

Tale-Spin

by J. Donman

FLIGHT LIEUTENANT BRUCE WARREN

D.F.C. AND U.S. AIR MEDAL, ONE OF THE R.C.A.F.'S CRACK FIGHTER AND TEST PILOTS, HAS JOINED AVRO CANADA TO ASSIST IN TEST FLYING THE CF-100 FIGHTER, RECENTLY ATTACHED TO THE R.C.A.F. WINTER ESTABLISHMENT AT EDMONTON, BRUCE HAS BEEN GIVEN LEAVE OF ABSENCE FOR THIS SPECIFIC JOB. HE IS GREATLY IMPRESSED WITH THE PERFORMANCE AND CAPABILITIES OF THE CF-100, PROUD TO BE A PART OF A.V. ROE CANADA AND IS LOOKING FORWARD WITH KEENNESS AND PLEASURE TO HIS STAY WITH THE FIRM. BRUCE WARREN IS 50% OF A PAIR OF IDENTICAL TWINS, (A SIMILARITY THAT UNDOUBTEDLY WORKED EQUALLY WELL TO CONFUSE IRATE SERGEANTS AND INQUIRING BLONDES). THE OTHER 50% IS EMPLOYED AS A SQUADRON LEADER BY THE R.C.A.F. IN CHATHAM, N.B. BRUCE AND HIS TWIN BROTHER, DOUG, JOINED THE R.C.A.F. TOGETHER, TOOK THEIR TRAINING TOGETHER, DID OPERATIONAL TOURS TOGETHER, SERVED AS FLIGHT COMMANDERS IN THE R.A.F. FIGHTER COMMAND TOGETHER AND RECEIVED THE D.F.C. TOGETHER. EXTREME MODESTY APPEARS TO BE ONE OF BRUCE'S MAIN CHARACTERISTICS AND DELVING INTO HIS OBVIOUSLY EXCITING PAST IS LIKE TRYING TO COAX A PEARL FROM AN OYSTER. (DON'T MISUNDERSTAND...WE ARE NOT ATTEMPTING TO POINT OUT ANY SIMILARITY BETWEEN AN OYSTER AND BRUCE WARREN...AFTER ALL...HOW MANY OYSTERS DO YOU KNOW WITH AN EXCITING PAST?) BRUCE HAS COMPLETED 2 TOURS OF OPERATIONS ON SPITFIRES WITH THE R.A.F. FIGHTER COMMAND, HAS FLOWN TWENTY-EIGHT DIFFERENT TYPES OF AIRCRAFT, HAS LOGGED TWENTY-TWO HUNDRED AIR HOURS, HAS SPENT THE YEAR 1949 "GENNING UP" AT THE FAMOUS EMPIRE TEST PILOTS' COURSE AT FARNBOROUGH, ENGLAND, AND FINALLY HAS EMERGED A MODEST (WE'LL NEVER KNOW WHY) NON-SMOKING ABSTAINER AND (LIKE ALL FIGHTER PILOTS) A PROTECTOR OF FEMALE VIRTUE. WE HAVE ALSO LEARNED (THE HARD WAY, OF COURSE) THAT BRUCE WAS A MEMBER OF THE MUSTANG TEAM WHICH AMAZED SO MANY OF US WITH THEIR AEROBATICS AT THE CANADIAN NATIONAL EXHIBITION BACK IN 1947. DELVING DEEPER, WE HAVE DISCOVERED THAT HE NOW HOLDS THE COVETED GREEN INSTRUMENT RATING CARDS FROM BOTH THE R.A.F. AND THE R.C.A.F. AND BY THE WAY...THIS BUSINESS OF TEST FLYING KITES (WE MIGHT AS WELL BE AERONAUTICAL) IS NOT AS SIMPLE AS ONE MIGHT THINK. FOR INSTANCE, WE GOT IT STRAIGHT FROM THE HORSE'S MOUTH (NEVER WAS A NICER GUY CALLED A HORSE'S MOUTH) THAT IT'S NECESSARY TO MAKE SEVENTEEN DIFFERENT CORRECTIONS TO THE READING ON THE A.S.I. (THAT'S AIR SPEED INDICATOR) BEFORE A TRUE DOWN-TO-EARTH SPEED OF THE AIRCRAFT IS ESTABLISHED. SUCH THINGS AS WIND, ALTITUDE AND EVEN ATMOSPHERIC TEMPERATURE HAVE TO BE TAKEN INTO ACCOUNT. WE DIDN'T KNOW THAT.....DID YOU?

