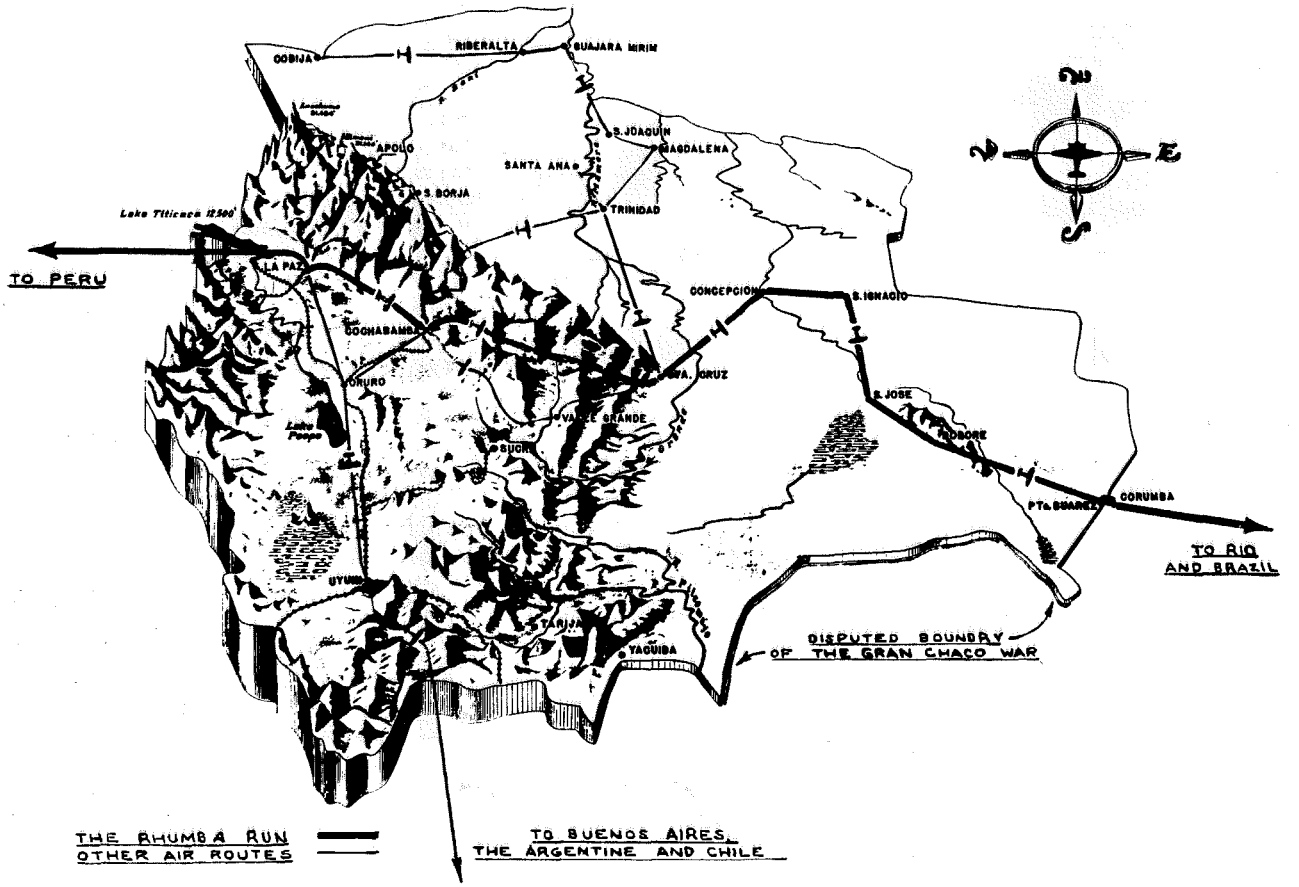


Sketch map, Bolivia and the Rhumba Run.

