 1927. The printed message was lent to the writer by Clyde Fullerton of Aberdeen. The writer had photostatic reproductions made of the message which is displayed at the State Historical Society building in Pierre.

<sup>100</sup> Sioux Falls Argus-Leader, October 10, 1927.

<sup>101</sup> Undated article in Harold Tennant, Scrapbook. Von Neida was serving in a similar capacity with the Hubbard Aviation Company of Sioux Falls in 1956.

<sup>102</sup> Nellie Z. Willhite, letter to the author, May 20, 1954.

In 1928 the members of the Dakota Airlines decided that the landing field at Renner was too far removed from the city and made plans to establish another field. They accordingly formed a corporation known as Sioux Skyways. Rush Brown, Clifford Peck, John M. Foster, C. B. McClelland, Harold Tennant, and others comprised the personnel of the new firm.<sup>103</sup> The company took over an option from the city on a field located south of 41st Street near the pipeline terminal, and built a hangar.<sup>104</sup> The operations of Dakota Airlines were extended to Marshall, Minnesota, during the same year. On June 2 the company formed a holding company and purchased land at Marshall for an airport.<sup>105</sup>

Tragedy struck the company on September 9, 1928, when Harold Tennant met his death. Tennant's ability as a test pilot and the esteem others held for him had led the Kari-Keen Aircraft Company, Inc. of Sioux City, Iowa, to seek his approval of their newly manufactured Kerry Keoe Coupe. On September 9 representatives of the Sioux City firm flew the small monoplane to Renner field. Their intention was to get his endorsement and then exhibit their product at the South Dakota State Fair, in progress at Huron. Tennant and Frank Kuehn, a race driver, crashed shortly after the take-off. Observers on the scene said the fabric which covered the front center section of the wing ripped away and that the wing bracing was torn loose from the cabin. Kuehn, his only passenger, was also killed in the crash.<sup>106</sup>

Other South Dakota pilots who left their mark during this period of barnstorming and stunting were Merle Hagen, manager of the Huron Aerial Rapid Transit Company, war flier, and balloonist; L. W. Leib of Volga, a war pilot, fixed-base operator, barnstormer, and one of South Dakota's oldest living fliers in 1956; L. W. Cooke, owner and manager of the Cooke Aero Corporation of Watertown; and Fred Schneider and F. M. Regan of Mobridge. Other early fliers of considerable importance during the barnstorming period were Jay Geehan, O. K. Schneider, Bud Fry, and Ralph Hubbard. All are remembered as efficient but daring pilots.

A backward glance at this hectic period of aerial circus activities in South Dakota reveals that its climax was reached in 1925. While several operators were still active and carrying on their affairs much as they had before, the tempo of activity seems to have tapered off considerably by the end of 1926.

There are several reasons for this decline. First of all, the cheap surplus planes dumped on the domestic market were being rapidly depleted, and replacements were more expensive; these factors diminished the number of planes in operation by individual operators. Second, South Dakota, as well as a number of other states, was passing regulatory legislation, and cities were passing ordinances curtailing stunting activities. Third, the active support given commercial aviation through indirect subsidies under the Airmail Act of 1925 to lines carrying mail gave an impetus to the more enduring but less showy forms of aviation.

Another reason seems to lie in the fact that the numerous spectacular accidents occurring during stunting led to a disinclination on the part of the public to patronize the air fairs and other public gatherings where stunting was featured. It should be noted also that the thrills afforded the public by exhibition flying were wearing off toward the end of 1926, and smaller crowds resulted.

The other forms of commercial activity to which aviation was turning its attention by 1926 were conclusive evidence that stunting activities were in a definite decline in South Dakota, as well as across

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<sup>103</sup> Rush Brown remained connected with Sioux Skyways through the Second World War. He also became manager of the new Sioux Falls Municipal Airport in 1939, a position he still held in 1956.

<sup>104</sup> Sioux Falls Argus-Leader, December 18, 1953.

<sup>105</sup> Ibid., June 2, 1928.

<sup>106</sup> Sioux Falls Argus-Leader, September 10, 1928.

the nation. The greatest boost to aviation, however, probably came from the trans-Atlantic flight of Charles A. Lindbergh in 1927 and the various transoceanic and transcontinental flights which followed Lindbergh's historic venture. From then on commercial aviation had the necessary support for healthy growth. This was demonstrated on the stock market and in numerous other ways after 1927.

Barnstorming activities continued into the 1930's, but the growth of modern air transport relegated the "barnstorming gypsy" to a secondary position. The question arises, "What did all these barnstorming activities accomplish?" Although the barnstormers failed to make any important material contributions and were charged with "irresponsible flittings," they nevertheless served to make the public aviation-minded at a time when the airplane was not yet accepted as a mode of transportation. They helped to reveal the possibilities of the airplane as a means for travel and for light cargo service. If they seemed unduly reckless, it was that the public demanded recklessness.

They not only generated public enthusiasm for aviation, but also helped to stimulate the construction of physical facilities for flying. Where public support was not forthcoming they built their own private strips and hangars. Despite the accidents and the unfavorable criticism heaped upon the fliers, they undoubtedly made definite and lasting contributions to the cause of aviation.

**CHAPTER V**  
**LOCAL AIR TRANSPORT AND PASSENGER SERVICE IN SOUTH DAKOTA**  
**1919-1930**

At the conclusion of World War I the aviation industry had many problems. The major one was connected directly with demobilization.

The industry itself, swollen to tremendous proportions by the war needs, looked to the federal government for aid. It believed that the government should continue to purchase military aircraft and that direct or indirect subsidies to manufacturers should be provided. In addition, many believed that the time had come for the development of the air transport industry and that the government should direct its efforts toward that objective. Of particular interest were plans for providing adequate airmail facilities.

Before the war the Post Office Department and the National Advisory Committee for Aeronautics had recommended that Congress provide the funds necessary to open a trial airmail route connecting New York, Philadelphia, and Washington, D. C. The purpose of the recommendation was to test the theory that mail could be profitably and speedily carried by air.<sup>1</sup> With the advent of war the postal department turned to the army for equipment and personnel to carry through the plan. The army provided the planes and pilots until the war ended. These experiments justified the optimism of airmail enthusiasts and demonstrated that airmail could be a definite asset in time of war as well as a boon to business. With the return of peace efforts were made by private individuals to secure contracts from the government and take over operation of the mail routes, but the government continued to carry the mail.

By 1924 the aviation industry had been reduced to a fraction of its former size, but it continued to produce the aircraft needed by fliers engaged in barnstorming, stunting, fixed-base operations, and national air meets. It also continued its lobbying activities in Washington in the furtherance of its ideas about airmail.

These efforts were finally rewarded with the Kelley Act of February 2, 1925. This law authorized the Postmaster General to contract for airmail service with any individual or corporation for the transportation of mail over routes specified by the government. Furthermore, the law empowered the Postmaster General to make rules and regulations governing activities of air transport companies.

The importance of the Kelley Act to the aviation industry nationally cannot be overestimated. It provided payments to contractors at a rate not to exceed four fifths of the revenues derived from the airmail itself and gave general support to the development of commercial air transport.<sup>2</sup>

Unfortunately, however, this law had little immediate effect upon air transportation in South Dakota. Geographic location and sparse population discouraged the establishment of airways and commercial transport lines across the state. The airway maps of the United States from 1925 to 1932 show that South Dakota remained without airmail service, while most states had several routes or branch lines. The absence of such federal help, however, did not deter South Dakotans in their efforts to develop air transport.

The promotion of commercial aviation in South Dakota had followed immediately upon the conclusion of the war. One of the first enterprises in the state was established by Merle Hagen and Charles Ward at

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<sup>1</sup> For a discussion of these early airmail policy developments, see the Annual Report of the National Advisory Committee for Aeronautics, 1915 through 1920, Government Printing Office, Washington, D. C.

<sup>2</sup> United States Statutes at Large, XLIII, pp. 806-807. For a complete discussion of the various studies by industry and by Congress and other government agencies relative to American aviation, see the Aircraft Year Book, 1924, 1925, and 1926.

Huron in June, 1919, when they purchased a Curtiss J. N.-4D and began a local charter service.<sup>3</sup> This was Huron's first locally owned and operated aviation company. The two partners berthed the plane at a field adjacent to the corner of 12<sup>th</sup> Street and Idaho in the Southeastern section of the city.<sup>4</sup>

Hagan and Ward called their company the Huron Aerial Rapid Transit Company. The work of this company was typical of the period. Its operations included flight instruction, inter-city passenger transport, freight deliveries, and entertainment. Hagen and Ward also owned several war surplus balloons which were used for exhibition purposes at county and state fairs.<sup>5</sup>

In 1921 Hagen and Ward carried 500 passengers for a total of 20,000 miles. Their minimum charge for passengers making inter-city flights was \$25. These flights were made to towns and cities in the Dakotas, Nebraska, and Minnesota.<sup>6</sup> In 1923 Hagen crashed his plane on the railroad tracks near the site of the Armour packing plant in Huron, terminating Huron's first local air transport service.<sup>7</sup>

During the next few years Huron was without a regularly operating flying service. During this period, however, a field adjacent to the state fairgrounds was used by barnstormers and exhibition companies. The field was abandoned in 1925 because of its small size and the numerous obstructions which surrounded it.<sup>8</sup>

The next "passenger hopping" and taxi service established at Huron was formed by Merle Buck in 1927. He began his flight training at Chicago and soloed the same year at the Rapid City School of Aviation under the instruction of W. W. Spain and Clyde Ice. After completing his flight instruction Buck purchased a long-wing Eaglerock, commonly known as the "rubberwing." Buck flew from a hayfield, which was later purchased by the city of Huron and became known as the W. W. Howes Airport.

Buck's activities ended in 1927 when his plane burned in a prairie fire. The next aviation venture in Huron was dignified with a name and a hangar for its ship. The firm was called the Huron Airlines and was organized in the fall of 1927 by several Huron businessmen. Shortly after forming the new enterprise the owners bought an Eaglerock at Denver, Colorado, and hired Merle Buck of Huron, Charles Aagard of Rapid City, and Wilbur Ames as pilots. This enterprise also ended in disaster when a cyclone destroyed the ship and hangar.<sup>9</sup> Merle Buck remained at Huron, and Charles Aagard found employment as a pilot for Rapid Airlines at Rapid City.<sup>10</sup> He later became a pilot for Western Airlines. Willard Ames perished on July 3, 1928, when the plane he was flying caught fire and burned. George L. Botell of Lemmon and Frank Gibson from Iowa were killed in the same disaster.<sup>11</sup>

In 1928 the Huron Air Lines was incorporated by B. H. Sprague, R. N. Jones, A. E. Buck, and Merle F. Cornell. The purpose of the new company, according to its officers, was to manufacture and sell small aircraft, maintain and operate a flying field, and provide a flying school for the Huron area. The company was capitalized for \$25,000.<sup>12</sup> The life of this company was also of short duration, but Buck continued his activities at Huron. In 1929 he flew a plane owned by George and terminated in the same year when

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<sup>3</sup> Aberdeen Daily American, May 23, 1919.

<sup>4</sup> Evening Huronite, June 30, 1937.

<sup>5</sup> Sioux Falls Argus-Leader, June 28, July 19, 1920.

<sup>6</sup> Aircraft Year Book, 1922, pp. 22-23.

<sup>7</sup> Evening Huronite, June 30, 1937.

<sup>8</sup> Loc. Cit.

<sup>9</sup> Evening Huronite, June 30, 1937.

<sup>10</sup> Clyde Ice, personal interview, February 2, 1954.

<sup>11</sup> Sioux Falls Argus-Leader, July 3, 1928.

<sup>12</sup> Ibid., April 23, 1928.

Rapid Airlines established the airport and a flying service at Huron.<sup>13</sup> Merle Buck was employed by United Airlines in the 1930's and served as a pilot on the United Airlines route from New York to Chicago.

Similar developments were occurring in other areas of the state. On July 8, 1919, Hiram H. Rowe and A. W. Stevenson incorporated a company at Pierre under the name of the Fort Pierre Aero Company. Its president was C. E. Coyne. The main activities of the company included passenger service and aerial advertising.<sup>14</sup> Shortly thereafter the firm became connected with the Curtiss Northwest Aerial Corporation of Minneapolis, a branch distribution agency for the Curtiss Aeroplane Motor Corporation of Chicago. Through this connection the Fort Pierre company sold six Curtiss-built planes during August and September.<sup>15</sup> The company was later dissolved, but Stevenson continued to give service to the Pierre area. In 1927 Stevenson was based at Dillon, Montana.<sup>16</sup> Rowe, as noted previously, died in a crash.

A similar flying service was established in 1920 at Volga. It was formed by L. W. Lieb and a Mr. Getty, who pooled their resources and purchased a Canadian Curtiss, powered with an OX5 engine.<sup>17</sup> Shortly thereafter they constructed one of the first class "A" landing fields in the state. The field was built by local businessmen and farmers who, through a stock solicitation, raised sufficient funds to build the field, a hangar, repair facilities, and other necessary paraphernalia connected with landing strips of the era. The twenty-acre field was also provided with a grandstand. Residents of the area made additional use of the field as a baseball park.<sup>18</sup> Lieb's activities were connected primarily with passenger service. In 1921 he made 800 flights in the two Dakotas, Minnesota, and Iowa, carrying 460 paying customers for a total of 8,000 miles. Lieb continued his service for more than a decade, but his activities remained local in character through out the period.<sup>19</sup>

A more ambitious undertaking was begun at Mobridge in July, 1920, when the Mobridge Aerial Company was incorporated by J. J. Bentz, George V. Cunningham, H. J. Kindred, F. M. Regan, Harry Zuhlsdorff, E. S. Peterson, and Fred Schneider. The preceding year these air-minded men had organized the Mobridge Aero Club and built the first landing strip at Mobridge.<sup>20</sup> The field comprised 200 acres and had a two-plane hangar and shop.<sup>21</sup> The club had no planes, but provided the field for itinerant fliers who performed during fairs and other celebrations.

Following the organization of the Aerial Company, Regan went to Minneapolis to purchase a plane. The purpose of the company, the officials stated, was to make Mobridge the chief center of aeroplane activity" in northern South Dakota and to establish an airmail route across the state.<sup>22</sup> In 1921 the company had two planes; a Canadian JN-4D (Curtiss) and a Lincoln Standard. Its operating territory included western South Dakota and sections of Montana and North Dakota.<sup>23</sup>

A similar aviation venture was established on July 15, 1920, at Ipswich, South Dakota. The company was incorporated as the Yellowstone Trail Aero Corporation. J. W. Parmley, a leading promoter of the

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<sup>13</sup> Evening Huronite, June 30, 1937.

<sup>14</sup> Sioux Falls Argus-Leader, July 9, 1919.

<sup>15</sup> Ibid., September 15, 1919.

<sup>16</sup> Aircraft Year Book, 1928, p. 509.

<sup>17</sup> The OX5 was a Curtiss model aircraft engine developed by Glenn Curtiss before World War I. It remained a popular aircraft engine for more than a decade.

<sup>18</sup> Sioux Falls Argus-Leader, April 6, 1920.

<sup>19</sup> Aircraft Year Book, 1922, pp. 18-31.

<sup>20</sup> Mobridge Weekly Tribune, July 22, 1920.

<sup>21</sup> Aircraft Year Book, 1922, pp. 18-31.

<sup>22</sup> Mobridge Weekly Tribune, July 22, 1920.

<sup>23</sup> Aircraft Year Book, 1922, pp. 18-31.

Yellowstone Trail, was elected president of the company. The other incorporators included D. F. James, secretary and treasurer and W. S. Hagen, Ed F. Lass, W. P. Hardt, and C. R. Doolittle as directors.<sup>24</sup> In connection with its varied activities, the company obtained a landing field and constructed a hangar and the necessary repair and refueling facilities.<sup>25</sup> The company also acted as a distributing agency for Canadian-built Curtiss planes.

An effort to establish an east-west trunk connection with the Pacific Northwest was made by Parmley in 1921. Under his leadership a meeting of interested citizens from various cities in North and South Dakota met at Aberdeen on March 8 for the purpose of organizing the Yellowstone Aerial Association and to establish an airway from Minnesota through the Dakotas to the west coast.<sup>26</sup> Parmley was elected chairman of the organization and O. K. Schneider of Hettinger, North Dakota, acted as secretary.<sup>27</sup> Delegations from Fargo and Lisbon in North Dakota; Miles City, Montana; and Mobridge, McLaughlin, Ipswich, Wauconia, and Aberdeen in South Dakota were represented at the meeting.<sup>28</sup>

The promotional work which followed included a campaign to interest other cities located along the route in establishing air fields and other needed facilities. A. W. Nelson and A. W. Wintheiser of Aberdeen were engaged by the association to meet with officials of other cities along the route and to explain the new project.<sup>29</sup>

During a flight to Webster and Milbank, Nelson and Wintheiser lost their plane in a cyclone.<sup>30</sup> Another plane was purchased with insurance money, and the flights along the proposed routes continued. The results of these activities were negligible, expensive, and discouraging. One tangible result, however, was the interest generated in the various cities where landing strips would later be established.

Meanwhile, Aberdeen fliers and businessmen were at work establishing a class "A" type airfield for itinerant and local fliers. On May 30, 1920, the Tri-State Fair Association announced that a permanent landing field was to be acquired for the purpose of "placing Aberdeen upon the air routes of the nation."

The field was relatively modern for the period. It had an L-shaped runway with two landing strips, one east and west, the other north and south. The field, furthermore, was provided with hangars and supply stations for oil and gas with repair facilities close by. It was maintained jointly by the city and county.<sup>31</sup>

Aberdeen had two aviation companies at this time. The first company was a retail airplane sales establishment called the Aberdeen Aero Company. The organization purchased war surplus aircraft and parts from the government and private agencies, reselling them to fliers and other interested persons. Surplus planes were bought for as little as \$300 and resold for as much as \$1,500. The price depended upon the type and condition of the machine.<sup>32</sup>

The second company was the Security Skycraft Corporation of Aberdeen and Fargo. It was primarily an air transport company. Shortly after its formation in 1920 it secured the use of the municipal airfield located at the fairgrounds. The company had a scheduled run from Aberdeen to Fargo. The firm had five

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<sup>24</sup> Aberdeen Daily American, July 15, 1920.

