Harold E. Morehouse Flying Pioneers Biographies Collection - Boland
Brothers: Frank E., Joseph J. and James P.
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BOLAND BROTHERS
Early New Jersey Aviation Pioneers

FRANK E. BOLAND, Born Rahway, New Jersey 1875

JOSEPH J. BOLAND, Born Rahway, New Jersey Ma 27, 1879

JAMES P. BOLAND, Born Rahway, New Jersey 1882

The Boland Brothers pioneer aviation biographies should be recorded jointly because from the start they all worked together and their early accomplishments were made as a team.

They attended local schools and became talented and proficient athletes. Frank and Joseph were mechanically inclined and displayed an early interest in making things. James was more interested in selling and finance.

Their first venture was a bicycle repair shop where they also made some of their own design during the era when cycling was all the rage. Then they made a vehicle called the "Quadricycle", a three-wheel machine, two in front one in the rear, and Joseph made a motor for it to drive the rear wheel. From that they turned to motorcycles and made one that Glenn Curtiss came to Rahway to admire. During this period they raced bicycles and motorcycles to some extent, winning several contests.

In 1902 they owned one of the first Oldsmobile runabouts and by 1904 had opened a garage, which later became a sales agency. James showed the greatest
interest in the automobile business and subsequently became a dealer of Cadillac cars. Frank and Joseph became absorbed in the early development of aviation and by 1908 had built both a plane and an engine for it.

Particulars of this first plane are lacking but reportedly it was a monoplane. When completed they started taxiing and grass cutting practice in a field near Iselin, New Jersey and later that year both had succeeded in making brief straightaway hops with this machine.

The Aeronautical Society was formed in New York City in July, 1908 by a group of aeronautical enthusiasts interested in the art of aviation and Frank became one of the original members in an effort to further his knowledge of the new science through this association.

The brothers continued their experiments at Rahway through 1909, evidently financed by the earnings from the garage. Frank became the plane and parts designer and soon became the one most interested in flying. Joseph developed into the mechanical genius of the group in making parts and engines for their planes, and James turned more to the managing and financing of their experiments. There is evidence that there were more than one plane built during this period and they were developing a new system of control that would not infringe on the Wright Brothers patents.

About this time Joseph was also working on an 8 cylinder, Vee-type, water-cooled 60 H.P. engine. This had a 4 inch bore and 4 inch stroke with individual brass jacketed cast iron cylinders with concentric valves in the head, the exhaust being mechanically operated, the intake automatic. When completed it weighed 240 pounds and proved to be a very rugged, dependable engine which was used for some time in their flying experiments.

In November, 1909 the Aeronautical Society held a public exposition of their various aviation experiments at Morris Park in New York City, and Frank was chosen as one of the judges to rate the exhibits. That year several members of the Society built and were experimenting with varying types of aircraft, the majority of which failed to show much promise of success. Apparently one of the best of the machines

Harold E. Morehouse Flying Pioneers Biographies Collection - Boland Brothers: Frank E., Joseph J. and James P. Transcribed and Reviewed by Digital Volunteers
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was a 40 foot span biplane using a 26 H.P. automobile engine, built by Dr. William Greene. After the exposition Dr. Greene was moving to Ohio and wished to sell this plane. As a result Frank bought the machine and took it to Rahway where the brothers removed the tail, installed their new system of steering and balancing, their own 8 cylinder engine and had the plane flying in January, 1910. It had a front elevator, undercarriage skids and a four wheel landing gear. By February they were carrying passengers and took out patents on their new control design. There was no rudder, no ailerons nor wing warping. Instead they used a triangular resistance-making surface, called a jib, at the outer end of the main plans between the wings. Each jib was pivoted on an oblique axis from the lower front strut to the upper rear strut and was movable inward, in one direction only. The operation was similar to that of steering an automobile. In turning, the steering wheel was rotated in the direction it was desired to go, the jib on that side pulled in and the plane banked and turned. To straighten out, the control was simply returned to neutral. Lateral control was obtained by presenting the jib on the high side at a negative angle as in steering. During 1910 the brothers continued flying, altering and improving the plane and engine and formulating future plans. There is evidence that operations may have been moved from Rahway to a field known as Kuhnerts Aerodrome at Hackensack, New Jersey during this period. Financing this work was a continual problem and materially limited the rate of progress. Operations moved to Mineola, Long Island during the early summer of 1911 where Frank was flying actively on further development tests through the fall months, still using the tailless biplane with the 8 cylinder engine. There they were using the Aeronautical Society shed where, during the winter months of 1911-1912 they built two more planes, one with a 4 cylinder engine for training use. During the spring of 1912 Frank taught at least two students at Mineola, Horace Kimmerle and Charles Hoeflich, and by early July Hoeflich was flying a Boland machine at Hackensack, New Jersey. On August 31st Frank was flying a new tailless, with 8
cylinder engine at Rahway, and on September 6th he made a cross-
country flight of 22 miles with this machine from Linden, New Jersey.
This new plane was called the "Bluebird". That fall the brothers started
advertising the planes and engines of the Boland Aeroplane and Motor
Company, Rahway, with shop facilities in Marion, New Jersey.
Apparently at this time Frank and Joseph had abandoned all former
occupations to devote full time to aviation.

On September 18th Frank, Joseph and Charles Hoeflich sailed for
Caracas, South America with planes and mechanics to give a series of
exhibition and demonstration flights during the late fall and winter
months in several South American cities. Evidently a Mr. Fausto
Rodriguez acted as their interpreter and flight promotor on this
expedition. Frank and Hoeflich started operations by making several
flights at Caracas, Venezuela on October 6th. After their engagement
there they made flights at Valencia, Puerto Cabello and Maracaibo
where Frank was given a silver cup for a flight over a range of the Andes
Mountains. After considerable flying in Venezuela the troupe moved to
Trinidad.

Their first public exhibition there was scheduled at Port of Spain on
January 25th, 1913, however Frank agreed to give a special
demonstration for the Governor on the 23rd because he did not expect to
be able to attend the later exhibition. This special flight was made
during the evening at Queens Park. As he was coming in to land after
completing the flight the plane suddenly dived and hit the ground as he
made a sharp bank to avoid a tree. Frank was thrown clear of the
machine, breaking several ribs, one of which punctured his heart
causing instant death, at age 38. This tragic accident terminated the
South American tour and was a crushing blow to the Boland Aviation
program, but it was announced at once that all plans for the 1913
season would be continued as scheduled. Up until that time Frank had
never had a serious mishap.

The company exhibited a plane and engine at the Motor Boat Show,
held in Madison Square Garden in New York in February, and they
planned to move their shop from Marion into better facilities in Newark
on March 1st. Joseph apparently took over control after Frank's death
to go on with the venture, and not long after that
Frank's share in the business was offered for sale. In April the company announced their latest machine, a 35 foot span, pusher biplane, of the type taken to South America. At this time Joseph also advertised an air speed registering device on which the brothers had been working for some time. While Joseph had done some flying, he was still more interested in the development and manufacturing part of the business, so at this time their former students Horace Kimmerle and Charles Hoeflich were flying for the company.

