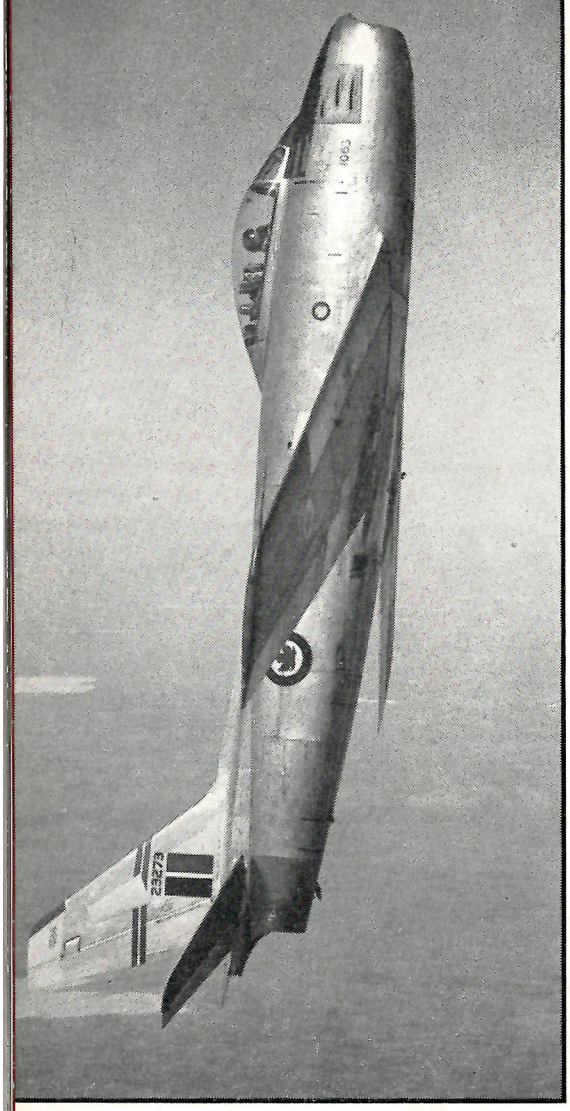


Jetography demands that the photographer be able to work in any attitude, as witness these pictures by the RCAF's Barry Herron (above) and Avro's Hugh Mackechnie (below).

JETOGRAPHERS

By R. J. CHILDERHOSE

With photographs by Hugh Mackechnie and Cpl. Barry Herron

IT DIDN'T look like that kind of a day. It was too nice for an accident. Perfect for flying; perfect for photography. Tired contrails hung in shreds high in the stratosphere as Avro photographer Hugh Mackechnie strode out to the CF-100 at North Bay. He'd been assigned to a favorite task of his: getting air-to-air pics of the twin-jet fighter.

With 480 knots aboard, the all-weather bomb rocketed across the greens and blacks of northern Ontario. Orenda-thunder hammered at the hills 1200 feet below. And crammed into an already crammed rear cockpit, Hugh Mackechnie braced himself for another pic. That's when it happened.