<sup>25</sup> Ibid., July 24, 1920.

<sup>26</sup> Aberdeen Daily News, March 9, 1921.

<sup>27</sup> Ipswich Tribune, March 9, 1921.

<sup>28</sup> Aberdeen Daily News, March 9, 1921.

<sup>29</sup> Aberdeen Sunday American, May 15, 1921; Aberdeen Daily News, May 18, 1921.

<sup>30</sup> Aberdeen Daily American, March 9, 1921.

<sup>31</sup> Aberdeen Sunday American, May 30, 1920.

<sup>32</sup> Aberdeen Daily American, July 25, 1920.

planes in operation, three S.J.-1s, powered with hispano Suiza engines and two Canadian Curtiss J.N. -4Ds with OX5 engines. During 1921 the company carried 960 passengers and flew 6,000 miles over the scheduled route.<sup>33</sup> No further record is available on the operations of this enterprise.

In 1923 Aberdeen was the scene of South Dakota's first air meet. It was staged by the Dakota Aeronautic Association, whose formation was announced by the Aberdeen Daily American on July 26. The purpose of the association was to facilitate coordination and cooperation between fliers and allied enterprisers interested in the growth of aviation. The president of the company was O. K. Schneider.

Entertainment at the two-day event included airplane races between Aberdeen and Ipswich. Two out-of-state fliers, Lindberg and Veleske, won first in this event. Harold Tennant, of Sioux Falls, took second place. The spectators were thrilled with the daring stunt flying of Schneider and Clyde Ice, Tennant, and H. Beach of Wichita, Kansas. Ray Crane, a flier from Aberdeen, starred in the evening event with "fireworks shooting from all areas of his plane." Other fliers who attended the meet included Jay Geehan, Boyd, Lee, Parish, and Klevsth from Redfield; Ray O'Brien from Miller; and Jack Hollister of Wessington.<sup>34</sup> Similar events were held either at Aberdeen or Sioux Falls between 1924 and 1928.

During the next few years Aberdeen had the services of several fliers. Of these, Chester Wage and Ole Fahlin were among the more prominent. Wage's interest in aviation had begun in 1919 with a ride with a barnstormer; this lead him to take flying instruction somewhat later from Harry Haw, a flier operating in the northeastern part of South Dakota. As Wage lacked a plane, he did not immediately become active. In 1923, however, he purchased a Hispano Suiza engine and an airplane kit and hired Christ Moninken, an aviation mechanic with considerable experience in aircraft construction, to help him assemble the maze of ribs, spars and other paraphenalia necessary for the building of a plane. By September, 1924, they had completed the three-place biplane which became familiarly known as the "Moninken Special" in the Dakotas.

In the meantime Wage had also engaged Ole Fahlin, a native of Sweden. With Fahlin's aid during the summer of 1924, he built a private landing strip on the Wage homestead at Ferney.<sup>35</sup> The field was complete with hangar, shop, and gasoline storage and was regarded as a superior landing field.<sup>36</sup> In October of that year Wage and Fahlin took off for the Dayton Air Races by way of Minneapolis and Chicago, their first long flight with the homemade aircraft. Upon their return from Dayton they began barnstorming tours in Iowa, Minnesota, Montana, and the two Dakotas. The proceeds from these activities, added to the remuneration received from flying instruction, enabled them to accumulate sufficient funds to purchase other used equipment.<sup>37</sup>

By the end of 1925 Fahlin and Wage had increased their fleet to four planes. They also purchased a carload of new OX5 Curtis engines for which they paid \$22.50 each. The new surplus motors had a resale value of about \$600.<sup>38</sup> During that year they carried 500 passengers for a total of 19,520 miles.<sup>39</sup> In their various activities Wage and Fahlin cooperated with Axel Swenson, Ole Anderson, and other fliers in both North and South Dakota.<sup>40</sup>

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<sup>33</sup> Aircraft Year Book, 1922, p. 28.

<sup>34</sup> Aberdeen Daily American, July 26, 1923. Schneider was later based at Aberdeen and trained several pilots from the local air field.

<sup>35</sup> Chester Wage, letter to author, January 21, 1954.

<sup>36</sup> Aircraft Year Book, 1926, p. 64.

<sup>37</sup> Chester Wage, letter to author, January 21, 1954.

<sup>38</sup> Victor Loomis, personal interview, April 12, 1955.

<sup>39</sup> Aircraft Year Book, 1926, p. 64.

<sup>40</sup> Chester Wage, letter to author, January 21, 1954.

The following year Fahlin and Wage operated separately from the same field at Ferney. Wage retained control of the Dakota Airplane Company which they had formed earlier, subsequently increasing his fleet of planes to five. Transport service and barnstorming, together with flying instruction, greatly enlarged his operations. In 1926 Wage carried 1,500 passengers for a total of 40,000 miles.<sup>41</sup>

Fahlin carried a like number of passengers. In these activities, Fahlin used two planes, the homemade "Moninken Special" built at Ferney and an old Curtiss war model. During 1927 Fahlin flew 40,000 miles and carried 2,000 passengers. His rates at this time were \$3.50 for short hops and 25 cents a mile for inter-city and cross-country flights.<sup>42</sup> In 1927 Fahlin moved to Aberdeen and set up a shop in the basement of a downtown business building. He began experiments with the "Dakota Fahlin" propeller at this time.

The activities of Chester Wage during this period were somewhat restricted because of his preoccupation with other interests. He purchased a new Travel Air, however, and continued his transport services on a small scale.<sup>43</sup> In 1927 Wage flew 5,000 miles and carried 156 passengers.<sup>44</sup> During the next few years he continued his connection with Ole Fahlin and participated in several of many ventures initiated by his inventive friend and partner.<sup>45</sup> The invention of the "Dakota Fahlin" propeller" was an event of particular interest. Fahlin was granted an "Approved Type Certificate" on it by the Department of Commerce on October 19, 1928, thus allowing him to manufacture propellers for light aircraft. The propeller was eight feet four inches long and was suitable for aircraft powered with 100 horsepower engines running at a velocity of 1400 revolutions per minute. In 1929 Fahlin had a second propeller approved and patented. This "Dakota Fahlin D-5000" was the lightest propeller manufactured anywhere in the United States at the time. It was seven feet long and could be used on extremely light aircraft powered by fifty-five horsepower engines developing 1818 revolutions per minute.<sup>46</sup>

Aberdeen had the services of several other pilots from 1927 to 1930. In April, 1928, Victor Loomis and Jack Hollister, the latter formerly from Wessington, pooled their resources and purchased a new Eaglerock at Denver. The plane was flown to Aberdeen during a snow storm.<sup>47</sup> It was later wrecked by Hollister when he hit a telephone pole during a sight-seeing flight to Groton.<sup>48</sup> To secure money with which to repair the damage, the two men painted water towers for about three months.<sup>49</sup>

Shortly thereafter, Loomis, Fahlin, Hollister, and Albert Schramm formed the Aberdeen Airlines. The planes used by the company at this time included a six-passenger Travel Air, one Waco Ten, an Eaglerock, a Lincoln Standard, and a Heath monoplane. The Heath monoplane was a 260-pound, single - passenger plane, powered with a twenty-five horsepower engine.<sup>50</sup> The small plane was purchased by Albert Schramm and assembled at Aberdeen. Schramm later sold the plane to another pilot who crashed it into a tree at the fair grounds airport.<sup>51</sup>

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<sup>41</sup> Aircraft Year Book, 1927, p. 343.

<sup>42</sup> Ibid., 1928, p. 469.

<sup>43</sup> Chester Wage, letter to author, January 21, 1954.

<sup>44</sup> Aircraft Year Book, 1928, p. 469.

<sup>45</sup> Chester Wage, letter to author, January 21, 1954. Wage sold the Travel Air to Ralph Hubbard and Clyde Ice of Watertown in 1935.

<sup>46</sup> Aircraft Year Book, 1930, p. 528.

<sup>47</sup> Sioux Falls Argus-Leader; the Eaglerock was popularly called the "rubberwing" because of the buoyancy of its wings.

<sup>48</sup> Sioux Falls Argus-Leader, April 10, 1928.

<sup>49</sup> Victor A. Loomis, personal interview, April 12, 1955.

<sup>50</sup> Undated article, Aviation file, Alexander Mitchell Library, Aberdeen, South Dakota. The Waco Ten was manufactured by the Advance Aircraft Company, Troy, Ohio. See Aircraft Year Book, 1928, p. 330.

<sup>51</sup> Victor A. Loomis, personal interview, April 12, 1955.

Schramm, Loomis, and Fahlin were also connected with the State Auto Electrical and Aviation School at Aberdeen. The school was owned and managed by J. W. Malmquist, later of Minneapolis.<sup>52</sup> Students attending the school took ground and meteorological training. After completion of this course they took flying instruction and aviation mechanics.<sup>53</sup>

Among the fliers who had contacts with the Aberdeen Airlines during this period were Carl Swanson, owner at the Swanson Bus Lines of Aberdeen, and Clyde G. Fulleton, who subsequently became a member of the South Dakota Aeronautics Commission as well as a member of the Aberdeen Airport Board from 1929 to 1954. Fulleton gives Fahlin credit for most of his flight training.<sup>54</sup> Russell also received flight training at this time, becoming airport manager at Aberdeen in 1931, a position he held until he moved to Vermillion.<sup>55</sup> In 1956 Barstow was employed by the Hubbard Aviation Company of Watertown and Sioux Falls.

In 1930 Jack Hollister secured a position with the Sioux Skyways at Sioux Falls. He managed the airport, gave flying lessons, and was sales manager. On March 30, 1931, while Hollister was demonstrating a plane to Budgett and Schmidt, the plane crashed killing the two prospective buyers. In the trial which resulted, Sioux Skyways claimed that the two passengers had mistakenly tampered with the dual controls. Hollister was only slightly injured.<sup>56</sup>

Aberdeen's remoteness from important centers of aviation activity led Fahlin to move his propeller manufacturing business to Sioux City. In 1931 he established a connection with the Kari-Keen Aircraft Corporation and for the next two or three years worked with that company in the manufacture of light aircraft and propellers.<sup>57</sup>

The Kari-Keen Corporation manufactured two types of planes. The first, a Kari-Keen 90 powered with a ninety-horsepower Lambert engine was a two-passenger monoplane weighing 1014 pounds.<sup>58</sup> The second type was a Kari-Keen coupe powered with a fifty-five-horsepower Velie engine. This 1400-pound model was a six-place, closed-cabin monoplane.<sup>59</sup> The Kari-Keen Corporation terminated its manufacturing activities during the depression. Shortly thereafter, Fahlin settled at Marshall, Missouri, where he established the Fahlin Aircraft Company.<sup>60</sup> The company was engaged in the manufacture of low-priced, two-place monoplanes. The plane was built of tube steel and was covered with fabric; it sold for less than \$2,000.<sup>61</sup> During World War II Fahlin manufactured skis for the Department of War. He is now (1956) retired and resides at Piquano, Mississippi.<sup>62</sup>

In 1929 another attempt was made to establish commercial aviation in northern South Dakota. Nick Mamer, owner of Mamer Air Transport of Seattle, inaugurated daily passenger service between Seattle, Portland, Spokane, and intermediate cities, operating eleven planes on these routes. In the year mentioned Mamer formulated plans for an eleven-hour service between Spokane and Minneapolis. Tri-motored planes connecting with the new line at Livingston, Montana, were to fly over Yellowstone National Park

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<sup>52</sup> Delvert Gallett, personal interview, May 10, 1955.

<sup>53</sup> Victor A. Loomis, personal interview, May 10, 1955.

<sup>54</sup> Clyde G. Fulleton and Carl Swanson, personal interview, January 24, 1955.

<sup>55</sup> Russell Barstow, personal interview, July 15, 1954.

<sup>56</sup> *South Dakota Reports*, 64, 1935, 1936, p. 243; *Budgett v. Sioux Skyways, Inc.*

<sup>57</sup> Chester Wage, letter to author, January 21, 1954.

<sup>58</sup> *Aircraft Year Book*, 1931, p. 525

<sup>59</sup> *Ibid.*, p. 528.

<sup>60</sup> Chester Wage, letter to author, January 21, 1954.

<sup>61</sup> Undated article, Aviation file, Alexander Mitchell Library, Aberdeen, South Dakota.

<sup>62</sup> Ole Fahlin, letter to author, May 9, 1954.

on daily trips.<sup>63</sup> This hookup would have given South Dakota a connection with an east-west trunk line. Passenger and express services were begun over the Spokane, Missoula, Butte, Billings, Aberdeen, and St. Paul route on June 9, 1930, with three weekly flights being made over the passenger line. Mamer terminated the venture that same year when he failed to get an airmail contract.<sup>64</sup>

In addition to the fixed-base operators mentioned above, several smaller companies provided service to their respective communities in the period between 1921 and 1930. The first service of this type was established in 1921 by L. W. Cooke of Watertown. Cooke flew from a privately owned forty-acre field. He provided a hangar and shop for his two planes and for use by gypsy fliers. Cooke called his firm the Cooke Aero Company.<sup>65</sup>

The next local service was established at Spearfish in 1921 by E. C. Curren. He had a one-ship hangar and shop and he used his plane for personal business and small-scale passenger service.<sup>66</sup> Although he had one of the smallest operations in the state, Curran reported to the Aeronautical Chamber of Commerce and was listed by it as a fixed-base operator during this period.<sup>67</sup>

A similar flying service was established at Dell Rapids in 1921 by C. M. Larson, who had been formerly connected with Baird at Aberdeen. Larson carried 600 passengers 9,500 miles his first year of operation.<sup>68</sup> In 1923 Larson provided a hangar for his two planes and established a limited passenger service between Sioux Falls and Minneapolis. In this operation he carried a total of about 600 passengers.<sup>69</sup> Larson moved to St. Paul in 1926 where he established a service similar to the Dell Rapids operation.<sup>70</sup> He remained at St. Paul for several years, later becoming associated with Mid-Continent Airlines.<sup>71</sup>

During the 1920's civil aeronautics made great progress. The passage of the contract airmail law in 1925 and the Air Commerce Act of 1926 were, with the exception of the Civil Aeronautics Act of 1938, the most comprehensive measures taken by the federal government to formulate a constructive policy relative to civil aviation. During the first year of federal supervision under the Air Commerce Act of 1926, civil aviation was finally given the aid it had clamored for during the early years of the decade. In 1927 new airways were laid out, lighted, and mapped. Many municipalities, with federal encouragement and assistance other than monetary, established adequate airports.<sup>72</sup> Airway bulletins containing airport maps and information were published and distributed. Radio aids to navigation were put into service, and plans for better aeronautical weather service were formulated. Undoubtedly, the outstanding accomplishment of the period was the promulgation and enforcement of air commerce regulations.<sup>73</sup>

The division of the Aeronautics Branch of the Department of Commerce which most affected South Dakota was the Air Regulations Division. Its work included the inspection of aircraft for airworthiness and their registration; the examination and licensing of airmen; the identification by letter and number of all aircraft, including those not licensed; and the investigation of accidents and the enforcement of air traffic rules. Regulations concerning licensing qualifications were rigid. Pilots received identification

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<sup>63</sup> Aircraft Year Book, 1936, pp. 41-42.

<sup>64</sup> Aircraft Year Book, 1931, p. 36.

<sup>65</sup> Ibid., 1922, pp. 18-31.

<sup>66</sup> Loc. Cit.

<sup>67</sup> See Aircraft Year Book, for the years 1922 through 1928.

<sup>68</sup> Ibid., 1922, pp. 18-31.

<sup>69</sup> Aircraft Year Book, 1924, pp. 24-25.

<sup>70</sup> Ibid., 1926, p. 60.

<sup>71</sup> Wing Tips, 15<sup>th</sup> Anniversary Issue, Mid-Continent Airlines, Inc., 1951, p. 10.

<sup>72</sup> Airport aid from the federal government did not become available until the early years of the New Deal. This was begun under the WPA and the FERA programs in 1934.

<sup>73</sup> Aircraft Year Book, 1928, p. 145.

cards and licenses when they had satisfactorily passed medical, piloting, and other tests. The classes of licenses issued included air transport, limited commercial, industrial, private, and student pilot licenses.<sup>74</sup>

At the close of 1927 there were in the United States 1,572 licensed pilots of all classes.<sup>75</sup> Of this number, only nine were from South Dakota, all of them holding transport licenses. They included Floyd E. Barlow, E. D. Billiter, R. E. Fuller, S. R. Halley, C. W. Ice, L. W. Lieb, A. W. Stevenson, H. W. Tennant, and Earl T. Vance. Vance and Stevenson were both located in Montana at the time.<sup>76</sup> In 1929 the number of licensed pilots in South Dakota in all classes increased to sixty-six. In addition, twenty-seven aviation mechanics were licensed by the Air Regulations Division of the Department of Commerce.<sup>77</sup>

Airport development also came under the secretary of this department. In 1927 South Dakota had seven airports listed. These included Aberdeen, Dell Rapids, Huron, Mobridge, Pierre, Tyndall, and Watertown. South Dakota had no lighted airports at this time.<sup>78</sup> By 1930 the number of airports had increased to seventeen, with Belle Fourche, Lemmon, Mitchell, Rapid City, Vermillion, Wagner, Brookings, Edgemont, Seneca, and Sioux Falls being added to the list above. Only one of these, Watertown, had a lighted airport.<sup>79</sup> At this time South Dakota had fifty-four planes and nine gliders licensed with the regulations division.<sup>80</sup>

In addition to the flying schools established by fixed base operators, aeronautical education was offered in 1929 and 1930 by the Aberdeen public Schools and the University of South Dakota. The university had eighteen students taking aeronautical training of various types. Students built gliders and took courses in aeronautical engineering, glider flight training, and meteorology.<sup>81</sup>

The fixed-base operators and other local organizations and agencies interested in aviation during this period served their communities well. The fixed-base operator was one of the stabilizing influences in early American aviation. In addition to the services he rendered the community, he helped establish public confidence in air transport and demonstrated the usefulness of the airplane. During the bleak years of the depression many of these operators found employment with the newly forming domestic airlines. Some of these fliers established their own airlines.

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<sup>74</sup> *Ibid.*, pp. 145-49.

<sup>75</sup> *Ibid.*, pp. 148-49.

<sup>76</sup> *Ibid.*, pp. 491-512.