That summer Joseph began work on a flying boat, and in November pioneer aviator Leonard Bonney did some test flying of this new machine, then in December the renowned Charles K. Hamilton also did some flying for Joseph, first on land planes then in early January, 1914 he conducted further flight tests of the flying boat on Newark Bay.

Apparently at this time company reorganization proceedings were in progress, for in March it was announced that the newly formed Aeromarine Plane and Motor Company of Avondale, New Jersey had taken over the exclusive manufacturing rights of Boland planes and engines under Boland patents. At the head of this new firm was Inglis M. Uppercu, of New York City, who was Eastern Distributor of Cadillac motor cars. Joseph and James Boland were evidently retained in the new organization.

A more desirable factory was acquired at Nutley, New Jersey, and at about this same time another new Boland flying boat was announced, using a new 8 cylinder, 70 H.P. engine. This was a good looking pusher biplane, amphibian type machine, with a mechanically-operated retractable landing gear for beaching and alighting on land. This was undoubtedly one of the first retractable landing gear applications on aircraft. This plane was designed by Joseph, and reportedly he did his last flying during its tests. The new firm also announced engines of 60, 70, and 100 H.P. were available.

In August Aeromarine announced that the well known engine manufacturer, Charles B. Kirkham, of Savona, New York, was a member of the Aeromarine staff and that the company was preparing to manufacture the former line of Kirkham aviation engines. Nothing of note appears to have developed from this and by April, 1915 Kirkham had
left Aeromarine and was working for the Curtiss Company.

In June, 1915 a new 100 H.P. 6 cylinder geared Aeromarine engine was announced, weighing 435 pounds, resembling the former Kirkham engines in many respects, while Aeromarine advertised New York offices in the Times Building. In November Mr. Uppercu engaged pioneer Long Island aviator and plane manufacturer Albert Heinrich to design and supervise the construction of a new twin-engine military type bombing plane at the Nutley, New Jersey shop, using two of the new Aeromarine 6 cylinder engines. For this project the Atlantic Aircraft Company was formed, jointly owned by Uppercu and Heinrich.

In January, 1916 the Aeromarine 100 H.P. engine had passed Government tests in Great Britain and tests were in progress in France. In mid-February the Atlantic Aircraft Company exhibited the new twin-engine bomber at the Newark Automobile Show, following which it was taken to Hempstead, Long Island for flight tests, which proved highly satisfactory. Heinrich wanted to get the Government interested in this plane but Uppercu objected to this which resulted in Heinrich resigning from the project, to take the plane developments over himself.

In March Aeromarine purchased 50 acres of land at Keyport, New Jersey as part of a move to provide additional facilities. In October the famous pioneer-engineer Charles Willard joined Aeromarine at Keyport on engineering and development work. For a time that year Joseph was at the Plattsburg, New York military training camp. Meanwhile, James had developed a growing Cadillac automobile agency in Rahway.

In February, 1917 Aeromarine exhibited a new twin-float tractor biplane trainer with 70 H.P. 6 cylinder engine at the Pan American Aeronautic Exposition in Grand Central Palace, New York City. Two engines were also shown, a 6 cylinder and their new 12 cylinder Vee. That month the company also announced an all new 8 cylinder Vee-type, 100 H.P. engine, weighing 450 pounds.

Joseph remained in the Aeromarine organization through World War I, where he assisted in engine and plane developments, mainly on seaplanes for the United States Navy. As is well known, the Aeromarine Company became of the leading producers of military aircraft during World War I and built many outstanding types of both
land and water machines. The factory at Keyport grew into quite a complex employing over 1,400 people.

After the World War I Armistice the Company completed the last of their military contracts and converted 125 DH4 Government owned planes to DH-4B models. They also started design and development of two flying boats for commercial use, once a 3-passenger biplane type for sport, and the other a larger twin-engined cabin type for passenger carrying. Also brought out were two new engines, first the Type L-130, 150 H.P. 6 cylinder water cooled unit of aluminum block construction, weighing 375 pounds, them later an 8 cylinder 60° Vee water-cooled model, U-8-D, rated at 210 H.P., weighing 544 pounds. Both models were the same bore and stroke and used many of the same parts, and were of an aluminum block construction. Joseph was in charge of the Motor Department at the time.

Aeromarine later made some large all-metal hull flying boats using Liberty engines, width which company pilot C. J. Zimmerman made many notable long distance record flights. The company appears to have passed out of the aviation picture during 1925.

At the very last of his work at Aeromarine Joseph designed and built a small 45 H.P. 3 cylinder radial-type aircooled engine, known as the AR-3. It was evidently used later in the Aeromarine-Klemm monoplane. Following this Joseph took over the AR-3 and formed the Lenape Aircraft and Motors, Inc. with a factory in Matawan, New Jersey, where he operated this small engine business for commercial aircraft until 1940. During this time he also developed 5 and 7 cylinder models of this same engine, producing 95 and 150 H.P. respectively.

In 1940 Joseph became engaged with the Godfrey Manufacturing Corporation, Brunswick, New Jersey, as an engineer, where he remained until retirement in 1949. Later, widowed, he made his home with his daughter, Mrs. Roger Scherff in Frederick, Maryland. There he passed away in September 10th, 1964, at age 85. He was a member of the Early Birds and the OX-5 club of America.

Joseph became a prominent and well-to-do automobile dealer and remained active in this business until 1955, living part of the time in Florida. He passed away
at Rahway on December 19th, 1967 at age 85.

There was a fourth brother, Alban, who became a famous athlete and track star, but he never joined the other brothers in any of their enterprises.

Flying Pioneers, the Boland brothers were certainly an extraordinary part of the early American aviation history. Frank, who apparently supplied the enthusiasm and drive for the start of their aviation venture and who engineered their first planes, then, self-taught, became a masterful aviator; Joseph, the mechanical genius who always found a way to make Frank’s ideas workable, and who undoubtedly became one of the leading aircraft design and development men of the early era, having reportedly made 21 different engines during his active career; and James, who, with his financial and management genius, definitely made the early work of Frank and Joseph possible. Together, they formed a complete unit with all the requirements of success. What a pity Frank was lost just when they were really beginning to grasp their first measure of hope. Had he lived it is difficult to conceive where their combined efforts would have led them. Their ventures and noteworthy accomplishments have never received just recognition, and the name Boland rightfully deserves a worthy place in aviation history.

Full credit is given to a niece, Mrs. J. Kenna, for her helpful assistance in preparing this biography and supplying photographs.
BOLAND BROTHERS
Early New Jersey Aviation Pioneers

FRANK E. BOLAND, Born Craigville, N.Y. July 4, 1873

JOSEPH J. BOLAND, Born Rahway, N.J. May 27, 1879

JAMES P. BOLAND, Born Rahway, N.J. August 20, 1882

The Boland Brothers pioneer aviation biographies should be recorded jointly because from the start they all worked together and their early accomplishments were made as a team.

They attended Franklin grade and Lincoln High schools in Rahway and became talented and proficient athletes. Frank and Joseph were mechanically inclined and displayed an early interest in making things. James was more interested in selling and finance.

