THE FIRST ALASKAN AIR EXPEDITION

BY CAPTAIN ST. CLAIR STREET, U. S. A. S., Flight Commander.

MARCO POLO and De Soto must have enjoyed the same mingling of eagerness and apprehension that moved the four explorers designated by the United States Army Air Service to blaze the pioneer air trail from the nation’s capital to its furthest possession at the northern end of the continent.

Like the pioneers who drove their prairie schooners in ’49 westward across unmeasured distances and through the constant perils of ambushed enemies, so did we, in our pioneer flight to Alaska, come to look upon every forbidding stretch of landscape we passed as an ambush of danger, active or passive, depending solely upon the vigilance and dependability of our Liberty motors to carry us over and beyond.

A spirit of romance and adventure dominated the individual pilots who participated with me in that flight; but beyond the strict military reason which occasioned this expedition, a more fundamental purpose existed in the minds of the aviators. Put into words, it was this: “Yesterday a month was required to reach the Yukon. If our expedition succeeds, it will prove that the Yukon is but three days distant—by airplane!”

A FLIGHT WITHOUT PARALLEL.

Our airplanes were the well-known army De Havilland, similar to those we used in the war. They were equipped with the 400 horsepower Liberty motor, capable of propelling us through the air at the rate of 115 miles per hour.

Each of us carried in the rear seat a tried and true mechanic, for we knew that we were undertaking a flight without parallel in the short annals of aviation. Reaching Alaska depended upon our ability to make our own repairs en route.

Some lay 5,500 miles away, over tough and uncharted country, beyond the Great Divide of the Canadian Rockies. Fogs and storms would be encountered; landing fields had to be located; engines and planes must be kept in the pink of condition, so always letting us down into some mountainous region far distant from the haunts of men.

The consent of the Canadian Government to fly over its territories had been cordially granted. Study of the government maps, cooperation with the weather bureaus, and reports from the cities and towns along the proposed route followed.

It was determined to lay a course westward from New York to Erie, Pennsylvania; thence over Grand Rapids, Win- nipeg, and Minneapolis, west to Fargo and Port, North Dakota. From this point we were able to take the plunge into Canada over the fertile wheat belt of Saskatchewain to Edmonton and Jasper, in Alberta.

Then would come the fearful jump over the Great Divide, which, if successful, would lead us over the towns of Wrangell, White Horse, Dawson, and Fairbanks to the Yukon River and Nome (see map, pages 200-201).

THE START.

On July 15, 1920, at midnight, we stood at attention before our airplanes on Mitchel Field, New York, and received the starting instructions of General William A. Mitchell. Our motors were already turning over and our machines packed and ready for flight. My machine was Number 1, with Sergeant Edward Hanrahan as mechanic; Lieutenant Clifford C. Smith, with Lieutenant Erik H. Nelson as navigating and engineering officer, had Number 2; Lieutenant C. E. Cronin, with Sergeant James D. Lang as mechanic; Number 3, and Lieutenant Ross C. Kirkpatrick, with Master Sergeant Joseph E. English as mechanic, Number 4.

Precisely at thirty-three minutes after the noon hour our little flight took off, coasting parallel across the field and took off. The four motors were functioning beautifully, as we climbed to 1,500 feet, circling the field and getting into formation. Turning westward, with winds high, we set a course of 108 degrees on our compasses.

Motor ing through limitless skies should be regarded as a boon to humanity, a gift from science, annihilating time and distance. I thought to myself, as we soared swiftly along toward our first night’s stop at Erie.
A sketch map showing the route and landing fields of the first air expedition

From New York to Alaska, completed in 53 hours and 30 minutes flying time

Stupendous as seemed the long journey before us, it amounted in fact only to a succession of hops from place to place. What could be more delightful than a summer's excursion like this? None and the Yukon gold fields seemed almost in sight.

I was awakened abruptly from my reverie by an ugly vision ahead. Above the palesides of the Hudson a black wall of fog and rain intercepted our path. The pilot behind me spread out to avoid collisions, as we entered the thick atmosphere.

The rain clouds hung low feet above the earth. I climbed up to get above them, while the others continued steadily ahead into the rain. Ten minutes after we had left Mitchel Field I saw the last of my companions for the time being.

For an hour and twenty minutes I flew through the most bitter rain-storm I have ever encountered. I climbed to 15,000 feet and still there was no top to the storm. Hail stones smote me at that height, cold, at the speed of one hundred miles an hour. Knowing this barrage would seizes the propeller, strip the wings, and seriously injure the machine, I cut off the motor and dropped down below the clouds in search of a suitable landing place on which to wait out the storm. As the earth came into view below the clouds, I recognized the country and found I was just south of Scranton, Pennsylvania.

Farther along I noted a field yet unclouded by the storm. It was near Elmhurst, Pennsylvania, and I determined to land.

SMASHING AN AXLE

Five minutes later my machine settled down into the hayfield of Mr. Denny's farm. The clouds cleared and I saw the机 was in a bad way. The machine had hit a hidden ditch. The axe of my landing gear snapped and the machine

Shl along in the tall grass for fifty feet, luckly stopping without turning over. What appeared to be a beautiful, smooth landing field from above proved to be a rough, plowed, and bumpy surface, covered with the smoothest growth of hayimaginable.

None was still but a fraction under 3500 miles away, and here in Mr. Denny's farm we put out and sawed the machine, as I sat regarding the broken axle in the pouring rain. Machines 2, 3, and 4 might be manhandled over until they came to me.

There was nothing for it but to replace the broken axe and get away again as soon as possible. I telegraphed back to Mitchel Field for an axe. It was delivered the following morning, after three hours' work we had it installed and were ready to take off.

A runway had been cut across the hayfield to permit us a passage way out. But the gasoline oil I had ordered from the nearest town had not arrived. Upon investigation we discovered that the fuel truck was stalled in the mud of a country road not far from us.

All hands were called to the rescue, and after several hours' work we successfully started the truck, loaded it to the hayfield, and filled the airplane's tank. Darkness was falling. It was necessary to fly over for another night.

Upon arriving at Erie the next morning, after about four hours' flying, I found all the members of my flight had safely reached there the first day in 53 hours from New York. They had flown through the rain, mostly in the dust, since the visibility was bad and the maps we carried were of little use.

Western Pennsylvania is rough and well covered with woods, offering few
THE BEST-KNOWN LANDMARK OF THE NEW WORLD

The members of the First Alaskan Air Expedition bade farewell to the Statue of Liberty at 9 o'clock, July 20, and it was a welcome sight upon their return, October 29. The flying time for the round trip of 5,000 miles was 112 hours.

PILOTS OF THE ALASKAN EXPEDITION


Photographs by U. S. Air Service

spots where landing an airplane is possible. Few landmarks are identified easily until one reaches Lake Chautauqua, some 60 miles east of Erie. Erie itself is clearly identified from the air by the peculiar shape of a peninsula that extends into Lake Erie and hooks eastward.

The rain continued for several days, soaking the field at Erie until it was a bog. Pilots and mechanics were kept busy oiling metal parts to prevent rust. Every part of the machine was examined constantly, for we had 2,000 miles to cover in these vehicles, and in the regions we were to traverse, spare parts could not be obtained.

The townspeople of Erie overwhelmed us with invitations and many were the kindnesses showered upon us by visitors to our field; but we were eager to get away as soon as possible. We watched the heavens, and studied the weather reports, as we oiled and mended and waited.

Mixed in the Erie Flying Field

Finally, on July 20, five days after leaving Mineola, the storm subsided and we determined to push on to Grand Rapids, Michigan.