<sup>77</sup> *Aircraft Year Book*, 1930, p. 505.

<sup>78</sup> *Ibid.*, 1928, p. 164.

<sup>79</sup> *Ibid.*, 1930, p. 543, and 1931, pp. 489-90.

<sup>80</sup> *Ibid.*, 1931, pp. 505-06.

<sup>81</sup> *Ibid.*, 1930, pp. 581-82.



## CHAPTER VI RAPID AIR LINES, INC.

The organization of Rapid Air Lines was the most realistic effort by South Dakotans to establish a locally owned and operated airline. This firm was organized in 1926 by Clyde W. Ice, Bart Gilbaugh, and Walter Halley, all of Rapid City.<sup>1</sup>

Clyde Ice, the veteran barnstormer, terminated his exhibition activities in the fall of 1926 and obtained employment with Bert Gilbaugh, a Rapid City electrician.<sup>2</sup> Shortly thereafter, Ice had his employer thoroughly interested in the possibilities offered by commercial aviation. Within a few days the two were planning ways to finance a company and embark upon a commercial enterprise in aviation.

Ice and Gilbaugh immediately contacted Walter F. Halley, a former pilot who had dropped aviation following the war to pursue a career in banking in Rapid City. The Halley family was connected with industrial and banking interests in the Rapid City area, and its members were highly regarded throughout the Black Hills.<sup>3</sup>

Halley had been following the development of aviation through the press and various trade journals, and he saw possibilities in the venture proposed by Ice and Gilbaugh. He therefore agreed to enter into a partnership arrangement provided Ice would raise \$1000 by selling coupon mileage books for airplane rides.<sup>4</sup> Halley gave Ice a list of prospective passengers headed by George Bennet, "a western type fellow," who astonished Ice who expected to see a "...spry young man rearing to ride in an airplane. Because of his age, he did not look like a prospect to me," Ice recalls, "but I told him my story and he purchased the first ten dollar ticket book."<sup>5</sup> Two weeks later Ice returned with a thousand dollars.

In January, 1927, Rapid Air Lines was accordingly incorporated under the laws of South Dakota with an authorized cash capital of \$25,000. Shortly thereafter, company officials made arrangements for the purchase of a new \$2,500 Eaglerock. In addition, the firm obtained a distributing sales contract for that type of plane in the two Dakotas.<sup>6</sup>

The company also secured a suitable plot of flat land adjoining the city and built the first permanent airport at Rapid City. Ice, aided by Ed Hefley, personally supervised the building of the new field and hangar.<sup>7</sup> Completion of the hangar and the arrival of the first plane on March 1, 1927, created much local interest and was the signal for considerable air activity in the Rapid City area.

During March, 1927, a severe blizzard, followed by a serious flood, rendered roads impassable and washed out several lines of railroad. The lone plane of Rapid Air Lines was pressed into service by residents of the area as a means of travel. Clyde Ice with his Eaglerock, therefore became familiar in all parts of the country, transporting stormbound passengers, carrying food to isolated farms, taking doctors to emergency cases in the country, and in numerous ways demonstrating that the newly formed company intended to give constructive service to the community.

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<sup>1</sup> "Aviation," Black Hills Engineer, The South Dakota State School of Mines, Rapid City, South Dakota, March 1929, p. 145. Hereafter referred to as Black Hills Engineer.

<sup>2</sup> Clyde Ice, personal interview, February 22, 1954.

<sup>3</sup> Doan Robinson, South Dakota, American Historical Society, Chicago, 1930, Vol. III, pp. 407-10.

<sup>4</sup> Black Hills Engineer, p. 145.

<sup>5</sup> Clyde Ice, personal interview, February 22, 1954.

<sup>6</sup> Black Hills Engineer, p. 145.

<sup>7</sup> Ed Hefley received his flight training under the instruction of Clyde Ice. During the Second World War Hefley was a test pilot at Ford's Willow Run Aircraft plant.

By November, 1927, Rapid Air Lines had sold twelve Eaglerocks and had established dealers in Aberdeen, Huron, Sioux Falls, and smaller communities. In addition, the company had increased its own fleet of planes to eight.<sup>8</sup> During 1927 Rapid Air Lines flew 250,000 miles. A direct result of the company's varied activities was a realized profit of one hundred per cent.<sup>9</sup> Ice recalls that he netted \$10,000 for the firm that summer as a result of his activities at various public gatherings.<sup>10</sup>

When winter arrived in 1927, Ice and the other members of the firm built skis for the company planes and continued serving the Black Hills area. During the winter months Rapid Air Lines attracted so much national attention that a special correspondent of the St. Louis Post Dispatch was sent to Rapid City to cover the activities of the new line. A new venture, the hunting of coyote from the air, had been begun by Rapid Air Lines and attracted the special attention of the correspondent. This activity was accordingly stressed in an article in the Post Dispatch on March 18, 1928. Ice is believed to have been the first flier to hunt coyote from a plane. He was aided in this venture by Charles Orlup of Rapid City and Earl Wilson of Belle Fourche.<sup>11</sup> The revenue from the first winter's coyote hunting exceeded the purchase price of a new plane.<sup>12</sup>

In April, 1928, the Rapid Air Lines negotiated with the Ford Motor Company for a \$45,000 Ford Tri-motor.<sup>13</sup> The giant all-metal, fifteen-passenger aircraft, known to fliers as the "flying washboard" or "tin goose" was delivered to Rapid Air Line officials in Detroit on May 15, 1928.<sup>14</sup> The new plane was christened the "Wamblee Ohanko," a Sioux phrase meaning "Swift Eagle." During May and June, Clyde Ice took the Ford tri-motor on a National Air Tour for the purpose of encouraging enthusiasm for aviation and for advertising South Dakota. The tour was sponsored jointly by various private organizations including Standard Oil Company, the Ford Motor Company, and Chamber of Commerce organizations in various parts of the country.<sup>15</sup>

John Moodie of Lead became coordinator for the activities of Rapid Air Lines during these tours. He listed Buffalo, New York, Chicago, Indianapolis, Monroe (Indiana), Battle Creek (Michigan), and Minneapolis as some of the cities visited.<sup>16</sup> Clyde Ice recalls that they performed in thirty-two cities during the two-month tour and that several famous parachute jumpers and stunt fliers, including Art Davis, John E. Livingston, Betty and Freddy Lund, and Art Phillips, as well as other fliers, took part in the tour. Ice characterized Art Phillips as one of the best stunt fliers in America at the time, and he recalls that Freddy Lund, who later became a test pilot for the Waco Aircraft Company, "...got quite a reputation for flying upside down."<sup>17</sup>

On July 2, 1928, Ice and Moodie returned to Rapid City from their tour.<sup>18</sup> During that summer the Ford tri-motor and other Rapid Air Line planes appeared at practically every celebration of consequence in the Northwest.<sup>19</sup> The Ford tri-motor first appeared at the Tri-state Round-up at Belle Fourche on July 3, 4, 5,

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<sup>8</sup> Evening Huronite, March 30, 1928.

<sup>9</sup> Black Hills Engineer, p. 145.

<sup>10</sup> Clyde Ice, personal interview, February 22, 1954.

<sup>11</sup> Evening Huronite, March 30, 1928. The entire Post Dispatch article was reprinted in the Huronite.

<sup>12</sup> Black Hills Engineer, p. 146.

<sup>13</sup> Sioux Falls Argus-Leader, April 5, 1928.

<sup>14</sup> Ibid., July 28, 1928.

<sup>15</sup> Sioux Falls Argus-Leader, April 5, 1928.

<sup>16</sup> John Moodie, letter to author, October 28, 1953.

<sup>17</sup> Clyde Ice, personal interview, February 22, 1954.

<sup>18</sup> Sioux Falls Argus-Leader, July 3, 1928.

<sup>19</sup> Black Hills Engineer, p. 146.

where it created considerable enthusiasm among the spectators.<sup>20</sup> On July 18 the Ford appeared in the Sioux Falls area.<sup>21</sup>

Following these events, Ice toured the midwest and the South. While in Texas, he met a pilot who had an acquaintanceship with Sr. Juan Guillermo Villasana, Chief, Aviation Bureau, Department of Communications and Public Works of Mexico.<sup>22</sup> Consequently, Ice went to Mexico where he met Villasana. The association was a valuable one, Ice recalls, because he "... took \$48,000 out of Mexico in two months." The capacity of the Ford tri-motor was fifteen passengers, but in Mexico, where the people were smaller, he carried as many as twenty-five passengers during air shows.<sup>23</sup>

Meanwhile, Rapid Air Lines was moving in various other directions under the leadership of Walter Halley. On May 2, 1928, the directors of Rapid voted an increase of capital stock from fifty to one hundred thousand dollars. Walter Halley was then elected President of the firm. The increase was made to "permit further expansion," Halley explained.<sup>24</sup>

On March 30, 1928, a Northwest Airways Rally was held at Huron, South Dakota. The rally was organized by officials of the Airport Section of the Department of Commerce; Chamber of Commerce organizations from cities in Minnesota and the Dakotas; the Evening Huronite; the Rapid City Daily Journal; Rapid Air Lines; Standard Oil Company; and various fliers throughout the area.<sup>25</sup>

The purpose of such a major undertaking was to stimulate interest in the development of "airports and air routes in the northwest." The convention proposed the establishment of three air routes. One route was to run from LaCrosse, Wisconsin, through central Minnesota and South Dakota to the Black Hills, and from the Black Hills to Billings, Montana. The second route began at Iowa City, Iowa, and ran through Sioux Falls to Huron, South Dakota. The third route was to originate at Omaha, Nebraska, and proceed in a northerly direction through Yankton, Mitchell, Huron, Aberdeen, and Jamestown to Winnipeg.<sup>26</sup> The participants further decided to promote airport construction in the cities and towns along the proposed routes.<sup>27</sup>

Governor W. J. Bulow of South Dakota was the first speaker during the general session held at the Marvin Hughitt Hotel. He was followed by the principal speaker, Harry H. Blee, chief of the Airport Section of the Department of Commerce in Washington. E. P. Galbraith, assistant general manager of the northern division of the Standard Oil Company, outlined the positive steps taken by his company relative to the marking of towns and cities throughout the three-state area in such a way as to be discernible from the air. One hundred towns, he declared, had been so marked in South Dakota through March, 1928.<sup>28</sup>

During the evening session a Wisconsin-Black Hills Air Association was formed. The announced purpose of the association was to "...construct an airway between La Crosse, Wisconsin, and the Black Hills, following the line of the Chicago and Northwestern Railway."

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<sup>20</sup> Sioux Falls Argus-Leader, July 3, 1928.

<sup>21</sup> Ibid., July 18, 1928.

<sup>22</sup> Clyde Ice, personal interview, February 22, 1954; Sioux Falls Argus-Leader, July 14, 1928.

<sup>23</sup> Clyde Ice, personal interview, February 22, 1954. Ice appeared with Villasana in a picture review of aviation in Mexico published by a Mexican newspaper in 1928. The Ford Tri-motor was shown in the background. Undated clipping, loaned to the writer by Major Howard Ice.

<sup>24</sup> Sioux Falls Argus-Leader, May 2, 1928.

<sup>25</sup> Evening Huronite, March 28, 1928.

<sup>26</sup> The proposed air routes, with a few exceptions, follow the general pattern of the air transport lines in South Dakota today.

<sup>27</sup> Evening Huronite, March 30, 1928.

<sup>28</sup> Ibid., March 31, 1928. The marking of towns and cities for identification from the air was an absolute necessity for aviation during this period.

S. W. Bockus of New Ulm, Minnesota, was named president of this association. Godfrey Roberts of Pierre was elected vice president, and Mark D. Moore, Owatonna, Minnesota, secretary-treasurer. The committees organized by the association included the airport and air marking committee, the legislative committee, the survey of business committee, and the publicity committee.<sup>29</sup> The board of directors of the association included Mark Moore, Owatonna; F. J. Mahowald, Mankato; S. W. Bockus; W. R. Mitchell, Tracy, Minnesota; P. W. Huntmer of Brookings; C. P. Sherwood, De Smet; H. A. Sturgis, Arlington; Clyde Smith, and R. D. Lusk, Huron; Godfrey Roberts, Charles Hyde, Jr., and Clarence Coyne, Pierre; R. Byrnes, Philip; Walter Halley, Rapid City; and R. L. Bronson, Belle Fourche.<sup>30</sup>

The tangible results of the rally included friendly legislative acts by the South Dakota and Minnesota state legislatures.<sup>31</sup> Chief among these acts was enabling legislation to permit airport building by municipalities. In addition, Rapid Air Lines formed the Rapid City-Huron-Watertown passenger line and established airports at Huron and Watertown where the firm built hangars and installed staffs to run the offices. It also began flight training at these terminals and announced its plan to establish five passenger routes. Terminals of the five proposed lines included Billings, Montana; Minot and Fargo, North Dakota; Sioux Falls; and Cheyenne, Wyoming.<sup>32</sup> Halley had arranged for the use of the airports at these points through leases obtained from the various cities or from private interests.<sup>33</sup> The first official flight over the Rapid City-Huron route was made on May 1, 1929. Ed Hefley piloted the Ryan monoplane which made stops at Phillip, Pierre, and Huron.<sup>34</sup> Special charter service was available between Huron and Watertown.

The number of students taking training at the Rapid Air Lines fields at Rapid City and Huron was so encouraging that the firm decided to establish the Black Hills college of aviation in 1928. The officers and personnel of the school included Walter F. Halley, president and general superintendent; Captain S. Russell Halley, vice president and superintendent; Captain William W. Spain, transport pilot and director of flying instruction; and Clyde W. Ice, chief transport pilot. The instructors included Floyd E. Barlow, Edwin Hefley, and Charles E. Aagard, all transport pilots.<sup>35</sup> The ground school instructors included Eugene Schacker as transport pilot and chief mechanic, Dr. F. W. Minty as pilot and instructor of first aid, Harley Johnson of the United States Meteorological Service as instructor of Meteorology, Professor J. O. Kammerman from the School of Mines as instructor of the airport illumination and radio instruction, and Lieutenant Colonel D. E. Brisbane in charge of traffic methods and costs.<sup>36</sup> Ralph Hubbard served as the dispatch and traffic manager for the firm.

The school offered three major courses of instruction. A private license course requiring twenty hours of instruction was offered for \$485. The limited commercial course required sixty hours of flying time at a

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<sup>29</sup> Walter Halley who served on the legislative committee was elected to the South Dakota State Legislature in 1928. He served one term.

<sup>30</sup> Rapid City Daily Journal, March 31, 1928.

<sup>31</sup> Rapid City Daily Journal, April 27, 1928; Sioux Falls Argus-Leader; April 26, 1928. In addition to the legislation authorizing municipalities in South Dakota to establish airports, the 1929 session passed a Uniform State Law for Aeronautics; a law requiring the federal licensing of all aircraft and airmen; and a law which prohibited hunting from aircraft. In addition, South Dakota prohibited the transportation of intoxicating liquor by aircraft. See Session Laws of South Dakota, 1925, Chapter 6, Section 8666-z 3 through 8666-z 8, for legislation on aeronautics passed by the South Dakota state legislature between 1925 and 1929.

<sup>32</sup> Sioux Falls Argus-Leader, July 26, 1928. See also Evening Huronite, June 30, 1937.

<sup>33</sup> Clyde Ice, personal interview, February 22, 1954. John Moodie, letter to author, October 28, 1953. Ice and Moodie recall that this venture was costly, discouraging, and resulted in failure.

<sup>34</sup> Evening Huronite, June 30, 1937.

<sup>35</sup> Charles Aagard made a connection with Western Airlines and was still flying for Western in 1954.

<sup>36</sup> Black Hills College of Aviation, Rapid Air Lines, Inc., Chicago, June 21, 1929, p. 2. Loaned to the author by John Moodie, Homestake Mining, Co., Lead, South Dakota.

cost of \$970. The transport license course required two hundred and ten hours of instruction and cost \$2,185. The school also offered a trial ten-hour course for \$260, and a schedule for students taking instruction on an hourly basis at \$28 an hour. After completion of the ground and flight instruction, the students were given flight and written examinations. Satisfactory completion of these requirements entitled the student to a diploma.<sup>37</sup>

At the stockholders annual meeting held in March, 1929, Halley reported that Rapid Air Lines had over \$220,000 in assets. The firm also owned its own airport at Rapid City and was operating branch airports at Huron and Watertown. It was concurrently negotiating for the establishment of three air lines in South Dakota, Halley reported.

The company report for 1928 included:

Average number of pilots employed	-----	12
Average number of mechanic employed	-----	11
Average number of other personnel	-----	20
Number of flights made	-----	7,369
Number of passengers carried	-----	65,000
Number of air hours reported flown	-----	2,140
Number of air miles flown	-----	202,627
Number of crashes	-----	none
Number of fatalities to pilots	-----	none
Number of fatalities to other personnel	-----	none
Number of fatalities to passengers	-----	none

Rapid Air Lines operated the regularly scheduled Rapid City-Watertown airline for about six months. The venture was abandoned in the summer of 1929 because of light patronage and because efforts made by the firm to secure an airmail contract from the Post Office Department failed.<sup>39</sup>

Rapid Air Lines continued to maintain its terminals at Huron and Rapid City, where it trained pilots, operated a local passenger hop and charter flight service, and maintained its plane sales agency.

In 1930, however, Rapid Air Lines moved its base headquarters from Rapid City to Omaha. This change was made because the company desired an airmail contract and heavier passenger service on a scheduled basis. Walter Halley, who had devoted all of his time after 1927 to the development and growth of the company, died at Chicago in 1930, leaving control to his brother, Russell Halley.<sup>40</sup> Paul D. Selby became executive vice president of Rapid Air Lines at this time, and the name of the company was changed to Rapid Air Transport, Inc. Selby later made a connection with Hanford's Tri-State Airlines, becoming general manager of that firm in 1935.<sup>41</sup>

Kenneth Neville, who joined Rapid Air Lines in 1928, was left in charge of the firm's business affairs at Huron in 1930. In that year Neville trained twenty students for the company.<sup>42</sup> Frank Blume of Huron

<sup>37</sup> Black Hills College of Aviation, p. 11.

<sup>38</sup> Black Hills Engineer, 1929, p. 146.

<sup>39</sup> John Moodie, letter to author, October 28, 1953.