As boys they acquired bicycles and grew up in the bike business, which they started seriously in 1888. Frank first learned to repair and adjust them, becoming quite proficient in service work, and soon neighborhood friends were bringing their bikes to the Boland home to be fixed. This developed into a small back yard business, and the brothers also became expert riders and raced bicycles, often winning local contests.

This bicycle business continued, then in 1893 Frank started to also learn
the carpenter trade. In 1896 Joseph began working for George M. Friese in his bicycle business, the brothers still maintaining their own back yard repair shop. After a short time Joseph quit to become associated with the American Felt Company and James took over his job with Friese.

At American Felt Joseph obtained valuable experience in the machinist and blacksmith trades, and after two years there he joined the Canda Manufacturing Company who were just starting in the automobile business. There he soon developed drafting talent, a trade he continued throughout his life. At this time he was also taking an I.C.S. Engineering course. Joseph assisted in the design and development of the Canda "Quadricycle", a 3-wheel vehicle, two in front, one in the rear, and he made a motor for it driving the rear wheel. This machine was exhibited at the New York Madison Square Garden Automobile Show in 1901 where Joseph became acquainted with Glenn Curtiss, who was exhibiting his motorcycles. As a result of the Show one hundred Quadricycles were built and sold to a New York department store. This vehicle was followed by a new Canda 4-wheel motor buggy powered by a single cylinder engine. As Joseph was working with Quadricycles he also began working on motorcycles, and soon the brothers made one that Glenn Curtiss came to Rahway to admire.

At the Boland home workshop customers began to come for service with motorcycles and automobiles and in 1902 the brothers owned one of the first Oldsmobile runabouts. By 1904 their home business was turning into a garage with continued calls for service on automobiles and motorcycles as well as bicycles. During 1904 they became the local Cadillac auto dealer, one of the first in the country.

About this time they tore down an old building and with this material built a new shop and garage on the rear of their parents property. It was a two story structure with their shop on the second floor and a service garage on the ground floor. Their new sign read: "BOLAND BROS. - BICYCLES, MOTORCYCLES AND AUTOS", to announce Rahway's newest industry.

James was soon kept busy running the business and taking care of the office details. This venture grew and eventually developed into a business that James operated very profitably for the rest of his lifetime. Soon wealthy people began
to bring their automobiles to the Boland shop for service and Joseph became the mechanical genius who could solve necessary problems. After a time Frank started an automobile agency of his own in Newark, New Jersey where he eventually became state dealer and distributor of National cars, while Joseph and James continued the growing successful Rahway business.

During 1907 Frank was the first of the brothers to become seriously interested in aviation, and that year he began to arrange his business affairs so he could devote some time to aeroplane experiments. He decided to try to build a plane and leased a garage building on Milton Avenue in Rahway, complete with power machinery, shop equipment and tools, where he started to work on a tandem monoplane with flexible wings and steel body. Without drawings and no previous knowledge, it was heavy and full of bad mistakes. Realizing he had tackled something he knew nothing about he abandoned the project before it was finished and started on a monoplane glider, using one of the wings, which continued into 1908. It was to be towed by and automobile, but diligent trials were unsuccessful.

Frank then started a tractor monoplane in 1908, for the first time using the notable Boland JIB control surfaces for lateral balance. By this time all three brothers were seriously interested in aviation. As 1907 ended Frank decided they would need to build their own engine suitable for flying before they could make much progress. Since Joseph had considerable experience in designing and building them he started work on the VEE-type 8-cylinder water-cooled aviation engine to develop 60 H.P. The specification planing for the engine was decided upon jointly late December, 1907.

Joseph built this first engine largely by and, which weighed 240 pounds and cost $2,100. With an aluminum crankcase and built-up crankshaft mounted on anti-friction bearings, it had 4-inch bore and 4-inch stroke, individual brass jacketed cast iron cylinders with concentric valves in the head, exhaust being mechanically operated, the intake automatic. The engine proved to be a very rugged, dependable unit and was used successfully on all early Boland aeroplane...
developments. Their automobile sales and service business continued to grow under James’ efficient management and supplied the financial means to carry on their aviation experiments.

Early in 1908 there was a growing interest in aviation throughout the general New York City area and Frank joined in this movement. As a result he became one of the founder members of the Aeronautical Society of New York in July of that year. The Society was compromised of aviation enthusiasts to discuss and encourage work on aeroplanes and related problems. They leased the grounds and sheds of the Morris Park Race Track where workshop facilities were provided, with an open space available for flight attempts. Many well known professional men became members and soon various types of machines were under construction, however the Bolands continued their own experiments at Rahway.

Frank completed the 1908 tractor monoplane late that fall, and with no suitable place to try to fly it decided to wait for nearly Milton Reservoir to freeze over so they could undertake tests on this ice. There was no ice that winter so the plan was never tried. Over the winter months, however, he made a biplane with a tri-plane front elevator and jib control. Without a place to conduct tests Frank leased a field near Iselin, New Jersey from a land owner named Correja, and a sheet metal hangar was built to house the plane. There during the spring months of 1909 both Frank and Joseph started taxiing and grass-cutting practice with the biplane, followed by diligent efforts to fly the machine, but were not successful. It is not known what engine was used in these tests.

About this time one of the active members of the Aeronautical Society, Wilbur R. Kimball, moved his operations to Linden, New Jersey and Frank helped him get established. Kimball was experimenting with a Helicopter powered by a 4-cylinder, 50 H.P 2-cycle Altham engine. That summer Charles Hoeflich started to work for Frank as a mechanic and later learned to fly. Through their automobile business the Boland brothers became acquainted with the New York Cadillac dealer, Inglish N. Uppercu, who became interested in their aviation experiments.

On November 3, 1909 the Aeronautical Society held their first public exhi-
biton of their various machines and Frank was chosen as one of the
judges to rate the exhibits. One of the best machines shown was a 40-
foot span biplane built by Dr. William Greene of New York. It had a 4-
wheel Farman-type landing gear, biplane front elevator and twin
rudders. Powered by a 4 cylinder 26 H.P. automobile engine, this plane
made brief successful hops.
After the event Dr. Greene was moving to Ohio and wished to sell the
plane, so Frank, Kimball and Uppercu bought the machine and moved it
to the Correja field in New Jersey. It was an easy matter to remove the
tail, add the Boland control jibs, after which Frank made some round
trials and was sure it would fly. He announced he was going to attempt a
flight and a crowd gathered. He took off, flew a short distance and
banged into a tree, but without much damage. On the second try he hit
the tree again. Next time Joseph went along to work the jibs, Frank the
elevator, and together they made a lengthy successful straight flight and
landed satisfactorily, making not only the first flight in New Jersey, but
with a passenger as well. This was in late November, 1909 and
photographs were made of the flight.
Very little more was done with the Boland-Greene machine that fall and
during the winter months Frank made many changes to his biplane with
the tri-plane front elevator, and installed the Boland Vee-8 engine. He
also built a new tailless biplane, called the "Blue" machine, which was
his first plane made from drawings. It was intended for production and
was changed very little in all the later Boland planes. The new Blue
machine was first powered by the 50 H.P. Altham 2-cycle engine
formerly used by Kimball in his helicopter.
During the early spring of 1910 Frank wrecked the Greene machine
when he hit a tree during a half mile flight. He was not injured but the
plane was so badly damaged that only the engine and some small parts
were salvaged, then the wreckage was burned. Following this Frank
started flying the Boland biplane and after two more minor smashups,
due to over controlling, began flying well, and also vastly improved the
plane that year. Joseph and Hoeflich soloed and did some flying, and
people began coming to see their flights. Later that year a

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few passengers were carried. Frank took out patents on their new method of control and in June they exhibited one of their 8-cylinder engines at the Newark Automobile Show in the Essex Armory.