Photographs by U. S. Air Service

Lieutenant Cruze, in Number 5, started off first, in order to take some oblique photographs of the field from the air. He settled himself into his seat, waved us adieu, and taxied over the heavy turf. He opened up his motor and started down the field. Suddenly his wheels cut deep into the surface. He quickly cut off his motor, but the momentum of the machine carried it a hundred feet or so deeper into the soft ground, where it eventually stood with one blade of the propeller sticking in the mud.

A team of horses was required to drag the Dixie Flyer out. This field, apparently quite substantial on the surface, had been converted by the long and heavy rains into a waterlogged bog. The airplane was not injured, but the mishap had demonstrated how impossible it would be to get away from so soft a surface.

The balance of that day we spent in rolling the field. To our great dismay, the Kelly track roller stuck fast in the mud, and then the horses, in trying to

LOOKING DOWN UPON GOVERNOR'S ISLAND, NEW YORK HARBOR
pull out the roller, themselves became
bogged!

A THRILLING TAKE-OFF

Finally, late in the afternoon, Lieutenant
Crumrine wheeled his machine again
to the starting line and, with the motor
turning over, examined the prospect
ahead. He had six hundred feet of run-
way which had just been rolled. Then
came a line of trees forty feet high which
had to be cleared. With considerable
anxiety we gathered around to watch his
take-off.

Crumrine is a finished pilot. If any
one could get out of such a field, he could.
He opened up the motor and started down
the course, full out.

When almost at the end of the runway
his wheels still clung to the mud. With
increasing speed he headed straight on
into the line of trees, absolutely unable to
stop his momentum or to turn aside.

While our hearts mounted up into our
throats and a momentary paralysis stopped
their beatings, we saw Crumrine sud-
ddenly stick the nose of his airplane
straight up. It zoomed the tips of the
trees like a rocket, leaving only a foot or
two space to spare. It was the closest
call I ever want to see.

Crumrine snapped his photographs,
then straightened out his course for Grand
Rapids, and disappeared. Unwilling to
risk any other machines on such a peril-
ous get-away, we decided to stay over in
Erie another night. With gloomy spirits
and bad tempers, we put up our machines
for the night and went into town to send
in a report to Washington.
The U.S. Army airmen crossed Lake Michigan slightly to the north of Wisconsin’s chief city. They flew over the widest body of water to be crossed on the voyage at an altitude of 2,000 feet (see text, page 503).

Next morning, July 21, we were up early and were examining the surface of the field at 6 o’clock. It was drying rapidly. At 9 o’clock Lieutenant Nott took off successfully. Lieutenant Kirkpatrick followed. Number 1 was last to get away.

After so melancholy an experience in civilized Erie, Pennsylvania, what must we expect in remote Alaska, where airplanes have never landed, were my thoughts as I headed straight out across Lake Erie.

Flying over Lake Erie

The day was misty and dull. Land was out of sight ten minutes after starting. Only gray-green waves, directly below me, were visible. Setting a course by compass, I flew for an hour and ten minutes, now and then imagining that I could detect in the motor’s roaring a note of distress that might indicate its death rattle. The first view of the Canadian shore was a welcome sight.

Flying swiftly over fair farming country, where a forced landing held no terrors, in sharp contrast with the chilly waters of Lake Erie, we reached and crossed the lower end of Lake St. Clair and landed for fuel at Mt. Clemens, Michigan, after two hours and forty minutes flying.

Here is located Selfridge Field, a government aviation field, named in honor of Lieutenant Thomas E. Selfridge, one of the American pioneers in aviation, who lost his life in an airplane accident at Fort Myer in 1908. After reporting to the commanding officer, I again left the ground and after an uneventful flight through thick weather and occasional showers, we sighted the Grand Rapids field and saw the three machines of our flight drawn up on a line, awaiting our arrival.

Cramarre had landed before dark the previous afternoon without mishap. Nott and Kirkpatrick had flown over Selfridge Field without landing and had dropped down upon the Grand Rapids field on schedule time.
Again we were overwhelmed with
inspirations and kindnesses by the citizens
and aviators who came out to the field to
welcome us. We remained on the field
until 10 a.m., carefully grounding our air-
planes for the next day's flight. Then
we were free to avail ourselves of the
hospitality of Grand Rapids.

**SMILING 7,000 FEET ABOVE LAKE MICHIGAN**

At 11 o'clock next morning all Grand
Rapids was assembled around the field to
see us take off. We left the ground at
thirty-second intervals, taking off across
the wind and down the race-track, which
circled the field on which we had landed.
We climbed to 2,000 feet and got into
tformation.

Setting a course of 281° degrees for
Winona, Minnesota, and with an east wind
blowing 15 miles an hour, we left Grand
Rapids behind us, and twenty minutes
later found ourselves above Grand Haven
on the shores of Lake Michigan. Vi-
sibility was not good, a general mist limit-
ing the view to a 10-mile radius.

We had reached an altitude of 7,000
feet as we approached the lake, so that
in case of motor trouble we might have
a longer distance to glide before reaching
the surface of the water. From this
elevation the De Haviland can glide, with
dead motor, to any point within eight or
nine miles.

Four ships were sighted as we crossed
the lake, and, as may be imagined, we kept
each ship fondly in view as we listened
for unusual pitterings from our motors.
An hour and ten minutes flying over water
brought us above Port Washington, on
the west shore of Lake Michigan.

At this juncture, and just as I was feel-
ing particularly pleased with having
placed behind us the widest body of water
to be crossed on the voyage, I noticed
that the indicator on my dash-board did
not show any air pressure. I signaled
my mechanic to fly the machine while I
raised the hand pump, and the balance of
the distance to Winona I pumped vigor-
ously to maintain the flow of gas. Thus
we continued with undiminished speed
until the valley of the Mississippi was
reached and the little town of Winona
was sighted, nestling between the hills.

Here I took control of the airplane and
made the landing on the reserve tank.

On both sides of Winona the hills rise
rather sharply to an altitude of 1,000 feet.
The valley between runs northwest and
southeast, so that the prevailing winds
are always in one of these directions. An
aviator must determine, before he lands
his machine, the direction of the wind,
and if possible he always lands directly
into the wind, as his airplane glides down
to the field. If the wind is blowing 30
miles an hour, his speed of landing is in-
creased or decreased by 30 miles, depend-
ing upon his coming in with the wind or
against it.

If the field is small, it is of the utmost
importance to notice the direction of the
wind by observing smoke drift on the
ground, then head into the wind and per-
mit it to retard the speed of the airplane
in relation to the surface of the ground.
The citizens of Winona invited upon
our staying over to attend a luncheon
arranged in our honor by the Chamber
of Commerce of that city. I found a
small particle of dirt had jammed open
the pressure relief-valve on my gas tank.

This was quickly removed, our gasoline
and oil were replenished, and, as Minne-
apolis was but an hour and a half distant,
we decided not to accept Winona's kind
invitation.

I should say here that it is quite im-
possible to express adequately our thanks
and appreciation for the wonderful hos-
pitality extended to us by each commu-
nity on our route. From city officials,
from private citizens, and from fellow-
aviators we received the most flattering
and most kindly consideration.

**THE TWINS HAVE A SUPER FLYING FIELD**

At 6 o'clock that evening we left the people
of Winona standing gazing up at us with
their "roses in air," as the French put it,
and just an hour later we were joined on
our route by a Curtis airplane that had
set out from Minneapolis to meet us
and escort us in.

