

of about 100 miles an hour, and flying his course as straight as a homing pigeon.

If he keeps at that speed he should arrive over Paris at 8 o'clock tonight, New York time, or 1 o'clock in the morning, Paris time.

The weather map last night, however, indicated that Lindbergh might even get there sooner. The gods which have smiled on him so far gave him favorable winds for most of the flight over the open sea. Everything seemed happening in his favor as he went along, for even the fog banks along Newfoundland, except near Cape Race, cleared away as he approached. And as if to emphasize the gesture of friendliness, the fog closed in again as he passed.

At the southern tip of Newfoundland a twenty-mile following wind was reported, which, without increasing his engine speed at all, would raise his speed to 120 miles an hour. About half way over the map showed that the wind changed as the centre of a high-pressure area was passed on his route, and further on, toward the Irish coast, the wind was again in his favor.

The map indicated that he would get better than an even break on the wind, which would slightly increase his actual speed over his speed through the air, and perhaps cut an hour or even two from his flight.

#### "Breaks" Are in His Favor.

If this occurs Lindbergh will have had the luckiest break which ever came to a pilot on a long flight, for not only will the weather be with him but all along his route is a high pressure area stretched out as if the daring youngster had ordered it.

Should Lindbergh's motor show no sign of weakening and his gasoline not be used up more rapidly than he calculated, it may be that he will speed up to 110 or 115 miles an hour toward the end of his flight, and get into Paris a little sooner. But on a long distance flight a pilot nurses his engine and gas with the greatest care, so as not to overtax the one or exhaust the other, and it is not likely that Lindbergh will attempt any spectacular stunts.

When Lindbergh took off he carried 451 gallons of gasoline, according to the men who filled his tanks. That would give him a normal radius of about 4,400 miles under perfect conditions in still air, and the distance to Paris is 3,600 miles. But engine experts thought that Lindbergh burned a lot more than the normal ten gallons of gas an hour during the first few hours of the flight in carrying the heavy load. But even if he burned fifteen gallons an hour and made the flight at an average speed of 100 miles an hour he would have enough gas to get him to Paris.

So the odds with him last night looked very good, barring engine trouble.

The first long leg of his journey was the 1,150-mile flight to St. John's, N. F., where he bade farewell to the land and started on his 1,900 miles flight across the open sea. He covered the first leg in less than twelve hours, just as he had estimated. There was a slight cross wind, which apparently did not bother him.

All Lindbergh's wishes had been fulfilled by that time, for he had laid his course as straight as a die to his hopping off place over the water and had obtained the sight of the land he wanted in order to get his bearings.

#### Crosses Ocean by Compass.

For the rest of his trip until he sights Ireland he will be traveling by compass alone, but as the compass variations there are small, from two to four degrees only, he is not worried about them. On his long flight from San Diego to St. Louis on his way east he flew with a compass which was off thirty degrees and in a region where the variations are much greater. But he steered all night by it, allowing for drift, and when morning came he was pointed within fifteen miles of St. Louis.

Lindbergh will have only about four hours of darkness also on his rapid flight eastward. In the latitude in which he is now flying the night does not settle down until after 9 o'clock, and light comes again very early in the morning. There are probably not more than six hours of complete darkness there at this time of year, and as Lindbergh is traveling fast against the sun, he should be able to cut down the five hours, difference in sun time to such an extent that he may gain two more hours of daylight.

It is not known whether or not he counted on this, but night flying has no terrors for this young man, for he has flown the night mail Summer and Winter, and even stepped out of his disabled plane in a parachute at night.

#### Possibly Astray in Fog.

The dispatch from St. John's telling of Captain Lindbergh flying up the harbor from the sea and circling to get his bearings before heading east again would indicate that he is flying faster than had been supposed. He apparently became lost in the fog when he hit Newfoundland, and finding himself over land turned north along the coast until he picked up St. John's. Once sure of that position he could again lay his course.

This manoeuvre shows the skill and coolness with which Lindbergh is flying. Such a flight aside from his course would also add considerable mileage to his flight before he put out to sea, and would indicate that he was flying about 105 or 108 miles an hour. At that rate Lindbergh may make Paris some time before 1 o'clock Sunday morning, the time at which he expected to arrive under normal wind conditions.

There was intense interest in Lindbergh along the route he traveled and every one searched the sky for his plane. As he was flying very low for the first few hundred miles he was reported frequently.