During the spring of 1910 Frank, Joseph and Kimball organized the New Jersey Aeronautical Society to encourage local interest in aviation. Late in 1910 the nacelle was added to the Blue machine. Their unique jib control was non-infringing with the Wright Brothers patents and were very positive and simple. There was no rudder, no ailerons nor wing warping. Instead they used a triangular resistance-making surface, called a jib, at the outer end of the main planes between the wings. Each jib was pivoted on an oblique axis from the lower front strut to the upper rear strut and was movable inward, in one direction only. The operation was similar to that of steering an automobile. In turning, the steering wheel was rotated in the direction it was desired to go, the jib on that side pulled in and the plane banked and turned. To straighten out, the control was simply returned to neutral. Lateral control was obtained by presenting the jib on the high side at a negative angle as in steering. Two of their 8-cylinder engines were sold that year, the first one to Earle Remington of California and then one to Charles Lake of Bridgeport, Connecticut. Financing the work was a continual problem and materially limited their program.

Early in 1911 Frank gave up the Correja field due to rough ground and too many trees, and moved all material and equipment in their hangar to a shop in the Gordon Press Works, Rahway, and his flying operations to Mineola, Long Island, New York. Frank started to build four new ‘Bluebird’ biplanes in the Gordon Press Works shop and Joseph was working on six additional engines, one of which was a 4-cylinder model for school machine use. Several notables visited the brothers during 1911 to see what they were doing, among them Thomas A. Edison and Wilbur Wright who wanted to determine whether their jib control infringed Wright patents. He agreed it did not and praised their progressive original work. He stated that the tight turns by the Boland plane in flight were the smallest he had ever seen.

During the spring of 1912 Charles Hoeflich and Horace Kimmerle were flying
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for the Bolands, some of which was done at Mineola and some at Kihnet's Aerodrome, Hackensack, New Jersey. In mid-1912 they started advertising the Boland Aeroplane and Motor Company, Rahway, New Jersey in the major American aviation magazines. That summer Frank was preparing to start flying exhibitions to earn some revenue and engaged Fausto Rodriquez, a Spanish speaking flight promotor, to arrange a Central and South America tour of flying engagements for the fall and winter of 1912-1913.

As a result Frank, Hoeflich, three mechanics, planes and equipment sailed for Caracas, South America on September 18th, 1912 to give a series of pre-arranged exhibition and demonstration flights during the late fall and winter months in several cities. Rodriguez acted as their advance man and interpreter, having arranged for flights in Venezuela, Colombia, Costa Rica and Trinidad. Frank and Hoeflich started operations by making several flights at Caracas, Venezuela on October 6th. After the engagement there they made flights at Valencia, Puerto Cabello and Maracaibo where Frank was given a silver cup for a flight over a range of the Andes Mountains. After considerable flying in Venezuela the troupe moved to Trinidad.

Their first public exhibition there was scheduled at Port of Spain on January 25th, 1913, however Frank agreed to give a special demonstration for the Governor on the 23d because he did not expect to be able to attend the later exhibition. This special flight was made during the evening at Queens Park. As he was coming in to land after completing the flight the plane suddenly dived and hit the ground as he made a sharp bank to avoid a tree. Frank was thrown clear of the machine, breaking several ribs, one of which punctured his heart causing instant death, at age 38. He was survived by his wife, two daughters, mother, sister and brothers. Burial was in St. Gertrudes Cemetery, Rahway. This tragic accident terminated the South American tour and was a crushing blow to the Boland aviation program, but it was announced at once that all plans for the 1913 season would be continued as scheduled. Up until that time Frank had never had a serious mishap.

The company exhibited a plane and engine at the Motor Boat Show, held in
Madison Square Garden in New York in February, and they planned to move their shop from Marion into better facilities in Newark on March 1st. Joseph apparently took over control of Frank's death to go on with the venture, and not long after that Frank's share in the business was offered for sale. In April the company announced their latest machine, a 36-foot span, pusher biplane, of the type taken to South America. At this time Joseph also advertised an air speed registering device on which the brothers had been working for some time. While Joseph had done some flying, he was still more interested in the development and manufacturing part of the business, so at this time their former students Horace Kimmerle and Charles Hoeflich were flying for the company. That summer Joseph began work on a flying boat, and in November pioneer aviator Leonard Bonney did some test flying of this new machine, then in December the renowned Charles K. Hamilton also did some flying for Joseph, first on land planes then in early January, 1914 he conducted further flight tests of the flying boat on Newark Bay. Apparently at this time company reorganization proceedings were in process, for in March it was announced that the newly formed Aeromarine Plane and Motor Company of Avondale, New Jersey had taken over the exclusive manufacturing rights of Boland planes and engines under Boland patents. Heading the new firm was Inglis M. Uppercue of New York while Joseph and James Boland were evidently retained in the new organization. A more desirable factory was acquired at Nutley, New Jersey, and at about this time another new Boland flying boat was announced, using a new 8-cylinder, 70 H.P. engine. This was a good looking pusher biplane, amphibian type machine, with a mechanically operated retractable landing gear for beaching and alighting on land. This was undoubtedly one of the first retractable landing gear applications on aircraft. This plane was designed by Joseph, and reportedly he did his last flying during its tests. The new firm also announced that engines of 60, 70, and 100 H.P. were available. In August Aeromarine reported that the well known engine manufacturer, Charles B. Kirkham, of Savona, New York was a member of the Aeromarine staff and that the company was preparing to manufacture the former line of Kirkham aviation engines.
Nothing of note appears to have developed from this and by April, 1915 Kirkham had left Aeromarine and was working for the Curtiss Company. In June, 1915 a new 100 H.P. 6-cylinder geared Aeromarine engine was announced, weighing 435 pounds, resembling the former Kirkham engines in many respects, while Aeromarine advertised New York offices in the Times Building. In November Mr. Uppercu engaged pioneer Long Island aviator and plane manufacturer Albert Heinrich to design and supervise the construction of a new twin-engine military type bombing plane at the Nutley, New Jersey shop, using two of the new Aeromarine 6-cylinder engines. For this project the Atlantic Aircraft Company was formed, jointly owned by Uppercu and Heinrich.

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Boland Brothers

Early New Jersey Aviation Pioneers

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<tr>
<th>Frank E. Boland</th>
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<td>July 4, 1873</td>
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They attended Franklin grade school and Lincoln High School in Rahway and became talented and proficient athletes. Frank and Joseph were mechanically inclined and displayed early interest in making things, while James was more interested in selling and finance.

As boys they acquired bicycles and grew up in the bike business, which they started seriously in 1888. Frank first learned to repair and adjust them, becoming quite proficient in service work, and soon neighborhood friends were bringing their bikes to the Boland home to be fixed. This developed into a small backyard business. The brothers also became expert riders and raced bicycles, often winning local contests.