THERE'S NOTHING LIKE A GOOD STURDY AIRCRAFT



IN OUR BOOK HE'S 100%



P.S. WE NEVER EXPERIENCE ANY DIFFICULTY WHATSOEVER IN PRODUCING THESE BACK COVERS; - IF WE HAVE INSUFFICIENT MATERIAL, WE JUST ADD TO IT...AND IF WE HAVE TOO MUCH MATERIAL, WE JUST

N^{ews}

AVRO CANADA

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AVRO VIEWS

We had a letter from Leslie Roberts, well known Canadian magazine writer, the other day signed "Constant Reader." Also a letter from 16-year-old Larry Smith, of Long Branch, who told us before he "hates the Russians." Slightly confused he now calls himself a "pro-Communist."

One of our cartoons was used in last month's "Canadian Aviation." The July "Aeronautics" also used some of our references to the CF-100 fighter. Thomas Richard Henry, of the Toronto "Telegram" used our advice about Jetliner passengers and other material.

Winner of this month's prize for the best contribution is a repeater, Rid Dowding, of the Gas Turbine Division.

COVER

Defence Minister Claxton pauses to have this photograph taken by the Ottawa "Journal" just before he mounted our CF-100 for a fast flip from Ottawa to Toronto. Bill Waterton is in the pilot's seat.

AIR TRIUMPH FOR CANADA

For so long we have looked to Britain and the United States for leadership in aviation developments that we can hardly believe our eyes when we look at the CF-100 - the "Canuck" - long-range jet fighter. It has flown from Toronto to Montreal at 638 miles an hour, not so far behind the 670 m.p.h. world speed record established by the single-seat F-86 - the "Sabre" - now being built in Canada to American design.

No one has been told, even if anyone knows, the top speed of the Canuck with its present engines. These will be replaced as soon as possible with engines of the Orenda type - also developed in Canada - which are counted the most powerful in the world. What the Canuck will do then is an intriguing speculation for all associated with aircraft development.

A long-range fighter has the burden of a passenger, heavy equipment and a large load of fuel spared the short-range, single-seat fighter such as those so familiar during the Battle of Britain and afterwards. It is plain from its performance that the Canuck, despite its weight, can keep pace with the fastest short-range machines. This is a rare achievement, reflecting credit on the designers, builders and the service officials who sponsored the Canuck's development.

EDITORIAL IN THE OTTAWA "JOURNAL"