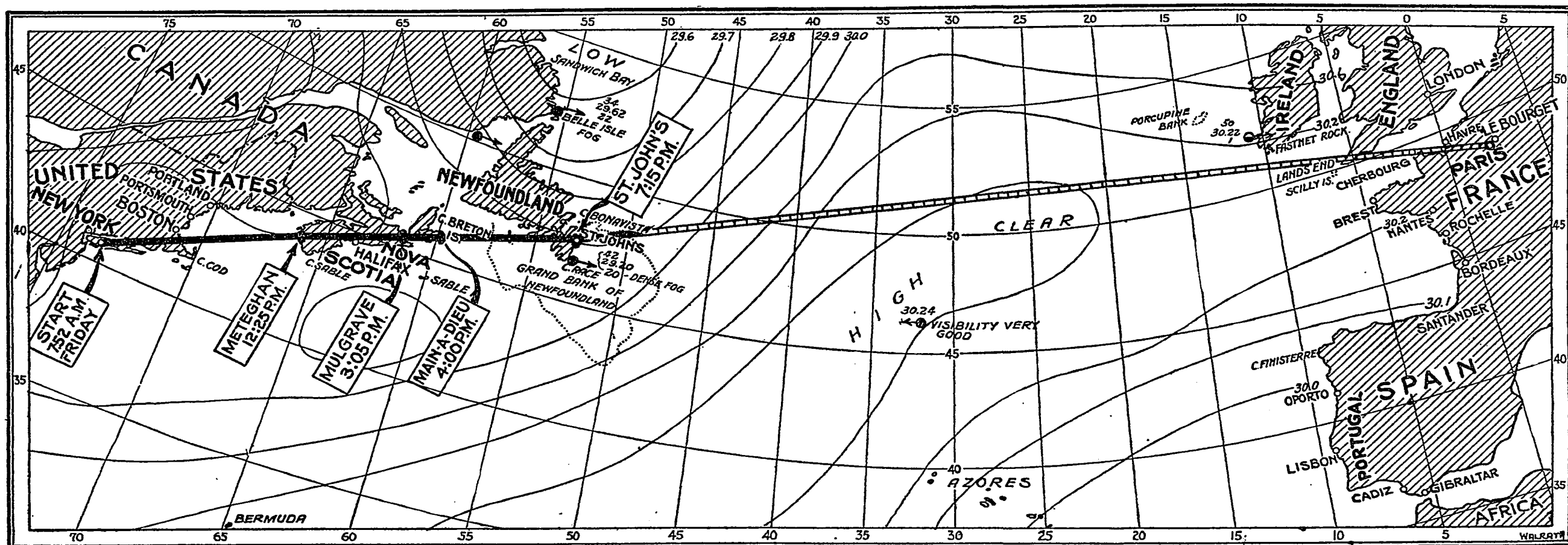
One of the amusing things about the reports was that many people said the motor was missing. It is a peculiarity of the Wright Whirlwind motor, a radial engine, that it frequently seems to run unevenly and seems to be missing, because the listener on the ground hears the exhaust on one side more clearly than on the other.

If Lindbergh's engine was missing with the load he was carrying he would come down in a hurry whether he wanted to or not. Every single revolution he could get out of the motor was necessary at first to keep him in the air.

#### Flies With Remarkable Accuracy.

Lindbergh took a course across Rhode Island and Southwestern Massachusetts after he crossed Long Island Sound, and came out over Massachusetts Bay at Scituate. From there he headed straight north for Nova Scotia, a straight water jump of more than 200 miles. This was his first big water jump and he made it not only easily but with remarkable accuracy, as the reports from Nova Scotia showed he had hit the island just at the spot he intended to. A good navigator with a sextant could not have flown this part of the route any better than Lindbergh flew it.

All the way up to Newfoundland, as a matter of fact, Lindbergh clung to his course with the accuracy for which he has become noted. He was following the Great Circle route exactly, a route which, despite the fact that it is an arc of the earth's surface and therefore a curve, is the shortest line between New York and Paris.



LINDBERGH'S COURSE ACROSS THE ATLANTIC FROM NEW YORK TO PARIS.

This map shows the completed distance, the distance still to go and the points at which his airplane was seen. His course is along the curve of the Great Circle, which on this chart appears as a straight line. Weather areas are shown by the irregular curved lines radiating outward from the central high pressure area, denoting fair weather.

## STARTS JUMP FROM NEW YORK IN MIST

By RUSSELL OWEN,

Continued from Page 1, Column 4.

air. They were rewarded by an early scene which they will not soon forget.