This bicycle business continued, then in 1893 Frank began to learn the carpenter trade. In 1896 Joseph began working for George M. Friese in his bicycle business; the brothers continued operating their own backyard repair shop. After a short time Joseph quit to become associated with the American Felt Company and James took over his job with Friese.

At American Felt Joseph obtained valuable experience in the machinist and blacksmith trades, and after two years there he joined the Canda Manufacturing Company which was just starting in the automobile business. There he soon developed drafting talent, a trade he continued throughout his life. At this
time he was also taking I.C.S. Engineering course. Joseph assisted in the design and development of the Canda "Quadricycle," a 3-wheel vehicle, two in front, one in rear, and he made a motor for it which drove the rear wheel. This machine was exhibited at the New York Madison Square Garden Automobile Show in 1901. It was here that Joseph became acquainted with Glenn Curtiss, who was exhibiting his motorcycles. As a result of the Show one hundred Quadricycles were built and sold to a New York department store. This vehicle was followed by a new Canda 4-wheel motor buggy powered by a single cylinder engine. While Joseph was working with Quadricycles he also began working on motorcycles, and soon the brothers made one that Glenn Curtiss came to Rahway to admire.

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Frank then started a tractor monoplane in 1908, using for the first time the Boland JIB control surfaces for lateral balance. By this all three brothers were seriously interested in aviation. As 1907 ended Frank decided they would need to build their own engine suitable for flying before they could make much progress. Since Joseph had considerable experience in designing and building engines, he started work on a VEE-type 8-cylinder water-cooled aviation engine to develop 60 h.p. In late December, 1907, the brothers collaborated on writing the specifications for the engine.

Joseph built this first engine largely by hand; it weighed 240 pounds and cost $2,100. It had an aluminum crankcase and built-up crankshaft mounted on ant-friction bearings, a 4-inch bore and 4-inch stroke, and individual brass jacketed cast iron cylinders with concentric values in the head. The exhaust was mechanically operated and the intake was automatic. Fuel injection was tried on the first engine but was later changed to carburetion. The engine proved to be a very rugged, dependable unit and was used successfully on all early Boland airplane. Their automobile sales and service business continued to grow under James’ efficient management and supplied the financial means to carry on their aviation experiments.
Early in 1908, there was a growing interest in aviation throughout the general New York City area and Frank joined in this movement. As a result, in July of that year he became one of the founder members of the Aeronautical Society of New York. The Society was comprised of aviation enthusiasts to discuss and encourage aeroplanes airplane and related problems. They leased the grounds and sheds of the Morris Park Race Track where workshop facilities were provided, with an open space available for flight attempts. Many well-known professional men became member and soon various types of machines were under construction. The Bolands continued their own experiments at Rahway.

Frank completed the 1908 tractor monoplane that fall, and with no suitable place to try to fly it, he decided to wait for nearby Milton Reservoir to freeze over so they could undertake tests on the ice. There was no ice that winter so the plane was never tried. Over the winter months, however, he made a biplane with a triplane front elevator and jib control. Without a place to conduct tests, Frank leased a field near Iselin, New Jersey, from a land owner named Corrja, and a sheet metal hangar was built to house the plane. During the spring months of 1909, both Frank and Joseph starting taxiing and grass-cutting practice with the biplane, followed by diligent efforts to fly the machine, but they were not successful. It is not known what engine was used in these tests.

About this time one of the active members of the Aeronautical Society, Wilbur R. Kimball, moved his operations to Linden, New Jersey, and Frank helped him get established. Kimball was experimenting with a helicopter powered by a 4-cylinder, 50 h.p., 2-cycle Altham engine. That summer Charles Hoeflich started to work for Frank as a mechanic and later learned to fly. Through their automobile business the Boland brothers became acquainted with the New York Cadillac dealer, Inglis M. Uppercu, who became interested in their aviation experiments.

On November 3, 1909, the Aeronautical Society held the first public exhibition of their various machines and Frank was chosen as one of the judges to rate
the exhibits. One of the best machines shown was a 40-foot span biplane built by Dr. William Greene of New York. It had a 4-wheel Farman-type landing gear, biplane front elevator and twin rudders. Powered by a 4-cylinder, 26 h.p., automobile engine, this plane made brief successful hops.

After the event Dr. Greene was moving to Ohio and wished to sell the plane, so Frank, Kimball and Uppercu bought the machine and moved it to the Correja field in New Jersey. It was an easy matter to remove the tail, and add the Boland control jibs, after which Frank made some ground trials and was sure it would fly. He announced he was going to attempt a flight and a crowd gathered. He took off, flew a short distance and banged into a tree, but without much damage. On the second try he hit the tree again. Next time Joseph went along to work the jibs, Frank worked the elevator and together they made a lengthy successful flight and landed satisfactorily, making not only the first flight in New Jersey, but with a passenger as well. This was late November, 1909, and photographs were made of the flight.

Very little more was done with the Boland-Greene machine that fall and during the winter months Fran made many changes to his biplane with the triplane front elevator, and installed the Boland Vee-8 engine. He also built a new tailless biplane, called the "Blue" machine, which was his first plane made from drawings. It was intended for production and was changed very little in all the later Boland planes. The new Blue machine was first powered by the 50 h.p. Altham 2-cycle engine formerly used by Kimball in his helicopter.

During the early spring of 1910, Frank wrecked the Greene Machine when he hit a tree during a half-mile flight. He was not injured but the plane was so badly damaged that only the engine and some small parts were salvaged, then the wreckage was burned. Following this Frank started flying the Boland biplane and after two more minor smashups, due to over-controlling, began flying well. He also vastly improved the plane that year. Joseph and Hoefflich soloed and did

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some flying, and people began coming to see their flights. Later that year a few passengers were carried. Frank took out patents on their new method of control and in June they exhibited one of their 8-cylinder engines at the Newark Automobile Show in the Essex Armory.

During the spring of 1910, Frank, Joseph, and Kimball organized the New Jersey Aeronautical Society to encourage local interest in aviation. Late in 1910 the nacelle was added to the Blue machine. Their unique jib control did not infringe on the Wright Brothers patents and was very positive and simple. There was no rudder, no ailerons, and no wing warping. Instead they used a triangular resistance-making surface, called a jib, at the outer end of the main planes between the wings. Each jib was pivoted on an oblique axis from the lower front strut to the upper rear strut and was movable inward, in one direction only. The operation was similar to that of steering an automobile. In turning, the steering wheel was rotated in the direction it was desired to go, the jib on that side pulled in and the plane banked and turned. To straighten out, the control was simply returned to neutral. Lateral control was obtained by presenting the jib on the high side at a negative angle as in steering. Two of their 8-cylinder engines were sold that year, the first one to Earle Remington of California and then one to Charles Lake of Bridgeport, Connecticut. Financing the work was a continuing problem and materially limited their program.

