

The simple little sun compass scored over the sophisticated, expensive computers in the first non-stop jet fighter flight from England to Alaska across the North Pole on a route survey.

JULIUS CAESAR FLIES

By CHARLES F. BLAIR, JR.

Brig. General, AFRes



The crews of the historic jet fighter flight, *Julius Caesar*. Lt. George Woody looks on as the author checks his watch, while Captains Bob Titus and Al Kucher stand by after the F-100s had landed at Eielson AFB.

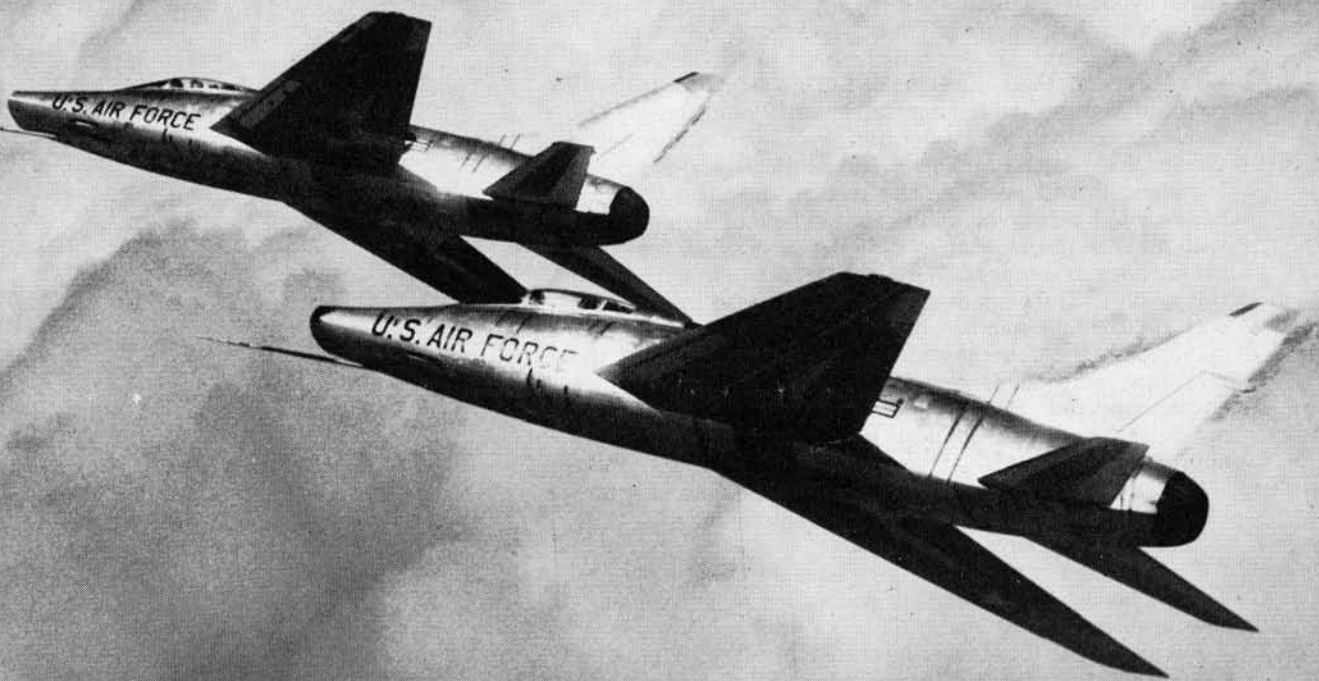
JULIUS CAESAR is ready to roll." The voice reaches across the English fields to the Wethersfield tower. But there are no Roman legions in battle array. Instead, attention is focused on a pair of droop-snouted birds waiting expectantly on an airfield runway. If the old emperor suddenly came alive, he wouldn't recognize the species. Thousands of years have elapsed. There are no feathers on these birds. We've simply adopted the emperor's name as a call-sign, having been down in Italy the past few weeks on a test mission.

