ACROSS THE NORTH POLE TO AMERICA

BY M. GROMOV
The idea of flying to America across the North Pole occurred to me long ago. It attracted the interest of a number of Soviet airmen. Sigismund Levanevsky, Hero of the Soviet Union, was the first to moot the idea of a trans-polar air route between the U.S.S.R. and the U.S.A. publicly in the press. After this Soviet fliers began to study the problem seriously.

The shortest distance between the Soviet Union and America is across the top of the earth. The suggestion of establishing such a service is a striking instance of the en-
deavor of aviation to be independent of land routes. It is said that an airplane, like a bird, can fly straight to its destination, undeterred by mountains, forests and seas. But in practice, as we know, this is far from the case.

There are quite a number of extensive areas of the globe over which no plane has ever yet flown. Until recently it was believed (especially abroad) that flying in the Arctic was impossible. However, the development of polar aviation has shown that to Soviet planes and Soviet airmen the stern North is no insuperable barrier. The Chebyskin epic, the numerous flights undertaken in the Arctic for the purpose of reconnoitering the ice and tracing the movement of fur animals, and finally, the brilliant operation of 1937, when four heavy planes were landed at the North Pole itself, all testify to the successful conquest of a region of the globe which perhaps offers more difficulty to flying than any other.

The flight of the squadron of planes to the very Pole, their splendid landing on a drifting ice floe, and their return to the mainland without damage or untoward incident was a great event in flying. It changed and expanded our ideas of the potentialities of aviation.

Long-distance non-stop flying has interested me for a long time. The flight to America across the North Pole was the fifth of my long-distance flights. Fourteen years ago a group of Soviet airmen, including myself, flew from Moscow to Peking. The plane I used was an R-1, the first airplane designed and produced in the Soviet Union. The flight took us thirty-three days. On arriving in Peking we learnt that the French airman Arrochard had flown an equal distance in three days. A year later, I started out on another big flight. I made the circuit of Europe on a Soviet all-metal plane in three days. Arrochard’s feat proved to be within the scope of Soviet pilots. Three years later I made my third long flight, again the circuit of Europe, this time on a tri-engined plane, “Wings of the Soviets.” I made my fourth long-distance flight
on an RD plane in 1934, beating the world distance record in a closed circuit. My comrades on this flight were Spiria, navigator, and Filin, engineer. It was our good fortune to demonstrate that Soviet planes and Soviet engines were among the best in the world. We remained in the air for 75 hours and covered a distance of 7,707 miles. Our record was not officially registered because the U.S.S.R. was not yet affiliated to the International Aeronautical Federation.

In 1935 this same crew applied for permission to make a non-stop flight from Moscow to America across the North Pole. We were unable at that time to put our plan into execution, but I was determined to continue my efforts in the sphere of long-distance flying. In this I was interrupted by protracted illnesses and my work on testing new airplanes, but I did not give up hope. My ambitions brought me into close contact with Yumashev, a splendid airman and international record holder, and Danilin, who in my opinion is the best navigator in the Soviet Union. We planned several long-distance flights, one of which was particularly interesting: from Moscow to Brazil, across the Black Sea, the Mediterranean, the Sahara Desert and the Atlantic Ocean. Careful preparations were made for this flight, but for a number of reasons it had to be deferred.

Yumashev worked out the details of several other interesting flights, one of them from Moscow to Australia. I was interested in initiating an air route from the U.S.S.R. to America across the Atlantic Ocean; I also worked out in fairly great detail the route for a record distance flight from Moscow to Mexico, via New York.

But, of course, what interested us most was the plan for the flight from Moscow to America across the North Pole, which had been temporarily postponed, but to which we returned again and again.

We worked on the details of this flight for two years. This may seem a long time. But the result was that many problems which had formerly seemed insoluble now became perfectly clear to us. We had a complete picture of the details of the proposed flight. This gave us great satisfaction. We proposed to use a plane which I had been testing for nearly two years, RD No. 25-1.