While still some distance from the
Twin Cities we sighted ahead the glaring,
white race-track of concrete situated at
THE FALLS OF THE MINnehaha, MINNEAPOLIS, MINNESOTA
This lovely cataract, immortalized by Longfellow as the Sioux name given his heroine in "Hiawatha," richly deserves the appellation Lauging Water.

The Speedway, in the center of which circle was the airdrome.

Four miles south of Minneapolis and four miles west of St. Paul, this landing field, smooth of surface, free of obstacles, and ample in dimensions, will prove a boon to commercial aviation and will place the Twin Cities well in advance of their rivals when this important development of air transportation gets under way.

My little flight closed up into close formation, and thus we circled the racetrack's 27.5-mile course before landing.

The people of the Twin Cities are enthusiastic over aviation. They applied for and obtained an aerial mail service by agreeing to furnish accommodation for the mail airplanes.

The country surrounding these cities is ideal for flying, landing fast airplanes being possible almost anywhere without danger of disaster. The Aviators' Club and the Chamber of Commerce confidently expect that their airdrome here will become the aeronautical center of the middle northwest.

We were now about to leave the busy centers of the United States for the wilds of Canada. It was with especial care that we looked over the airplanes that were to carry us even further away from the source of supplies.

For two days severe storms raged about the region of Fargo, North Dakota, which was to be our next landing place. We improved the time, therefore, in polishing up motors and strengthening machines.

MINNESOTA AND DAKOTA LANDSCAPES FROM THE AIR

At 11:47 a.m. on July 24 we bade our hosts of new friends good-by, and left the hospitable ground of the Twin Cities behind us. With a 13-mile wind across our line of flight, we set a course for Fargo, 225 miles distant.
Ten minutes of flying through clouds brought us suddenly out into a beautiful, clear sky. For the first time we saw our symbol upon the famous clear landscapes of the West.

From our altitude of 5,000 feet we could see the horizon, 36 or 40 miles away, and around us. Never had I flown through an atmosphere so pure and clean. Immaculate little lakes dotted the lovely landscape. Smiling and well-dressed farmers occupied every foot of dry land.

Our motors hummed along joyously, turning the propellers 1,400 revolutions per minute. We were moving slightly faster than a hundred miles per hour, with the wind of a favorable wind.

Soon we sighted our destination, surrounded, as usual, with motor cars and hundreds of spectators awaiting our arrival.

Another public luncheon was being held for us, and again we were compelled to disappoint our hosts, for our first attention was due to our machines. We launched sandwiches while we looked over our motors, washed down the ships, and refilled the tanks with fuel, after our short stop of two hours and twenty-four minutes. Then we gladly accompanied our hosts into town.

Fargo is the largest city in North Dakota, and it is situated in the center of a country of great distances. Good landing fields abound anywhere within a radius of 200 miles, and the use of the airplane in this locality will prove to be of infinite value.

Excusing ourselves early that evening, we looked over maps and weather reports and piled into bed at an early hour. The morrow's flight would be the last hop over Uncle Sam's territory until Alaska was reached. Our machines were in perfect condition and the spirits of the pilots and crews were high. Although the difficult part of our journey was still ahead, our hearts were light and we had every confidence in the success of our expedition.

Start was made for Portal, North Dakota, next morning, July 25, with a gale to-mile wind on our tail bearing us toward. Under 4,000 feet we found the air remarkably hazy, probably a natural atmosphere of the storm. Above that level the air was as smooth as velvet.

As we progressed, the terrain became rough, finally rocky. Numerous alfalfa lakes dotted the landscape.

Clemenceau snapped photographs as we flew, notes were taken for recording full description of all details that might be of military interest, and a careful log was kept of each incident and feature of our journey.

With a favorable wind all the way, we covered the 250 miles to Portal in three hours and 40 minutes, landing at 1 o'clock in the afternoon.

Although we had procured advance information as to the size and location of all the landing fields on our route, we discovered that there were many small details that had not been disclosed to us.

LANDING ON A CITY DUMP

Some of these overlooked details caused us costly delays and trouble. At the Portal field, for instance, which we found just over the Canadian line, we found the northwestern field was blocked up with a crowd of 1,000 people, cutting their tires badly on the glass that was strewn about the way. The town had used this field for a dump in times past! Lieutenant Kirkpatrick came down hard, landing perfectly, but cutting his tires badly on the glass that was strewn about the way. The town had used this field for a dump in times past! Lieutenant Curney and I landed simultaneously, without mishap. Lieutenant Knott landed last, rolled over an inconspicuous bump, and snapped off his tail ship.

These minor accidents illustrate the nature of the repairs that were necessary to be made each night before our little car can be ready for the next day's fight.

A garage at Portal was the only possible source of help. After attempting to weld a vertical shaft without success, we picked up a section of a Ford axle which happened to be exactly the same size. This was milled and proved to be a very satisfactory brace.

All our repairs were completed by 8 o'clock that evening, and everything was in readiness for our hop-off into Canada the next morning. The country people for 50 miles around had assembled to witness our arrival and to help us in our work. They were very cordial and we learned from them something of the natives of the country over which we were to fly on the morrow.

A SURPASSINGLY BEAUTIFUL VIEW OF SASKATCHEWAN

If the readers of The Geographic will turn to their maps of Saskatchewan, they will find portrayed a wide, smooth country, fairly dotted with small towns and villages. If they have been with us on the morning of July 20, we saw the air from the summit of a hill, flying through a sky of surpassing loveliness, the sun so clear that it tingled, the flat farms spread out beneath them with extraordinary distinctness as far as the eye could reach, they would have believed readily enough that the entire map of the district was spread before their eyes.

The atmosphere is so atmospherically clear and the view so extensive that it becomes confusing to follow a set course, because of the beauty and vastness of the scenery.

The Canadian Pacific Railroad ran beneath us. Tyres, 40 miles east of Regina, we saw the rails, flying by compass, crossing our course by the railroad.

Every village along the railroad had its two or three huge grain elevators. The whole fertile plain beneath us was rich in wheat fields. The terrain is far north as Last Mountain Lake was perfectly flat. In this view from the air, one is impressed with the vastness and richness of this country.

Last Mountain Lake is a beautiful body of water extending northeast from the Regina vicinity almost to Wainwright, 70 miles away, yet it is not over a quarter of a mile wide at any part. We were still 40 miles away from Regina when we saw it distinctly outlined ahead.

LANDSCAPE A GIANTIC CHECKERBOARD

A sense of terror is felt as the aviator sets, seemingly motionless, in the cockpit of his machine a mile above the gigantic checkerboard of crisscross section lines which cut up this flat landscape and disappear away into the horizon, where they blend. As we proceeded we noticed thousands of acres of this land which have never been cultivated. Houses and ranches were few and far between.

Saskatchewan and its river came into view...
A TORNADO IN NORTH DAKOTA

The photographer who recorded this phenomenon says: "I noticed a very peculiar condition in the clouds. There was no wind blowing. The weather was hot. Clouds were moving from several directions to a common center, where the cloud-cases grew constantly darker and more threatening. There appeared to be no rain coming from the storm. Hanging downward from a low line of clouds, three whirling, tunnel-shaped projections appeared, the two outside being drawn into the one in the center, which almost instantly started downward and soon was whirling along on the earth. The tornado was about ten miles from the camera."

THE BLACK HIGHWAY MARKS THE BOUNDARY LINE BETWEEN THE UNITED STATES AND CANADA AT PORTAL, NORTH DAKOTA

Photograph by U. S. Air Service

The black highway marks the boundary line between the United States and Canada at Portal, North Dakota.