The Air Force is always trying to cram a bigger mission into a smaller package; which is as it should be. This is the gist of our program on this sunny August afternoon at Wethersfield on the outskirts of London. *Julius Caesar* is scheduled to be the first flight of jet fighters across the Arctic Ocean. In the bargain we'll go all the way to the top—to the North Geographic Pole—and thence Alaska.

This route, incidentally, is not identical to the polar routes of the airlines which, with few exceptions, barely infringe the Arctic Circle. Today we're looking for perspective from the topmost point on the globe. The flight is a route survey to test the potential of transferring tactical fighters across the Arctic regions. If the far northern routes prove to be feasible, it will be in the cards to transfer these potent little packages between the Far East and Europe—or vice versa—in less than a day. This potential of going to work quickly in either theatre is not to be sneezed at.

However, a deployment route wouldn't reach as far north as the geographic pole. There's an extra reason for going all the way to the top. We've got some black boxes to play with; computers which automatically help solve the riddle of where an airplane has been and where it is going. In one airplane the electronic brain is a large, ex-

NORTH



North American F-100s such as these made the long flight from Wethersfield on the outskirts of London over the pole to Alaska.

pensive model. In my aircraft there's a small one, much less costly. Which one will better fill the bill?

Our aircraft for this investigation are North American F-100F Super-sabres, named *Excalibur V* and *Pole Cat*. They have supersonic speed if need be, but not today. We've got too far to go—4,735 miles non-stop. Although there's only one engine, this model of fighter has two seats. A co-pilot makes a plush deal. We can spread out the work.

My colleagues are all F-100 experts. Capt. Bob Titus, who flies the second of our aircraft, is one of the better known test pilots in the fighter business. He is from the Air Force Flight Test Center at Edwards Air Force Base in California. For the past five years Titus has been wringing out all sorts of high performance jet fighters over the California desert, and in Europe as well. He was in charge of navigational tests of these F-100s at Edwards where he

inadvertently became a navigator. Events will prove him a good one.

Capt. Al Kucher, who flies with me, is from the Far East Air Force. He is from Japan, as is First Lt. George Woody who flies co-pilot for Titus. Kucher and Woody are from the first line of tactical fighters; fellows who are scheduled to carry the first ball if the bell should ring.

Col. Jay Robbins, Commander of USAF's 20th Tactical Fighter Wing at Wethersfield, has wished us luck. This balmy afternoon in England finds us overdressed, prepared as we are to become Arctic pedestrians if an engine should balk. However, the need for this attire has been no burden to our spirits. This should be a good trip, and we're a little agog with the prospect. Still it's the kind of journey that could look easy only in retrospect.

I jam myself in the front seat of the lead aircraft. Captain Kucher, in the back, does the same. We're scheduled to

inhabit this cage for 9:31 hours—so says the flight plan.

As we taxi, a matter-of-fact voice from the Wethersfield tower rattles our helmet earphones with an airways clearance. "Julius Caesar, you are cleared to Eielson Air Force Base via flight plan route. Climb out on a heading of three-three-three." The man in the tower could easily be stifling a yawn, the clearance sounds that simple. We might just as well be hopping up to Sculthorpe, 100 miles away.

That so-called "flight plan route" calls for certain special arrangements. We'll be meeting our mid-air refueling tankers in some remote places, north of Iceland, and again north of Greenland. There should be a last drink of fuel directly over the Pole. The emphasis today is on precision, for tankers as well as fighters.

The two birds are soon together at the end of the runway, blasting away with the engine run-up. My engine power gauge sticks but a bang with the fist frees it. The needle swings around indicating there is plenty of soup. An outboard movement of the throttle causes the afterburner to erupt with a gratifying roar. Fires burn thunderously in the tailpipes as we lift off at 13:53 plus 35 seconds on the Greenwich clock. Next stop—Alaska.