#### Orders Plane From Its Hangar.

Soon after Lindbergh arrived at the field the rain stopped for a time, and he ordered the plane taken out. In front of the hangar, policemen had cleared a wide space, with lines stretching far out into the darkness. Behind these lines faces shone pale in the light of flares. The people stood silent, waiting. Now and then a flashing red light on the hangar roof would light up the scene with a lurid glow. The policemen's motorcycles roared. There was a brief, tense moment, and then the great doors of the hangar were rolled back, and the graceful plane, with its wide wing, could be seen resting, as if eager to be away.

A truck was backed up in front of the building and the plane was turned around and its tail lifted to the truck and fastened with ropes. It was done with great care, so that nothing might be injured or strained on the long ride across the fields to the runway. Its body was a bright silver, the wings seeming to be slightly darker because of shadows on the curved surface.

An order was given and the motorcycle policemen surrounded the truck, riding in front and wide on each side, and the silver bird was trundled away, tail first. Ignominious as this movement was, it could not rob the plane of its aspect of graceful power. It lurched and swayed across the fields, and men stooped now and then and felt of the wheel bearings for fear they might get heated under the load of more than 200 gallons of gasoline already aboard.

#### Weird Procession in the Dawn.

Only two or three cars were permitted to follow it, and none of the spectators was allowed to pass through the lines and join the strange procession through the night. It was then about 5 o'clock and at intervals the rain came down again. It seemed impossible that Lindbergh could get off. There was not a sign of clearing.

The road was a long winding way across the dark field. The lights of the automobiles behind the plane threw a bright glow on the nose of the plane as it was dragged across the grass. There was a dingy canvas cap over the motor, and the wing jumped first to one side and then the other as the rough spots in the field were encountered. Now and then the plane was stopped for a time, to enable the bearings to cool or to refasten the ropes which held the tail of the plane in place. It was a long way across the field, and by the time the big gulch in the centre had been evaded and a sharp tug up a little hill was over, light was beginning to show through the grey clouds. There was a wait by a road with deep ruts in it, while pieces of wood were found to bridge the holes. And when the plane was dragged across it was possible to see that on each side stretched paths of blue violets, their petals just visible in the dawn.

Men not given to sentiment looked at them and at the plane, which so soon would carry the lion-hearted Lindbergh to either great honor or death.

"All the dreams of a boy," said one, and it was enough.

#### Plane's Nose Is Turned Toward Paris.

A few moments later the plane was resting at the head of the runway. It was pointed in the opposite direction to that in which Commander Byrd will take off, and in which Fonck took off last year in the Sikorsky plane, which crashed and burned two men to death. It was on the edge of a slope which dropped down about twenty feet to the lower level of Curtiss Field. Down that the Sikorsky rolled, crashing its landing gear and turning over, to become a pyre of flame. Lindbergh did not look at it, but in the centre of a still blackened area stood a bent propeller, a tragic monument to those who last used the runway on a transatlantic flight.

The plane was turned about facing down the runway to the east, toward Paris. There was only a slight cross wind and Lindbergh did not think it would bother him. He had not followed the plane across the field, but had waited and come later in a large closed car. He was in his golf stockings, riding breeches and tight woolsen sweater over a shirt which he had worn since he arrived here.

Near the plane a truck with special gasoline on it was standing. This gas had been made particularly for the flight, and the drums in which it was shipped were sealed. They were opened and the work of filling the tanks was begun. Red five-gallon cans were filled from the drums, passed to men standing on the nose of the plane and poured in.

As Lindbergh stood there men came up to him and greeted him. One of the first to arrive was Commander Richard E. Byrd, whose big Fokker is being prepared for the same flight. He grasped Lindbergh's hand and slapped him on the back.

"Good luck to you, old man," said the aviator who had flown over the North Pole. "I'll see you in Paris."

Bert Acosta, Byrd's pilot, and Lieutenant G. O. Noville,

who will also go on The America, also wished Lindbergh good luck. Byrd asked Lindbergh if he objected to Byrd's taking off in a trial flight on the runway while the young pilot's plane was being prepared. So the large three-motored plane went aloft and circled about over the field for some time, landing just before Lindbergh got ready to start.

#### Chamberlin Wishes Him Luck.

Clarence Chamberlin, pilot of the Bellanca monoplane, which was waiting with tanks filled and equipment aboard, also came over and greeted Lindbergh.

Raymond Orteig Jr. and Jean Orteig, sons of the man who has given the \$25,000 prize for the first successful flight to Paris, were in the crowd which wished Lindbergh success. They said they would cable their father at once when Lindbergh started, and that if M. Orteig hurried from his present stopping place in the Pyrenees he might get to Paris in time to greet the flier.

G. M. Stumpf, representative of the St. Louis Chamber of Commerce, which is sponsoring Lindbergh's flight, was there, and so was B. F. Mahoney, President of the Ryan Air Lines, which built the plane, and many other men prominent in aviation.