Early in 1911, Frank gave up the Correja field due to rough ground and too many trees, and moved all the material and equipment in their hangar to a shop in the Gordon Press Works at Rahway, and his flying operations to Mineola, Long Island. Frank started to build four new “Bluebird” biplanes in the Gordon Press Works shop and Joseph was working on six additional engines, one of which was a 4-cylinder model for school machine use. Several notables visited the brothers during 1911 to see what they were doing. Among them were Thomas A. Edison and

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Wilbur Wright, who wanted to determine whether their jib control infringed Wright patents. He agreed it did not and praised their progressive original work. He stated that the tight turns by the Boland plane in flight were the smallest he had ever seen.

During the spring of 1912 Charles Hoeflich and Horace Kimmerle were flying for the Bolands, some of which was done at Mineola and some at Kihnert's Aerodrome, Hackensack, New Jersey. In mid 1912 they started advertising the Boland Aeroplane and Motor Company of Rahway, New Jersey, in major American aviation magazines. That summer Frank was preparing to start flying exhibitions to earn some revenue and engaged Fausto Rodriguez, a Spanish speaking flight promoter, to arrange a Central and South American tour of flying engagements for the fall and winter of 1912-1913.

As a result, Frank, Hoeflich, three mechanics, planes, and equipment sailed for Caracas, Venezuela, on September 18, 1912, to give a series of prearranged exhibition and demonstration flights during the late fall and winter months in several South American cities. Rodriguez acted as their advance man and interpreter, and arranged for flights in Venezuela, Colombia, Costa Rica and Trinidad. Frank and Hoeflich started operations by making several flights at Caracas, Venezuela, on October 6th. After the engagement there they made flights at Valencia, Puerto Cabello, and Maracaibo, where Frank was given a silver cup for a flight over a range over the Andes Mountains. After considerable flying in Venezuela, the troupe moved to Trinidad.

Their first public exhibition there was scheduled at Port of Spain on January 25, 1913, however Frank agreed to give a special demonstration for the Governor on the 23rd because he did not expect to be able to attend the later exhibition. This special flight was made during the evening at Queen's Park. As he was coming in to land after completing the flight, the plane suddenly dived and hit the ground as he made a sharp bank to avoid a tree. Frank was thrown clear of the machine, breaking several ribs, one of which punctured his
heart causing instant death, at age 38. He was survived by his wife, two
daughters, mother, sister and brothers. Burial was in St. Mary's
Cemetery, Rahway. This tragic accident terminated the South American
tour and was a crushing blow to the Boland aviation program, but it was
announced at once that all plans for the 1913 season would be
continued as scheduled. Until that time Frank had never had a serious
mishap.

The company exhibited a plane and engine at the Motor Boat Show,
held in Madison Square Garden in New York in February, and they
planned to move their shop from Marion to better facilities in Newark on
March 1st. To go on with the venture, Joseph apparently took over
control after Frank’s death and not long after that Frank’s share in the
business was offered a sale. In April the company announced their
latest machine, a 36-foot span, pusher biplane, of the type taken to
South America. At this time Joseph also advertised an airspeed
registering device which the brothers had been working on for some
time. While Joseph had done some flying, he was still more interested in
the development and manufacturing part of the business, so at this time
their former students Horace Kimmerle and Charles Hoeflich were flying
for the company.

That summer Joseph began work on a flying boat, and in November
pioneer[] aviator Leonard Bonney did some test flying of this new
machine; then in December the renowned Charles K. Hamilton also did
some flying for Joseph, first on land[()], planes then in early January,
1914, he conducted further flight tests of the flying boat on Newark Bay.

Apparently, company reorganization proceedings were in progress at
this time, for in March it was announced that the newly formed
Aeromarine Plane and Motor Company of Avondale, New Jersey, had
taken over the exclusive manufacturing rights of Boland planes and
engines under Boland patents. Heading the new firm[()] was Inglis M.
Uppercu of New York, while Joseph and James Boland were evidently
retained in the new organization. A more desirable factory was acquired
at Nutley, New Jersey, and at this time another new Boland flying boat
was announced, using a new-8 cylinder, 70 h.p. engine. This was good
looking pusher biplane,
amphibian type machine, with a mechanically operated retractable landing gear for beaching and alighting on land. This was undoubtedly one of the first retractable landing gear applications on aircraft. This plane was designed by Joseph, and reportedly he did his last flying during its tests. The new firm also announced that engines of 60, 70, and 100 h.p. were available.

In August, Aeromarine reported that the well-known engine manufacturer, Charles B. Kirkham, of Savona, New York, had become a member of the Aeromarine staff and that the company was preparing to manufacture the complete line of Kirkham aviation engines. Nothing of note appears to have developed from this and by April, 1915, Kirkman had left Aeromarine and was working for the Curtiss Company.

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During 1907, Frank was the first of the brothers to become seriously interested in aviation, and that year he began to arrange his business affairs so he could devote some time to aeroplane experiments. He decided to try to build a plane and leased a garage building on Milton Avenue in Rahway, complete with power machinery, shop equipment and tools, where he started to work on a tandem monoplane with flexible wings and steel body. Without drawings, and with no previous knowledge, the plane was heavy and full of bad mistakes. Realizing he had tackled something he knew nothing about, he abandoned the project before it was finished. He then started on a monoplane glider using one of the wing. This project continued into 1908. The glider was to be towed by an automobile, but repeated trials were unsuccessful.

Frank then started a tractor monoplane in 1908, using for the first time the Boland JIB control surfaces for lateral balance. By this time all three brothers were seriously interested in aviation. As 1907 ended Frank decided they would need to build their own engine suitable for flying before they could make much progress. Since Joseph had considerable experience in designing and building engines, he started work on a VEE-type, 8-cylinder, water-cooled aviation engine to develop 60 H.P. The brothers collaborated on writing the specifications for the engine, which was decided upon jointly in late December 1907.

Joseph built this first engine largely by hand; it weighed 240 pounds and cost $2,100. With it, the engine had an aluminum crankcase and built-up crankshaft mounted on antifriction bearings, a 4-inch bore and 4-inch stroke, and individual brass jacketed cast iron cylinders with concentric valves in the head. The exhaust was mechanically operated and the intake was automatic. Fuel injection was tried on the first engine but was later changed to carburation. The engine proved to be a very rugged, dependable unit and was used successfully on all early Boland aeroplanes.
Their automobile sales and service business continued to grow under James' efficient management and supplied the financial means to carry on their aviation experiments.

Early in 1908, there was a growing interest in aviation throughout the general New York City area and Frank joined in this movement. As a result, in July of that year, he became one of the founder members of the Aeronautical Society of New York. The society was comprised of aviation enthusiasts to discuss and encourage work on airplanes and related problems. They leased the grounds and sheds of the Morris Park Race Track where workshop facilities were provided, with an open space available for flight attempts. Many well known professional men became members and soon various types of machines were under construction. The Bolands continued their own experiments at Rahway.

Frank completed the 1908 tractor monoplane late that fall, and with no suitable place to try to fly it, he decided to wait for nearby Milton Reservoir to freeze over so they could undertake tests on the ice. There was no ice that winter so the plane was never tried. Over the winter months, however, he made a biplane with a tri-plane front elevator and jib control. Without a place to conduct tests Frank leased a field near Iselin, New Jersey, from a land owner name Correja, and a sheet metal hangar was built to house the plane. During the spring months of 1909, both Frank and Joseph started taxiing and grass-cutting practice with the biplane, followed by diligent efforts to fly the machine, but they were no successful. It is not known what engine was used in these tests.