Anglia Control dictates a flight level of 28,500 feet until we're beyond their jurisdiction. This happens to be a civilized country with many airliners flying about. The traffic control will loosen up after we've passed the Arctic Circle. We're soon past Prestwick, Scotland, and are pushing along at fair speed in the teeth of a stiff quartering headwind. I gaze down on the rugged land of my ancestors with a blank stare and then rummage around in the cockpit for the sun compass. We'll ride herd on the gyros with this gadget. Titus has one just like it. These instruments cost \$14.95 each, war surplus.

I'm slightly flabbergasted to discover that one of the reference marks for alignment of the sun compass mount has disappeared. However, after some thrashing about in my cage, the compass mount is eyeballed into a reasonably approximate position.

Before making the fix I had made the mistake of grumbling about the problem through the intercom.

"That's great," says Al Kucher.

This teaches me to stop grousing into the intercom. There's no use disturbing my colleagues with surmountable problems.

But now that the device is reasonably fixed I practice the business of steering by the sun until it comes easy. After Iceland the steering chips will be down. There must be no fumbling with this gadget.

A particularly important chore is to keep track of my wing man. If he should be forced down it will be vital to record his precise position, etc. In such an emergency our automatic computers will help mark the spot.

Titus maintains a discreet separation when he practices his sun steering. When he's not busy with this job he rides closely alongside at times. In this perspective the glistening beauty of his plane is highlighted in the rays of a descending sun. A pole-cat decorates the nose, gazing impudently from behind a barber pole. A luxuriant black and white tail coils around the pole; significantly, we hope.

After leaving the Scottish control zone, we climb to 35,000 but immediately drop back down a few thousand feet when the Doppler radar shows we've popped up into the core of a jet stream headwind. Far below the blue-black North Atlantic is kicking up froth but our engine is running without a discordant murmur and I don't hear any complaints from the *Pole Cat*.

Scotland is 1:20 hours astern when we sight Iceland, a tiny section of its south coast appearing from under a cloud. It's time to start thinking about fuel. There will be tankers from England astride the Arctic Circle to the



On the ramp at Wethersfield AFB, prior to the transpolar flight.



The author conducts a cockpit check on his *Excalibur V*, the lead plane.



Col. Stephen W. Henry, commander Eielson AFB, greets polar pilots.



Walter Welch, manager KTVF, Channel 11, Fairbanks, interviews Blair.

north of Keflavik. They call themselves "Amiable."

"Amiable from *Julius Caesar*."

The first call makes a contact. Our aerial gas stations are ready to do business exactly as advertised. In a few minutes we'll be swooping down on them.

While approaching Keflavik we spot a fighter making a head-on pass. I break left and Titus breaks right. The fighter goes between us. We don't know exactly what he had in mind. At any rate, it's hardly possible we could be "incognito."

We join again and return to the fueling problem, chatting with Amiable as we come. Soon after passing Keflavik we ease slowly down toward the refueling altitude, closing fast on our tanker friends. Their birds are KB-50-Js, a hybrid species that sports a pair of jet engines as well as the four standard piston engines, an economical compromise with the jet age. Their radar man vectors us in from astern and we soon catch sight of them. Those old airplanes may be hybrids but they look mighty good from where we sit. As the fuel gauges drop lower, our affection for them increases.

This job goes to Al Kucher who's the expert. I missed some of the practice sessions this summer while riding herd on another assignment, my regular job of flying Boeing jets for Pan American back and forth across the North Atlantic. This is not the time or place for further

of fuel before taking leave of our efficient and amiable friends. We've chewed off a lot of mileage and now it's a new flight. Before climbing to altitude there's a glimpse of the dark waters of the Greenland Sea, studded with a myriad icebergs spewed by the glaciers that feed into Scoresby Sound. Jagged, snow covered mountains rise from the icy ocean, forming a vista of stark desolation.