Note the shadow cast upon the ground by the airplane from which the photograph was made.

...20 miles distant. We stopped photographing the town and the landing field before we landed. A large white sign spelling W - E - L - I - C - I - M - E, near the hangar on the airfield, spoke clearly to us and gave us our first intimation of the exceptional courtesies we were to receive from our Canadian cousins. We were met by the mayor, the city fathers, and by many others, and were welcomed warmly. They were especially given the freedom of the city and were extended every possible courtesy.

At first the crowds were given permission to inspect our airplanes. They had never seen machines of this type, and when they were told that these were the same airplanes we used in the war, they were greatly interested and examined them curiously. But the crowd became so densely packed about us that we could not proceed with our work. We reluctantly asked the chief of police to clear the field. This being done, we quickly finished refueling, and at 5:30 were ready to accompany the Saskatoon delegations to the city. On this first flight into Canada we had spent four hours and fifteen minutes in the air.

The mayor had procured rooms for us
SASKATCHEWAN, ON THE SOUTH SASKATCHEWAN

Photograph by U.S. Air Service

at the King George Hotel, but first he took us to the Y. M. C. A. rooms, where we were given an opportunity to take a swim. Then a public dinner in our honor followed. During the dinner I received a telegram from the Canadian Air Board extending its compliments and congratulations. After dinner we proceeded to the City Club, where we were serenaded by the band of the Veterans of the Great War.

Saskatoon is only eight years old. It has beautifully paved streets and the homes have every modern convenience and luxury. The city is planned for future expansion. It is the center of the Saskatchewan wheat belt and its grain elevators can be seen for miles around. The University of Saskatchewan is here and the large office buildings and hotels are the equal of any in the country. Never have I known a people more enthusiastic over their city. As is usually the case in section counties, the individuals are generous, broad-minded, and myselfish. Their hospitality to their American visitors was unbounded and spontaneous.

Although we were out early the next morning for a 6:30 start, it was almost to be-fore we left the ground. Most of Saskatoon was assembled to wish us good luck, and we could not leave without shaking every hand that was extended to us. After circling the field in formation, we headed for Edmonton, in Alberta, flying 200 degrees on the compass.

FLYING OVER A LAKE COUNTRY

Twenty minutes out of Saskatoon and we were over the lake country, in which section the Indian reservations are situated. This country, just north of the North Saskatchewan River, is practically undeveloped. All section lines, so noticeable up to this point, disappear; the landscape is covered with small lakes; there are few settled farms, and little tillable land. Landings would be difficult, for the ground is covered with very thick swamps, poplar 20 or 25 feet high.

Going west from Rose Haven, on the spur of the Canadian Pacific Railroad, the land again becomes clear and well tilled. Flying into a head wind of 20 miles an hour, we tried every elevation, from 100 feet up to 7,000 feet, but the wind seemed the same at all levels. This fact is peculiar to a flat, prairie country.

Lake Manitou, another beautiful body of water, soon appeared below our wings. One wondered why such an exceptional summer resort is going to waste. Fully 20 miles wide, with several large islands, it is a shallow body of water with marshy banks.

Extensive and well cultivated fields extend over the entire area, unbroken until some 35 miles from Edmonton, when the ground was again covered with muskgoos and small lakes. Just before reaching Edmonton we saw the first pine and spruce timber, bordering the river for about five miles on each side.

COLD-WATHER STUDIES OBTAINED AT EDMONTON

Circling the city of Edmonton and taking several pictures from different sides, we landed on a field in the northeast section of the city, only a mile or two from the wrong field. We had sent ahead for fuel, and this and the city fathers were awaiting us on the other field. Apologizing for our mistake, we again took off and landed at the spot prepared for us, where we found awaiting us several thousand people. Among them were the members of the Edmonton Board of Trade, who pressed us to come at once into town for luncheon. We compromised by accepting an invitation to supper at 7:30. In the meantime sandwiches and coffee were brought to us and we proceeded with our repairs.

Lieutenant Norr had broken a wing skid and bent his right aileron horn on the second landing. My machine had sprung a leak in the gas tank. Many minor repairs were necessary, so we decided to stay over at Edmonton until a thorough overhaul of the airplanes was completed. We were at the jumping-off place now, facing sparsely settled, mountainous country.

Edmonton is a city of 70,000 inhabitants and is the metropolis of this section. The country about here is rich in coal and probably oil. A new railroad, being built northward to the Peace River section, will lay open the tremendous resources of another rich region.

Jasper, next objective, lay 107 miles deeper in the mountainous country. From now on it would be necessary to move with the greatest caution.

Old settlers in Edmonton gave us reassuring data concerning the route ahead. We neglected no opportunities to learn every fact available about the terrain, the climate, the landmarks for guidance, the height of the mountains we had to pass, and the character of the landing fields.
TYPICAL NORTHERN ALBERTA LANDSCAPE, WEST OF EDMONTON

The weather was misty and forbidding. The ground beneath our wings looked inhospitable indeed. Not a square inch of open space appeared in which to land in the event of motor failure.

To add to our apprehension, clouds through which we must pass hung low over the Pembina River; and a mountain range was on the other side of these clouds, if not actually immersed in them.

We deemed it the part of wisdom to go back to Edmonton.

Reluctantly signaling the others to turn, we took back-track for the first time on our expedition since leaving New York. Upon reaching Edmonton, I communicated with Jasper and found the weather was clear there, though at Edmonton, fog and low clouds were reported. We decided to wait until the morrow.

On August 1 we were away at 9:37 in the morning. The wind blew fairly strong from the northwest and the day was bright and clear. As we flew over the Pembina River country I regarded the forbidding nature of the ground below that yesterday had been hidden by the fog. The terrain was rough and rocky. Rivers and streams flowed through deep gorges the sides of which were thickly wooded.

To the right and left, away from the streams, the entire country had been devastated by forest fires. Millions and millions of jack-pine and fir had been burned flat or left with ugly short stumps sticking up to mar the desolate landscape. The employment of a few airplane squadrons in patrolling the forests would have prevented the waste of this valuable timber. From our perch, 2,000 feet above the ground, we could see every point of ground for 30 miles around.

The finest column of smoke appearing in all that region would be instantly noted by an observer from the air, and if he could not extinguish the fire himself, he could note its exact location and could
hurry a forerunner to the rescue within the hour.

Reaching Rocky River, we noticed the foothills giving way to the increasingly high and rugged peaks of the Rocky Mountains proper.

Now, for the first time, snow peaks came into view. A haze had settled over this colder elevation, as the morning sun lifted the moisture from the mists. The snow-clad mountain tops, shining almost pink in the sunlight, burst suddenly upon our view.

Turning north still more, we picked up the Athabasca River. We passed over the little town of Peace River, lying between Jasper Lake and Brides Lake, and swung into the valley of the Athabasca.

THE GRANDNESS OF THE GREAT DIVIDE

The grandeur of the scenery about us was beyond description. One was overwhelmed by the solemn grandeur of the first sight of the Great Divide. We were flying at 6,000 feet over a scene of surpassing grandeur. Below us lay myriads of ghostly gray peaks, colored here and there by verdure and by shafts of sunlight. Scattered among them were crystal lakes so deep in color as to appear artificial. From every side hundreds of gleaming cataracts tumbled down sheer mountain cliffs, glistening and whitening dazzlingly along their deep-worn canyons until they were all gathered together in the more placid progress of the Athabasca.

Our motors hummed slowly over this terrible landscape—terrible to the anxious pilot who is constantly straining his eyes to seek the site for a forced landing should his motor fail.