RHUMBA RUN

By BRADLEY YOUNG

Part I

NEXT Monday morning promptly at 5:30 a.m. a loaded DC-3 transport will pull away from the ramp at Lima, Peru. Under a low overcast the air is clear and a little cold. Eastward the coming daybreak lies as a thin, faint line of light above the hills. Away from the platform glare, red and green wing-tip running lights are the only part of the plane visible as it turns into the far end of the runway. In the cockpit the captain eases the throttles forward, starting his engine check. Propellers full low pitch, mixture rich, carburetor air cold, cowl flaps trail, and the super-chargers whirling 18,000 times a minute to cram their load into the cylinders. The engines idle back a moment, then break to a full-bodied roar. Twenty seconds later the plane hurtles the low adobe fence at the south boundary of the field and is off. Back under the tail the lights of San Lorenzo Island and the harbor at Callao drop away and rapidly disappear. The pilot climbs steadily and prepares to go on instruments as he enters the solid overcast. Seventy miles south of Lima the plane breaks through and is on top of the clouds at 9,000 feet. In a short time the sun shoulders its way above the towering rock wall of the Andes that parallels the course. Passengers draw their window curtains against the glare, stretch, and turn to the early morning edition of the "Comercio." One of the most remarkable flights to form a part of modern transport aviation is well under way. It is a flight that cannot be forced into the commonplace even by the monotony of day-in and day-out repetition. Its beginning lies back in aviation developments started more than 18 years ago. Some of the reasons for its more unusual features are rooted deeply in the wild, rough geography of the continent, others lie in customs that have grown up since the beginning of South America as a vast crown colony of Spain.

As in other professions the men that fly this route have a marked lack of reverence for the work nearest at hand. Put a "Fast Express" on the company's schedules, describe it as such in travel folders, and the pilots promptly dub it the "Gee Whizzer." In the same way the "Transcontinentál" of the timetables has been known since its start as the "Rhumba Run" to those responsible for its execution.

Starting in Lima the Rhumba Run follows the barren, arid coast of southern Peru to the Chilean border town of Arica. Climbing out of Arica the pilot slips on an oxygen mask, winds open the valve, and heads eastward toward the high Trans-Andean passes leading to Bolivia. The purser comes forward and soon oxygen is also hissing gently through supply lines to the passenger cabin. Beyond the Andean passes the ground widens to a high tableland. Passing over this and on eastward the plane cuts a corner of Lake Titicaca. Beneath, flocks of pink flamingoes move on diagonal tracks. Their wings beat the thin air rapidly as if trying to catch up with their long outthrust necks. Farther below some Indians move the big reed sails on their balsa boats and don't even look up as the plane passes. With the lake behind, the first stop in Bolivia is made at La Paz. From La Paz the route swings southeast to Oruro and Cochabamba. Overnighting at this point the plane again leaves on daybreak for Santa Cruz to the east. Beyond Santa Cruz the line saw-tooths back and forth to take in a number of smaller towns from Concepción to Roboré and Puerto Suarez. Ten minutes after taking off from Puerto Suarez the pilot noses into his approach glide, calls for the flaps and gear down, and lands at Corumbá, Brazil, in the very heart of South America.

Corumbá is a small, quiet town and a pleasant place to stop for the night. After dark the stars burn with a winking yellow light in a sky of tropical velvety blackness. Whole families sit at little sidewalk tables in front of the Bar Americano. They speak Portuguese in low tones punctuated with occasional laughter. Mingling with this are the river sounds of the Paraguay as it flows past the cliffs at the end of the street. Misnamed, the Bar Americano is really an unsophisticated ice cream parlor. If you ever make it, ask the waiter for a tall glass with two scoops of ice cream and a bottle of chilled Guaraná. This last is made from a rich, full-flavored Brazilian fruit of the same name. Pour the Guaraná over the ice cream. After the heat of a long day's flight it makes a better soda than any ever set on the counter of the corner drug store at home.

Although it begins in Peru and ends by joining *Panair do Brasil* in Corumbá, the Rhumba Run has its main sweep over Bolivia. In a space about a sixth as large as the United States, Bolivia possesses a greater diversity in climate and geography than any other area three times its size on earth.

Roughly the country can be divided into three sections. To the southwest lies the great Andean Altiplano. This vast plateau is more than two miles above sea level. Its rim is bound by great serrated ridges of the Cordillera that rise another mile and a half above the plateau floor. In this region is located most of the Western Hemisphere's tin, now vitally needed for the defense of the Allies. The quantities that exist here of manganese, chrome, ore, wolframite, and other minerals now coming out in a growing stream have not been more than guessed at. Also in the same area on the south shores of Lake Titicaca lie the ruins of Tiahuanaco. Locked in a high bleak wilderness of rock, they may mark the birthplace of civilization in the western world. More surely they mark the beginnings of civilization in South America and represent a race of people gone long before the Incas.