<sup>40</sup> Evening Huronite, June 30, 1937.

<sup>41</sup> Wing Tips, 15<sup>th</sup> Anniversary Issue, Mid-Continent Airlines, Inc., 1951, p. 12.

<sup>42</sup> Evening Huronite, June 30, 1937.

took over management of the Huron branch office until 1934,<sup>43</sup> when the city of Huron made arrangements for the purchase of the field.<sup>44</sup>

After moving to Omaha, Rapid Air Transport maintained daily passenger service on a 170-mile route between Kansas City and Omaha. Flying six-passenger Ryan and Bellanca monoplanes, the airline carried 1000 passengers during the last quarter of 1930. On August 1, 1930, the frequency of service was doubled, and a Sunday schedule of one round trip was added to accommodate the increasing number of passengers.<sup>45</sup>

Clyde Ice left the company at this time. Joining his brother George, the two maintained the airport at Belle Fourche during 1930 and 1931.<sup>46</sup> In 1932 they moved their operations to Rochester, Minnesota, where they conducted an air taxi and ambulance service for the Mayo Clinic.<sup>47</sup>

Between 1930 and 1934 Rapid Air Transport, Inc. made strenuous efforts to obtain airmail contracts with the government. Three "Independents," as the scheduled non-subsidized passenger carriers were called, were competing for the combination of airmail routes which existed between St. Louis and Winnipeg, and from Omaha through the Dakotas. These air routes covered virtually every passenger and airmail line in the central plains area. The Independents included Rapid Air Transport, Inc., Hanford's Tri-state Airline of Sioux City, and Braniff Airways of Oklahoma City. The competition for these routes was made keener by the policies of Postmaster General Walter F. Brown, who favored the larger airline operators.

On June 30, 1931, the Postmaster General, acting under the provisions of the McNary-Watres Act of April 29, 1930, and the airmail route certificate amendment of October 21, 1930, ordered Boeing Air Transport, Inc., a subsidiary of United Aircraft and Transport Corporation, to form an extension on A. M. 18, from Omaha to Watertown, South Dakota. The "Watertown Extension," as the line was commonly designated, included stops at Sioux City and Sioux Falls. Boeing did not immediately comply with this order, because it felt that the traffic potential and the airmail shipments would not justify the extension.<sup>48</sup>

The independent operators of the central plains area felt that they had an "equity claim to the route." As a result, these companies were grievously concerned because extensions of this type "were ruinous" to their business.<sup>49</sup> A direct result of the extension controversy was the formation of an organization known as the Independent Scheduled Air Transport Operators Association. Tom Braniff, of Oklahoma City, became the dominant personality of the association. Membership in the association included Bowen Airlines, operating between San Antonio and Kansas City; Rapid Air Transport, Inc., of Omaha; Hanford's Tri-State Airlines, of Sioux City; Reed Airlines, of Lawton, Oklahoma; and Wyoming Air Service, flying a line between Denver and Billings.<sup>50</sup>

When Boeing Air Transport began operations over the Watertown Extension, on January 16, 1932, the independent operators became even more vocal with their protests than formerly and sought to exert

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<sup>43</sup> Wing Tips, p. 13.

<sup>44</sup> Evening Huronite, June 30, 1937.

<sup>45</sup> Aircraft Year Book, 1931, p. 39.

<sup>46</sup> Ibid., p. 489.

<sup>47</sup> Major Howard W. Ice, letter to author, June 29, 1954.

<sup>48</sup> Pacific Air Transport et al, 98 United States Court of Claims, Number 43029, Finding #20, 1942, p. 666. A. M. 18 was the designation given this route by the Post Office Department. All airmail routes in the United States were similarly designated.

<sup>49</sup> Henry Ladd Smith, Airways, P. 202.

<sup>50</sup> Proceedings of the United States Senate Investigating Committee, Special Committee on the investigation of Air Mail Contracts, United States Senate, 73<sup>rd</sup> Congress (1933), p. 1801. In 1932 the Independent Transport Operators retained W. I. Denning, a Washington attorney, to carry their case before the proper authorities and to keep them informed upon developments regarding government airmail contract policy.

pressure upon their representatives in Congress.<sup>51</sup> Furthermore, the passenger and airmail picture became increasingly more confusing because Boeing was carrying the mail and the Rapid-Hanford interests were competing with Boeing for passenger service over the same line.<sup>52</sup>

When the Roosevelt Administration came into office in 1933, the independent airline operators whom Brown regarded as "fly-by-night" operators, brought their complaints to prominent representatives of the New Deal administration.<sup>53</sup> As a result, a special Senate investigating committee under the chairmanship of Senator Hugo L. Black was appointed to examine the entire airline-government relationship. The results of the lengthy hearings which followed pointed tenuously toward collusion between Post Office officials and the large airline executives. Moreover, the hearings disclosed that competitive bidding was ignored in the awarding of contracts.<sup>54</sup>

The pressure from political leaders and the recommendations of the Senate committee regarding government airmail policy led Postmaster General Farley to issue the following order on February 9, 1934.

Pursuant to the authority vested in me by Section 3950, Revised Statutes of the United States Act of June 8, 1872 (39 United States Code, Section 432), and by virtue of the general powers of the Postmaster General, it is ordered that the following airmail contracts be, and they are hereby annulled effective midnight February 19, 1934.<sup>55</sup>

The Postmaster General named twenty-four companies in his cancellation order. The following day Farley notified all the domestic airmail carriers of his cancellation order, and President Roosevelt ordered the army to assume the burden of carrying the airmail.<sup>56</sup> Boeing Air Transport, Inc. terminated its mail service over the Watertown Extension on March 7, 1934.<sup>57</sup> Passenger service, however, was provided over this route until April 1, 1934, by Rapid Air Transport and Hanford's Tri-State Airline.

On April 1, 1934, Paul D. Selby, executive vice president of Rapid Air Transport, notified the press that the Hanford-Rapid interests were temporarily terminating their service to Minneapolis, Sioux Falls, and Kansas City. He stated that resumption of passenger service by the two companies awaited airmail developments in Washington. This action left South Dakota without airline service of any kind.<sup>58</sup>

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<sup>51</sup> Smith, Airways, p. 202. Postmaster General Brown was apparently afraid to give a mail contract to one of these lines for fear of angering the various political proponents of the small airline operators. In South Dakota they included Senator Peter Norbeck and Representative Christopherson. His action in favor of Boeing Air Transport, however, had the opposite effect.

<sup>52</sup> Sioux Falls Argus-Leader, April 1, 1934. These two airlines continued to carry passengers over the line from St. Louis to Sioux Falls and Minneapolis until April 1, 1934.

<sup>53</sup> W. W. Howes of Huron was appointed Assistant Postmaster General in 1933. Howes' efforts on behalf of the small airlines of the central plains area and his efforts to obtain government aid to build airports in South Dakota were fruitful. As assistant Postmaster General Howes had great influence upon the government airmail policy and actively supported the position of the small independents.

<sup>54</sup> Sioux Falls Argus-Leader, April 24, 1934. This was a press release by James A. Farley, defending his position following public criticism of his cancellation of airmail contracts. The criticism did not begin until the army fliers carrying mail became involved in critical accidents.

<sup>55</sup> Boeing Air Transport, Inc., Farley, and three other cases argued December 11, 1934, Nos. 6287-6290, United States District Court of Appeals for the District of California. In this case, the plaintiffs attempted to enjoin Farley from enforcing his order of February 9, 1934. In addition, the appellants asked the court to grant damages and general relief. The demands were granted by the court. The case was appealed and settled in Pacific Air Transport et al, 98 U. S. Court of Claims, 1942. See Federal Reporter, Second Series, Vol. 75 (2<sup>nd</sup>), April and May, 1935, West Publishing Co., 1935, pp. 765-68.

<sup>56</sup> Federal Reporter, Loc. Cit.

<sup>57</sup> Sioux Falls Argus-Leader, March 8, 1934.

<sup>58</sup> Ibid., April 1, 1934.

By March 10, 1934, army operation of the airmail routes had proved costly. Ten army fliers had lost their lives, and the cost in equipment ran into six figures. As a result, President Roosevelt ordered immediate curtailment of the army airmail service. A subsequent investigation concluded that the inexperience of army pilots and the unimproved condition of airports and airway routes were the major causes of the costly failure.<sup>59</sup> The army continued to operate planes over selected routes, however, until March 31, 1934. By that time, twelve army pilots had died,<sup>60</sup> and damages to equipment totaled \$517,000.<sup>61</sup>

In March, 1934, the government called for bids from the private air carriers on a temporary basis. Under the new directives by the government, the private contractors were to bid on thirty-three routes for a three-month period. This time limit was specified because the government needed time to prepare new airmail legislation. In addition, the government specified that bids would be awarded only on the basis of competitive bidding by competent firms. One hundred and two bids were received, with many new operators, including the independents competing with the original carriers for the routes.<sup>62</sup>

Between April 20 and May 31, 1934, a total of fifteen air transport companies were awarded contracts.<sup>63</sup> Bids for the Nebraska-Dakota extension were advertised on May 8.<sup>64</sup> The new companies which appeared in the airmail line-up at this time included Pacific Seaboard, Central Airlines, Braniff Airways, Hanford Tri-State Airlines, and Wyoming Air Service.

The independents who were unsuccessful still cried discrimination, since the advertisement for bids called for night flying with multi-motored equipment. Despite this requirement, some of the independents got their feet in the door. Braniff took the Chicago-Texas route from United Airlines, and Hanford's Tri-State Airline was awarded the Chicago-Pembina line, formerly held by Northwest Airways.<sup>65</sup> Furthermore, Hanford was awarded the newly established A. M. 26, from Omaha through South Dakota to Bismarck and a line from Sioux Falls to Minneapolis and St. Paul. This gave them an east-west hookup with their Chicago-Pembina line.

When Hanford's Tri-State Airline was awarded the contract for A. M. 26, it lacked sufficient multi-motored equipment to serve the entire line. As a result, Hanford sublet the Kansas City-Omaha segment to Rapid Air Transport. Rapid carried the mail over this segment of the route from June until December 31, 1934. At the same time, an agreement was made between the Rapid-Hanford interests which resulted in a liquidation of the assets of Rapid Air Transport and the good will, as well as the equipment of the company, was taken over by Hanford's Tri-State Airline.<sup>66</sup>

The foregoing developments ended the activity of Rapid Air Transport. The firm and its personnel made numerous contributions to the history of air transport in South Dakota as well as to the central plains area. During its entire existence the firm was dependent upon passenger service and flight instruction as its source of revenue. Passenger service revenue alone during the period from 1925 through 1945 was never sufficient to keep an airline financially solvent. Only in isolated instances during this period were the

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<sup>59</sup> Ibid., March 10, 1934.

<sup>60</sup> Sioux Falls Argus-Leader, March 31, 1934.

<sup>61</sup> Thomas Wolfe, Air Transportation: Traffic and Management, McGraw-Hill, New York, 1950, p. 161.

<sup>62</sup> Ibid., p. 162. Farley specified in his call for bids that no aviation holding company or any of the firms present at the "spoils conference" in 1930 would be awarded bids until the corporate connections were severed, the names of the companies changed, and new directors elected. On April 19, 1934, he told newsmen that the large carriers could submit bids provided they comply with the government's requirements. See Sioux Falls Argus-Leader, April 19, 1934.

<sup>63</sup> Wolfe, p. 162.

<sup>64</sup> Sioux Falls Argus-Leader, May 8, 1934.

<sup>65</sup> Smith, pp. 279-82.

<sup>66</sup> Wing Tips, p. 13.

airlines able to survive without heavy subsidies from the government through airmail payments. Since 1938, at least, this policy has been justified by the realization that the air transport industry was of vital importance to the nation's defenses.

The Roosevelt Administration has been criticized from many quarters for its policy relative to the aviation industry during this "cancellation period." Some of these criticisms may be justified. There were, however, several important developments which resulted from the period of the airmail scandals. First of all, the condition of the nation's airports and airways was dramatically revealed when army pilots were required to fly over unfamiliar, unlighted, and unmarked airways. This revelation led the government to earmark a considerable amount of relief and public works money into the airport and airways development program. In retrospect, the period of the depression was one of the most important periods of aviation development.

The second important result of the cancellation period was the passage of the Civil Aeronautics Act of 1938, which created the Civil Aeronautics Administration. The third development resulted because the aviation industry was faced with the challenge of making air transport a profitable undertaking. This problem was partially resolved by the technological developments in aircraft construction and the development of better fuels for aircraft.

## CHAPTER VII

### The Airline That Serves “This Great Valley”

The nation's airway pattern which was developed between 1918 and 1934 followed in general the long-established railroad routes. These air routes cemented stronger ties between the east and west, and in some measure they helped to break down the confines of sectionalism.

By 1934 these transcontinental airways and many of the shorter feeder routes were well established. The north to south mid-continent routes, however, were still in the experimental stage. It was the controversy over which of the airlines originating in the area should be awarded those routes that dominated the history of the air transport industry during the early years of the depression.

The development of air transport throughout the midcontinental area after 1934 was due to the organizational efforts of Arthur S. Hanford; his son, Art Hanford, Jr. of Sioux City; and Tom Braniff of Oklahoma City. The two firms established by Hanford and Braniff were begun in 1928. The formation of Hanford's Tri-state Airlines, however, was of more immediate importance to air transport in South Dakota than was Braniff Airways.

Arthur S. Hanford had lived for a time at Centerville, South Dakota, where he operated a produce business. The business prospered and Hanford moved to Sioux City. A. S. Hanford and his son were operating one of the largest creameries in the Middle West. Known as the Hanford Produce Company, the firm had more than 100 trucks in service.

In the late 1920s, Art Hanford, Jr., set up another firm known as Hanford's Incorporated. This business consisted of a chain of filling stations, several garages, and a large grocery, called Spic and Span. In 1927 he enlarged his interests to include aviation, going to Chicago where he enrolled in a flying school. By early 1928 he was back in Sioux City, where he completed his training under James Barwick, a pilot flying for Tri-State Airways. Toward the end of 1928 Hanford purchased Tri-State Airways from Ryal Miller, a local flier from Sioux City. The equipment included two Eaglerocks, a Ryan monoplane, the hangar, and a lease on the land located at Stevens, South Dakota. Before the transaction was completed, however, a fire destroyed the hangar and one plane. Despite this, the transaction was consummated.

With one Eaglerock, a Ryan, and a Stearman, Hanford established Hanford's Tri-State Airlines. The service offered by Hanford at Rickenbacker Field at Stevens included flying instruction and charter service. The revenue from these sources was not sufficient to rebuild the hangar or permit desired development; Hanford, therefore, sold his oil and gas holdings.

In 1929 Hanford built a new cantilever wood hangar and shop and established a class "A" airport. Moreover, he purchased a two-engine Sikorsky amphibian which he used to transport fishermen to various lakes in Minnesota and the Dakotas. In addition to giving flying instruction, Hanford offered charter service from Rickenbacker to Omaha, Bismarck, and Minneapolis.<sup>1</sup> The history of the firm between 1930 and 1934 was dominated primarily by its efforts to obtain an air-mail contract. To achieve this aim it was necessary, as noted before, to join with the other independents and retain legal counsel in Washington to work for their interests.

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<sup>1</sup> Wing Tips, p. 12.

The scheduled passenger service between Sioux City and Minneapolis, established by Hanford in 1930, was continued until 1934, when the company was awarded airmail contracts by the postal department.<sup>2</sup> The routes awarded to Hanford at this time included A. M. 26 and A. M. 16. One of those, A. M. 26, ran from Kansas City to Bismarck. It served Kansas City and St. Joseph, Missouri; Omaha., Nebraska, and Sioux City, Iowa; and Sioux Falls, Huron, Aberdeen, and Bismarck in the two Dakotas. An extension of A.M. 26 ran from Sioux Falls to Minneapolis and St. Paul. This line connected with A. M. 16, the Chicago-Winnipeg route.<sup>3</sup>

Using Ford tri-motor and Lockheed Vega planes, Hanford opened the mail, passenger, and express service over the Nebraska-Dakota line on July 3, 1934. With the addition of these routes, Hanford moved the base of operations to Minneapolis. On December 31, 1934, Hanford sold the Chicago-Winnipeg route to Northwest Airlines, and the general offices were then returned to Sioux City.<sup>4</sup>

This move was necessary because the Hanford firm operated at a loss during its experience with these long-extended routes. During the period from July 3 through October 1, 1934, gross revenues from passenger and express service over A. M. 26 totaled \$3,144. In the same period the revenue derived from mail was \$13,385. The gross operating costs of the young airline amounted to \$20,860, including the depreciation of equipment.<sup>5</sup> In addition, it was necessary for Hanford to take over the operation of the Kansas City-Omaha segment of their line. Rapid Air Transport had been operating the line through an agreement with Hanford made in June, 1934. This action led, as noted before, to a liquidation of the assets of Rapid Air Transport, and its personnel and equipment passed under the control of the Hanford interests.

These organizational changes left Hanford's in a position for growth. In June 1935, however, tragedy cut short the life of Art Hanford when the wings ripped off his light plane and he fell to his death. Paul Selby of Omaha, who had been a director of Rapid Air Transport, became general manager of the Hanford Firm.<sup>6</sup>

Taking up where death ended his son's career, A. S. Hanford Sr. began to search for "a young man with vision" who could develop Hanford's Tri-State Airline into a first-class air carrier to serve "this great valley." During the next few months several proposals were made to A. S. Hanford, but these were rejected. Finally, Hanford entered into an agreement with Thomas F. Ryan III of San Francisco and J. W. Miller, a west Coast airline executive.<sup>7</sup>

Ryan had learned to fly at the Ryan School of Aviation at San Diego in 1929, and his interest in aviation had led him to acquire holdings in the Lockheed Aircraft Corporation. It was in this capacity, as part owner of the Lockheed Company, that Ryan had met A. S. Hanford Sr. while the latter was purchasing Lockheed equipment.<sup>8</sup> On July 1, 1936, Ryan obtained the controlling interest in the company, and the name was changed to Hanford Airlines. A. S. Hanford retained the position as president, and Ryan was elected executive vice president.<sup>9</sup> Ryan immediately took steps to modernize the equipment of the firm

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<sup>2</sup> "The Story of Mid-Continent Airlines," an unpublished manuscript prepared August 19, 1949. Through the courtesy of Braniff International Airways.