Julius Caesar crosses the 70th parallel of latitude at 32,000 feet, heading due north. This marks the beginning of an 800-mile track along the east coast of Greenland. But to the north of Scoresby Sound we're out of luck for scenery, not to mention the navigational luxury of flying the coastline. Layers of lower cloud suddenly mask the coastal mountains and the far-flung ice cap. Thus we lose all touch with earth except for the fading radio chatter of the distant tanker men now returning toward Iceland. It's like flying in a void except for one tie. Low in the sky off the left wing hangs a glistening ball—the sun.

The sun has become our steering device, correlated with the gyro compass by way of the sun compass. My work with the sun compass has by now become reasonably nimble. The practice session before reaching Iceland has taken the rust off my technique.

The steering job must be a good one. From Scoresby Sound it's 800 miles to the next radio checkpoint at Nord on the northeastern extremity of Greenland, little more



"Chuck" Blair's *Excalibur V*, drag chute billowing out behind, after touchdown on the runway at Eielson AFB, Alaska.

practice. We're running against a timetable and are one minute behind the flight plan.

The fuel gauge looks somewhat anemic although there's enough left to return to Keflavik if the refueling apparatus fails to function. But it would only take a few false passes at the drogue to cause us to turn the tankers back toward our refuge at Keflavik, and refuel in a southerly direction.

No need to stew about that. Kucher and Titus are razor sharp, hitting the tanker drogues on the first pass. We start gulping the vital stuff, hanging onto the hoses until the fuel gauges show we're fat and full.

While fattening up we track due north, which will be our route for the next few hours. The north coast of Iceland at the Arctic Circle passes underneath, its tan, treeless cliffs rearing out of the waters of Denmark Strait. After filling our tanks, we back off the hose and fly formation with the tankers for a few minutes. It's a couple of hundred miles across Denmark Strait to Greenland. We'll stick with our big brethren for part of the distance and then top off our tanks. The extra gallons will allow a safe fuel reserve to return across Greenland to Thule if the next tanker rendezvous north of Greenland should misfire.

There are scattered to broken cloud layers lying about, but the visibility is good; so much so that the rugged mountains of Greenland come into view while still 100 miles distant. We go back on the hose, taking a last gulp

than 500 miles from the top of the world. There's only one discordant note to mar one's navigational complacency. On the bow of the canopy slightly above eye level is a tiny standby compass. Its magnetic reading is 60 degrees. It should read 35. The error is 25 degrees, as judged by the position of the sun. A ten-degree discrepancy might be expected in this area of Greenland. But 25 degrees of error doesn't add up. This causes an extra flurry of activity with the sun compass and an occasional cross check with my wing man.

The celestial computer loaned by SAC's top polar navigator, Maj. Dave Haney, gets a furious workout as the bearing of the sun is checked and double-checked. We continue to steer as it dictates without fudging a single degree. The magnetic compass continues to read an obnoxious 60 which goads me into a pessimistic frame of mind. The mental discomfort causes a trace of perspiration around the collar of my flying suit. I entertain visions of flying off into the ocean void that lies between Greenland and Spitzbergen. This would be navigational disgrace, among more disastrous aspects, not to mention letting down my friend, Gordon Graham, sponsor of this expedition, who runs USAF's fighter business in the Pentagon.

Steady, fellow. The sun never errs in its journey across the heavens. It's not subject to the (Continued on page 82)



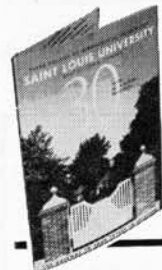
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Julius Caesar

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caprice of your man-made gadgets. I berate myself for indulging in moments of doubts.

An hour passes but the sea of milky cloud remains unbroken, merging all around into the brilliant blue of the sky. Finally we start tinkering with the radio compass. The northern reaches of Greenland are not far distant. The radio direction finder needle quivers, swings, then points directly over the nose. We're dead on track for the Nord beacon. The last trace of doubt fades away. Meanwhile our earphones have picked up a faraway voice. Soon there are more voices—radio chatter between big birds of a tanker formation which calls itself *Headburr*.