To the north and east of the Altiplano are the Departments of the Pando and the Beni. This region is a land of mahogany, native almonds, dye woods, and high grade rubber. Farms of cotton, corn, and semi-tropical fruits spot the river banks. The highways between these patches are the rivers themselves, floating a strange collection of boats. Loads of vegetables move from place to place on balsa rafts. Some of the Indians have graceful dugout canoes hollowed from solid logs of lignum vitae. Their lines are as smooth and clean as a six-meter yacht. One farmer near Riberalta has a contraption made of six such canoes lashed together and powered by four old outboard motors. Steering a straight course and keep-

AT LEFT:

Native balsa boats on 12,-500-foot high Lake Titicaca, at the northwestern edge of the Altiplano.

ing all four engines going at the same time is a real feat of marine engineering. Back of the river farms run wide stretches of grazing land dotted with longhorn cattle. In the southeast of Bolivia lies the Chaco. The upper part of this is mostly jungle with some more farm and grazing land. Southward the ground dries and the vegetation thins. Near Tarija the country appears to be a waste. It's the same sort of waste that tops the world's great oil reserves from Kettlemen Hills to the Persian Gulf, for underneath are the rich Tarija and Chuquisaca petroleum deposits.

BOLIVIAN AIRLINE BEGINNINGS

The difficulties of ground transportation between these sections of Bolivia are immense. Twenty years ago no one had any reason to know this better than Hans Grether. Grether was a German railway engineer, oddly enough the first to conceive of an airline as a solution to Bolivia's transportation problem. In 1924, Grether managed to interest Guillermo Kyllman, the driving force in the firm of Kyllman-Bauer. This importing company had agencies in all of Bolivia's key towns, considerable influence with the banks, and definitely represented Big Business.

Late in 1924, agitation was started publicly for an airline. This was done mostly by German colonists in the vicinity of Santa Cruz and Cochabamba. These colonists started a collection for purchasing a plane to be presented to the Government on the centenary of Bolivia's Independence from Spain. The idea was that this plane, owned by the Government, would be operated to furnish a commercial air transport service. The plane chosen was a German Junkers and the factory sent Walter Jastram from the Junkers Technical Mission in Argentina to Bolivia to carry out the preliminary spade work in the selection of routes, etc. With this done the colonists deemed the time ripe and put in their order for the first plane, a single-motored affair carrying four passengers and a crew of two. Named *El Oriente* by the colonists, the plane was one of the Junkers Company's most famous models. As far back as 1919 a group of these all-metal low-wing monoplanes had been sent to the States where they established a number of flight records and carried part of the early airmail.

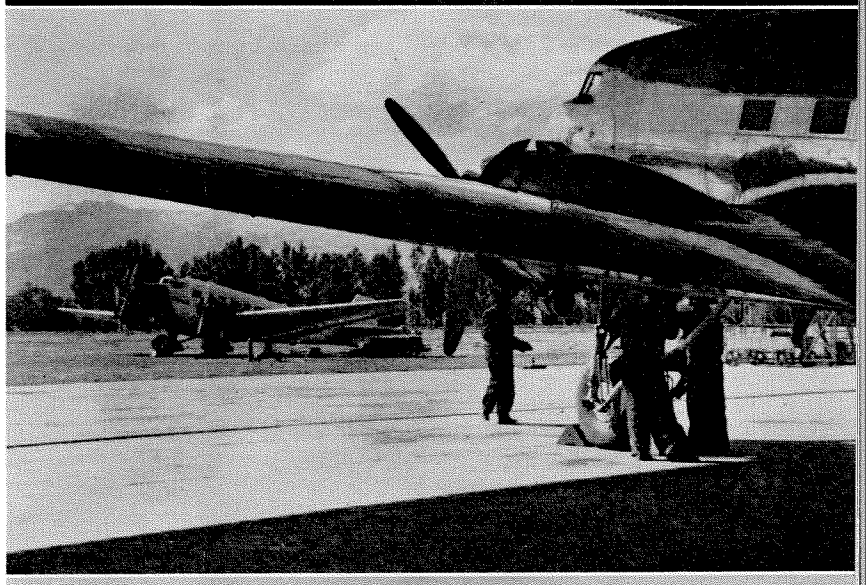
El Oriente finally arrived in Cochabamba during July of 1925 after a long trip by boat and rail from Germany. As pilot the Junkers Company sent along Willy Neuenhofen who made the first flight on August 6 between Cochabamba and the town of Sucre. In a short period a number of flights were made to Potosi, Oruro, and Santa Cruz for the purpose of stirring up interest in the new venture. On August 16 the plane was formally presented to the Bolivian Government by the colonists as originally planned. There was quite a ceremony. The railway had aided by shipping the plane free of charge from Arica to Cochabamba. The Ministerio de Fomento had aided in securing gasoline. The President of the Republic was named *Padrino* or Godfather to the enterprise, and after the Bishop had blessed the plane with a liberal sprinkling of holy water everyone was very cheerful. Guillermo Kyllman made a fine presentation speech and indicated that the first route was to be between Cochabamba and Santa Cruz. This was the first portion of what is now the Rhumba Run. The only concerned person not present at the ceremonies was Jastram. A bad case of *soroche* or altitude sickness was enough to cause him to lose all interest in the proceedings. The first official flight was made late in September by Pilot Neuenhofen, with a mechanic, and some Government officials. They made the trip in a fast hour and 45 minutes, only 10 minutes slower than the scheduled time today. By surface means it still takes two weeks to cover the same ground in good weather, and as long as two months when the weather is bad, as it often is. This new airline was to be a real aid to Bolivian progress.