<sup>3</sup> Wing Tips, p. 13; Smith, Airways, p. 388.

<sup>4</sup> "The Story of Mid-Continent Airlines," August 19, 1949; Huronite, June 30, 1937.

<sup>5</sup> Commercial Revenue and Expense Chart for the Mail Contract Route #26, October 1, 1934, Hanford's Tri-State Airlines, loaned by Dr. Herbert S. Schell from the Norbeck papers.

<sup>6</sup> Wing Tips, p. 13.

<sup>7</sup> Wing Tips, p. 4. J. W. Miller was president of Mid-Continent Airlines in 1953 when the company merged with Braniff.

<sup>8</sup> Wing Tips, p. 2.

<sup>9</sup> "The Story of Mid-Continent Airlines," August 19, 1949. Through the courtesy of Braniff International Airways.

with the purchase of several ten-passenger Lockheed Electras twin-engined planes. The personnel, including pilots, radio operators, dispatchers and mechanics, was increased by more than one hundred per cent.<sup>10</sup>

Hanford's time table and route charts published April 1, 1936, advertised its all-metal, ten-passenger planes each with stewardess and two pilots as the last word in comfort. North-bound passengers departed from Kansas City at 4:30 A.M. and arrived in St. Paul at 11:30 A.M. Passengers to the Dakotas left Omaha at 7:30 A.M. aboard a Ford tri-motor and arrived in Sioux Falls at 9:12 A.M. At Sioux Falls the passenger transferred to a single-engine Lockheed Vega, familiarly known as the "pickle barrel." Arrival time in other cities of the Dakotas included Huron at 10:20 A.M., Aberdeen at 11:05 A.M., and Bismarck at 12:15 P.M.. The passenger thus arrived in Bismarck four hours and forty-five minutes after his departure from Omaha. South-bound passengers leaving Bismarck at 1:55 P.M. arrived in Kansas City six hours and forty minutes later.<sup>11</sup>

The service over these lines consisted of two round trips daily with overnight service to the west coast via TWA connections at Kansas City. Hanford equipped all its planes with two-way radio systems, and during night flights it utilized the Department of Commerce weather reporting stations and directional beam equipment.<sup>12</sup>

In September, 1936, Hanford Airlines' opportunities for passenger service and mail volume was broadened by the addition of a new connection with the oil capital of Tulsa, Oklahoma. This broadened service prompted the company to move its general offices from Sioux City to Kansas City.<sup>13</sup>

The addition of the new line was necessary for the continued growth of the firm. During 1935, Hanford Airlines carried 5,214 revenue passengers. If, in addition to passengers, express shipments and fifty pounds of mail per flight were carried, it was considered "very encouraging business volume."<sup>14</sup> Until 1939 the company's passenger fares were the third lowest in the air transport industry, and its operating costs per seat mile were the fourth highest. For this reason, the firm was one of the airlines which depended most heavily upon airmail payments.<sup>15</sup>

On January 20, 1937, Rickenbacker Field, still owned by Hanford Airlines, was damaged by fire. The losses were estimated at about \$85,000. Destroyed in the fire were the hangar and its equipment, a Lockheed Vega, a Boeing, and several privately owned planes.

Following the fire, discussions concerning the establishment of a municipal airport were begun in Sioux City. Continued use of Rickenbacker was out of the question, because its location in South Dakota made it impossible to obtain city, state, and federal aid to rebuild and maintain the installation. For that reason, Sioux City officials and the airline executives found it necessary to obtain land in Iowa for an airport.

Active in the plans to establish the new airport at Sioux City were Mayor W. D. Hayes, Frank Mulhall, Ralph W. Thackberry, Ryal Miller, Harold Murphy, Paul Cook, and representatives of the Bureau of Air Commerce in Washington. The funds for the project were obtained through the Works Project Administration.<sup>16</sup> W. W. Howes of Huron was also active in securing funds for projects of this type

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<sup>10</sup> Evening Huronite, June 30, 1930.

<sup>11</sup> Hanford Airline Time Table, April 1, 1935.

<sup>12</sup> Wing Tips, p. 15.

<sup>13</sup> "The Story of Mid-Continent Airlines," August 19, 1949.

<sup>14</sup> Wing Tips, p. 14

<sup>15</sup> Smith, p. 388.

<sup>16</sup> Wing Tips, p. 6.

because the air carriers serving this area affected aviation developments in South Dakota. His connection with the Roosevelt Administration gave the central plains area a spokesman who used his influence to obtain federal aid for airport construction. Howes later formed an association with Hanford Airlines, and he subsequently became a director of Mid-Continent Airlines.<sup>17</sup>

Ryal Miller at that time was president of the Sioux City Chamber of Commerce, and Carleton Corbett was head of the Chamber's aviation committee. Harold Murphy, another member of the committee, was secretary of the Midwest Aviation Council. Frank Mulhall, who had been associated with Rapid Air Transport and later Hanford Airlines, was assigned by the committee to obtain options on the site for the new municipal airport.

On September 20, 1937, the original tract, consisting of 240 acres, was purchased for \$36,000. Moreover, \$64,000 was raised for improvements. This improvement fund was matched with a like amount from Works Progress Administration funds of the federal government. The airport was dedicated on October 27, 1940. Those participating in the ceremonies included Ryal Miller (a former Hanford Airline official), Thomas F. Ryan (president of Mid-Continent Airlines), D. F. McCauley (WPA director of airports and airways), Congressman V. F. Harrington and Smith W. Purdum (Second Assistant Postmaster General).<sup>18</sup> The results of this action gave Sioux City its first municipal airport and reduced the overhead costs for Hanford Airlines.

In February, 1937, Hanford dropped Sioux Falls as a stop on its Kansas City-Minneapolis airmail line. This action was taken because the Sioux-Skyways Airport, established at Sioux Falls in 1927, had become obsolete for the faster twin-engined planes then being used by Hanford. In fact, the airport did not meet the standards of the Bureau of Air Commerce.<sup>19</sup>

Mayor A. N. Graff, other officials of Sioux Falls, and the Chamber of Commerce became concerned with this airport deficiency. As a result, the city purchased a 320-acre plot of land north of Sioux Falls near North Minnesota Avenue.<sup>20</sup> With aid received from the Works Progress Administration, the new site was built into a modern airport. Dedication of the new airport including the administration building and hangar occurred in 1939. Federal expenditures during this period totaled \$279,521. The local sponsor contributed \$129,467 in matching funds under these programs.<sup>21</sup>

When Sioux Falls was taken off the airway mail line, Hanford moved its terminal operations in South Dakota to Huron. In 1936 the city of Huron exercised foresight in the purchase of the site formerly used as a privately used airport by Rapid Air Lines. Huron thus was able to obtain federal aid to complete the hangars and runways begun in 1934.<sup>22</sup> The total federal-city costs under these programs at Huron were \$366,192.<sup>23</sup> The new field was dedicated as the W. W. Howes Municipal Airport on June 30, 1937. It was the most modern airport in the state at that time.<sup>24</sup>

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<sup>17</sup> The information was taken from a captioned photograph showing a Hanford Airlines Fokker tri-motor transport with Frank Mulhall; Marjorie Kelly, niece of A. S. Hanford; W. W. Howes; and Joseph Hankin, owner of Radio Station KSOO, Sioux Falls.

<sup>18</sup> Wing Tips, pp. 6-7.

<sup>19</sup> Evening Huronite, June 30, 1937.

<sup>20</sup> Sioux Falls Argus-Leader, December 13, 1953.

<sup>21</sup> "Federal Expenditures for Airport Development in the State of South Dakota," Office of Airports, Department of Commerce, Civil Aeronautics Administration, Washington, D. C., March 4, 1954. Through aid allocated through relief projects during the depression, the government began its first airport building program.

<sup>22</sup> Evening Huronite, June 30, 1937.

<sup>23</sup> "Federal Expenditures for Airport Development."

<sup>24</sup> Evening Huronite, June 30, 1937.

When Hanford moved to Huron, that city became the center of air transport activity in South Dakota. Huron also served as the terminal for east-west flights over the Rapid City-Minneapolis line established by Western Airlines in 1937. Similar action for establishing new airports was taken by Watertown, Pierre, Spearfish, and Rapid City. In 1937 fifteen cities in South Dakota had developed airports suitable for transport landing fields.<sup>25</sup>

Meanwhile, Hanford Airlines began experiments on a radio direction finder for use as a navigation aid; these experiments were to prove successful. Early in 1938 Hanford began an extensive pilot training program for the use of this new device. Shortly thereafter, the Civil Aeronautics Board permitted Hanford to use this navigational aid on scheduled night flights over an unlighted airway. The Kansas City-Tulsa route was the first airway in the nation to enjoy this new service. It was later used for night flying in South Dakota.<sup>26</sup> In August of the same year the firm name was changed to Mid-Continent Airlines. This action was taken because officials of the company believed that the new name better identified the airline with the Midwestern territory it served.<sup>27</sup>

On July 1, 1936, when Thomas F. Ryan acquired controlling interest in Hanford's, the air carrier served only nine cities, Minneapolis, St. Paul, Omaha, Bismarck, Aberdeen, Huron, Sioux Falls, Sioux City, and Kansas City. In 1952 Mid-Continent trunk routes extended from Minneapolis-St. Paul and the Dakotas on the north to the southern terminal of Houston and New Orleans on the south. This service linked the trade territory of the upper midwest, the oil empire of the south central states, and the gateways to Latin America. The firm was serving thirty-nine cities in twelve states at this time. In that year Mid-Continent's aircraft were flying about 26,000 miles daily. Its revenue passengers in 1951 totaled 441,115 as contrasted with 5,214 in 1956.

A. S. Hanford continued as president of the company after Ryan acquired controlling interest, and the latter, as noted previously, was elected executive vice president. On December 11, 1939, Ryan was elected president, and A. S. Hanford became chairman of the board, a post he held until his death on May 2, 1941.

With the entry of the United States into World War II, all the airlines were drafted to serve in the army's Air Transport Command. In March, 1942, Thomas F. Ryan joined the United States Army. J. W. Miller, who became a member of the firm in 1936, was then elected president on March 6, 1942. Miller held that position until 1952, when Mid-Continent merged with Braniff International Airways.<sup>28</sup>

From May, 1942, to September, 1944, Mid-Continent operated a cargo route for the Air Transport Command. Mid-Continent planes carried more than 16,700,000 pounds of vital war goods during this period, in addition to conducting scheduled passenger service over a portion of its former routes. The northern one half of South Dakota, however, was without airmail or passenger service during this time.

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<sup>25</sup> "Transportation in South Dakota," South Dakota State Planning Board, Brookings, South Dakota, 1937, p. 12. In 1937 Western Airlines took over the Rapid City-Huron-Minneapolis line pioneered by Watertown Airways. Watertown Airways was begun in 1936 by Clyde W. Ice, Ralph Hubbard, and other Watertown citizens. Watertown Airways discontinued its service after about eight months of operation because of a permanent airmail contract was not granted to the firm by the government.

<sup>26</sup> Wing Tips, p. 18.

<sup>27</sup> "The Story of Mid-Continent Airlines," August 19, 1949.

<sup>28</sup> At the time of reorganization of Mid-Continent and Braniff, Miller became one of the vice presidents of Braniff International Airways.

In 1945 Mid-Continent began a re-equipping program which eventually replaced all its Lockheed Lodestar equipment with Douglas DC-3 planes. This move was made in the interest of economy.<sup>29</sup>

In August, 1945, Mid-Continent Airlines inaugurated service on its new extension from Tulsa to Fort Smith, Texarkana, Shreveport, and New Orleans. In March, 1946, Mason City, Iowa, was added as a stop on the Des Moines-Minneapolis route, and July of the same year service to Muskogee, Oklahoma, as a stop on the Tulsa-New Orleans route was inaugurated. In September, 1946, the war-interrupted service to Aberdeen, Bismarck, and Minot was resumed. In 1947 And 1948 Mid-Continent was awarded route certificates in this region. These included Tyler and Houston, Texas; a line from Sioux City to Des Moines; and resumed service to Ottumwa, Iowa. Furthermore, Quincy in Illinois and Waterloo in Iowa were added to the network of cities served by Mid-Continent Airlines.

In 1952 Mid-Continent Airlines and Braniff International Airways began a series of discussions with the Civil Aeronautics Board in Washington asking approval of a proposed merger of the two firms. This action seemed reasonable to the stockholders of the two firms since the domestic service offered by the two companies overlapped in various areas, particularly along their southern routes.

The directors of both Braniff Airways and Mid-Continent agreed on the plan of merger on January 24, 1952. The pre-hearing conference before the Civil Aeronautics Board was held at Washington, D. C., on February 2. Shortly thereafter, the CAB examiner approved the merger.<sup>30</sup> The consolidation of the two firms was announced to the press on August 16, 1952.<sup>31</sup>

At the time of the merger the combined companies operated planes over 7,662 miles of unduplicated domestic airways. They were serving seventy cities in the United States and eight countries in Latin America. The combined fleets of the two companies totaled fifty-seven aircraft, consisting of nine Douglas DC-6s, eight Douglas DC-4s, thirty-five Douglas DC-3s, four forty-passenger Convairs, and one C-47 cargo plane.

On January 10, 1954, Tom Braniff died in a private airplane accident at Shreveport, Louisiana. The Board of Directors organized the management of the company. The chairman of the board of directors elected at this time was Fred Jones, Oklahoma City; Thomas F. Ryan, and Charles E. Beard, became presidents of the line, and J. W. Miller, was chosen as executive vice president. The other officers of Braniff were C. G. Adams, William Blakley, F. Eberstadt, G. D. Murdoch, R. C. Shrader, G. Butler, E. C. Eppley, T. N. Law, and R. J. Whitford. Mrs. T. E. Braniff also became a vice president of the firm.<sup>32</sup>

The airline traffic pattern in South Dakota in 1957 is still a matter of public concern since the larger trunk airlines claim that the routes which cross the state are unprofitable. For this reason and others the larger carriers are constantly negotiating with local officials and with the Civil Aeronautics Board in Washington for higher fares or for a curtailment of service.

In 1956 Braniff filed an application with the Civil Aeronautics Board proposing a curtailment of its activities over the Nebraska-Dakota route. If the application to withdraw its service from this area is granted, South Dakota will be served by only one large domestic air carrier.

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<sup>29</sup> The DC-3s, DC-4s, and DC-6s were among the most popular transport planes in the aviation industry after the war. This Douglas series became popular because of their efficiency, safety, and wing loading capacity.

<sup>30</sup> The writer is indebted to Hal Grayson, Director of Publicity, Braniff International Airways, Kansas City, Missouri, for his letter of May 19, 1954, and for the news releases, photographs, and other materials lent to the writer at this time. The above material was sifted from these sources.

<sup>31</sup> Sioux Falls Argus-Leader, May 23, 1954.

<sup>32</sup> Braniff Airways, Inc., Annual Report, 1953.

Two feeder-airlines, Central Airlines of Minneapolis and Frontier Airlines of Denver, have filed an application for franchise contracts over the present routes in South Dakota. In addition, the two feeder airline companies propose to provide service to numerous smaller cities heretofore not served by an airline. The final decision over which combination of routes will be served by these two feeder airlines will be settled in 1957, when the Civil Aeronautics Board completes its review of the so-called "Seven States Air Route Case."

## **CHAPTER VIII**

### **Summary and Conclusions**

The twenty years preceding the depression were the formative years for air transportation. During the first decade of this period the country was crisscrossed by daring young fliers who performed at county and state fairs, old settlers conventions, and chamber of commerce booster campaigns. Prior to World War I, intelligent, well-informed people continued to think of aviation as a pageant and refused to consider that flight might be made to serve practical ends.

The first World War dispelled this attitude to a considerable extent, but many people continued to consider flying as an adventure for men in a "gilded cage." Until genuine public support was forthcoming, air transportation could not hope to develop as a first-class means of transportation.

The years 1920-1930 were truly epochal in aviation pioneering. During this period the popularization of aviation must be attributed to the thousands of trained aviators released from the armed services following the war. Army aviators, turned civilian, purchased war surplus Jennys, Standards, or other obsolete war machinery and shifted to barnstorming as a profession. The itinerant gypsy flier became the idol of thousands of American youngsters and, in many cases, the object of economic exploitation by financiers who saw possibilities in air transportation.

In South Dakota many of the gypsy fliers carried on fixed-base operations in conjunction with their barnstorming activities. The gypsy formed exhibition companies, performing breath-taking aerial stunts for the pleasure of the thrill-crazed public of the roaring twenties. They also organized aviation companies with flying schools, passenger service, aerial photography, and airplane agencies as part of their activities.

Some of the firms and individual proprietorships operating between 1920 and 1930 were the Yellowstone Trail Aero Corporation of Ipswich, the Cooke Aero Company of Watertown, the Huron Aerial Rapid Transit Company, L. W. Leib of Volga, the Mobridge Aerial Company, Incorporated, and Security Skycraft Corporation of Aberdeen, the Tennant Brothers and Sioux Skyways of Sioux Falls, Rapid Air Lines of Rapid City, and Hanford's Tri-State Airlines of Sioux City.

The activities of the gypsies, as well as the daring exploits of individuals on the national scene, paved the way for public acceptance of air travel, thus advancing aviation and expanding its activities.

The trans-atlantic flight of Charles A. Lindbergh on May 20, 21, 1927, together with transcontinental flights, endurance flights, round-the-world flights, and the airmail activities of the period captured the imagination of the American people in the heyday of "Coolidge prosperity." Such interest served to generate and promote the civic pride and cooperation which stimulated the building of airfields.

Some of the outstanding South Dakota fliers of this period were Earl T. Vance, and Ole Fahlin of Aberdeen; Clyde W. Ice, still active in civil aviation in 1957; Lieutenant Harold Tennant and Captain William W. Spain of Sioux Falls; Captain Russell Halley, Lieutenant Walter Halley, and Floyd Barlow of Rapid City; "Diamond" Jim Wage of Ferney; Lieutenant Walter Smith of Pierre; and several others with comparable records.