As we close the gap the voices strengthen and finally they're loud and clear. I recognize the voice of Colonel Tara who commands the tankers. They are from Tactical Air Command, Langley AFB, and are northeastbound, crossing the ice cap from the direction of Thule.

The tankers are approaching the beacon at Nord where we will rendezvous. There appears to be only one snag. Our friends from Virginia are flying formation on instruments in the clouds. "That's great," chimes in Al Kucher through the intercom, neatly pinpointing our collective reaction. We'd all appreciate a little visibility for the hook-up; not too much, necessarily, but some.

We go on the air and carry on a brisk conversation with the distant refuelers. They are climbing in an attempt to top the clouds but, from where we sit at 35,000 feet, the tops below us look pretty high. Finally a voice reassures us they're between cloud layers to the north of Nord, with intermittent visibility.

We've crossed the 80th parallel of north latitude and have now become pips in their radar. Al Kucher flexes his muscles and uncages his eyeballs, making ready for his joust with the drogue. The tankers track due north toward the Pole along the 18th meridian of west longitude. In hot pursuit we're vectored in from astern. We pass over the Nord radio beacon precisely on flight plan, boring down through the milky murk in close formation for the hook-up.

Momentarily coming into the clear at 24,000 between layers of thin stratus, we tally-ho the four tankers, then lose sight of them intermittently as they play hide and seek in the wispy clouds. Coming up from behind we finally get a steady bead on our targets as we draw in close. Our probes slam home on the first pass. My troops are real pros.

We hang on and get fat, occasionally losing sight of the rest of the formation in the formless layers of broken cloud. In a few minutes, when satiated, we drop back to disconnect from the streaming hoses. The latitude now reads 83 north, less than 500 miles from the Pole. We'll stick with our big brothers for more than an hour, then get our last drink of fuel at the top of the world before striking out down the meridian toward Fairbanks. This is our alternative plan—to stay with

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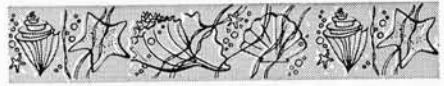
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the tankers if the weather so dictates. Today it would be imprudent to do otherwise. The visibility tends to worsen as we fly north.

The other plan was to whisk our way to the Pole at jet speed, then orbit in wait for the tankers, theoretically circling the earth with each orbit.

With an eye to the weather we'll let well enough alone. There'll be no such frolicking today. The tankers' auxiliary jet engines boost those ancient propeller airplanes along at pretty fair speed, but our fuel glutted birds find the pace a little sluggish. Their droop snoots rear up at a high angle to maintain the awkward gait.

Now if those were KC-135 tankers it would be a different story. There would have been no problem with clouds today, and we could have snuggled up in formation with a tanker mother ship at jet speeds to fly comfortably for thousands of miles together. A single jet tanker could have met us over England, kissed us good-bye at the Pole, then flown thousands of miles to tend other business.

We're not complaining. Our refuelers today have given us magnificent support. But those TAC tanker men up ahead wouldn't be grief-stricken if they got new tools in the form of jet tankers.

Our playmates maintain judicious separation from one another as we gambol through the mists. Eventually the higher clouds break away and disappear altogether, exposing far below an unbroken cloud deck that totally enshrouds the Arctic ice.

Our computers count away the miles as we slip on past 86-87-88-89 degrees of north latitude. The sun hangs low over the left wing, inviting a reading with the sextant that shows we've strayed a few miles left of our chosen meridian. Tankers and fighters turn a few degrees right to pin down the magic spot that marks the top of the earth's axis.

It's time to get back on the hose for that last drink—the one for the road, so to speak. We go to work on a pair of fresh tankers, but this time *Excalibur's* probe nudges the edge of the drogue's conical receptacle, pushing it aside toward the cockpit canopy and causing the heavy drogue to graze the top within inches of my helmet. As we move further forward the heavy black hose slithers like a snake along the top of our fragile cage.