It was a monoplane of the classical type with underslung wings, and at that time was undoubtedly the most suitable craft in the world for long-distance flying. RD No. 25-1 was the embodiment of the most up-to-date innovations in aircraft construction. A machine of this type had been displayed in 1936 at the World Aviation Exhibition in Paris and had profoundly impressed the connoisseurs.

We did everything we could to reduce the weight of the machine. We removed the rubber chambers which enabled the plane to keep afloat on water, adapted the engine-covers to serve as sleeping bags, decided to do without brandy and firearms and reduced the food supply from a 2 months' to a 1½ months' ration. We thus managed to lighten the load by nearly 400 lbs. We accordingly increased the supply of fuel, oxygen and water for the engines by this amount.

Having increased the potential range of the plane by lightening its weight and increasing the supply of fuel, we turned our attention to the selection of the propeller. This absorbed a great deal of time and energy. We made a large number of test flights to ascertain the expenditure of fuel and the ways of economizing it.

Two wireless apparatuses were installed. The original range of the RD No. 25-1 was 4,350 miles. But when a geared engine was installed, the range was increased to 6,200 miles. Experiments showed that the corrugated surface should be replaced by a smooth surface, and this increased the range by roughly another 1,250 miles. Finally, after covering the anterior edge of the wing with a polished surface, we were able to fly 7,700 miles without a stop. The installation of metal propellers still further increased the range.

We made a thorough and careful study of our craft. It had to be ascertained what...
height and speed should be maintained as the flying weight of the plane changed with expenditure of fuel. In the end, enough material was collected to enable us to know exactly in advance what distance could be flown in calm weather. But inasmuch as calm weather could not be expected along the whole of the long flight we were contemplating, we had to discover the laws which would tell us how to fly to achieve the maximum distance.

In the end, we had at our disposal extensive charts showing what speed and elevation to maintain under various conditions. This clarity on all questions proved to be one of the most important factors determining the success of our non-stop flight. We had a good knowledge of the flying qualities of our plane. The engine was not only economical but absolutely reliable, and in this respect was unequalled.

What caused us most uneasiness was the meteorological aspect of the problem. The comparatively small margin of stability of the plane in the early hours of the flight (owing to excessive load) demanded calm weather at least during this period. After that the only serious danger to be feared was the formation of ice on the propeller and wings. For two years we had been studying everything published at home and abroad on the reasons for this phenomenon so as to find a means of combating it. We finally arrived at the conclusion that the lower the temperature, the less the chances of ice forming, and that in clouds at a high altitude this danger was entirely precluded. At a temperature below -20°C, the danger of ice forming was very slight. It was therefore necessary, in the event of the danger of ice forming, that our plane should be able to reach an altitude where the temperature was below -20°C.

Thus some of the most difficult problems of the flight were settled before the actual take-off.

I had known Yumashev and Danilin, my comrades in the flight, for a fairly long time. They had performed no “miracles,” but they were capable of any exploit. I had
had repeated opportunities of convincing myself of this. There was every reason to think that the composition of the crew was such as to ensure a successful issue to the flight.

Before the start an event occurred which rather altered the character of our task. Chkalov, Baidukov and Belyakov made their splendid flight to America. This altered the situation somewhat. It was no longer enough to fly to any point in the U.S.A. It must now be our purpose not only to confirm the possibility of a trans-polar air route, but to attain the maximum distance of flight.

Such being the case, weather conditions assumed cardinal importance. In this respect the year 1937 was generally unfavorable for flying in the Arctic. On the eve of the start we were told by prominent meteorologists that we must expect head winds and unfavorable weather. However, time did not permit us to wait for better weather. Moreover, we calculated that even with such unfavorable weather conditions we could beat the world distance record. All that was needed was to adhere strictly to the altitude charts, to maintain a definite regime for the engine, and not to deviate from our course under any circumstances. We must not turn aside to avoid cyclones or other meteorological obstacles, for that would considerably reduce our range. We would have to fly in a straight line. Of course we knew that some deviation from the ideal schedule, and consequent loss of distance, were inevitable; but we decided to reduce them to a minimum.

I must have been born under a lucky star. During my twenty years as a pilot I have had to make several big flights. And they have all ended successfully.