The most ambitious undertaking in air transportation in South Dakota was the organization of Rapid Air Lines in 1926 by Clyde W. Ice, the Halley brothers, William W. Spain, Floyd Barlow, and others. By 1928 Rapid Air Lines' assets totaled about \$250,000. The company was known as an Independent in the period of the airmail scandals (1930-1934). It operated until January 1, 1935, when it went out of business and its personnel transferred to Hanford's Tri-State Airlines.

Hanford Airlines of Sioux City was also organized in 1927-1928. Its promoter was a former South Dakotan who had been engaged in a produce business at Centerville. When his son became an aviation enthusiast as a result of the Lindbergh flights in the Sioux City area in August, 1927, Hanford bought the facilities at Rickenbacker Field, Stevens, South Dakota, and began operations with one plane.

Airmail operations in South Dakota were begun in 1932 by Boeing Air Transport, a subsidiary of United Airlines. The route, "The Watertown Extension," from Omaha, via Sioux City and Sioux Falls to Watertown, was operated at a loss by the company. Airmail operations in South Dakota were suspended for some time after the "Cancellation Period" in 1934. In that year, Hanford's Tri-State Airlines was awarded two airmail contracts and became an airline in actuality. The routes awarded by the Post Office Department were known as AM 26 and AM 16. AM 26 connected Kansas City, St. Joseph, Omaha, Sioux City, Sioux Falls, Huron, Aberdeen, Bismarck, and the Twin Cities. When Hanford was awarded the contract for AM 26, one of the requirements was that it be operated at night and with tri-motored equipment. Because the airline lacked sufficient tri-motored equipment, the Omaha-Kansas City segment was sublet to Rapid Air Transport, which owned three tri-motor Stinsons. Rapid served the Omaha-Kansas City segment from June, 1934, until December 31 of the same year.

In August, 1938, the name of the Hanford Company was changed to Mid-Continent Airlines in the belief that the new name better identified the airline with the Midwestern territory it served. Meanwhile, Clyde W. Ice and Ralph Hubbard operated a temporary airmail contract route from Pierre to Minneapolis. They failed to meet the requirements for a permanent contract, and the line was taken over in 1937 by Inland Airlines. As a result of the war Inland operated from 1941 through 1944 with single-motored Beechcraft biplanes. In 1944 Western Airlines took over the Inland Route Certificates and has continued its scheduled operations over this line since that time.

Airport developments in South Dakota were greatly stimulated during the period of optimism which swept the country between 1927 and 1930. Though the first municipal airport in South Dakota had been established in 1920 at Aberdeen, airport building reached a climax in 1927-28. During those years the airports of Sioux Falls, Rapid City, Huron, Pierre, Mitchell, Watertown, Yankton, and others in smaller communities were established.

During World War II the need for training and intermediate landing fields throughout the nation led to federal-municipal contracts for airport use by the military, with considerable funds being expended for airport building and improvements. This aid was extended further as a result of the Federal Airport Act of 1946. Prior to the enactment of this law, grants-in-aid to municipalities for airport building and improvements took the form of indirect grants through the numerous relief agencies established during the depression period by the federal government. By this method, funds were channeled through the Works Progress Administration and Public Works Administration to the localities needing aid. Federal grants-in-aid, both direct and indirect, made a considerable contribution toward the maintenance of the expensive fields needed for modern air travel.

Another significant development in South Dakota aviation was the organization of the South Dakota Aeronautics Commission in 1935. This body became increasingly more important as a directing and coordinating agency for all phases of the aviation industry in South Dakota. Among its other functions was the clearing of all federal and state funds going to municipalities for airport improvement. Members of the commission in 1956 included Colonel D. L. "Duke" Corning, Sioux Falls, chairman; Leonard Thompson, Lake Preston, Vice Chairman; George R. Hunter of Deadwood; Curtis B. Mateer, Pierre; and Harold W. Markey, Huron. The Director of Aeronautics was Lynn V. Hanson, and Curtis L. Cameron was assistant director.

Following World War II, released Army pilots and private operators who had suspended their activities during the war opened some sixty aviation schools. The establishment of flying schools became a popular activity as a result of the generous allowances provided by the G. I. Bill of Rights. One of the most popular aviation schools in the postwar period was the Foss Flying School of Sioux Falls. Joe Foss, famous fighter pilot, and D. L. "Duke" Corning, Air National Guard Commander, operated about twenty planes at the peak of their operations in 1947. By 1953 the number of schools had diminished to a fraction of the former peak, but many of the older operators and a substantial number of the younger ones remained in business.

Commercially, aviation followed somewhat the same pattern as it had in the past, with two notable exceptions. In the past few years aerial spraying in the agricultural industry has taken on added importance. With the coming of the multi-purpose dams to this semi-arid section of the country, and the consequent distribution of hydroelectric power over trunk distribution lines, a need for rapid inspection and the location of disrupted service was tantamount to continuous uninterrupted service. The inspection of these trunk lines is being performed at the present time by two operators who have contracts with the Bureau of Reclamation: The Ice Flying Service of Pierre covers the territory west of the Missouri River in South Dakota, and the Hubbard Aviation Company of Watertown flies the lines located in the east river country. The Davidson Flying Service of Vermillion was engaged in a similar undertaking with the East River Cooperative before Davidson's death. The Mobridge Flying Service handles much of this type of work for private utility companies.

Immediately following the war there was general optimism in the transport industry. The industry expanded in South Dakota to include one entirely new company. Originating in Iowa, Mid-West Airlines began air transport services with a temporary permit from the Civil Aeronautics Board in 1949. Mid-West discontinued its service on May 15, 1952, primarily because the public would not accept single-engine planes for scheduled airline service. Northwest Orient Airlines likewise operated for a short time in South Dakota, but accelerated air travel did not materialize, partially because of the lack of operating equipment.

In addition, Mid-Continent Airlines continued to operate the franchise it obtained in 1934 under the name of Hanford's Tri-State Airlines. Mid-Continent and Braniff International Airways formed a merger in 1952, the name of Mid-Continent Airlines passing out of existence. At this time Mitchell was added to the Mid-Continent terminals of Huron, Watertown, Aberdeen, Sioux Falls, and Brookings.

By 1956 eleven South Dakota cities were certified for scheduled trunk airline service. These cities were Aberdeen, Brookings, Huron, Rapid City, Sioux Falls, Spearfish, Pierre, Watertown, Mitchell, Hot Springs, and Yankton. Those terminals were served by Braniff and Western Airlines. Braniff obtained permission to add Yankton to its air routes in 1953, but the airport at Yankton was substandard for DC-3 operations, and service to Yankton awaited the completion of new airport facilities.

Besides the air terminals listed above there were sixty-three other approved public airports and 247 private airstrips in 1955 in South Dakota. The state had one military airfield, located at Rapid City, and supported an Air National Guard unit at Sioux Falls. The total number of airports and private landing strips in South Dakota on December 31, 1953, was 322, contrasted with 28 in 1937.

Attesting to the greatly stimulated interest in the utility of the airplane, South Dakota farmers have taken to the air in increasing numbers in the past decade. A few hundred farmers owned airplanes in 1956, and the majority were members of the South Dakota Flying Farmers and Ranchers Association. The consensus of opinion expressed by these "Flying Farmers" was that the airplane afforded them closer contact with their neighbors and with the nation in general, and that it was a useful implement around the

farm. Moreover, a number of South Dakota business firms owned planes which were used frequently by their personnel.

In conclusion it seems justifiable to assume that the general utility of the aeroplane would be extended far beyond its present proportions if investment for light aircraft could be reduced appreciably. Interest and physical facilities have become sufficient to give an increased impetus to the aviation industry. Hundreds of young men trained during and since the war, however, are without the means to purchase expensive aircraft or to renew expired licenses. Economic considerations in a declining agricultural economy probably reduce utilization of the airplane.

Air transport in sparsely settled areas like South Dakota also presented perennial problems. Large transport planes require expensive airports, and weather conditions in the Dakotas cause burdensome problems connected with repair and maintenance. The tax base of cities maintaining expensive air terminals does not seem sufficiently broad to justify extending these facilities to meet the changes in aircraft design.

Perhaps the answer to this problem lies in producing smaller, more economical planes that do not require elaborate, expensive airports. Historically, passenger and mail services in this area have operated at a loss to the airlines. As a result, when the airlines lose their local character through expansion and take on a transcontinental or international character, they apparently withdraw their service from the less profitable areas. The answer may lie in the establishment of locally operated feeder lines making connections at points with the transcontinental routes.

## APPENDIX A

AIRPORTS ESTABLISHED IN SOUTH DAKOTA\*  
1919-1930

<u>Location</u>	<u>Name</u>	<u>Date</u>	<u>Class</u>
Aberdeen	Baird Field	1919	Private Commercial
	Tri-State Fairground Field	1920	Municipal
	Municipal Airport	1930	Municipal
Huron	no record	1919	Private Commercial
	State Fairgrounds Field	1923	Private Commercial
	Rapid Air Lines Airport	1928	Private Commercial
	W. W. Howes Airport	1937	Municipal
Volga	L. W. Leib, Landing Field	1920	Private Commercial
Tyndall	Tyndall Landing Field	1920	Private Commercial
Ipswich	Yellowstone Trail Aero Club	1920	Private Commercial
	Edmunds County Airport	1934	County
Mobridge	Mobridge Aero Club	1920	Private Commercial
	Municipal Airport	1929	Municipal
Pierre	Ft. Pierre Landing Field	1920	Private Commercial
	Walter J. Smith Airport	1927	Municipal
Stevens	Rickenbacker Field	1920	Private Commercial
Wagner	no record	1920	Private Commercial
	Municipal Airport	1930	Municipal
Sioux Falls	Tennant Landing Field	1921	Private Commercial
	Renner Landing Field	1927	Auxiliary
	Sioux Skyways Airport	1928	Private Commercial
	Municipal Airport	1937	Municipal
Watertown	Cooke Airfield	1921	Private Commercial
	Municipal Airport	1927	Municipal
Redfield	Parrish Landing Field	1922	Private Commercial
	Redfield Airport	1929	Municipal
Dell Rapids	Larson Landing Field	1923	Private Commercial
	Municipal Airport	1929	Municipal

## AIRPORTS (cont.)

<u>Location</u>	<u>Name</u>	<u>Date</u>	<u>Class</u>
Spearfish	Curran Landing Field	1923	Private Commercial
	Lawrence County Airport	1934	County
	Black Hills Airport	1937	County
Ferney	Wage Airport	1924	Private Commercial
Platte	Fuller-Hanson Field	1924	Private Commercial
Rapid City	Halley Airport	1926	Private Commercial
	Municipal Airport	1937	Municipal
Canton	no record	1927	Auxiliary
Hot Springs	Hot Springs Airport	1927	Private Commercial
	Municipal Airport	1937	Municipal
Belle Fourche	no record	1928	Commercial
	Municipal Airport	1934	Municipal
Brookings	no record	1928	Commercial
	Municipal Airport	1934	Municipal
Chamberlain	no record	1928	Private Commercial
Mitchell	Municipal Airport	1928	Municipal
Yankton	Municipal Airport	1928	Municipal
Edgemont	no record	1928	Auxiliary
	Municipal Airport	1934	Municipal
Seneca	no record	1929	Auxiliary
Vermillion	Municipal Airport	1929	Municipal
Lemmon	Municipal Airport	1930	Municipal

\* This list of airports and landing fields is based upon press releases, the Aircraft Year Book, and various other sources cited elsewhere in this study. No accurate records were kept before 1937. The dates given are as correct as can be ascertained from existing records.

During the 1930s, public governing agencies re-established old airports, or built new facilities when Federal relief funds became available for this purpose. The period from 1934 to 1942 was a great period for airport construction in South Dakota. See Appendix B.

## APPENDIX B

FEDERAL EXPENDITURES FOR AIRPORT DEVELOPMENT IN  
THE STATE OF SOUTH DAKOTA 1934-1953

<u>City</u>	<u>Federal Agency</u>	<u>Federal Funds</u>	<u>Sponsor Funds</u>	<u>Total Funds</u>
Aberdeen	FERA	\$ 3,866	\$ 0	\$ 3,866
	WPA	187,029	26,025	213,054
	DLA	237,609	19,401*	257,010
	FAAP	<u>197,654</u>	<u>167,495</u>	<u>365,149</u>
	Total	626,158	212,921	839,079
Belle Fourche	FERA	4,167	0	4,167
Bison	FAAP	4,629	4,091	8,720
Bowdle	FAAP	12,048	10,653	22,701
Britton	FAAP	802	710	1,512
Brookings	FERA	8,525	0	8,525
	WPA	1,368	302	1,670
	FAAP	<u>179,164</u>	<u>160,562</u>	<u>339,726**</u>
	Total	189,057	160,864	349,921
Buffalo	FAAP	963	851	1,814
Cheyenne Agency	FERA	1,956	0	1,956
Dupree	FAAP	7,315	6,468	13,783
Edgemont	OWA	3,167	0	3,167
	FERA	<u>10,256</u>	<u>0</u>	<u>10,256</u>
	Total	13,423	0	13,423
Eureka	FERA	6,685	0	6,685
Fairburn	FERA	2,393	0	2,392
	FAAP	<u>5,858</u>	<u>5,385</u>	<u>11,243***</u>
	Total	8,250	5,385	13,634
Faith	FAAP	8,761	7,743	16,504
Faulkton	FAAP	9,521	8,419	17,940
Garretson	FERA	2,847	0	2,847
Gregory	FAAP	9,123	15,819	24,942
Harrold	FAAP	2,481	2,194	4,675
Hayes	FAAP	3,896	3,447	7,343

TABLE 2 (cont.)

<u>City</u>	<u>Federal Agency</u>	<u>Federal Funds</u>	<u>Sponsor Funds</u>	<u>Total Funds</u>
Herreid	FAAP	\$ 11,771	\$ 10,409	\$ 22,180
Hot Springs	CWA	3,486	0	3,486
	FERA	13,472	0	13,472
	WPA	3,646	0	3,646
	FAAP	106,629	94,256	200,885#
	Total	127,233	94,256	221,489
Huron	CWA	929	0	929
	FERA	10,298	0	10,298
	WPA	283,454	71,511	354,965
	FAAP	302,795	259,612	562,407
	Total	597,476	331,123	928,599
Ipswich	FERA	784	0	784
Isabel	FERA	374	0	374
	FAAP	5,466	4,829	10,295
	Total	5,840	4,829	10,669
Lemmon	CWA	4,520	0	4,520
	FERA	10,845	0	10,845
	FAAP	923	816	1,739
	Total	16,288	816	17,104
McIntosh	FAAP	13,682	12,100	25,782
Milbank	FAAP	18,859	16,667	35,526
Mitchell	CWA	270	0	270
	FERA	20,065	0	20,065
	WPA	49,349	50,850	100,199
	FAAP	963	851	1,814
	Total	70,647	51,701	122,348
Mobridge	CWA	13,209	0	13,209
	FERA	14,433	0	14,433
	FAAP	892	790	1,682
	Total	28,534	790	29,324
Hewell	FERA	911	0	911
	WPA	1,814	562	2,376
	Total	2,725	562	3,287
Pierre	CWA	3,876	0	3,876
	FERA	234	0	234
	WPA	8,805	1,613	10,418
	DLA	371,509	6,400##	377,909
	FAAP	54,434	40,026	94,460
	Total	438,858	48,039	486,897

TABLE 2 (cont.)

<u>City</u>	<u>Federal Agency</u>	<u>Federal Funds</u>	<u>Sponsor Funds</u>	<u>Total Funds</u>
Rapid City (AAF)	CWA	\$ 2,587	\$ 0	\$ 2,587
	FERA	15,469	0	15,469
	WPA	155,427	36,236	191,663
Rapid City, Municipal	FAAP	325,873	296,817	622,690
	Total	<u>499,356</u>	<u>333,042</u>	<u>832,308</u>
Redfield	CWA	518	0	518
	FERA	10,302	0	10,302
	Total	<u>10,820</u>	<u>0</u>	<u>10,820</u>
Sioux Falls	FERA	14,330	0	14,330
	WPA	265,191	129,467	394,658
	FAAP	<u>44,152</u>	29,939	<u>74,091</u>
	Total	<u>323,673</u>	<u>159,406</u>	<u>483,079</u>
Sisseton	FAAP	789	698	1,487
Spearfish	CWA	1,453	0	1,453
	FERA	11,747	0	11,747
	WPA	29,559	13,486	43,045
	FAAP	<u>31,883</u>	<u>28,172</u>	<u>60,055</u>
	Total	<u>74,642</u>	<u>41,658</u>	<u>116,300</u>
Timber Lake	FAAP	3,497	3,099	6,596
Wagner	CWA	784	0	784
	FERA	2,238	0	2,238
	FAAP	923	816	1,739
	Total	<u>3,945</u>	<u>816</u>	<u>4,761</u>
Wasta	FAAP	10,124	8,953	19,077
Watertown	CWA	14,463	0	14,463
	FERA	24,870	0	24,870
	WPA	126,980	33,410	160,390
	Total	<u>166,313</u>	<u>42,717</u>	<u>227,959</u>
Webster	FAAP	12,897	11,396	24,293
Winner	FERA	3,034	0	3,034
	FAAP	923	816	1,739
	Total	<u>3,957</u>	<u>816</u>	<u>4,773</u>

TABLE 2 (cont.)

<u>City</u>	<u>Federal Agency</u>	<u>Federal Funds</u>	<u>Sponsor Funds</u>	<u>Total Funds</u>
Yankton	FERA	\$ 11,791	\$ 0	\$ 11,791
	FAAP	802	710	1,512
	Total	12,593	710	13,303
State Wide Expenditures	WPA	31,077	0	31,077
Grand Total		\$3,417,391	\$1,614,179	\$5,031,570

\*Office of Airports, Department of Commerce, Civil Aeronautics Administration, Washington, D. C., March 4, 1954.

This list of airports in South Dakota gives the expenditures on these airports by non-military federal agencies and local sponsors. It does not include all the expenditures made for airport construction or improvement or for the purchase of the original tracts of land, nor does the list include the funds spent by the municipality at various periods when federal funds were not available.

The Federal agencies participating in this work between 1933 and 1952 were as follows:

Civil Works Administration (CWA), 1934-1937.  
 Federal Emergency Relief Agency (FERA), 1934.  
 Works Progress Administration and Works Project Administration (WPA), 1934-1942.  
 Development of Landing Areas for National Defense (DLA), 1934-1942.  
 Federal-aid Airport Program (FAAP), 1946-1952.