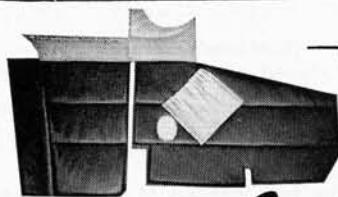
"That's great," says Al Kucher, as he pulls away. We back off to try again and are soon hooked up. In the meantime Bob Titus tells us his *Pole Cat* is guzzling away.

But the obstreperous drogue we've latched onto turns out to be a dud. The stinging black hose refuses to yield a single drop. The fuel gauge stares dolefully at my anxious visage.

A hollow voice from the tanker says, "Caesar lead, we've got no pressure."

Suddenly there's a new malfunction as the unruly hose starts a crack-the-whip motion. The long slender probe that juts from *Excalibur's* right wing bends crazily up and down with the violently whipping drogue. I entertain visions of the probe

(Continued on page 84)



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(Continued from page 83)

being ripped out by the roots to open a gaping hole in the fuel system.

"That's great," Kucher sums up the situation again as he pulls back and disentangles.

We've seen enough of this black, coiling monster and move over to stab another drogue behind the tanker's right wing. The fuel gauge needle climbs. We're back in business. Hanging on like hungry little pigs we cross the top of the world and head south. I hear a few chortles on the radio. Moments later the fuel gauges hit the peg. We say thanks and pull away.

A minute ago it was the evening of August 7. Now's the morning of the same day. We climb to 30,000 feet and start boring a hole down the 147th meridian. Some recollections come to mind.

I've come this way before—way back in 1951. It was a single engine machine that time, too—an F-51 Mustang fighter called *Excalibur III*. The name has been lucky so I've hung onto it. There was only one seat in *Excalibur III* and no wing man. The Arctic seemed like a different place when flying alone, perhaps a little more formidable than now; probably because there've been a lot of multi-engine trespassers de-sanctifying the far north in more recent years. Then, too, it's not such a lonely ride today. *Pole Cat* is close at hand and Al Kucher is on the other end of the intercom.

But there's another significant difference. The fighter airplane has ripened with the years, sporting gadgetry and electronic black boxes which let it do things a little airplane couldn't tackle before. It has grown out of its short pants—able to do strategic jobs if called upon, or to stomp out the brushfires.

Pressing south toward Alaska the sun is still our guidepost, now bearing slightly left of our collective noses. My sun compass wobbles on its unsteady mount so that the reading is not altogether precise, but there's no real problem. By an odd coincidence of flight plan timing we could—if lost—fly directly toward the sun during the scheduled three-hour run from the Pole to Fairbanks, and still arrive in Eielson's vicinity, albeit in a somewhat curved path.

To make a good radio landfall on the Alaskan coast it's not a bad idea today to err slightly to the right of our chosen meridian. Fudging the wobble of my sun compass I apply body English to the right.

On the other side of the world between Greenland and the Pole we picked up a bonanza of six minutes on the clock, putting us that much ahead of schedule when we said farewell to the tankers. With that kind of cushion it should be a cinch to breeze into Eielson on schedule. From 90 degrees north latitude to Eielson Air Force Base it's "downhill" across some 1,400 miles of ice plus a few hundred of Alaskan mountains. But the complexities of the flight are behind us. Now it's mostly up to the engine. Still it's a little early to be counting the flight plan chickens. It takes only a look over the side at the sprawling sea of broken ice to jar a fellow's complacency. But there's no use stewing.

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FLYING—January 1960

planes adds a measure of aplomb to the proceedings. Seven weeks ago we flew them across the middle Atlantic from Langley, Virginia, to England and Italy, via the Azores. We've got a lot of ocean under our belt.

Our computers click off the miles by the hundreds but the vast panorama of ice seems to go on forever.