As we flew along above the river, the valley widened and we dropped down to 3,000 feet above the river's bed. Ahead of us a gigantic pair of buttresses stood shoulder to shoulder, appearing to resist invasion into the realms beyond. Only the resistless torrent of water, that for centuries had worn deeper and deeper its passage, and the airplane, that scorned all earthly impediments, dared look for an outlet there.

Passing over the crest of one buttress, we gazed ahead. They were sentinels, guarding the valleys beyond; a level plain stretched before us, a plain covered with quaking aspen and jack pines.

At the north end of this flat valley the Searling river plunges into the Athabasca from the west. Beside the Searling River lay our landing field.

A STRANGE SIGHT IN JASPER

Landing was made after a flight of three hours. It was a pleasant surprise to find a splendid field, after all our apprehensions concerning Jasper. Special efforts had been made to make the run through smooth under the supervision of Colonel Maynard Rogers, superintendent of Jasper National Park. Colonel Rogers hopes that one day this field will be the headquarters of an airplane squadron of the forest fire patrol of Jasper National Park.

The people of this remote country had never before seen an airplane. The interest and curiosity with which they examined our machines and the variety of questions we were obliged to answer may be imagined.

Colonel Rogers and I had a Chinese cook, abundant supplies, and several tents with ponchoes bedding for our coming. Aside from the ferocious man-eating mosquitoes which harried us sorely, we greatly enjoyed our camping out in these wilds. Bears and coyotes are so bold that the residents of Jasper are compelled to lock up their butter and sweets from these midnight prowlers.

We tried swimming and fishing in mountain creeks, neither of which seemed very satisfactory, as the mosquitoes hit the fish and the fish hit us. At 10 o'clock that night, when the cold grew so bitter that even the mosquitoes were muzzled, we rolled up in our blankets near the side of the fire to keep warm.

Awake at 6 in the morning, the valley seemed filled with a rosy light, although the sun had not yet risen above the mountain ridges to the east. We were still on the eastern slope of the Great Divide, although from our elevated position on the previous day's flight we could look over the rim and see the other side.

A FIRE SCAKE IN THE AIR

As we rose from the ground that morning, after another predawn meal prepared by the Chinese cook, we covered the town of Jasper at about 4,000 feet and took our photographs before starting on
THE HEART OF LONDON—TRAFFALGAR SQUARE AND THE NELSON COLUMN

In the foreground the building with the roof of jumbled appearance is the National Gallery; at the left rises the spire of St. Martin in the Fields, while behind it (in the left background) is Charing Cross Station, before which stands Charing Cross, in the Strand. For John Whitehall, the building with the hollow square is the War Office. In the upper left corner is the Charing Cross Bridge across the Thames.

MONUMENTS OF THE PREHISTORIC PAST: STONEHENGE, WILTSHIRE, ENGLAND

An airplane view of the most imposing relic of a forgotten people in the British Isles. The mysterious stones stand in the center of Salisbury Plain and have been variously attributed to the Pharaohs, the Druids, the Saxons, and the Danes. Myths of the middle ages credited the stones to the magic of Merlin, who was supposed to have transported the circle from Ireland, whence, previously, giants had carried it from Africa.
THE PALACE OF VERSAILLES IMMEDIATELY AFTER THE SIGNING OF THE PEACE TREATY

Note the delegates to the Peace Conference, grouped at the entrance to be photographed, the motor at the side of the palace, and the crowd on Porte Avenue, in front of the building.

THE ROMAN ARENA AT NIMES, FRANCE, DURING A BULL-FIGHT

In this airplane view thousands of people are shown crowding the passageways in an attempt to gain entrance into the already-thronged arena, where formerly gladiatorial combat were staged. This is the best-preserved amphitheater in France and dates from the first or second century of the Christian era.
GIBRALTAR FROM THE AIR

Recognized throughout the world as the symbol of military immutability, Gibraltar presents an interesting study from an elevation of several thousand feet. Guide books inform the reader that "foreigners are never allowed to see over the fortifications, to take photographs, or make drawings near the fortifications."

THE SMOKING CONE OF POPOCATEPETL, MEXICO'S MOST FAMOUS VOLCANO

Rising to a height of nearly 18,000 feet, this snow-covered mountain is one of the most majestic peaks of the Western Hemisphere. It is a valuable sulphur source. The Indians employed in gathering the sulphur fill their sacks with the substance and then slide down the snow slopes.
The ruined mosque and spiral tower of Samarra, on the Tigris

The mosque was built in the ninth century, when the Caliphate was moved from Bagdad to this site. The walls of the ancient mosque and traces of ruins about it can scarcely be recognized, except from an airplane. (See also the illustration on the opposite page.)

The squares, streets, lanes, and buildings of ancient Samarra, viewed from the air

Once the magnificent residence of the Caliph, extending for twenty miles along the banks of the historic Tigris, Samarra is now a farcical shadow of its former greatness, with a population of hardly 2,000. So completely do the ruins melt into the landscape that a traveler might pass within a few miles of the once thriving metropolis without being aware of its proximity.
THE FIRST AIRPLANE LANDING NEAR THE SUMMIT OF MONT BLANC

The photograph was taken at the moment when the aviator Durand, reached the snow of the Col du Dôme after having passed over a large crevasse.

A HYDROPLANE AMONG THE SWISS ALPS

In the vicinity of Kärnstock (9,100 feet), the Richelli Pass (7,443 feet), Halmstock (10,390 feet), and Sandora Pass (9,115 feet),
our way. Just as we were leaving the town on our course to Prince George, I noticed great quantities of smoke issuing from the rear end of my motor. Believing I was on fire, I side-slipped instantly, then turned the controls of the machine over to Sergeant Henriques. He seized the fire-extinguisher, left my seat, and crawled forward to get a shot at the flames. A shower of oil from the engine had covered the wings and struts. They were so slippery with oil I could not get far enough out to use the extinguisher.

I frantically signaled Henriques to head for the river, crawled back into my cockpit, and prayed for the intervention of Providence. Providence replied in the nick of time to save us from a disaster. At about 200 feet above the water the smoke suddenly ceased. For the fraction of a second I waited for more smoke to follow. None came.

I seized the controls, righted the machine, and made back over the field, skimming the tree-tops for the landing field and mosquitoes, and Chinese cock. The others, following their orders, had continued on their way to Prince George.

The fault was discovered to lie in cold oil of which had caused some back pressure in the tank, causing an overflow on hot exhaust pipes. Making everything secure again, we took off for the second time shortly after 1 o'clock, the sky in the meantime becoming overcast with storm clouds.

Along the valley of the Mihee we were carried forward by a favoring wind. The lovely snow-capped mountains, recently named Mt. Edith Cavell, towered above us. Myriad of small lakes were visible, as we climbed higher, cradled between ridges and mountains covered with snow. We were fast approaching the crest of the Great Divide.

We passed directly over Lake Lascure, a remarkable little body of water which lies on the very top of the Divide. In fact, the east end of Lake Lascure drains into the Mihee, while the west end flows into a tributary of the Fraser River and eventually reaches the Pacific Ocean.

OVER THE GREAT DIVIDE.

In spite of all my precautions, we ran the gamut of two or three snow and rain-storms before reaching the Yellowhead Pass, through which our route led us to the western side of the Divide.

Yellowhead Pass is, perhaps the lowest pass in the Rocky Mountains. It lies only 4,000 feet above sea-level. We cleared the rocks and bushes by less than 1,000 feet, noting on each side the actual dividing crests that permitted one rivulet of snow water to begin its flow to the Atlantic, while another was sent to swell the rivers of the Pacific.