\*On defense projects, the sponsor was required to purchase additional land when the airport was not of sufficient size for landing military aircraft. The City of Aberdeen purchased 282.6 acres of land for \$19,401.00 in 1942 for this purpose.

\*\*The City of Brookings purchased a plot of land and built a new airport with the FAAP and local funds.

\*\*\*The Fairburn Airstrip is located at Custer State Park.

#FAAP and local funds were used to establish the new Municipal Airport at Hot Springs.

##The City of Pierre purchased 640 acres of land for \$6,400.00 during the Second World War, and built the modern airport. DLA funds were obtained for this purpose.

## APPENDIX C

NUMBER OF AIRCRAFT AND PILOTS LICENSED IN SOUTH DAKOTA  
1927-1955

<u>Year</u>	<u>Civil Aircraft</u>	<u>Gliders</u>	<u>Pilots Licensed</u>
1927	n.a.	0	9
1929	53	0	66
1930	54	9	n.a.
1933	77	10	119
1934	77	4	98
1937	73	0	70
1938	70	0	86
1939	69	0	116
1940	78	0	215
1941	103	0	578
1942	117	0	729*
1943	141	0	828
1944	78	0	892
1945	141	0	941
1946	340	0	912
1947	585	0	n.a.
1948	761	0	1113
1949	536	0	724
1950	811	0	1109
1951	762	0	1017
1952	800	0	972
1953	800	0	989
1955	838	0	1123

Source: \*See Bibliography: Special Report, Office of Aviation Information, Civil Aeronautics Administration, June 1, 1954, Washington, D. C. Aircraft Year Book, 1928-1931. Annual Reports, South Dakota Aeronautics Commission. Sioux Falls Argus-Leader, April 27, 1933, and April 12, 1934.

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# ELKTON RECORD.

ELKTON, BROOKINGS COUNTY, S. D., FEB. 28, 1902.

Number 46.

## Prospectus of the Northwestern Aerial Navigation Company.



### To the Public:

This Company was incorporated under the laws of the State of South Dakota on the 7th day of January, A. D., 1902. The purpose of the organization as stated in the Articles of Incorporation, "Is to exploit a certain patent, issued at the patent office of the United States, to Henry Heintz, dated April 20th, 1897, and numbered 580941, upon a certain Air Ship, and to manufacture and operate air ships built in accordance with the plans and specifications set forth in said patent, and other air ships, balloons and vessels intended for aerial navigation and the transportation of passengers and goods; and the manufacture and operation of such machinery as may be useful and adapted for the operation of such air ships, balloons and vessels."

The Company now is the owner of the patent of Henry Heintz above mentioned, which has been practically tested and demonstrated to be capable of successfully navigating the air.

Many improvements have been made upon the idea of the original inventor by himself and others, all of which have been covered by patents and caveats, now the property of this Company.

#### DESCRIPTION OF THE INVENTION.

The Original Patent issued to Mr. Heintz, together with the improvements thereon above referred to consists:

1—Of a gas tank or balloon which is a cigar shaped body divided into eight compartments, each of which is independent of the others, and constructed in such a manner that an accident to one compartment would leave the efficiency of the others unimpaired.

Each compartment is under complete control of the engineer, and each possesses a safety valve and a gauge located in the engine room showing the intensity of pressure which it sustains, thereby enabling the engineer to regulate the buoyancy or lifting power of the balloon under all conditions of the atmospheric pressure.

It is calculated that the balloon above described will be capable of nearly lifting the air ship and cargo which are attached to it without the aid of the lifting and propelling machinery hereinafter mentioned.

2—Depending from the balloon is a car in which are located state-rooms for passengers, storage room for goods to be transported and space for all machinery used in the operation of the air ship. Within the car is located a motor of sufficient capacity to drive all machinery connected with it.

At the stern of the ship are attached two propellers acting upon the same principle as the propellers of an ordinary steamship, and are capable of driving the machine either forward or backward at any rate of speed desired.

The motor is also connected with a shaft upon which revolve three large double belts to each of which are attached a set of four parachutes. These belts revolve in the open air between the balloon and the car.

The parachutes have a lifting capacity, when run at a proper rate of speed, which can be controlled by the engineer or motorman at will, by a simple contrivance sufficient to lift the ship and cargo to any height desired independent of the balloon.

The car is also supplied with two plates attached pivotally to either side. These plates operate as wings, and by use of a lever controlling them the floating capacity of the ship can be increased.

A uniform altitude can be maintained, and a gradual ascent or descent accomplished, without assistance from the other parts of the machine. The rudder, which is situated in the bow of the ship, is so constructed that the direction of motion can be changed instantly and the ship turned in mid-air without diminution of speed.

Many eminent and scientific authorities have examined and considered the features which characterize this invention as unique in the history of experiment in aerial navigation, and have invariably expressed surprise and admiration at the practicability of design, the simplicity of detail and the completeness with which every possible contingency has been provided for in the conception of this machine.

Relying upon the opinion of experts, and upon the reasonableness

For the reasons above stated we confidently represent to the public, that an investor in the shares of this Company not only is assisting in completing an experiment upon which the future welfare of the world is concerned, but is at the same time, making a financial investment more promising than thousands of others in which people are freely placing their money.

The affairs of the Company are now in the hands of a Board of Directors named in the original Articles of Incorporation on file in the office of the Secretary of State, at Pierre, South Dakota. The term of office of these Directors will expire on the second Tuesday in June, 1902. At that time a full board of directors and all other officers of the Company will be chosen by the stockholders. Consequently every purchaser of stock will have an opportunity to be heard, and a right to inquire into and direct the concerns of the Company, and to know that his money is being properly applied to the purposes for which he subscribed the same.

All officers handling funds, under the Articles of Incorporation and the laws of the State of South Dakota under which the Company is incorporated, are placed under heavy bonds for faithful performance of their duties.

For the reasons stated, the Directors believe that they are offering to the public an opportunity for investment in any amount suitable to the means or inclinations of the investor, superior to any other offered upon the stock market at the present time.

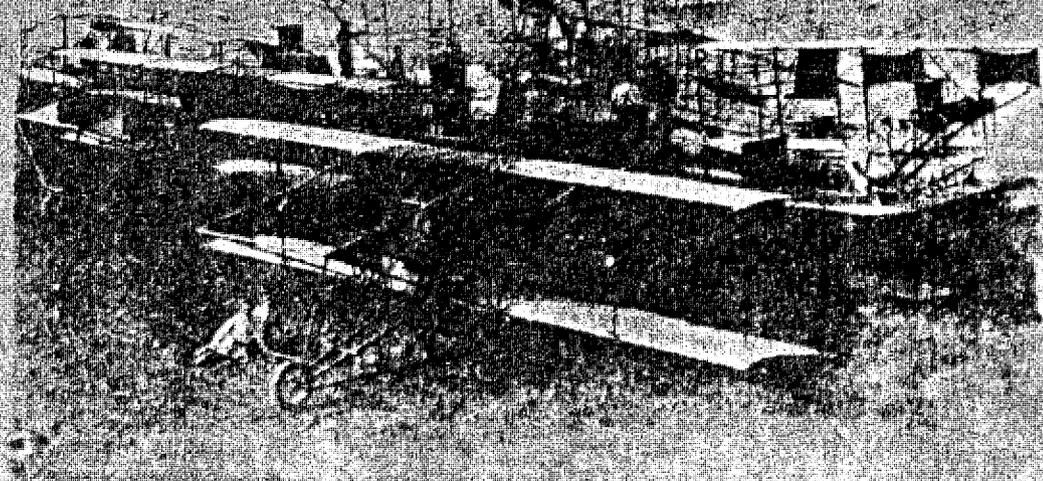
Proposals for subscription of stock may be forwarded to M. E. Donohoe, Secretary, Elkton, South Dakota, and will receive prompt attention. All remittances should be made by draft or postoffice order payable to M. E. Donohoe, Secretary, and their receipt will be immediately acknowledged and Certificates of Stock promptly forwarded to the sender. Copies of By-laws of the Company will be furnished upon application.

March 1st, 1902. Respectfully submitted,

HENRY HEINTZ, President.

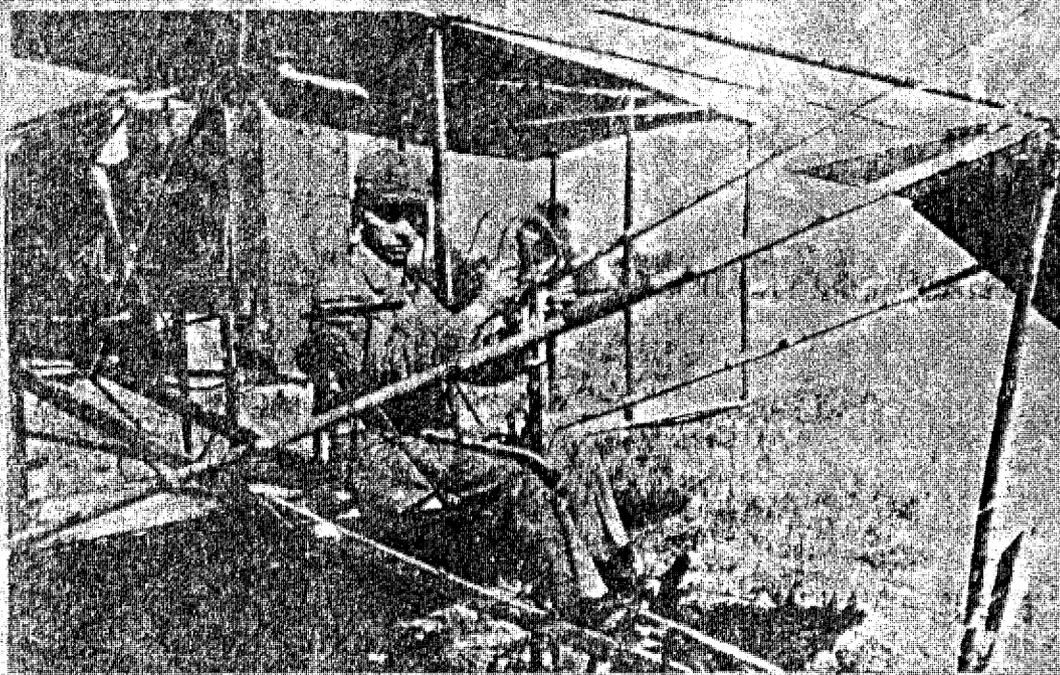
M. E. DONOHOE, Secretary.

Henry Heintz of Elkton, was interested in aerodynamics as early as 1897.



The famous Curtis Aviation School, Waukegan, Ill., was the first flying school established in the United States. Three of the planes on exhibit here were exhibited with their wings.

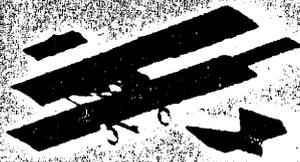
through the courtesy of Saxe P. Curtis, Rapid City, South Dakota.



Art Robinson, famous exhibition flier, sits inside the early Curtis model biplane / 13. Plane is the true veritable "pusher".

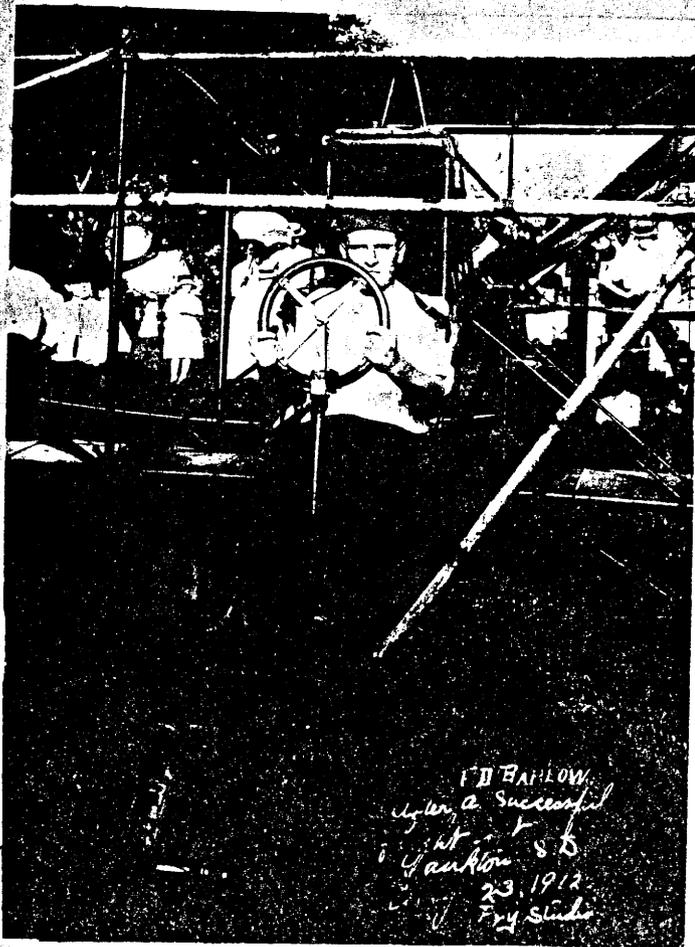


Hugh Robinson at Rapid City in 1911. Note the circus tent in background.



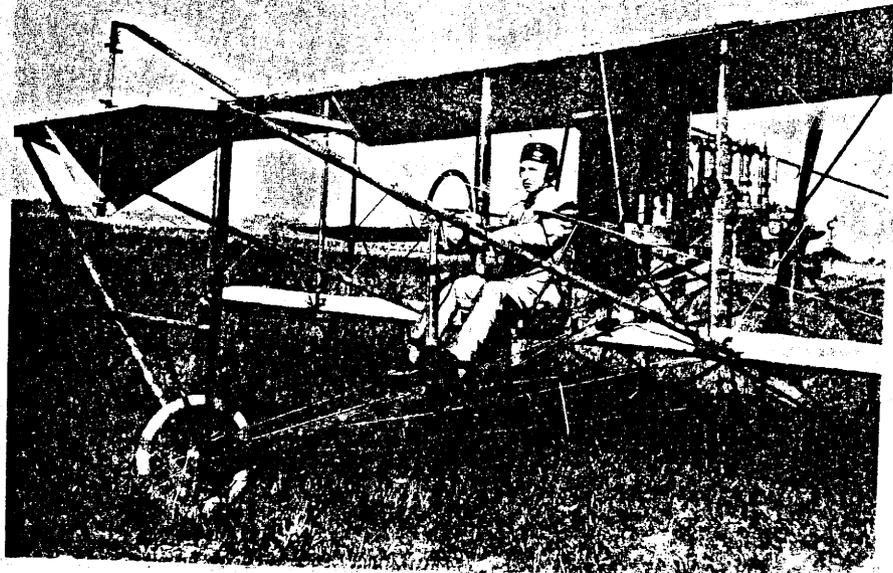
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The first airplane flight ever made in South Dakota. Hugh Robinson was the pilot.

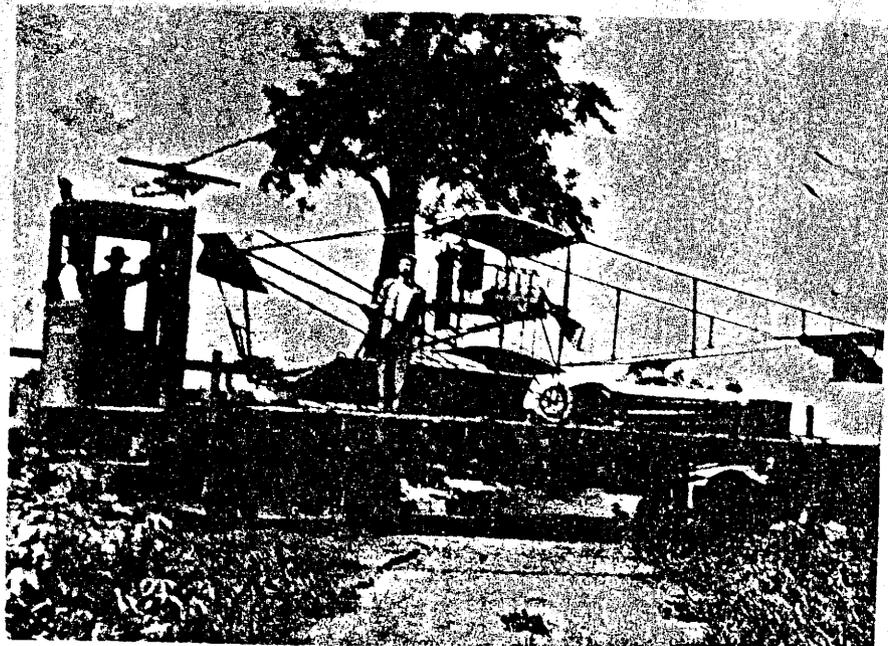


Floyd D. Barlow at Yankton in 1912. He was connected with the Curtiss Exhibition Company at the time.

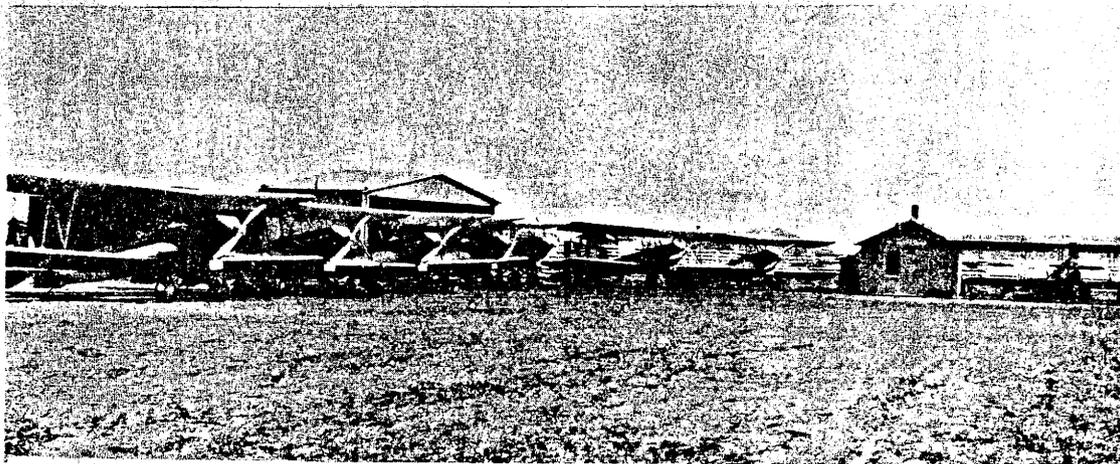
*F D BARLOW  
 after a successful  
 flight at  
 Yankton S D  
 23, 1912  
 Fry Studio*



Saxe P. Gantz and the biplane he assembled while taking flight instruction at St. Louis, Missouri. The power unit was a fifty horse power, four cylinder Roberts engine. Fashioned after the Curtiss, the aileron was located between the wings on either side of the pilot.