AUGUST 10TH, 1950

HOME OF THE BIG WIND

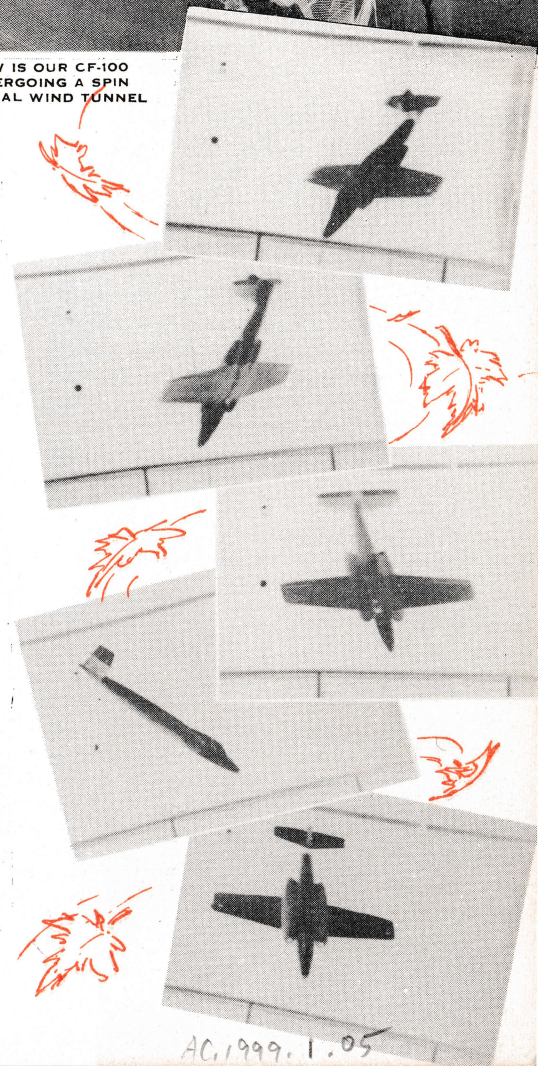


TESTING CANADA'S FLYING
WING MODEL IN THE N.R.C.'S
VERTICAL WIND TUNNEL
NATIONAL FILM BOARD PHOTO

SHOWN BELOW IS OUR CF-100
FIGHTER UNDERGOING A SPIN
IN THE VERTICAL WIND TUNNEL

Winds that blow a 350 mile an hour gale, winds that go straight up and around corners - they're all on tap at the National Research Council's aeronautical laboratories in Ottawa.

Apart from being spectacular, and a bit noisy, the wind tunnels where N.R.C. produces these winds are of prime importance to the Canadian aircraft industry. There are so many unknown factors in the design of today's high speed aircraft that no designer would feel safe in producing a new type without first having a model built and tested in the wind tunnel to check on these unknown factors, and to see how accurate his guessing was. This model, constructed carefully to scale from mahogany and dural, is fixed in the working section of the wind tunnel where the stream of air flowing past it simulates the movement of a plane in flight through the air.



AC 1999.1.05

It gives the designer a chance to study the pattern of air flow around his model at close range and under controlled conditions, and it gives him the opportunity to photograph the tests for more detailed study. He can measure the forces on the model caused by its movement relative to the air stream and from these can make some predictions on the stability and performance of his full-scale aircraft.

Avro Canada has made extensive use of the large horizontal wind tunnel at N.R.C. in which the flow of air is provided by a 15 foot four-bladed propeller driven by a 2000 horsepower motor. Models of both the Jetliner and the CF-100 fighter have been made and tested in this tunnel and as modifications have been adopted in the aircraft themselves the models have had to be changed accordingly for further testing.

Another item of equipment at N.R.C. is their vertical tunnel, used in checking the spinning characteristics of an aircraft. Construction of models for testing there is a painstaking job for not only must the model's external dimensions be accurate but its weight distribution also has to

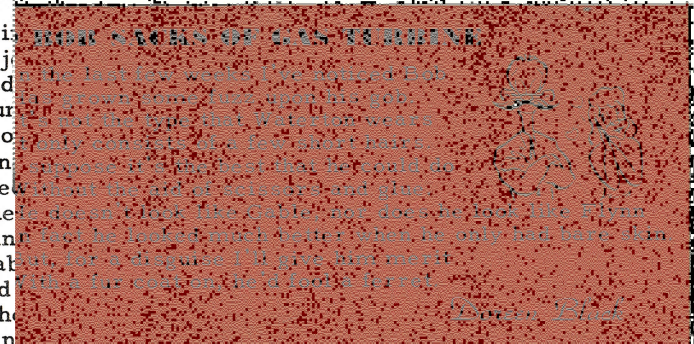
be correct and properly scaled. The tunnel is of the open-throat type so that in testing the model can simply be thrown into the vertical stream of air with its controls set for a spin and it will remain suspended there at constant height, spinning contentedly on the supporting air stream. In order to check the model's ability to recover from the spin an electrical current is passed through a huge coil surrounding the throat of the tunnel; this sets up a magnetic field which causes a device in the model to move the model's controls to the spin recovery position. All being well, the model will then straighten out into the normal gliding position and the man who has been standing by with a net to protect it from crashing takes after it with all the enthusiasm of a butterfly collector. A model of the Avro CF-100 was built for testing in this tunnel, and the accompanying series of photographs is from a film taken during one of its tests.