After a long wait the tanks were filled. They held 451 gallons of gasoline, 145 gallons more than Lindbergh had ever taken up, but both he and Mahoney were confident the plane would lift the load. By this time the roped-off enclosure was surrounded deeply by spectators and cars, and off to one side of the field, far from the runway, were hundreds more cars in a long line.

The police arrangements were much more efficient than at the Sikorsky attempted takeoff, and hardly any one was on the field in the line of flight.

At last the plane was ready, and the motor was turned over. Lindbergh had donned his fur-lined flying suit and was sitting in a closed car, resting, his helmet shoved back and his goggles on his forehead. He seemed the most unperturbed man on the field, although he frequently glanced at the sky and sometimes gazed far away, as if wondering. It was the most serious moment he had ever faced in his life.

#### Lindbergh Climbs Into Plane.

Lindbergh climbed into the pilot's seat and warmed up the motor. After idling it for a time, he opened the throttle and let it roar, the plane shaking and vibrating under him. Again it died down, and Frank Tichenor, editor of The Aero Digest, walked over to him.

"Are you only taking five sandwiches?" asked Tichenor, who had been told of Lindbergh's meagre rations, although he carried seven days' emergency army fare.

"Yes," smiled Lindbergh. "That's enough. If I get to Paris I won't need any more, and if I don't get to Paris I won't need any more, either."

He had two canteens full of water hanging beside him, having refused a vacuum bottle of coffee, and that and the sandwiches were his only provision, aside from his emergency fare.

Lindbergh settled back in his seat and beckoned to Edward J. Mulligan, field engineer for the Wright Company, which made his motor, the same 200-horsepower motor used by Byrd and the Bellanca. Incidentally his load yesterday, 5,200 pounds, was the heaviest ever lifted by a 200-horsepower engine.

"How is it?" asked the young pilot of Mulligan.

"She sounds good to me," replied the mechanic.

"Well, then, I might as well go," said the cool-eyed youngster. It was just 7:52 o'clock.

He turned to the opposite window and smiled at some one he recognized. Then he turned to the other side and waved his hand at a friend.

#### Says "So Long" and Is Off.

"So long," he said, as if he were starting off on an automobile trip.

The blocks were pulled from beneath the wheels, the motor roared and the heavy plane lumbered ahead.

It moved with disheartening slowness. The field was wet and the wheels sank in deeply. A harder stretch was reached and the plane suddenly moved ahead and began to gather speed. And then a soft spot was struck and the speed dropped again.

Half way down the runway went the lumbering plane, its wing lurching a little as it met bumps in the ground. It did not seem to get anywhere near flying speed, and those watching it groaned inwardly. Lindbergh was holding the tail down, as the plane was slightly nose heavy and he did not want to take the chance of letting her nose over and upsetting her. He was hoping she would get speed enough to lift of her own accord.

Still the motor roared and he lurched onward, hitting more rough spots, and still the plane did not get up flying speed. He had passed the point of safety, the point where he could stop his motor and try over again. Now he must either lift the plane or pile up in a gully at the end of the runway which he was approaching more and more rapidly.

#### Plane Jumps Into the Air.

Suddenly the plane jumped into the air. It had hit a bump which threw it upward, and apparently Lindbergh helped it

in, in order to get rid of the sticky soil which clung to his wheels. The slight leap gave him a little more speed. But how quickly he came down, in a sort of leap-frogging jump!

Again the plane left the ground, sailed a little further and again came down. It did not have flying speed yet, and the end of the runway was just ahead of him. Commander Byrd, standing in front of his big machine, Bert Acosta in the cockpit, others near the end of the runway, looked on in fearful fascination. The boy had to make it or die.

It did not seem possible that he could get off. And then, at the last moment, the plane began to go up. Those on the field felt as if Lindbergh, with his great courage, were lifting it from the ground, making it take the air. Defeat and death stared him in the face and he gazed at it unafraid, intent only on the task which he had set himself.

A few feet in the air he sailed by a little group of men. They saw his face for a moment outlined by the tiny window of the cabin. His head was slightly bent forward, eyes fastened on the dial which showed the revolutions of his motor. His jaw was set, his whole face grim with determination. The boyish lines had vanished in the terrific moment. Only the man of the lion heart was left, using his brain and the instinct of the trained flier to avoid destruction.

#### Narrowly Clears Obstructions.

The wheels of the plane cleared by a bare ten feet a tractor which lay directly in his path. A gully was ahead into which he might have plunged, but which he left safely below. Over the telephone lines he passed with a scant twenty feet to spare.