About this time one of the active members of the Aeronautical Society, Wilbur R. Kimball, moved his operations to Linden, New Jersey, and Frank helped him get established. Kimball was experimenting with a Helicopter powered by a 4-cylinder, 50 H.P., 2-cycle Altham engine. That summer Charles Hoefflich started to work for Frank as a mechanic and later learned to fly. Through their automobile business the Boland brothers became acquainted with the New York Cadillac dealer, Inglis M. Uppercu, who became interested in their aviation experiments.

On November 3, 1909, the Aeronautical Society held the first public exhibition
bition of their various machines and Frank was chosen as one of the judges to rate the exhibits. One of the best machines shown was a 40-
foot span biplane built by Dr. William Greene of New York. It had a 4-
wheel Farman-type landing gear, biplane front elevator and twin
rudders. Powered by a 4 cylinder, 26 H.P., automobile engine, this plane
made brief successful hops.

After the event Dr. Greene was moving to Ohio and wished to sell the
plane, so Frank, Kimball and Uppercu bought the machine and moved it
to the Correja field in New Jersey. It was an easy matter to remove the
tail, and add the Boland control jibs, after which Frank made some
ground trials and was sure it would fly. He announced he was going to
attempt a flight and a crowd gathered. He took off, flew a short distance
and bashed into a tree, but without much damage. On the second try he
hit the tree again. Next time Joseph went along to work the jibs, Frank
worked the elevator, and together they made a lengthy successful
straight flight and landed satisfactorily, making not only the first flight in
New Jersey, but with a passenger as well. This was in late November,
1909, and photographs were made of the flight.

Very little more was done with the Boland-Greene machine that fall and
during the winter months Frank made many changes to this biplane with
the triplane front elevator, and installed the Boland Vee-8 engine. He
also built a new tailless biplane, called the "Blue" machine, which was
his first plane made from drawings. It was intended for production and
was changed very little in all the later Boland planes. The new Blue
machine was first powered by the 50 H.P. Altham 2-cycle engine
formerly used by Kimball in his helicopter.

During the early spring of 1910, Frank wrecked the Greene machine
when he hit a tree during a half-mile flight. He was not injured but the
plane was so badly damaged that only the engine and some small parts
were salvaged, then the wreckage was burned. Following this Frank
started flying the Boland biplane and after two more minor smashups,
due to over-controlling, began flying well. He vastly improved the plane that year. Joseph
and Hoeflich soloed and did some flying, and people began coming to
see their flights. Later that year a
few passengers were carried. Frank took out patents on their new method control and in June they exhibited one of their 8-cylinder engines at the Newark Automobile Show in Essex Armory.

During the spring of 1910, Frank, Joseph, and Kimball organized the New Jersey Aeronautical Society to encourage local interest in aviation. Late in 1910 the nacelle was added to the Blue machine. Their unique jib control did not infringe on the Wright Brothers patents and was very positive and simple. There was no rudder, no ailerons, and no wing warping. Instead they used a triangular resistance-making surface, called a jib, at the outer end of the main planes between the wings. Each jib was pivoted on an oblique axis from the lower front strut to the upper rear strut and was movable inward, in one direction only. The operation was similar to that of steering an automobile. In turning, the steering wheel was rotated in the direction it was desired to go, the jib on that side pulled in and the plane banked and turned. To straighten out, the control was simply returned to neutral. Lateral control was obtained by presenting the jib on the high side at a negative angle as in steering. Two of their 8-cylinder engines were sold that year, the first one to Earle Remington of California and then one to Charles Lake of Bridgeport, Connecticut. Financing the work was a continuing problem and materially limited their program.

Early in 1911, Frank gave up the Correja field due to rough ground and too many trees, and moved all the material and equipment in their hangar to a shop in the Gordon Press Works at Rahway, and his flying operations to Mineola, Long Island. New York. Frank started to build four new "Bluebird" biplanes in the Works shop and Joseph was working on six additional engines, one of which was a 4-cylinder model for school machine use. Several notables visited the brothers during 1911 to see what they were doing, among them were Thomas A. Edison and Wilbur Wright, who wanted to determine whether their jib control infringed Wright patents. He agreed it did not and praised their progressive original work. He stated that the light turns by the Boland plane in flight were the smallest he had ever seen.

During the spring of 1912 Charles Heoflich and Horace Kimmerle were flying
for the Bolands, some of which was done at Mineola and some at Kihnert's Aerodrome, Hackensack, New Jersey. In mid-1912 they started advertising the Boland Aeroplane and Motor Company of Rahway, New Jersey, in the major American aviation magazines. That summer Frank was preparing to start flying exhibitions to earn some revenue and engage Fausto Rodriguez, a Spanish speaking flight promotor, to arrange a Central and South American tour of flying engagements for the fall and winter of 1912-1913.

As a result, Frank, Hoeflich, three mechanics, planes and equipment sailed for Caracas, Venezuela on September 18th, 1912, to give a series of prearranged exhibition and demonstration flights during the late fall and winter months in several South American cities. Rodriguez acted as their advance man and interpreter, and arranged for flights in Venezuela, Colombia, Costa Rica and Trinidad. Frank and Hoeflich started operations by making several flights at Caracas, Venezuela on October 6th. After the engagement there they made flights at Valencia, Puerto Cabello and Maracaibo where Frank was given a silver cup for a flight over a range of the Andes Mountains. After considerable flying in Venezuela the troupe moved to Trinidad.

Their first public exhibition there was scheduled at Port of Spain on January 25th, 1913, however, Frank agreed to give a special demonstration for the Governor on the 23rd because he did not expect to be able to attend the later exhibition. This special flight was made during the evening at Queens park. As he was coming to land after completing the flight, the plane suddenly dived and hit the ground as he made a sharp bank to avoid a tree. Frank was thrown clear of the machine, breaking several ribs, one of which punctured his heart causing instant death, at age 38. He was survived by his wife, two daughters, mother, sister and brothers. Burial was in St. Mary's Cemetery, Rahway. This tragic accident terminated the South American tour and was a crushing blow to the Boland aviation program, but it was announced at once that all plans for the 1913 season would be continued as scheduled. [struckthrough] Up [struckthrough] Until that time Frank had never had a serious mishap.

The company exhibited a plane and engine at the Motor Boat Show, held in
Madison Square Garden in New York in February, and they planned to move their shop from Marion into better facilities in Newark on March 1st. Joseph apparently took over control after Frank's death to go on with the venture, and not long after that Frank's share in the business was offered for sale. In April the company announced their latest machine, a 36-foot span, pusher biplane, of the type taken to South America. At this time Joseph also advertised an air speed registering device on which the brothers had been working for some time. While Joseph had done some flying, he was still more interested in the development and manufacturing part of the business, so at this time their former students Horace Kimmel and Charles Hoeflich were flying for the company.