A smaller scale brass model of the fighter was made for testing in the N.R.C. water tunnel. This ingenious piece of equipment, brought from Germany at the end of the

war, provides a spectacular means of testing the stress on a fighter aircraft; it is a water-filled passage into which a stream of air bubbles or smoke is introduced. The water stream follows its path around the nacelle of a jet engine in order to study its exhaust under flight conditions.

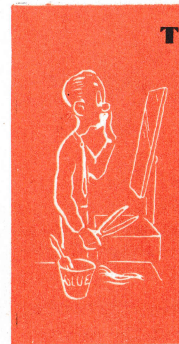
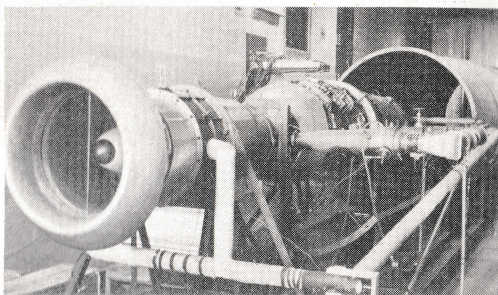
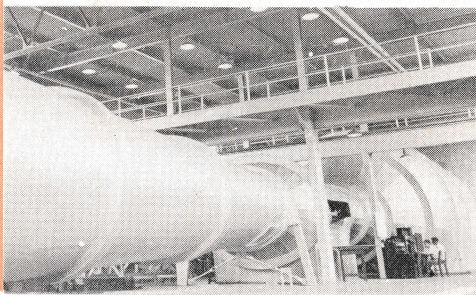
The aeronautical laboratories are equipped with all the modern equipment and have out many other facilities for testing aircraft in the wind tunnel. Structures laboratory, for example, gives the model a test, under different conditions, the components of an aircraft, wings and tail, and in fact various parts of the Jetliner and the CF-100 have undergone such tests in the phase of the design which Avro Canada fitted, and for

the most engine installation in the Jetliner nacelle. In addition, the low temperature laboratory offers facilities for testing equipment in their cold chambers - testing such as that carried out on the turbojet engines of the Avro Canada engine. The Flight Research section has also given considerable assistance in various problems.



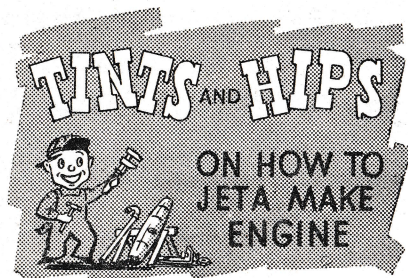
THIS N. R. C. WIND TUNNEL CREATES A 350 M. P. H. WIND FOR TESTING AIRCRAFT MODELS

AVRO CANADA CHINOOK UNDERGOING ICING TESTS AT N. R. C.



one of the more... of the... flow... through which... introduced into... the model or... the pattern of... different... laboratory... services to the... In their

has received recognition throughout the world, is the study which has been carried out on icing problems, both of engines and of aircraft. Our Chinook engine underwent a series of icing tests on the



● Lots of thinkle peep that all you do is bess a prutton and out jets a pop engine! Nothing could be truther from the futh. Blues of set prints are the parting stoint, and a well shopped out machine lay is an aluable vasset. "Tool us the gives, and we will finish the fob," as the going says.

● Highly opped skillerators, used in the train of mathes, lills, brills and dorers keep a stontant cream of bickly little trits and pieces stowing into the flores, where the keep storers back them in stins, all carefully nagged and tumbered.

● Oy yes, the Rinding Groom and the Shade Blop are tussy, boo, and if they are arting from this missicle, someone will fry "cavouritism!" My, what fussy bolks there are in a fig bactory! Supers foremanising the fore submen, head lands grinding operators keeps down to the nose stone, and never scene from the far, the inspectorous ubiquitous, stussy trying to bop poo many

tarts getting store to the throughs.