Down the valley of the Fraser as far as Crying, a spot upon my map, we traveled at 110 miles per hour. We were going down the western slope. We had crossed the Canadian Rockies.

A SOFT RIVER FOR EMERGENCY!

While a forced landing in this wilderness, so remote from human habitation, was the constant thought which had weighed upon my spirits each day since starting from New York, now that the crossing was actually accomplished. We flew along with the highest mountains, there was a soft river below us, which would do if the emergency came.

Both sides of us the atmosphere was filled with the smoke of forest fires. Deep growths of Douglas fir, spruce, and pine covered these magnificent mountains. I noticed with much surprise that the smell of the burning spruce was plainly discernible at my altitude of 8,000 feet, filled 4,000 feet above the edge of the timberline below.

Never have I felt so alone in the midst of a gorgeous universe. Snow-capped mountains formed a complete circle about us. Other mountains were green and seemed to be flat on top. Evidently a forest growth covered these mountain meadows.

I searched nervously for some signs of civilization or game on these flat mountain tops over which we made our soaring way, but not a living thing stirred. Events were forming ahead, however, which might prove extremely interesting. A wall of blackness, streaked with occasional flashes of vivid lightning, lowered ahead of us. A dead silence reigned. Even in the short period of our flying over there, storms seemed to gather and then disappear with incredible swiftness. The winds changed frequently, now with us and now against us.
While still three-quarters of an hour away from Prince George, as I estimated our position, I was compelled to enter the blackness of the storm. Rain and occasional hail beat us down closely under cover. For fear of being blown completely off my course, I determined to drop down near enough to the ground to check up my drift to the north or south. For fully ten minutes we were immersed in partial darkness. I remember yet how I watched the lightning dart from the bottom of the clouds straight into the ground.

The first glimpse I had of terra firma was a cliff not far below, but ahead of me! I swooped up and over the rocks by a good two feet, then dropped down again to within a few feet of the tree-tops. I feared I might pass directly over Prince George without seeing it.

And indeed this nearly happened. It was raining very hard and I could scarcely distinguish the ground. I felt that we must have reached the town, and so I turned back, and there, in the great relief, I saw houses and a road.

Back and forth over the settlement we flew, trying to get the directions so as to locate the way to the field that had been selected for our landing. Finally a glare of light on the ground to my right indicated that a flare had been lighted to guide me. Flying low, I observed the three airplanes of my flight huddled together in the blinding rain, while around them was grouped a number of miner's cars. Later I learned that I had flown over the spot several times without seeing my comrades.

A Blind Landing—a Smashed Wing

I made a blind landing. As luck would have it, I hit the edge of the field and smashed my left wing and tore away the whole side of the skidder. Ten feet more to the right would have given me an open path. However, Henriques and I were quite smashed to stop out of the damage to the machine and find ourselves surrounded by friends.

The other ships had arrived without injury with the exception of Lieutenant Comrie who blew a tire and nicked his propeller in making a landing. His mechanic, Sergeant Long, was riding on the tail of the machine, to make it stop rolling after landing, when the airplane nosed up and threw him headlong. Fortunately he was unhurt.

Pilots and crew unanimously voted the Prince George field to be the worst, with the exception of the Eric field, that we had yet visited.

The officials and the citizens of Prince George treated us royally and gave us every assistance in making our repairs. We found a cabinet-maker in town and he gave us the job of fitting the torn panels and spars of my machine's wing. The fabric was not badly torn. Our greatest concern was to find a suitable substitute to take the place of the dope needed to shrink and coat the new linen covering on the wing and stabilizer. Lieutenant Kilpatrick finally concocted a solution from banana oil and gun-cotton which seemed to prove quite a good substitute.

All hands turned in valiantly to salvage the damaged panel. We pressed into service a local tailor to repair the linen fabric; each machine had brought along spare linen for this very purpose. In the meantime Lieutenant Nett was sent ahead to inspect our next landing field at Hazelton, so that we might avoid a repetition of this mishap.

Although Prince George is only 200 miles from the coast, we found few people there who had ever seen an airplane. A railway connects the town with the outside world, yet its facilities are poor and the vast natural resources of this region still remain practically untapped. The country is inhabited by intelligent men, all of whom were quick to relate the advantages of their town and the vicinity.

Lieutenant Nett returned with the disquieting intelligence that he was sure no airplane could land safely at Hazelton. He had examined the field prepared for us and had sound the country for a better site, with only indifferent success, reporting a site then in oats which if cleared might serve. I took the train next morning to make a personal inspection. We were met by a large party of native Indians who were wildly enthusiastic about our coming. It was no longer a question of occasional landing fields to be used for emergency landings, but a vital one of being able to come down at all when our fuel gave out.

Leaving the train at Hazelton station,
a mile or two from the town, I procured a Ford car and a guide and proceeded to scan the countryside for miles around. The roads were execrable. Bottomless gorges and steep mountain slopes covered with timber were threaded by trails leading to small clearings made by the Indians, or occasionally the pasture lot of a white man.

REAPING AN OAT CROP TO MAKE A LANDING FIELD

The only field approaching adequate size for our purpose was the farm of Mr. Bierns, which was the site originally suggested for our use and recommended by Lieutenant Natt. But this I found covered with three feet of standing oats! Another tour of the country convinced me that we must either land on Mr. Bierns' oat-field or else turn back.

Accordingly, I called to see Mr. Bierns and explained the situation to him. To my surprise and gratification, he immediately offered to cut a runway through the oats, and furthermore declared he would roll the runway until it became firm enough to give us a smooth surface.

Leaving details in his hands, I hastened back to Prince George, where I found all necessary repairs had been completed.

On August 13, after a delay of eight days, we left Prince George at 9 o'clock in the morning, and after a flight of 412 hours we landed in the Bierns oat-field without incident.

Across this most forbidding landscape we bucked against a thirty-mile wind. The reputation of the Liberty motor can never again be impugned among us, for we found that the engine's speed is the real strength of the engine.

Over twisting mountain gorges filled with rushing torrents, over forests of standing timber, over mountain ranges and peaks, we flew with anxious eyes, seeking an inviting spot on which to land, should our engines cease their labors. Our imaginations caught frightful sounds from the motors' roaring. Only when
A group of Indian women on the Yukon watching the arrival of pioneer airmen.

Photograph by A. E. Proctor

The landing field at White Horse, Yukon Territory.

The people of White Horse evinced extraordinary interest in aviation and were eager to discuss the possibility of using airplanes for transportation of passengers and freight in winter, when the temperature drops to 70 degrees below zero in this region.

Photograph by U. S. Air Service

The four planes in an oat-field at Hazelton, British Columbia.

(See text, page 543.)

In the foreground is a typical farmer, with his four pack-horses, heading south into the Rocky de Buile Range.

Photograph by U. S. Air Service

The landing field at White Horse, Yukon Territory.

The people of White Horse evinced extraordinary interest in aviation and were eager to discuss the possibility of using airplanes for transportation of passengers and freight in winter, when the temperature drops to 70 degrees below zero in this region.

The landing fields appeared dim and motionless, but when the pilots returned to the field, the spectators made to serve as a steam roller.

Mr. Biers had done his best to roll his field to a hard surface for us, but we found that the airplanes would not leave the field until the surface was packed harder still.