Ahead was the rolling open country of a golf course. A line of trees on a slight slope lay beyond, a mile or two away. The silver plane dropped a little as if to gather speed and then lifted upward again, but so slowly! It could barely be seen to rise, and men watched it with anguish in their gaze.

The plane turned a little to the right and then swung back again toward the lowest point in the tree line against the sky, as if Lindbergh had been sweeping it with his periscope, looking for an opening. And then, very gradually but surely, the wide silver wing lifted toward the skyline at the tree tops, over it, and a space of pale sky showed between it and the green line beneath.

A soft glow came above the clouds, the first of the sun breaking through. Far off above the trees the silver wing dipped and was gone.

Lindbergh was on his way to Paris.

## MOTHER OF FLIER SURE HE WILL WIN

Mrs. Lindbergh Teaches School as Usual in Detroit as Son Soars Away.

### HAD NO MESSAGE FROM HIM

She Told Him on New York Visit Not to Distract His Mind With Word to Her.

Special to The New York Times.

DETROIT, May 20.—While Captain Charles A. Lindbergh was soaring over the Atlantic today, his mother, Mrs. Evangeline Lodge Lindbergh, was explaining to her classes at the Cass Technical High School here the theory and practice of chemistry.

At her home, 175 Ashland Avenue, where she lives with her brother, C. H. Land, she left word she was not to be disturbed. Last Saturday she visited her son at the hangar at Curtiss Field, New York, and gave to him his blessing and best wishes.

"If it were not that I should be excess baggage, I would go with him," she said on that occasion.

Lindbergh's granduncle, John C. Lodge, President of the Council and Acting Mayor, received his first news of the youthful flier's departure when he arrived at his office in the City Hall this morning.

"I hope he makes it," he ejaculated as, with tear-brightened eyes, he scanned the newspaper. "I hope he will make it," he added a moment later. "Ever since he was 8 years old that boy has been a leader and a doer. I have no fear for him."

Receives Word of Start. Mr. Lodge immediately telephoned to Mrs. Lindbergh and repeated his expressions of confidence. Mrs. Lindbergh read him a telegram received from R. G. Blythe, an associate of her son.

"Charles took off at 7:51 A. M. today," said the telegram. "He will be in Paris next."

When she talked with her son last week, Mrs. Lindbergh told him not to delay his departure by pausing to send her any message.

She had luncheon as usual this noon in a Woodward Avenue restaurant. "I cannot say much now," she said.

"Tomorrow, Saturday, a holiday for me, will be either the happiest day in my whole life, or the saddest. Saturday afternoon at 3 o'clock I shall begin looking for word from Paris—not before that. Charlie said the newspapers would get the news to me after he had been seen in the sky but before he alighted on the field in Paris. Perhaps I shall not worry, however, if the hours of Saturday afternoon drag along until evening—but I know I shall receive word that my boy has successfully covered the long air trail between New York and Paris. It will be a happy message.

Did Not Wish to Distract Him.

"My heart and soul is with my boy on his perilous journey. I knew he intended to leave as soon as weather conditions permitted, but he did not wire me he would take off today. It was understood between us, however, when I saw him in New York last Saturday that this part of the program was to be eliminated. I did not wish to distract him any way, and if he wins—he surely will win—it will be through his own efforts."

Mrs. Lindbergh reluctantly discussed her son's ventures. He feels, she said, that it is his own enterprise, and that the least said is soonest mended. Nevertheless, she has his mother and therefore her anxiety is manifest. Her thoughts are concentrated on her big boy.

Hears of Plane in Nova Scotia. Hurrying to her classes, Mrs. Lindbergh went to her home, where she was provided with bulletins by a morning newspaper. One was from Providence, another from Gloucester, Mass. Another bulletin later in the day from Halifax stated that flying conditions along the coast were ideal, for which she thanked God.

Then came one from Nova Scotia, which reported the plane passing and flying low. This fact was commented upon by Mrs. Lindbergh with a note of sadness, and with the comment "that will probably be the last I will hear from him until tomorrow afternoon, after he has been settled circling the Eiffel Tower."

Detroit's only claim on Charlie Lindbergh is that "a was born here twenty-five years ago and that his mother still is a resident. Some refer to him as the 'Flying Fool,' but not so his mother, who, in a voice devoid of boasting, said that he always finished what he started.

"Well, good-bye, sonny boy; good luck to you," is the parting message she gave him in New York last Sunday as she took a train for Detroit after being with him for a few hours.

"Bye, ma. I'll write you from Paris after I get there. Don't worry, I'll make the big jump all right."