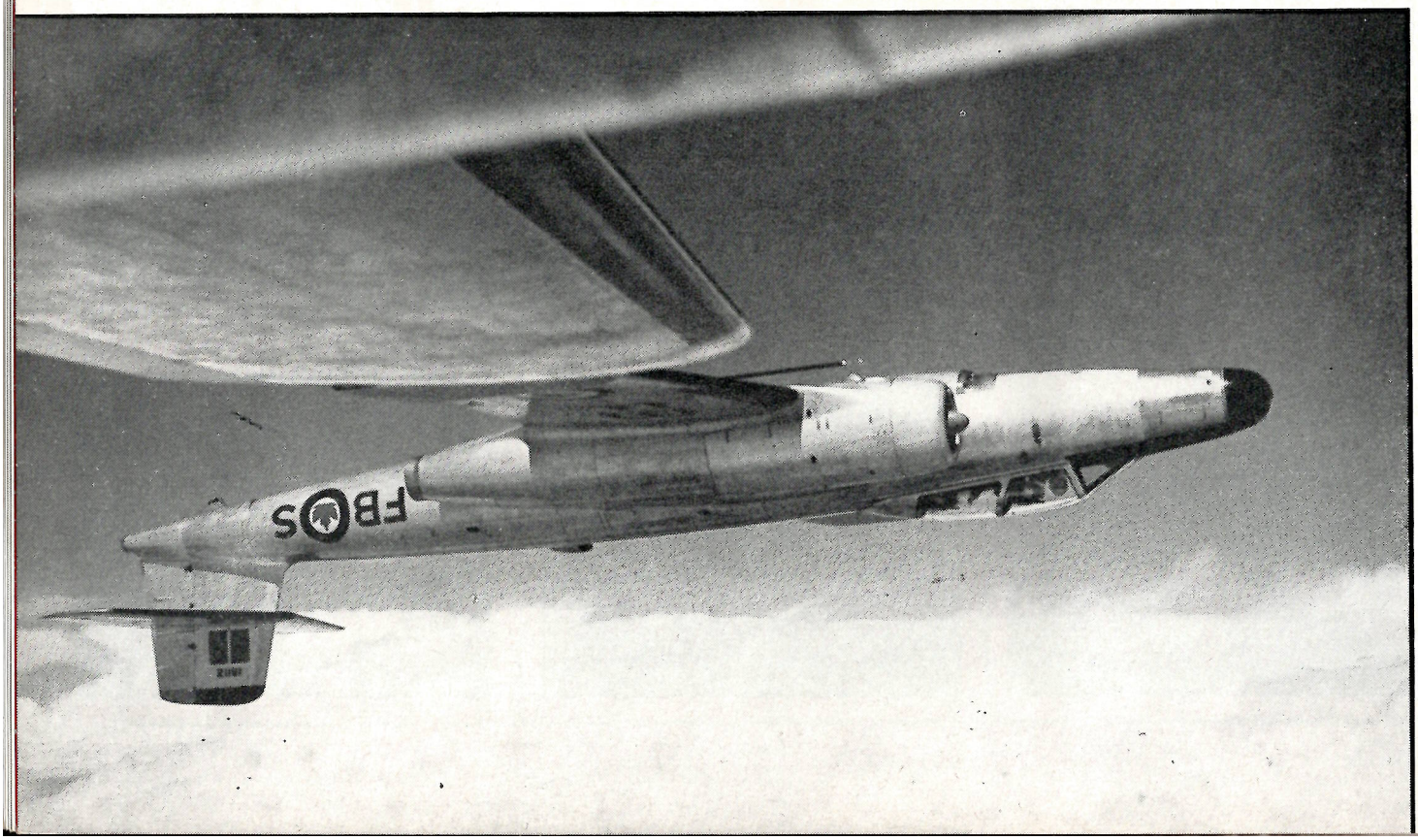
He was mashed against the headrest. A living lash of wind battered his face with brutal force. The oxygen mask ripped painfully across his forehead. Was gone. He was blinded by an icy blast of air. Film packs torn out of his pockets slashed at him on their way. With an effort made of desperation he dragged himself down into the partial shelter of the cockpit. He'd lost his helmet, head-set, oxygen mask. Every scrap of film was gone. Worse, the entire side of the camera was missing.

"The canopy accidentally jettisoned", Mackechnie relates.

Not Fatal: Losing a canopy while in flight is seldom a fatal mishap. But the accident, accompanied by eardrum-tearing explosive decompression is definitely not a desirable experience. Luckily, the decompression problem was cancelled by their low altitude. Mackechnie walked out of it with only jangled nerves and a black eye.

Jetography is one of the newest, most difficult and at the same time most limited fields of photography. In Canada, the number of men who have logged any appreciable amount of time in jets to get aerial photos of other jets can be numbered on the fingers of one hand. The two foremost photographers of Canada's jet aircraft are Hugh Mackechnie of Avro Aircraft Ltd., and Corporal J. B. (Barry) Herron of the RCAF.

It takes a prodigous effort to capture the in-flight sleekness of a CF-100, the plunge of a shark-nosed Sabre, or the



effortless rise of a Silver Star. Scrunched into a cockpit intended only for a solidly seated human, the jetographer must squirm, maneuver and twist. Shoulder straps are kept loose. Film packs are piled wherever possible.

In trying to crystallize on film the elusive moments of jet-flight, those shaved-seconds of turning, diving, or poised inverted flight, Herron and Mackechnie are faced with a multitude of problems. Lack of elbow room. Keeping in focus a subject that persists in sliding away . . . then slithering back again. Rapidly changing direction of sunlight as the jets whirl around during aerobatics. And G-forces. G-forces that sometimes slam your head against the plexi-glass. But mostly the G-forces on a heavy camera.