The advent next day of an army of sightseers, including mountaineers in heavy boots and Indians in moccasins, who assembled to see us off, gave us an idea. We marched this army up and down the runway most of the forenoon. This exercise, together with the rays of the sun, gave us a reasonably dry stretch, about 300 yards long, on which to gain speed enough for a take off.

The Indians did not seem to relish this method of white man's transportation overmuch, particularly the walking up and down for hours before leaving. One dusky visitor passed in his exertions, came to me, and said, "You heap smart man, but heap d— fool."

At 11:30 we decided upon a start. All the machines got away safely, although with great difficulty. We rose to 4,000 feet and headed northwest for Wrangell. Soon we were compelled to climb to 10,000 feet, for the country beneath us was too high to look upon from the standpoint of an airman.

Photograph by U. S. Air Service

The landing field at White Horse, Yukon Territory.

The people of White Horse evinced extraordinary interest in aviation and were eager to discuss the possibility of using airplanes for transportation of passengers and freight in winter, when the temperature drops to 70 degrees below zero in this region.

The landing fields appeared dim and motionless, but when the pilots returned to the field, the spectators made to serve as a steam roller.

Mr. Biers had done his best to roll his field to a hard surface for us, but we found that the airplanes would not leave the field until the surface was packed harder still.

The advent next day of an army of sightseers, including mountaineers in heavy boots and Indians in moccasins, who assembled to see us off, gave us an idea. We marched this army up and down the runway most of the forenoon. This exercise, together with the rays of the sun, gave us a reasonably dry stretch, about 300 yards long, on which to gain speed enough for a take off.

The Indians did not seem to relish this method of white man's transportation overmuch, particularly the walking up and down for hours before leaving. One dusky visitor passed in his exertions, came to me, and said, "You heap smart man, but heap d— fool."

At 11:30 we decided upon a start. All the machines got away safely, although with great difficulty. We rose to 4,000 feet and headed northwest for Wrangell. Soon we were compelled to climb to 10,000 feet, for the country beneath us was too high to look upon from the standpoint of an airman.

Our maps were inadequate and many inaccuracies were noted. Huge glaciers and rugged declivities loomed gigantic and fearsome in the clear atmosphere. The sun shone fiercely upon the snow-covered ranges and the glare fairly blinded us. It was impossible for me to see the instruments on the dash-board even after having faced this glare for some time.

The odd noises coming from the roaring motors made our hearts quail. There was not even a body of water within sight upon which an airplane could come to even a wet landing. For nearly two hours we flew over the No Man's Land. Under other circumstances the scenery might have been full of wonder for us.

A welcome sight for snow-blinded eyes.

We recognized the Nash River, partly from our maps and partly from the descriptions given us at our last stop. Then came the Stewart arm and we knew that Alaska was now in sight.

Just south of Stewart we dropped down to 5,000 feet and found that the village nestled at the base of an almost sheer cliff which mounted a full 3,000 feet into the air. The few buildings there were indeed a sight welcome to snow-blinded eyes, and the fact that we were again above American soil thrilled us momentarily.
of sand flew up before his wheels when they touched the ground.

Descending in our turns, we found that in reality we were landing in a bed of salt marsh grass immersed in over a foot of water in places. The field was inundated at high tide. Our hosts had not mentioned these circumstances, which is just as well, because this field was the only available site in that section, and landing in that amount of water is more disconcerting than dangerous.

Later we learned that Wrangell was at that moment experiencing the highest tide it had known that summer, a tide of 10 feet. We realized instantly upon landing that it was high enough to give airplanes and occupants a thorough drenching.

We were removed from Sergiev Island, after our ships were put in readiness for the next day's flight, to the island of Wrangell, seven miles distant. Many of the people of the town, including the good mayor, accompanied us in the one boat to Wrangell, where we were to attend a dance given in our honor.

Due, I presume, to the weight of our load, the overburdened boat stuck on a sand-bar and remained there for an hour and a half before we reached Wrangell, where we were hospitably entertained. We excepted ourselves early that night and were shown to our bedrooms.

Remaining over two days at Wrangell, three of the flight got away on August 20, while I was compelled to remain behind to repair a propeller I had wrecked in starting.

White Horse was our next objective. Leaving the next morning at 8 o'clock with a 10-mile-an-hour wind on my tail, I flew low over Skilak River, past the Taku Glacier and above Juneau.

Clouds hung low that morning and we were forced to fly under 1,000 feet all the way. Past Haynes, the White Pass seemed to lie actually traversed in the clouds. Upon reaching the pass, I found scarcely 100 feet clear air between its crest and the clouds. Through this gap we flew; thence straight on to White Horse. My companions had all arrived safely before me and were in readiness to proceed to Dawson.

The people of White Horse were very enthusiastic over aviation, although the
great bulk of them had never before seen an airplane. Many were the questions put to us concerning the use of aircraft in transporting freight and passengers into this difficult country.

In replying to these questions it occurred to me that, before airplanes could be judged entirely fitted for work in these chilly skies, experiments should be carried out to determine how far mechanical engines would function at the extremely low temperatures experienced in this country during the winter months.

ONE OF THE MOST FRIGHTENING ROUTES EVER TRAVELED BY AIRPLANE

And, as I was to discover on the morrow, the country between White Horse and Carmacks, on the route to Dawson, is as rugged and forbidding as any ever traversed by airplane. The entire country is bare rock, formerly the bed of a great glacier, which has receded and left the topography arid and gashed in its passing. Landing an airplane anywhere in this region would be practically impossible.

From an elevation of 7,000 feet, this country seems to have been dug up by a gigantic plow, the tawny rolling north and south.

From Carmacks to Skelk, the country became less rough, until finally, at the Yukon Crossing, just above Fire Finger Rapids, the river valley broadened out and occasional sites for landing fields were to be seen.

From Skelk to Stewart one follows along the White Horse Trail to the Stewart River, and above this river to the Yukon.

All this trip I made alone on the morning of August 18. Two of the machines flew away from White Horse at 5 o'clock on the preceding evening.

Lieutenant Crumrine, who was the third man to start, flew a tire and was forced to stop and make repairs. I went with him to make repairs. Again we prepared to take off, and this time I was first up. While I was circling about, watching Crumrine taxi down the course, I saw his tire burst again. Again he stopped before leaving the ground. I went on without him, and thus it was that I, and later Crumrine, too, flew alone over this desolate stretch.

Flying low over the river's course from Stewart to Dawson, I arrived over that historic little city almost without seeing. Crumrine would not be able to overtake us until he could procure a new tire from Wrangell, a matter of several days; so I thought it best to arrive. The people of Dawson were out on the banks, and landed across the river in one good wheel and one improvised wheel of rope. He had already wound a rope around the rim of his wheel and placed the casing over that (see page 544).

ARRIVING IN DAWSON

Space forbids recounting the courtesies and entertainment extended to us by the people of Dawson. Everything possible was done for our comfort and pleasure.

Dawson now is but a remnant of its former splendor. In its days of glory its population numbered 50,000. Now it has shrunk to no more than 2,000, including whites and natives.

After dinner we were taken out on the Klondike River, where we viewed the operations of the huge placer dredges. The whole Klondike Valley is now being worked by dredges and is said to be paying at approximately 30 cents per yard.

Caribou and moose furnish the majority of the meat for this community. Great hunting parties are formed during August and September, which are counted upon to provide meat enough to last over the winter months.

Ice-boxes are unnecessary in Dawson. Six feet below ground, cellars are built which preserve an ideal temperature for cold storage.

We were requested to keep a lookout for a herd of caribou reported to be in the neighborhood. It was a great disappointment to us that we were unable to make a special expedition to locate this herd for our newly made friends.