OTHER SOUTH AMERICAN BEGINNINGS

At the same time developments were getting under way in Bolivia other South American skyways were being opened. Junkers had already sent a commercial mission to Argentina. In 1922 a similar mission was sent to the Central American countries. Gomez, "iron dictator" of Venezuela, had been approached for a franchise there. In Colombia the German-controlled airline *Scadta* was well underway. Having its start in 1919 as one of the world's first commercial airlines, this organization was to become particularly strong. In a few years it had mushroomed to the point where the Colombians could claim more miles of airline per inhabitant than any other country on the globe. In Brazil, Chile, and other South American countries the story was the same. The German Junkers Company was not the only one at work. Aero Postale, later to become famed as Air France, was trying for a real foothold on this new ground.

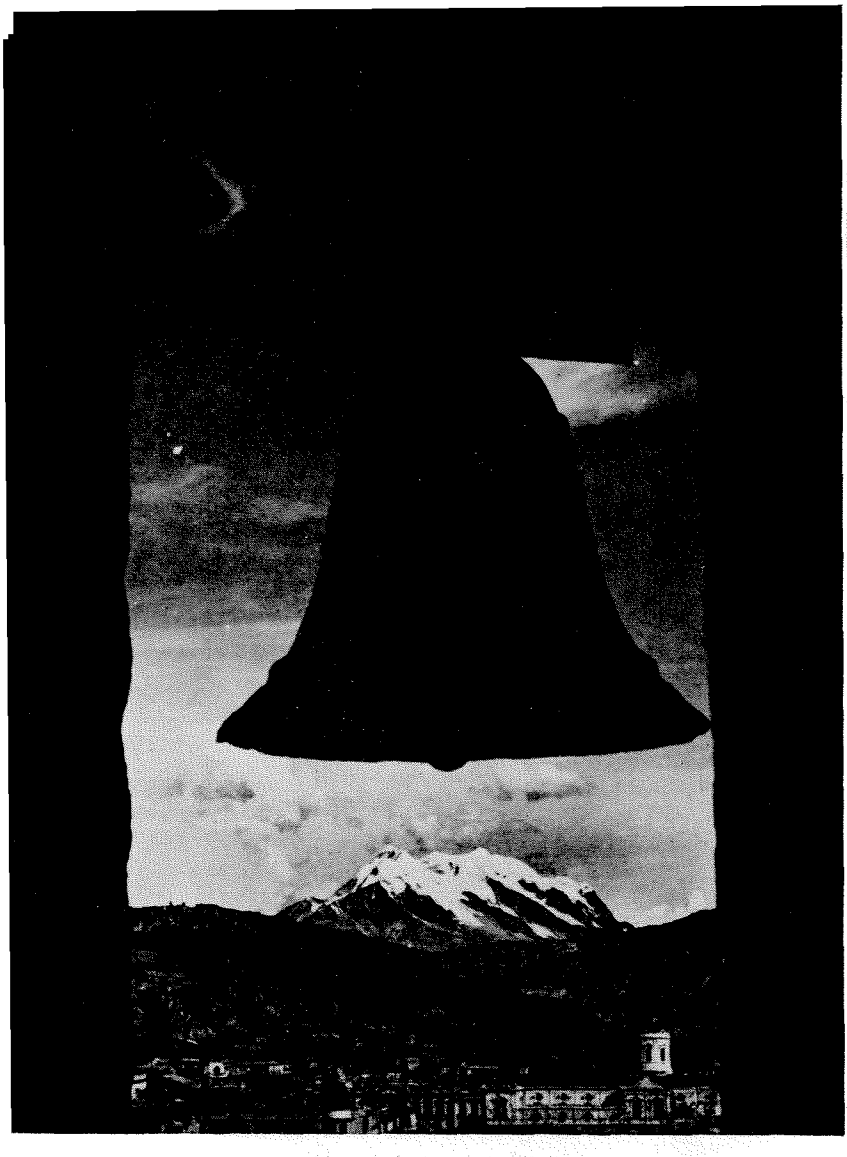
There were American interests too. The year 1926 found Juan Trippe resigning from his newly-formed Colonial Air Transport Company. The backing bankers couldn't see anything beyond their 200-mile run from Boston to New York. In 1927 Trippe started the forerunner of Pan American Airways with a one-plane one-hop airline running from Key West to Havana. Fourteen years later this same line had grown to a 90,000-mile system serving hundreds of cities in more than 60 countries.