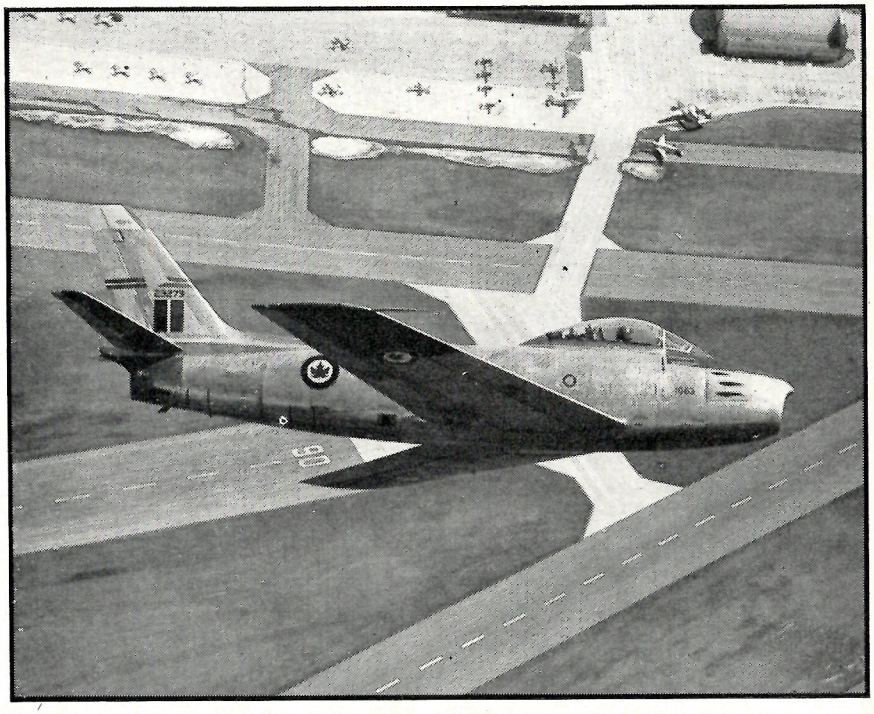
"You could get the idea," suggests Barry Herron, "by holding a keg of nails over your head during a roller coaster ride."

Building Up Time: This talented 21-year-old cameraman from the west coast joined the RCAF in 1953, and went to work as a public relations photographer at Trenton. The following year his boss, S/L Roy Woods, sent him up in the back seat of a T-33 to get some pics of the RCAF's jet trainer in the air. "These trips were few and far between at first, but as more commitments arose for air-to-air photos, I flew more often. The real turning point was Operation Prairie Pacific." *(Turn page)*

HUGH MACKECHNIE

BARRY HERRON

The ability to stop a fast-moving jet aircraft against an unusual backdrop is a unique talent that few photographers are able to acquire. Top, Hugh Mackechnie was able to picture a diving CF-100 against a farmland checker board, while the CF-100 below was positioned perfectly over Niagara Falls by Barry Herron.



Sabre Photograph by Barry Herron

This operation was a display to the Canadian public of the RCAF's operational aircraft during the summer of 1954. This force toured the larger cities in Western Canada and with it went Barry Herron and camera. Out of this trip came some of his finest work. With his photos appearing in newspapers and magazines across the country, came recognition and more jetography assignments. The all-weather squadrons needed coverage. The Sabres at the Operational Training Unit at Chatham. Reserve squadrons with their Vampires. One day they received an order for a photo of a CF-100 with the added note: "Request this be a vertical shot."

To get the pic, Herron rode in the front seat of a T-33 which was to formate on the subject CF-100. The front seat gives the photographer better visibility around the drop tank at the end of the wing. Due to haze conditions, they were forced to start the maneuver from 15,000 feet. Too high really, for good aerobatics.

The first loop failed as the all-weather fighter pulled ahead of them in the climb. In formation again, the CF-100 driver agreed to throttle back in the ascent so the T-Bird could stay with him. With this plan, they tried a second loop.

Herron was concentrating on the CF-100 in the wire frame of his camera as the two aircraft stood on their tails. Suddenly he heard the calm voice of the CF-100 pilot. "Move over, we're falling towards you." But Herron's pilot had already broken it off. Several more-successful loops followed and Herron had his pictures.

Different Ending: The same maneuver with a different ending provided jetographer Hugh Mackechnie with a once-in-a-lifetime thrill. In the back seat of a CF-100 flown by Avro Aircraft's development test pilot Jan Zurakowski, Hugh was happily snapping pictures of a companion CF-100 as they went over the top of a loop. On the way down in the last half of it, they were vertical at about 6,000 feet altitude. They pulled out at the bottom with 6½ groaning G's. "I got a terrific shot of the other guy going straight down. Good background detail. Buildings and things." It must be the way jetographers remember their kicks.