That summer Joseph began work on flying boat, and in November pioneer aviator Leonard Bonney did some test flying of this new machine; then in December the renowned Charles K. Hamilton also did some flying for Joseph, first on land planes then in early January, 1914 he conducted further flight tests of the flying boat on Newark Bay.

Apparently, at this time company reorganization proceedings were in progress, for in March it was announced that the newly formed Aeromarine Plane and Motor Company of Avondale, New Jersey had taken over the exclusive manufacturing rights of Boland planes and engines under Boland patents. Heading the new firm was Inglis M. Uppercut of New York while Joseph and James Boland were evidently retained in the new organization. A more desirable factory was acquired at Nutley, New Jersey, and at this time another new Boland flying boat was announced, using a new 8-cylinder, 70 H.P. engine. This was a good looking pusher biplane, amphibian type machine, with a mechanically operated retractable landing gear for beaching and alighting on land. This was undoubtedly one of the first retractable landing gear applications on aircraft. This plane was designed by Joseph, and reportedly he did his last flying during its tests. The new firm also announced that engines of 60, 70, and 100 H.P. were available.

In August, Aeromarine reported that the well-known engine manufacturer Charles B. Kirkham, of Savona, New York had become a member of the Aeromarine staff and that the company was preparing to manufacture the complete line of Kirkham aviation engines.
Nothing of note appears to have developed from this and by April, 1915, Kirkham had left Aeromarine and was working for the Curtiss Company.

In June, 1915, a new 100 and, 6-cylinder, geared Aeromarine engine was announced, weighing 435 pounds and resembling the former Kirkham engines in man respects. At this time Aeromarine also advertised New York offices in the Times Building. In November Mr. Uppercu engaged pioneer Long Island aviator and plane manufacturer Albert Heinrich to design and supervise the construction of a new twin-engine military type bombing plane at the Nutley, New Jersey, shop, using two of the new Aeromarine 6-cylinder engines. For this project the Atlantic Aircraft Company was formed, jointly owned by Uppercu and Heinrich.

In January, 1916 the Aeromarine 100 engine had passed the Government tests in Great Britain and tests were in progress in France. In mid-February the Atlantic Aircraft Company exhibited the new twin-engine bomber in the Newark Automobile Show, following which it was taken to Hempstead, Long Island, for flight tests, which proved highly satisfactory. Heinrich wanted to get the Government interested in this plane but Uppercu objected. This disagreement resulted in Heinrich resigning from the project, to take over the plane developments himself.

In March Aeromarine purchased 50 acres of land at Keyport, New Jersey, as part of a move to provide additional facilities. In October the famous pioneer-engineer, Charles Willard, joined Aeromarine at Keyport on engineering and development work. For a time that year Joseph was at the Plattsburgh, New York military training camp. Meanwhile, James had developed a growing Cadillac automobile agency in Rahway.

In February, 1917, Aeromarine exhibited a new twin-float tractor biplane trainer with 90 6-cylinder engine at the Pan American Aeronautic Exposition in Grand Central Palace, New York City. Two engines were also shown, a 6-cylinder and their new 12-cylinder Vee. That month the company also announced an all new 8-cylinder Vee-type, 100 engine, weighing 450 pounds.

Joseph remained in the Aeromarine organization through World War I, where he assisted in the engine and plane developments, mainly on seaplanes for the United States Navy. The Aeromarine Company became one of the leading
produces of military aircraft during World War I and built many outstanding types of both land and water machines. The factory at Keyport grew into quite a complex, employing over 1,400 people.

After the World War I Armistice, the company completed the last of their military contracts and converted 125 DH4 government-owned planes to DH-4B models. The design and development of two flying boats for commercial use was begun, one a 3-passenger biplane-type for sport, the other a larger twin-engineled cabin-type for passenger carrying. Two new engines were brought out, first the Type L-130, 150 H.P. 6-cylinder water-cooled unit of aluminum block construction, weighing 375 pounds, then, later an 8-cylinder 60° Vee water cooled model, U-8_D, rated at 210 H.P. H.P. H.P. weighting 544 pounds. Both models were the same bore and stroke and used many of the same parts, and both were of an aluminum block construction. Joseph was in charge of the motor department at that time. While at Aeromarine, Joseph took ten hours of flying boat instruction from company pilot Ed. C. Musick on Raritan Bay.

On March 13th, 1920. Musick and Joseph took off from the ice and snow on the bay and flew over the steamship "Princess Ann" which was aground off Rockaway Point, and returned to alight on the ice. Joseph also engaged in motor boat racing to some extent during the early 1920's.

Aeromarine later made some large all-metal hull flying boats using Liberty engines, with which company pilot C. J. Zimmerman made many notable long distance record flights. The company appears to have passed out of the aviation picture during 1925. At the very last of his work at Aeromarine Joseph designed and built a small 45 H.P. 3-cylinder radial-type air-cooled engine, known as the AR-3, for sport planes. At that time he was also operating his own personal machine shop in Matawan, New Jersey.

In 1930 James Helme took over the manufacturing rights of the AR-3 engine, as well as Joseph's shop, and formed the Lenepe Aircraft and Motors, Incorporated, at Matawan. Joseph joined Helme in the new firm where they operated a small engine business for commercial aircraft until 1930. During this time 5, 7 and 9 cylinder models of these engines were also developed and produced.
In 1940, Joseph became engaged with the Godfrey Manufacturing Corporation, Brunswick, New Jersey, as an engineer. In 1943 he was associated with the Briggs Filtration Company in Washington, D.C., on aircraft oil systems research, then about 1945 he joined the Reed Research, Incorporated, on gas turbine activities. After a short time there he retired. One of his final projects was to make a model of the "Bluebird" airplane for the Smithsonian Institution. He then made a model of the "Bluebird". At that time his home was with his daughter, Mrs. Roger Scherff, in Frederick, Maryland. There he passed away there on September 10th, 1964, at age 85. He was a member of the Early Birds and the OX-5 Club of America.

James remained in the motor car business for over 50 years and became Rahway's most prominent and well-to-do automobile dealer. He was active in the business until 1955, living part of the time in Florida. He passed away at Rahway on December 19th, 1967, at age 85.

There was a fourth brother, Alban, who became a famous athlete and track star, but he had never joined the other brothers in any of their enterprises.

Flying Pioneers, the Boland brothers, were certainly an extraordinary part of early American aviation history - Frank, who apparently supplied the enthusiasm and drive for the start of their aviation venture and who engineered their first planes, then, self-taught, became a masterful aviator; Joseph, the mechanical genius who always found a way to make Frank's ideas workable, and who undoubtedly became one of the leading aircraft engine designers and development men of the early era, having reportedly made more than twenty different engines during his active career; and James, who, with his financial and management genius, definitely made the early work of Frank and Joseph possible. Together, they formed a complete unit with all the requirements for great achievements. What a pity that Frank was lost just when they were really beginning to grasp their first measure of success. Had he lived, it is difficult to conceive where their combined efforts would have led them. Their ventures and noteworthy accomplishments have never received just recognition, and the name Boland rightfully deserves a worthy place in aviation history.

footnote* Due credit is given Boland Relatives Mrs. J. Kenna and Mr. and Mrs. Roger Scherff for their helpful assistance in preparing and checking this biography and supplying photographs.

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