In Peru there was the beginning of an airline development that would later touch Pan American and the Junkers interests mightily. Peru, for all its mineral wealth, has largely an agrarian economy. The backbone of this economy is formed by thousands of irrigated acres of fine long-staple cotton spread up and down the dry Peruvian coast. With the cotton was the inevitable boll weevil. Growers were just beginning to find that a most successful way to combat this pest was by airplane dusting. In 1926 the old Huff-Daland Company specializing in this work sent a young man to Peru as their general manager by the name of Harold Harris. He was more than manager. He was chief pilot, mainstay of the mechanical staff, purchasing agent, comptroller, bookkeeping supervisor, and general fixer-upper. His qualifications were an engineering degree from the California Institute of Technology, flight time on the Italian front in World War I, and some harrowing years as test pilot for the United States Army. Dusting cotton in a place as remote as Peru wasn't too easy even with this excellent background. In addition to the dangers naturally incident to the type of flying involved there was the problem of equipment maintenance. Break a plane or engine part and the crop, the small portion the boll weevil had left, might well be harvested before a replacement piece could arrive. In the succinct words of Manager Harris himself: "It was hell." Nothing could make the desirability of an airline linking the Americas more apparent than a few of these occurrences. Harris worked on the idea. He landed in New York in 1927 and went at once to Richard Hoyt, part owner of the cotton dusting concern and executive in Hayden Stone and Company, old line New York bankers. Hoyt was also a friend of Juan Trippe and of the heads of W. R. Grace and Company. Started years ago by an Irish ship's chandler, Casa Grace now had a finger in every business pie on South America's west coast. They dealt in everything from copper mines to cotton, from rum and molasses to Panama hats. To them at the time an airline was just another small sized pie, but a pie they could not afford to keep their fingers out of. The final outcome then of the Harris-Hoyt-Trippe conferences was Pan American-Grace Airways or *Panagra*. Its first



AT RIGHT:

Views around the airports on the Rhumba Run: Top view—getting ready for the take-off at Santa Cruz. Second view—servicing a DC-3 on the Run. In the background is a Junkers 52. Third view shows a crowd of airport bystanders. Lower view—Panagra plane outside the Cochabamba hangar, high on the Altiplano.



Church bells at La Paz.

flight, operating then as Peruvian Airways, was made in September, 1928, from Lima north to Talara. The company's only plane was a Wright Whirlwind-engined Fairchild about as large as the family sedan.

By this time the Bolivian Junkers concern had become known as Lloyd Aero Boliviano, or *Lab*. No one seemed to know just how the name chosen was decided upon. There was no connection existing with the German Lloyd Shipping Company. The name of this firm was well known and carried great weight, however. It is probable that the word Lloyd was picked for the airline due to its connotation of large enterprise.