The kicks of jetography began for Mackechnie in 1951, shortly after the appearance of the CF-100. He had come to Avro in 1947, and in 1950 when the grapevine reported that the noted British photographer Russell Adams was coming over to get some air-to-air stuff, Mackechnie put in his bid. He had done some work with RCAF Norseman and Mitchells during his enlistment during the war. Avro decided to give him a chance at it.

"I began by using a Rolleiflex, but found that it was too awkward," he says.. "Later I turned to the Speed Graphic which gave better results."

But the Graphic wasn't the complete answer either, and so Mackechnie went to work modifying it. Removing the table on it left fewer corners to catch on cockpit obstructions. This camera, which he still uses, weighs 8½ pounds. During a 4G pull-out its effective weight surges to 34 pounds.

Most of Mackechnie's 300-odd hours have been flown with the all-weather

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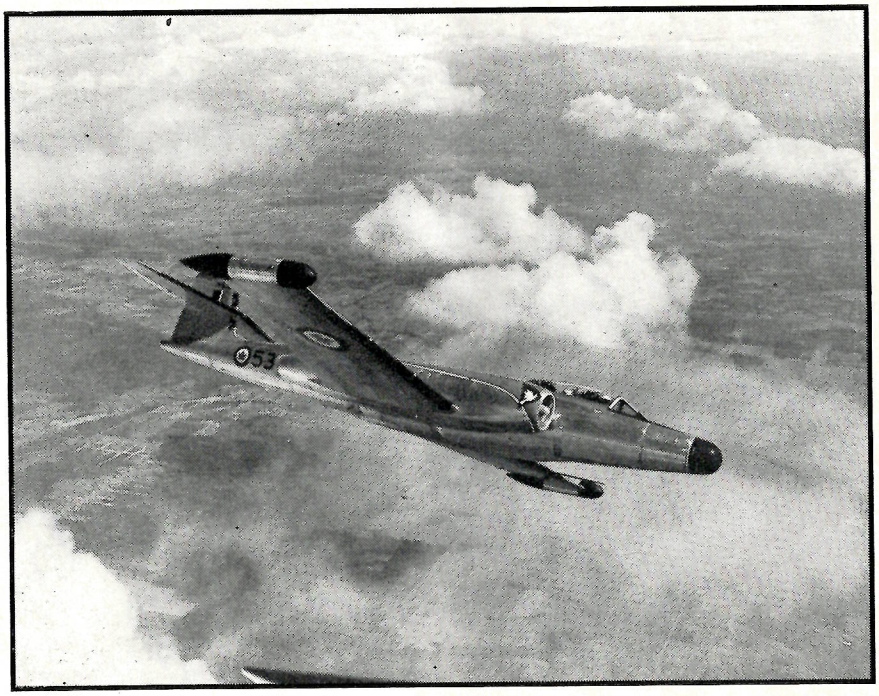

CF-100 Photo by Hugh Mackechnie

other Vamps to keep them going, had reduced the aircraft roll of most Auxiliary squadrons to four or five aircraft.

Anyone who ever flew the Vamp has a special niche in his heart for it. After flying such beasts as T-Birds and Sabres, it seemed like a toy. Light as a feather and reliable as a hundred-day clock, the Vamp was a pleasure to drive. And, as the man says: "She didn't have a mean bone in her body."

VANGUARD

(Continued from page 47)

sentative cruising conditions, the Tyne will start its service life in the first Vanguards delivering 2.9 times the cruising power of the first Dart. Surprising but true, the Tyne's specific fuel consumption is 40% better than that of the Dart.

At Farnborough last year, the prototype Tyne made its first public appearance. The turboprop was installed in the nose of a Lincoln bomber which acted as a flying test bed. The power of the Tyne was demonstrated by the pilot who did a fly-past at 250 mph with the four piston engines feathered.

Like the Viscount's Dart engines, which have gained a 60% power output since the aircraft first flew, the Tyne will increase its output between 1959 and 1963. The airframe of the Vanguard has been designed to take advantage of improved engine performance without structural alterations. In this way the normal cruising speed will be raised from 400 mph to 425 mph in those four years.

Growing Power: The first production version of the Tyne engine will have a take-off rating of 4,470 ehp. This will be known as the "Stage I" Tyne. The Stage II engine, which will power TCA's Vanguards, will feature an improved turbine disc cooling system and improved turbine blade materials permitting operation at higher temperatures, and thus greater powers. Its take-off rating will be 5,075 ehp.