At 80 degrees north latitude we're scheduled to pick up a tailwind, but the radar feelers of our Doppler bounce back from the ocean ice to tell us a very different story. The tailwind fails to blow. We must flog our horses or arrive late over Eielson, a blot on the navigational eschcheon.

The flight time analysis crystal-balled by Lieutenant Woody before departing England added up to 9:30.5 hours—overhead Eielson at 2324 Greenwich, early afternoon in Alaska. A week ago at the Pentagon the flight plan was billed at 9:27 hours—winds and weather sight unseen. We'll only slip a small cog on that one. At any rate we'll arrive in Alaska before we left England. The change in time at the Pole fixed that.

Pressing on toward the 75th parallel our earphones pick up a faraway voice, "Julius Caesar from Duckbutt."

Duckbutt is our air-sea rescue support plane patrolling 200 miles north of Alaska. "Welcome back to the cock-eyed world," the faraway voice seems to say.

As we close the miles, Duckbutt's radar spots us west of course, on track for landfall at Oligtuk. A new voice joins the conversation. It's Barter Island on the DEW line.

The coastline flashes underneath at 2245 and Bob Titus says, "The Arctic is a piece of cake."

That's what we always say . . . when the ocean is behind us!

With 400 miles to go we shovel on a little more coal, pouring contrails across the cloudless Alaskan sky. The mountains of the Brooks range slide behind. Winter changes to summer as every feature of the Alaskan landscape becomes a delight to eyes that have been starving on a diet of Arctic waste. It wouldn't be much trouble to push through to Japan, less than seven hours away. All that's needed is a single jet tanker to drop us off at the far end of the Aleutians.

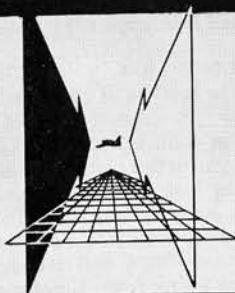
What else did we learn?

It appears that the small, inexpensive, unsophisticated computer won the day. Perhaps that's a victory for taxpayers and pilots as well.

At 35,000 feet over the winding Yukon we've got the end of the line in sight. Eielson is over the nose. But there's trouble ahead. The airstrip has been infiltrated by a big bull moose who stands astride our runway. The air police are arguing with him.

We lose seven miles of altitude in a hurry and scream across the base with the airspeed on the peg. The minute hand of the clock reads 24, just like that crystal ball told us, back in England. And the sonic boom won the argument for the Air Police. The Moose gave up and high-tailed out across the tundra, leaving the runway to Julius Caesar. END

FLYING—January 1960



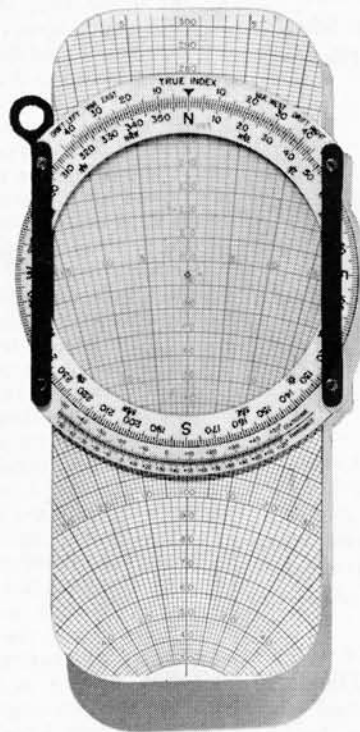
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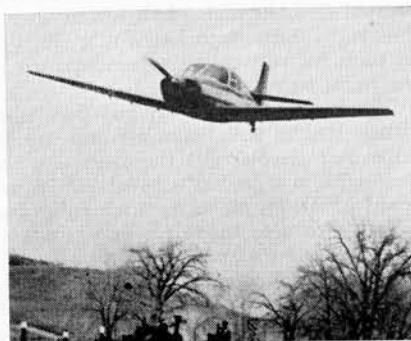
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