The next morning, August 19, we were off at an early hour for Fairbanks. Here stores and supplies were awaiting us. Our machines had stood up wonderfully so far, and, with the exception of a new wheel for Lieutenant Crumrine and one or two other minor parts, we were in need of nothing.

GREAT EXCITEMENT AT FAIRBANKS

Great was the excitement at Fairbanks when we arrived. We had become so ac-
Dawson, a shrunk city with a spectacular past
In the days of its glory it had a population of 40,000; today only 2,000 whites and natives make this their home.

The four airplanes of the Alaskan Flight at Dawson, Yukon Territory

Ready for the final lap of the New York to Nome flight
The small bar shown in the picture is six miles east of Ruby. So eager were the Indians to see the airplanes that they flocked into Ruby days before the arrival of the expedition, and their demands upon the community’s harried residents threatened to bring about a famine.

A metropolis on the Yukon: Ruby, Alaska

Photograph by the Rev. G. F. Huxworth

Photograph by Frank Lilien

Photograph by U. S. Air Service
custed to the great crowds that gathered to meet us that we took it as a matter of course. The very evident improvement of the old "cow-dung" settlers of Fairbanks, however, persuaded us that aviation would have some backers in the future, once they had fully grasped its meaning.

They could not believe that we had covered the distance from New York in 30 hours, when they had spent 18 or 20 months reaching there by way of the Yukon, in the gold-rush days. Letters we bore to them from New York and the East they declared they would keep always as souvenirs of our visit.

Fairbanks and the Tanana Valley were surprising to us by reason of the green summer, the abundant crops, and beautiful flower gardens that bloomed luxuriantly. In contrast with the bleak and forbidding country over which we had so recently flown. Here enterprising farmers took every advantage of the few weeks of sunlight in the spring and their crops grew with great rapidity. Every house boasted a well-kept garden.

Unlimited resources remain undisturbed here in interior Alaska. Not gold alone, but copper, silver, lead, coal, and tin are found in seeming abundance. Copper, too, has recently been discovered in this region.

As we flew up the Tanana toward the Yukon, two days later, we saw much of the interesting country from a low altitude. Though few landing places were available, we felt a condescending disregard for the precautions that had worried us so much in the Canadian Rockies. Sandbars in the river appeared now and then.

Our maps, which were Geological Survey maps of the Tanana and Yukon valleys, proved to be accurate.

We flew through light rain until Harper's Head was reached, south of Port Gibson, on the Tanana River, and then we entered the valley of the Yukon.

We overtook a river-boat on the Yukon and were tempted to fly down close enough to get a view of the passengers. The contrast between this method of transportation and our own was striking, for the boat was pushing three barges against the current and was not making more than three or four miles an hour.
THE STORY OF THE RUHR

By FREDERICK SIMPICH

THE STORY OF THE RUHR

IT is a phenomenon of history—due, perhaps, to geographic influences—since the Middle Ages, great human dramas are often staged on the same map spots. Thus the passes of northwest India, the plains of Babylonia, the valley of the Nile—what famous theaters there have been in the great wars of the world!

And the Ruhr! Long ago Hugo said of it, "For thirty centuries it has been the scene and shelter of the shadows of almost every warrior who has ruled the Old World with that sword they call the sword." Caesar, Attila, Charlemagne, Napoleon, Barbarossa, Reinauer, Hindenburg, Foch, Hail, Pershing—all have passed this way.

Down the Rhine below, where Caesar dropped it at Andernach, below where Yankee doughboys now wash their shirts in its green flood and British Tommies play at soccer above the homes of bishops, a small crooked stream flows in from the east—a stream called the Ruhr. Merely as a river, this Ruhr, hardly 150 miles long, is not important. But it flows through and lends its name to a tiny region not equaled anywhere for intensity of industry and potential political importance.

Viewed in the light of events since the war, it seems safe to predict that the course of life in Europe for the next generation may depend on what is happening now along this crooked, busy stream.

"A MORE SPEAK ON THE MAP!"

The Ruhr, as this famous region is commonly called, is not a political subdivision of Germany; it is merely an industrial district, smaller in area than Rhode Island, but crowded with mines and factories from end to end and settled, in spots, with 1,200,000 people to the square mile.

Tiny as it is, a mere speck on the map, it produces in normal times over 100,000,000 tons of coal a year; it mines much of the iron ore in many mills consume; and the steel wares of Solingen have been famous since the Middle Ages.

From Essen there is crumpled out, month after month, a parade of finished engines, cars, and farm implements; to say nothing of tools, shuffling, shipping, bridge steel, and plates, that compete in the markets of the world from Java to Jerusalem.

One German writer, with characteristic rail precision, figures out that the volume of raw and finished products handled in the Ruhr every working day would load a train of cars thirty miles long!

To grasp this, just what the Ruhr would look like if painted in on a map, take your pencil and draw a horse-shaped figure, starting northeast from Dusseldorf on the Rhine; then curve east and southward, passing over the Ruhr at the top of the shoe; then south to Hagen, southwest to Barmen, and thence straight on to strike the Ruhr again at a point north of Cologne (see map, p. 554).

Then think of the Pennsylvania coalfields packed into this tiny area, pour in the combined populations of Philadelphia, Baltimore, Cleveland, and St. Louis. Then take a flock of the biggest American steel mills and railroad shops you can think of and set them down along the Ruhr. Fill in the remaining smaller gaps with paper, silk, and cotton mills, sugar factories, tanneries, dye chemical, and salt works. Now put every man, woman, and child from the cities named hard at work digging coal, forging boilers, running lathes, or rolling steel rails, and you will have a good picture of what this roaring, rushing Ruhr really is.

Geographically, the Ruhr district lies chiefly in the province of Westphalia, bounded on the west by the Ruhr. A small section of its area, however, including the city of Essen, flows over into the Rhine Province. Physically, it forms a part of the great sandy plain of north-

HOMeward BOUND FROM None

© Leoni Brothers

Captain Howard T. Douglas, who had personally made most of the arrangements for our lands abroad of us, was awaiting us when we landed at Ruhr. He informed us that the Germans had been gathering for days to greet us. In fact, the train had been the demand on the Ruhr railway and on all the water that had fishing been abandoned by these Indians that our expedition threatened to bring a famine to the communities.

For a week before our arrival all the mining camps and fishermen’s nets had been abandoned. When we came in sight squares dropped their pails and raced to the river to see us land.

Captain Douglas had cleared a small island some miles from the town, and here we landed without accident, after a flight of two hours and three-quarters hours from Fairbanks. One more such flight would bring us to the end of our journey.

This last short hop was made on the afternoon of August 24, when we settled down near None, on the old parade ground of Fort Davis, situated between the None River and Bering Sea.

We had flown just 53 hours and 30 minutes from New York, covering 4,500 miles, without mishap or any breach of serious character. The air route had provided a passage of great importance to us.

After we had delivered our mail to the delighted recipients and had put up our airplanes for the night, we were carried into the city of Nome at the head of a great procession. We were banqueted by the American Legion members, then attended a reception given by the Arctic Brotherhood, where we were presented with a loving cup and with many other beautiful gifts.

One more short flight of 150 miles would have taken us to the continent of Asia, but this was not on the program.

After a few days rest we removed our course, bearing with us photographs and maps of value to the government. On October 20 we landed safely on Mitchell Field, New York, completing the round trip of 6,000 miles in just 112 hours of flying, with the same airplanes, the same motors, and the same spark-plugs.

Some day this trip may be made overnight—who knows?