Stage I Tyne engines as used initially in the first production Vanguards (BEA's) will be convertible to Stage II type. The final improved version is to be the Stage III Tyne with a take-off power of 5,500 ehp. It is to become available in 1963 and will feature improved high-pressure turbine-blade cooling.

JETOGRAPHERS

(Continued from page 42)

squadrons at North Bay, Ottawa and Montreal. Since he is a civilian, this military flying requires some arranging. Although he seldom flies without both cameras along, movies are his favorite. On one movie-making flight, he was the horrified and unwilling witness of a mid-air collision.

Unrehearsed Drama: It was a beautiful spring day. The color film he was working with was perfect for the occasion. Above Mackechnie and to his right, a formation of silver CF-100's floated, stacked high in echelon. The script called for a peel-off by numbers. The first airplane flicked in the breakaway. The second one hesitated and the third one peeled-off. Right into the one that had waited. A jagged wing careened off. Pieces of aircraft burst in the sky. Wreckage poured down beside a fiery ball. Miraculously, two white drifting parachutes puffed into existence. The other aircraft, badly damaged, still flew.

Mackechnie's films of the accident

are spectacular. They are probably the only movies in existence of an actual mid-air. They are also graphic evidence of the danger involved in the business of bringing to earth in pictures this bright new world of high-altitude. Such incidents also make it interesting to note that the RCAF does not pay its flying photographers any of the risk allowance granted to other airborne tradesmen.

But money is no incentive really. Not in this game. Many photographers want no part of the sport. Others would give their eye-teeth for the opportunity. The opportunity that belongs to the few like Herron and Mackechnie.

CHIPMUNK TRAINING

(Continued from page 30)

tasks. Once the flying phase begins, their existence rapidly becomes the "half-day" life. The excruciating half-day of ground school lectures filled with anticipation of flying for the next half. And the occasional interrupted day-dream:

"You there. Stand up and tell the class what I have been saying for the past ten minutes. I thought not."

Their time and their eventual memories of Centralia revolve around "flights." The hangar-line, and in particular, their own flight room. The briefing booths where they sit with their flying mentor. This is the man with all the answers. Or so it seems when you are young. And learning to fly.

Washed Out Days: And then there there are the duff-weather days. The days when they polish a flight room floor that carries a layer of wax put on by sprog-pilots of World War II. The floor that dusty-footed instructors so unfeelingly walk on. And the rows of glittering windows which are wearing thin under the cleaning rags of cadets joed for extra duties. And the patch of grass outside where they watch a buddy make his first solo circuit.

Over this entire new existence for the flight cadet hangs the big sword called "CT" (Cease Training). They hear it in the first welcome speech when they arrive: "Your syllabus here is in three parts: flying, academic, and officer training. Failure in any one will mean C.T." This fear will remain with them until the day they receive their wings—a day which seems hopelessly far in the future for all of them.

The avowed purpose of the PFTS training on Chipmunks is to weed out those students not suited to flying before they are sent on to the Harvard phases of Flying Training School. "After leaving here, there should be no CT's at FTS." Conversely, many students who would have failed the Harvard course before, are saved. Learning to fly the easier Chipmunk, they are better prepared for the difficulties of coping with the more complex Harvard. Another important consideration is the fact that the cost of operating a Harvard trainer far exceeds the cost of flying a Chipmunk for the same period. In addition, Chipmunk maintenance is cheaper.

The Air Force does not expect the results of this primary training to show before 1958. In the meantime, the thousands of flight cadets and NATO trainees which will go through the system will all start out on Chipmunks. They won't be concerned with the new graphs and charts that will be made on their progress. At least not for a few years. Right now these young men are concerned with two things: getting into the air, and getting through the course.

ENGINEERING JIG SAW

(Continued from page 26)

some stability in the industry. "It becomes more difficult both to attract and retain skilled and scientific personnel."

Planned Program: Surely the least we can do is to sit down and figure out how we can save these priceless personnel by a planned program — clearly decisive and firmly financed. Moreover, it is in the interests of our defence and our own economic expansion. "If we don't do it soon," says Ken Ebel, "we'll end up with a couple of half competent companies in the engineering field, and after that they'll dwindle to nothing. Then when we want them the most, they just won't be there."

So all we have to do is to solve this engineering jig-saw puzzle. With such a straight-forward concept the vital details will soon fall into place. "A plan must come as a part of the organic development of a project," says Brewster Ghiselin in his book *The Creative*