HEMISPHERE DEFENSE

Then, *Panagra* and *Lab* were as remote from each other as any two airlines could be. Thirteen years later the desire of the American Republics to transform hemisphere defense from a dinner topic to a working project brought a change. Axis-controlled airlines and those owned by North and South American interests were brought squarely against each other. The cause was not normal competition but something far deeper and more fundamental. Right from the start American airlines had stuck strictly to the air transportation business. Axis subsidized airlines had not. In Colombia ranking Luftwaffe flight officers were brought from Germany for familiarization training with *Scadta*. The *Scadta* routes passed within 250 miles of the Panama Canal Zone. The volume of airline meteorological information sent to Germany from Colombia and other countries indicated that the recipients had more than an academic interest in South America's weather. At what were the Nazis aiming? They were shooting for more than the profits to be gained in hauling air passengers for hire. At Dakar the Axis Powers were only a little more than 1600 miles from Natal on South America's hump. This is much nearer than the Japs were to Pearl Harbor. At Natal a Nazi toe-hold might be much more worth the effort. A network of strategically placed airports and routes and a group of experienced pilots to fly them would be of inestimable value in an offense against the Western Hemisphere. The Nazis have known this for years. The Americans caught on too, but not so quickly. It took a few things like the Belmonte incident to wake them up. On June 9 a year ago Major Belmonte, the Bolivian Air Attache to Germany, mailed a letter to German Minister Wendler in La Paz. The letter, which was intercepted, read as follows: "We have received all maps showing the most favorable spots for landing. These show me once more that you and your staff are doing excellent preparation for the realization of our plan in favor of Bolivia . . . With the victory of the German Reich, Bolivia will need only work and discipline. . . . I will fly to Brazil upon your advice and take Cochabamba and Santa Cruz, where I have good friends." In Bolivia the present governmental regime and the large majority of the lesser citizens feel very strongly and very rightfully about a Bolivia by and for Bolivians. This convinced them that Señor Belmonte had held a one-man election and elevated himself to the position of *Fuehrer* against the coming of *der Tag*. Probably one of the least things it did was to reaffirm the belief of President Peñaranda and his ministers that government action in taking over *Lab* a month earlier had been in Bolivia's best interests. Presumably Belmonte, now very much a *persona non grata* at home, is still cooling his heels in Germany awaiting victory of the Third Reich.

If a Nazi thrust had come at South America, the fields and routes for which they had such plans would no doubt have been used against them. Bombers based in the interior would form strong backing forces for units flying from fields farther to the east in other republics. These planes could sweep South America's coast from the Orinoco to Cape Horn. Bolivia is a vast natural fortress for such an operation. Its front is protected by a million square miles of jungle. In a place where even the local boys get lost, no invader in tennis shoes is liable to walk through. Bolivia's railroad connections to the west coast ports of Antofagasta and Arica, and airline connections to the United States form an excellent back-door line of supply. Certainly at the start and in the middle years no one could foresee such a result from South American airline beginnings.

LAB—THE MIDDLE HISTORY

After its first flight in 1925 the progress of Lloyd Aero Boliviano was rapid. Bolivia recognized *Lab* through a supreme government decree and was induced to establish an annual franchise of 70,000 Bolivianos for a mail and cargo service. They also granted 130,000 Bolivianos to be put up with money of the *accionistas* or stockholders for the purchase of three more planes. Jastram at this time was ordered by Junkers to assume the technical directorship of *Lab* and make plans for extending its services. After a meeting of the *Lab* directors, the services of Jastram were accepted and he was

appointed general manager. His work at the time wasn't made any easier by the loss of his best pilot, the man who had carried out all the company's first flights. Neuenhofen quit. He had been a test pilot for Junkers in Dessau before coming to Bolivia. In those days such a job couldn't have been much of a sinecure. Six months' flying over all sorts of Bolivian terrain in single-engined aircraft had convinced him however that the test pilot's job was the lesser of two evils. He returned to Germany and Junkers, later establishing a number of world's flight records. Jastram made plans for extending the airline into the Beni country but never got a chance to carry them out as he was removed from managership.

His successor was an amazing individual, Herman Schroth. This gentleman was the sort whose story is never completely told by the bare records on the books. The author first heard of Schroth's adventures from Ken Schlicher over a *salteña* in Cochabamba's Plaza Bar. Until 1941 Schlicher, of Pennsylvania Dutch descent from around Harrisburg, was the only United States citizen employed by *Lab*. He was hired by Schroth in 1935 to head the *Lab* Communications Department. Schlicher's qualifications for his new job were a very considerable knowledge of radio and an equally important ability to speak fluent German.

As the *salteñas* in the Plaza Bar are large and excellent, the Schroth story was drawn out in considerable detail. For the uninitiated, a *salteña* is a semicircular pouch of brown flaky crust with a filling that defies exact translation from Spanish into English. A close approximation could be obtained by mixing a bowl of chili, the filling from a mince pie, and a New England boiled dinner. The end result is surprisingly good.