● And all the time, backing in the hoverground, the hidden scene behind the hands, is the chig white bief, who peeps the keace with the multitude of con subtractors, aching purchasents, miniset cabinsters, and, most important, he peeps the Kay man coming.

● When all the clipping and receiving sharks have jinished their fobs, and the star bock, corgings and fastings have been purned into tarts, then the buingine elders in the shotting fip get busy and hawking every watch like moves, they bit the fearings, instear the galls, nut up all the brews and scoltis, make sure the blousands of thades are prug and snopper, meck this, cheasure that, when sud of an allen, there ends a stan-gine, all testy for reading.

● What a boisy nunch those testers are! They mart up the stotors with an ear roaring split, keep it scrumbling and reaming all day and nome of the sight too but its our butt and breader, so we musn't stink up too much of a kick.

● So there it is, airing in fly, or doing run grounding, met jotors are kear fro heeps, and to motea good quotto "nothing but the good is best enough".

Didley Rowding
(Rid Dowding)

Editorial Comment - Lot and not of whansense! ...

Due to insistent demand from both Rid Dowding's fans, we have by the use of truth serum and a bottle opener, extracted from him the following vital statistics about himself.

BORN - Yes. Mixed parentage - male and female.

PLACE - Hogsnorton - (Upper) - England.

AGE - Shrouded in mystery. Believed about 30 except on street cars and at Drive-In Theatres when he is under 12. HEIGHT - 180 centimetres (The metric system helps inflate his ego).

WEIGHT - Too near 200 lbs. for decent mention.

HAIR - Lots. Very stubborn and straight. Varies from a sort of dun brown to an extinguished grey.

EYES - Two. Both look in more or less the same direction. Could be described as blue.

Has the usual quantities of legs, arms, ears, etc.

EDUCATION - Dismissed from Junior Reform School (failed lock picking and elementary mayhem).

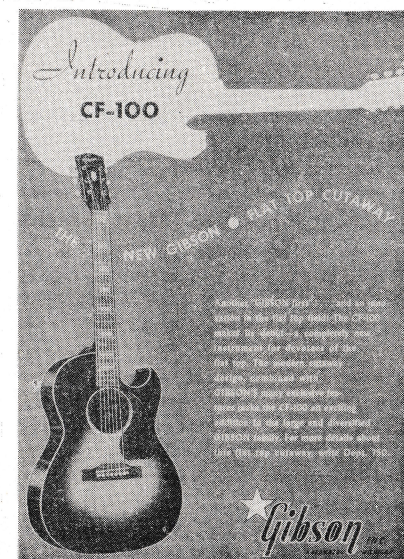
Senior Reform School - passed lock picking with Honours, escaped 1936.

1936-1942. Failed Matric (London). Failed B.Sc. (Cantab) Flunked Student's Course, but managed to steal Chief Engineer's watch. Saw War Service chiefly as a target area. No decorations, except at Christmas and New Year.

SOCIAL NOTES - Happy 'though married. Has house in the clay belt (North York). Appreciates the finer arts (Spike Jones, Ogden Nash, Pogo, etc.)

Likes bowling, but finished up lowest average last season. Can ski, skate, swim, ride, play tennis, etc. but considers his prime accomplishment to be the feat of remaining unconscious for eight hours at a time while in a recumbent posture.

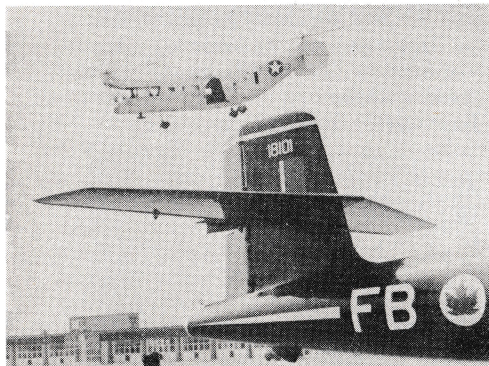
Shirley Munshaw, of Cost Accounting, used ten days of her holidays in acting as one of three delegates representing Greater Toronto to attend World Y.W.C.A. Conference held at Ontario Ladies' College, Whitby.