Gantz with his biplane aboard an interurban flatcar near St. Louis. During this period, planes were carried to the exhibition site by rail.



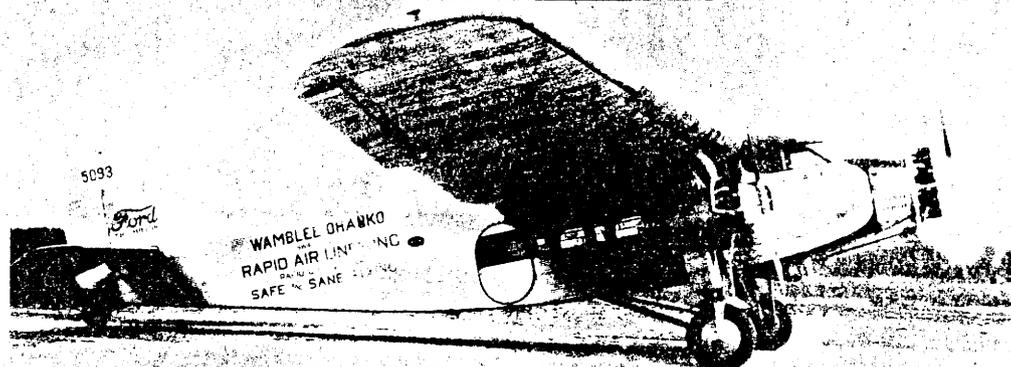
Rapid Airlines Airport as it appeared in 1927. Fourteen pilots were seated in front of the eight Eagle Rock planes.



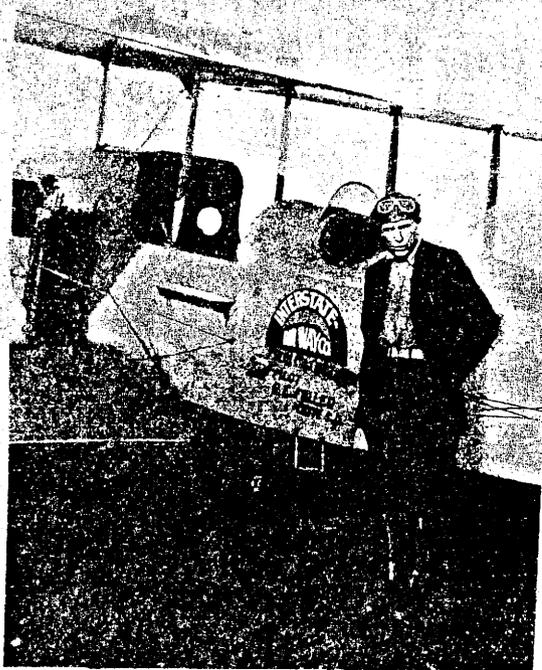
George Ica and Clyde W. Ica pictured with the Ford tri-motor in 1929.



Captain Russell Halley and Lt. Walter Halley in 1918 at the 7th Air Training center in France. They formed Rapid Airlines in 1926.



The Ford tri-motor purchased by Rapid Airlines in 1929.



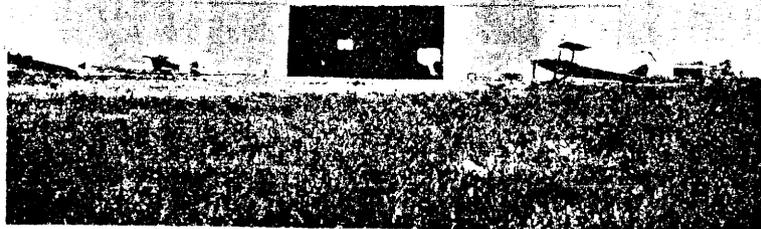
Ray Fuller with a 1926 model five passenger Lincoln-Standard owned by the Interstate Airway Company of Sioux City.



Harold Tennant, famous Sioux Falls aviator and the Lincoln Standard he piloted for the Interstate Airway Company.

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Banner field built in 1927 by Sioux Falls citizens in preparation for the Lindburgh visit.



The Tennant Aerial Circus preparing for exhibition flights at Yankton in 1929.



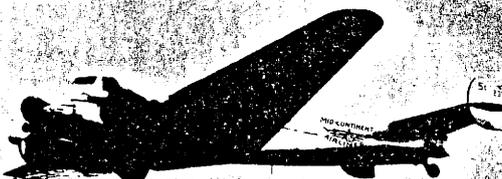
The original hangar and the original fleet of Hanford's Tri-State Airlines located at Blackdasher Airport, Stevens, South Dakota, in 1928. The cast-iron hangar was considered the most up-to-date of that era. The aircraft, left to right, are: American Eagle, American Eagle, Travelair, Black Stearman, Red Stearman, Aero Sport, and Ryan B-1.

through the courtesy of  
BRANIFF INTERNATIONAL AIRWAYS



Picture above is the Inauguration Ceremony prior to the First Air Mail delivered from Minneapolis, Minnesota to Huron, South Dakota, by Hanford's Tri-State Airlines, in June 1929. The plane shown here is a single-engine Lockheed Vega.

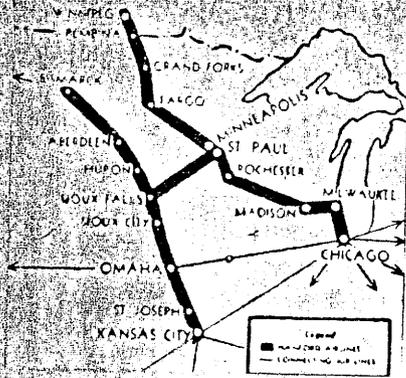
through the courtesy of  
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The above plane, a Lockheed Vega, was "the first Aero Mail passenger comfort" in 1929. The new company, Mid-continent Airlines, was the first to operate a "mail" service.

The technical progress of Mid-continent Airlines, 1928-1939.

# HANFORD AIRLINES



In 1934, Hanford served "this great valley".

Table One

SOUTHBOUND (Read Down)		Via HANFORD AIRLINES		NORTHBOUND (Read Up)	
Trip 1 Daily	Miles			Trip 2 Daily	
2:40	0	Lv. St. Paul (CT) Ar.	11:30		
3:00	8	Lv. Minneapolis Ar.	11:12		
4:46	207	Ar. Sioux Falls Lv.	9:25		
5:00	207	Lv. Sioux Falls Ar.	9:12		
5:50	276	Lv. Sioux City Lv.	8:35		
6:40	367	Ar. Omaha Lv.	7:30		
Trip 5	Trip 7			Trip 8	Trip 6
6:45	7:05	367	Lv. Omaha Ar.	6:00	11:55
8:15	8:35	532	Ar. Kansas City Lv.	4:30	10:25
A. M.	P. M.			A. M.	P. M.

Table Two

SOUTHBOUND (Read Down)		Via HANFORD AIRLINES		NORTHBOUND (Read Up)	
Trips 1-3	Miles			Trips 4-2	
1:55	0	Lv. Bismarck (CT) Ar.	12:10		
1:15	145	Lv. Aberdeen Lv.	11:05		
4:00	220	Lv. Huron Lv.	10:20		
4:46	215	Ar. Sioux Falls Ar.	9:25		
5:00	315	Lv. Sioux Falls Ar.	9:12		
5:50	384	Lv. Sioux City Lv.	8:35		
6:40	475	Ar. Omaha Lv.	7:30		
Trip 5	Trip 7			Trip 8	Trip 6
8:45	7:05	475	Lv. Omaha Ar.	6:00	11:55
8:15	8:35	640	Ar. Kansas City Lv.	4:30	10:25
A. M.	P. M.			A. M.	P. M.

M. Time in LIGHT Face Type. P. M. Time in DARK Face Type.  
Equipment: B. Single Engine Plane. Touchdown Vega Flares.

Hanford Airlines schedule as in effect April 1, 1936.



Art Hanford Jr.



Arthur S. Hanford



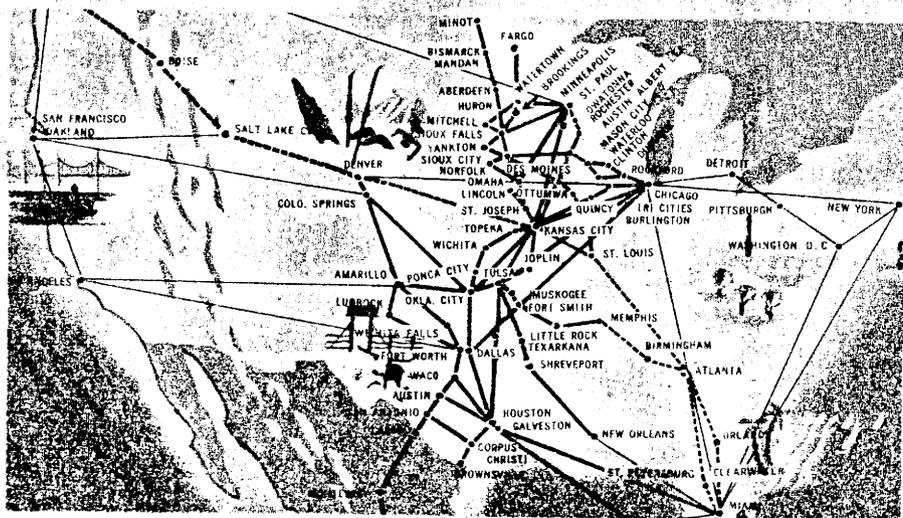
Thomas F. Ryan



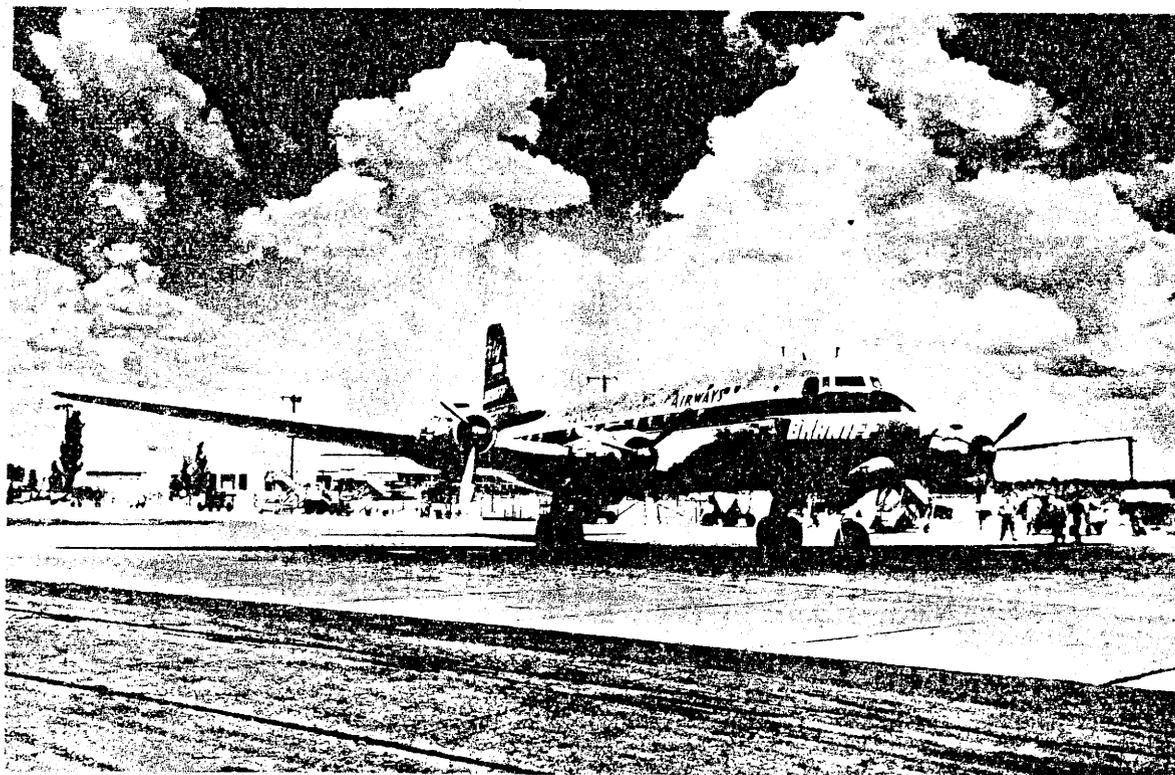
Tom Braniff



J. W. Miller

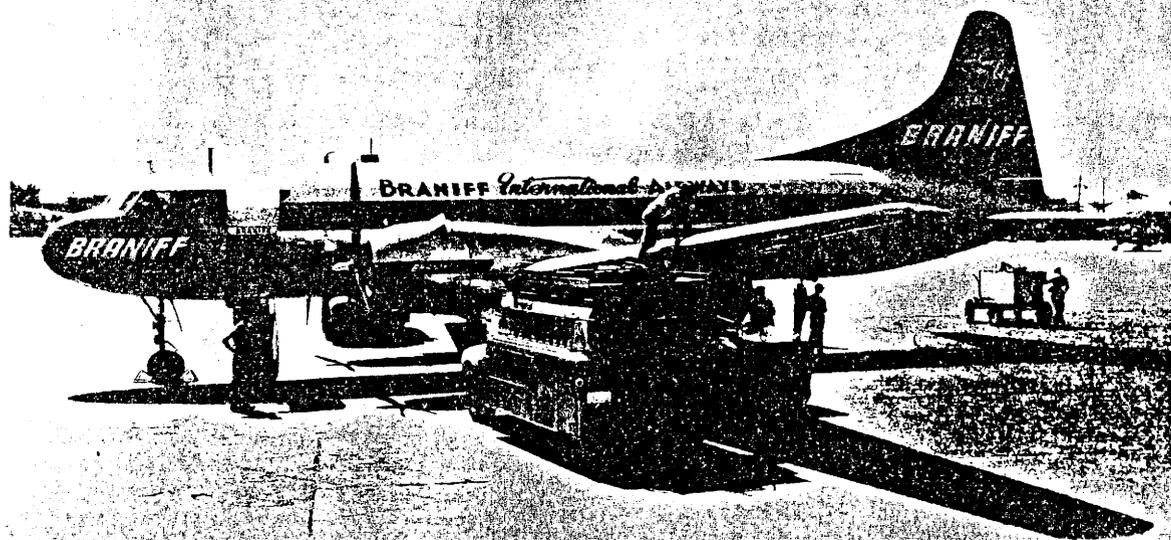


Consolidation gave Braniff control of the Mid-Continent air routes.

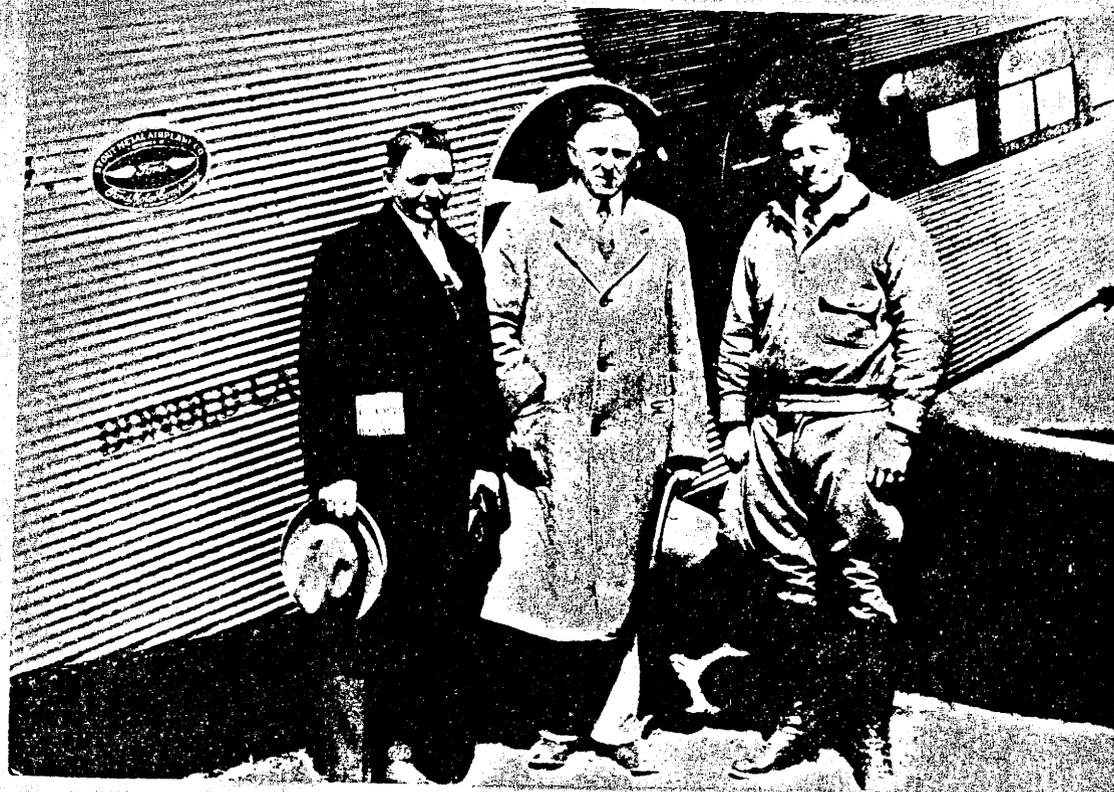


Passengers at Mid-Century enjoy the comfort of the DC-6 pictured above and the Convair 340 shown below. The DC-6 was developed from the DC-3 "work horse" of the Air Transport Industry.

through the courtesy of  
BRANIFF INTERNATIONAL AIRWAYS



...parts of progress in acolma...s.



Governor W. J. Bulow, center; Clyde W. Ice, right; and an unidentified stranger. The picture was taken during the Northwest Airways Rally in Huron on March 30, 1928.