Every time I was assigned a big flight I experienced a sense of real happiness. Just before the take-off, however, I would be greatly agitated; but no sooner was I in the air than I recovered complete composure. Usually I was so agitated before a flight as to lose all appetite; I could take nothing but hot tea. But calm having re-

turned after being in the air for ten or fifteen minutes, I would develop a wolfish appetite.

So it was this time: first a feeling of pleasure, then profound agitation, and then that wonderful composure and confidence.

We took off on July 12, 1937. The start was an unusually difficult one.

It may be said with certainty that if the plane had carried another 200 lbs. the runway would have been too short for the take-off. The end of the runway was startlingly near, and I had to lift the plane steeply to keep the wheels from touching the rough ground beyond its edge. We were hardly off the ground when we began to retract the landing gear. I repeat, never have I had to make so difficult a take-off.

We had barely reached an altitude of 1,100 ft., when the earth was veiled from our sight by mist. We mounted to 2,620 ft., and then flew in a corridor between two layers of clouds. Only two and a half hours later, at a height of 3,610 ft., did we emerge clear of them. On the right, the sun broke through a bank of feathery clouds.

After five hours of flight, Yumashev took my place at the controls, and I addressed myself to some refreshment. We did not see land again until we reached Kolguyev Is. On the basis of the speed and time of flight, Danilin calculated that we were approaching the island. Yumashev brought the plane down below the clouds and we saw Kolguyev Is. beneath us. We descended to about 650 ft. The plane was buffeted violently. At this height we passed over the spot where the referee of the Central Aeronautical Club of the U.S.S.R. was to register our transit. Had it not been for this, of course, we would not have descended so low and subjected our craft to the risk of being smashed by the heavy jolting. Yumashev lifted the plane to its former altitude. I replaced him at the controls.

Down below, the blue waters of the Barents Sea were visible. We were heading for Novaya Zemlya. We first spied it at a distance of 60 miles. As we approached within
30 miles of it a picture of unusual beauty and mystery opened before us. From afar, Novaya Zemlya looked like the sunlit shore of a southern sea, with long sandy banks of vivid hue, reminiscent of sunshine and warmth.

A layer of strato-cumulus cloud approached from the left and concealed the sea. Over Novaya Zemlya we twice descended to a level of 1,000-1,300 ft. to have our flight registered. We then slightly altered our course to hit the 120th meridian at the spot where it led straight through Rudolph Is. to the North Pole and then on to California. Here we again rose above the clouds.

A white veil appeared on the horizon and covered the sky. This was an approaching cyclone. Several hours passed. Yumashev informed me that he had detected some dark spots below which must be Franz Josef Land. Soon we spotted the snowy summits of the archipelago. We could feel the breath of an approaching cyclone. Strata of black cloud and humpy cumuli again floated by. The scene was again overcast.

The only way we could avoid cyclones was to rise above them. We firmly stuck to our determination not to depart from our schedule unless absolutely necessary, and not to diverge from our course under any circumstances. Only forward, and only along a straight line, was our motto.

We had already reached an altitude of over 13,000 ft.; the temperature had fallen to -16°C. Clouds barred our way. Nothing was to be seen. We kept our course by the radio signals from Rudolph Is., which now lay behind us. We flooded the propeller with liquid to prevent ice forming.

We continued to ascend. I noticed that the windows of the cockpit were covered with a crust of ice. Only at a height of 14,700 ft., where the temperature was -21°C, did they become transparent again. We nosed our way through high cumulus clouds. Then again flew blindly.

It suddenly grew lighter and the plane emerged from the clouds. Below us lay a white sea of feathery cloud. The sun shone brightly. We breathed freely.
Fighting our way through two cyclones, we approached the North Pole. We had already been in the air twenty-four hours. During this time all we had seen of the earth was the stretch between Shehelkovo and Zagorsk—two towns lying close to Moscow—a patch of Kolguev Is., the peaks of Novaya Zemlya and about 125 miles of sea. All the rest of our route had been covered by clouds. We had flown either above them or through them.