As the story goes, Schroth came to Junkers and *Lab* with the background of a technical education from the University of Stuttgart, two years in the German Naval Air Service, and a short time spent in the Heinkel works at Warnemuende. He was quite a pilot, and in 1926 flew a Junkers from Germany to South Africa, being the first man to cross the Mediterranean by air. In 1927 Schroth assumed full managership of *Lab*. He also was chief pilot and held ex officio the job of general purchasing agent. This was a large order for a young man of 27. At the same time he was a representative and salesman on commission for Junkers. It was this last combination of salesman on one side of the fence and purchasing agent on the other that got him into eventual trouble. Still later this trouble was to have its part in causing the Nazis to lose their hold on *Lab*.

From 1927 until 1932 the expansion of *Lab* under the leadership of Schroth was rapid, if not too sound. In the north the rich Beni country was opened up. What had been a 45-day expeditionary trip from Cochabamba to Trinidad became an easy hour and a half ride. Cheese, hides, chocolate, the sun-dried and salted beef the Indians call *charqui*, and a host of other things began to move to the markets at Cochabamba, Cliza, and La Paz. Out also came an occasional sick or injured person who might otherwise have died from lack of hospitalization in the interior. Moving in from Cochabamba to Trinidad, Todos Santos, and Cobija were quantities of salt, kerosene, sewing machines, and a hundred different commodities. Frequent among these shipments then, as today, were dozens of sacks of *chuño*, a type of small Andean potato. These potatoes, grown only on the higher slopes of the Sierra, are processed by an alternate soaking in the icy mountain streams and then freezing. The final product looks like something normally used to feed a concrete mixer, but not a human being. As might be expected, their processing makes them practically indestructible. This is important in districts like the Beni where the hot damp weather and lack of refrigeration cause rapid spoiling of fresher vegetables.

Pushing in another direction the company began to fly farther eastward over the wide *llanos* or grass lands that lay beyond Santa Cruz. Aerial navigation here was difficult, much like the problem of traversing the ocean. Ahead, out of the haze, the horizon comes up hour after hour, flat and without landmark. Beneath, every passing kilometer of ground appears like every other one, a sun-dappled broadloom carpet of green trees and undergrowth. The air is hot even at 10,000 feet. The cockpit fills with a mixed odor of auto-pilot oil, lacquer, and hydraulic system fluid that the heat intensifies. Except in the passenger cabin where regulations stipulate otherwise the crew pushes along with rolled shirt sleeves and opened collars. During most of the year a large part of the land beneath lies flooded and impassable. This isolates the slightly higher planes of fertile well-drained soil that might be tilled or used for raising cattle. Except by air such spots lie as remote as the mountains of Tibet, with resources that might never be realized. In addition to forming an opening wedge in this new country the last extensions gave *Lab* and Bolivia a connection with Rio and the entire east coast of South America. This was effected through cooperation with the Condor airline in Brazil, another Junkers-dominated concern.

In 1932 came the War of the Gran Chaco. *Lab's* normal operations were subordinated to moving men and munitions into the combat zone of southeastern Bolivia. Ground transportation had not changed since Don Armando Ayolas crossed the Chaco in 1537. Below the shuttling planes long lines of pack burros moved slowly through the heat. In Bolivia some circumstance has produced a breed of burro almost ridiculous in appearance. These animals are covered with hair as black as a coal bin and as long as the wool on an Angora goat. The very young animals look like nothing but a pair of immense ears and eyehalls running around on a set of fur upholstered stilts. The older burros develop a white line of fur around the eye sockets. This, with their grey-white lips, turns them into animal counterparts of circus clowns or end men in a minstrel show.

During the Chaco the government was to all intents and purposes in partnership with the airline. More planes were purchased and at the end of the war the fortunes of *Lab* were definitely in their ascendency. After the war the government called for an audit of the company's books. This established their ownership of 42 per cent of the stock with the rest split about equally between the public, mostly German colonists, and the Junkers Company.

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Mr. Young's interesting article will continue in the October issue of Engineering and Science. The second instalment will describe the difficulties with Nazi-controlled lines, future possibilities for development of South American airline routes, and the difficulties encountered by pilots making the Rhumba Run. The October instalment will also be profusely illustrated.