As we passed in the vicinity of Papanin’s camp on the drifting icecap, we could not refrain fromradioing a message of greeting to the explorers. This was on July 13 at 2:07 a.m. Here is the message:

“Greetings to the conquerors of the Arctic, Papanin, Krenkel, Shirshov and Fyodorov, from the crew of the RD No. 25-I, Gromov, Danilin, Yumashev.”

An hour later, to be exact, at 3:14 a.m., we passed over the North Pole. We were then at an altitude of 3,850 ft. and were making a speed of 100 m. p. h. The temperature of the air was -8°C. The crew were in excellent spirits.

Yumashev was at the controls. I went to lie down. I slept soundly for an hour and awoke with a keen appetite. I had hardly taken a bite when I observed a dark bank ahead of us. Here was a cyclone waiting for us on this side of the Pole. I took my place at the second controls to help Yumashev; but the cyclone proved to be feebler than its predecessors, and in half an hour the fight was over.

The weather cleared and we flew beneath a bright polar sun. From time to time, through breaks in the clouds, we saw the icy beneath us, traversed by fissures. The scene was grand but monotonous. The icy wilderness seemed endless.

After a while we perceived some dark patches against the clouds on the horizon. The nearer we approached, the more distinct they became. Suddenly we saw they were cliffs. Land! This was Patrick Is.

The breaks in the clouds became more frequent. The sea between the islands and the mainland was covered by white humpy ice, spattered with emerald and blue patches. The sun became dimmed. Clouds passed over us from time to time. All this lent the scene a mysterious and oppressive, yet majestic air.

The Canadian tundra appeared. The sky cleared. Unknown land stretched beneath us: numberless lakes of varying size and shape, bogs, rivers, and scrub, gradually passing into forest. This monotonous landscape stretched as far as the Rocky Mountains, which well deserve their name.

While over Canadian territory we heard for the last time the signals of the Moscow radio station which had been maintaining contact with our plane. We were at that moment at a distance of 3,725 miles from the capital of the Soviet Union.

The Rockies were covered with clouds. Keeping our course along the 120th meridian, we gradually ascended and successfully negotiated the mountain peaks. Beyond the Rockies we flew hemmed in by clouds. Ice suddenly began to form on the plane.

Both the speed indicators failed. We descended, and only at a height of 9,800 ft. did we emerge from the danger zone.

Shifting our course 10° or 15° to the right, we reached the shores of the Pacific in the vicinity of Seattle. An hour later the clouds above the hills evaporated, but the shore and sky were still veiled. Ahead of us, a splendid blue sky could be seen. This gave us hope that we would have fine weather during the night.

The first real night of the flight began. This was between Seattle and San Francisco. We espied the shore through breaks in the clouds. Below us gleamed the beacons of flying fields, and the lights of cities and villages. We flew beneath a clear sky. To the right lay the Pacific, veiled by clouds; down below lay the land. From our height of about ten thousand feet we could distinguish a chain of lighthouses. A head wind blew; it seemed as if we would never reach San Francisco.

We felt the effects of fatigue. The gas indicator was very encouraging. As we ap-
drosed San Francisco, we saw that we could fly farther, and enquired of other flying fields whether they could receive us. We were informed that the flying fields in Los Angeles and San Diego would be covered by mist in the morning. We were referred to other flying fields, which were not easy to discover on the map.

However, our gas supply would permit several more hours of flying, so we radiated: "Have passed San Francisco; are continuing our flight." Yumashev and Danilin asked whether we ought not to inform the Soviet Government that we had beaten the world distance record; but I had firmly made up my mind not to give way to jubilation, and not to send any messages until our flight was over and our plane safely landed.

It was late in the night when we reached the midway point between San Francisco and Los Angeles. The line of beacons swerved to the left. We kept straight on. Dawn was already breaking when we crossed the Cordilleras, which were not very high at this point, and flew over San Jacinto. We left

Los Angeles behind us to the right, and headed for San Diego.

We were out of luck. The Mexican border was too near to permit us continuing our flight to the south and thus increasing our distance record.

The flying fields in the southernmost part of California and the whole strip, thirty miles wide, between coast and mountains were covered by morning mist. We were therefore obliged to turn back. We circled around for half an hour in search of a suitable landing place.

When I decided to land there was still enough fuel in the tanks for another six hours of flying. Anyhow, we had already beaten the world distance record some 200 miles north of San Francisco. After a careful scrutiny of the flying ground at Marchfield, we searched around for a somewhat larger landing place, for our now lightened plane demanded a good approach and would require a rather lengthy running space before coming to a standstill. We selected the only large, although rather un-
evena field, in this semi-wilderness, and 62 hours 17 minutes after the take-off in Moscow we made a successful landing some three miles from San Jacinto, California.

Reckoned in a straight line, we had flown 6,362 miles. Our plane was severely shaken and jolted on landing because of the hard, rough ground, but neither it nor the equipment suffered the slightest damage.

Danilin, our navigator, was the first to alight. There was not a soul to be seen, but a minute later he noticed an old and dilapidated automobile bounding over the hummocks towards us. A young man jumped out and addressed Danilin in English. We had provided for such an emergency in Moscow and had had the following note written for us in English: “We are Soviet airmen flying to America from Moscow across the North Pole. Please inform the Soviet Ambassador in Washington, the local authorities, and the nearest flying field that we have safely landed.”

The young man leaped into his car and dashed to the telegraph office. A moment later the field was invaded by people and automobiles. Learning that we had flown from Moscow, the inhabitants of San Jacinto at once began to assail us with requests for our autographs. A military airplane arrived from Marchfield. The major placed a guard on our plane and bore its crew off in an automobile to Marchfield. There referees were appointed to examine our barographs and gas tanks and to determine the coordinates of our landing place.

After this we were no longer our own masters. We were visited by not less than a hundred press reporters and photographers daily. After our long journey we were allowed only three hours to rest in, although our obliging hosts of the American Air Force at Marchfield did everything in their power to make us comfortable. They even forbade all flying in the neighborhood during the three hours we were asleep so as not to disturb our rest.

Telegrams came pouring in. I was already awake when congratulations arrived from Comrade Stalin and from the leaders of the

Communist Party of the Soviet Union and of the Soviet Government. What could we reply to such a mark of attention? My comrades and I sent a return message to the Kremlin in Moscow containing the assurance that we would be happy to perform any other mission for the benefit of our beloved country.

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If we were asked what part of our journey from the U.S.S.R. to America seemed to us most dangerous, we would say that it was the route from San Diego to New York.... We were deafened by the shouts of welcome, rendered inaudible by the speeches we delivered at banquets, and blinded by the endless magnesium flashes of the ubiquitous reporters and photographers.

The Americans are great admirers of technical progress. I think that the cordial reception we were accorded by the authorities and the enthusiastic welcome we were given everywhere by the American people must be chiefly regarded as a tribute to the technical achievements of Soviet aviation. Our flight was not undertaken for sensational purposes; our aim was a technical one—to establish the shortest air route between the U.S.S.R. and the U.S.A. There was a fairly large amount of fuel left in our tanks when we landed, and had we desired we could have continued our flight still further.

We flatter ourselves that our flight has helped to strengthen the ties of friendship between the two countries. It has also performed no little service in respect to the exchange of experience between the aircraft industries of the two countries. We have still a lot to learn from the Americans in regard to flying and the making of flying machines.

It is with a feeling of warm regard and gratitude that I recall my meetings with Upton Sinclair, with Ernie Smith, the famous pilot who was the first to make a long-distance flight from San Francisco to Honolulu, and with many other Americans.

We were very cordially received by Mr. Roosevelt, President of the United States.
Mr. Roosevelt impressed us by his vigor, energy and vitality, and by his simplicity of manner. Our meeting with him will always remain one of the most significant recollections of our American visit.

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To sum up, it may be said that the great Land of the Soviets has made considerable progress in the sphere of aeronautics. Its designers and industry are producing excellent planes and motors. Splendid airmen are being turned out by its flying schools and by the Red Army. The U.S.S.R. is a flying country. There can be no doubt that in the near future new and striking records will be established in height, speed and distance. I myself have no doubt that the Soviet Union will not lag behind other countries in this respect; if anything, it will outstrip them. It has all the potentialities for it.