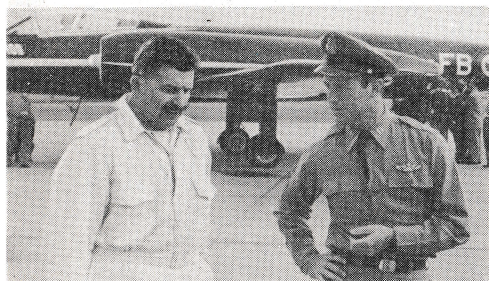
REPRINTED FROM "DOWNBEAT" CHICAGO, JULY 28.

And this is good old Boston
The home of the bean and the fish
And now the place where the Canuck
Gave another meaning to "swish".

Historic Boston had another page added to its illustrious record August 26 and 27 when the aerial antics of the



THE U.S. COAST GUARD "FLYING BANANA" POISED OVER THE TAIL OF THE CF-100



CAPTAIN "CHUCK" YEAGER, OF THE U.S.A.F., THE FIRST MAN TO FLY FASTER THAN SOUND, PICKS UP A FEW POINTERS FROM OUR BILL WATERTON



OUR BRUCE WARREN DESCRIBES BILL WATERTON'S AEROBATICS OVER THE PUBLIC ADDRESS SYSTEM

CF 100 AT BOSTON

Avro Canada CF-100 Canuck featured the U.S. Air Force Association's National Air Fair there. This Fair was the country's greatest aviation display of the year.

Sharing top interest with Bill Waterton, the CF-100's pilot, were the RCAF's crack aerobatic team of Vampire pilots. Bill Waterton's piloting was described as "spectacular" by the press who came out with such front page headlines as those of the "Boston Herald"; "Canadian Pilots Thrill 100,000 at Air Show." A supposedly typical comment we happened to overhear from one particular man in the street was "Those Canadian fliers sure showed up we Americans." Two Canadian transport pilots at the Fair tried to pick up a couple of Boston girls but were snubbed just as negotiations were proceeding favorably when the girls learned the Canadians did not fly jets as they first thought. Bill Waterton and Bruce Warren, who flew down in the back seat of the fighter, were constantly followed about by swarms of small-boy autograph hunters and hero worshippers.

Bill and Bruce started the show off with a swish by flying from Toronto to Boston at

an average speed of 575 m.p.h. This was not quite as fast as the speed Bill made when he flew the CF-100 to Montreal August 8 to demonstrate it during the first flight ceremonies of the new RCAF Sabre. His average speed then was 638 m.p.h.

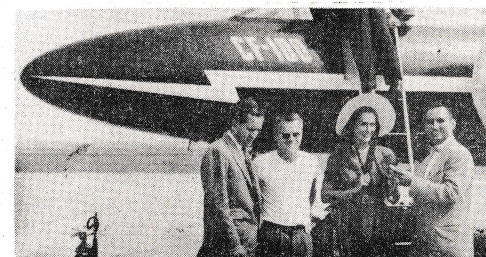
The flying and static display of U.S. air might at the Boston Fair was tremendous. A U.S. Coast Guard "Flying Banana" helicopter had a near crash, thus adding to the excitement. The pilot of this monstrosity with windmill overhead propellers fore and aft offered to trade it with Bill Waterton for the CF-100. With characteristic wit Bill asked him if he would skin it first.

The U.S. pilots and air force brass showed great interest in the CF-100. Among them was Captain Chuck Yeager who was honored at the meeting as the first man to fly faster than sound. The rocket aircraft in which he did it, the Bell X-1, was presented during the Fair by Gen. Hoyt S. Vandenberg, chief of the U.S. Air Staff. Through bad programming our fighter was told to start performing during a very dull acceptance speech. Radio and public address commentators,

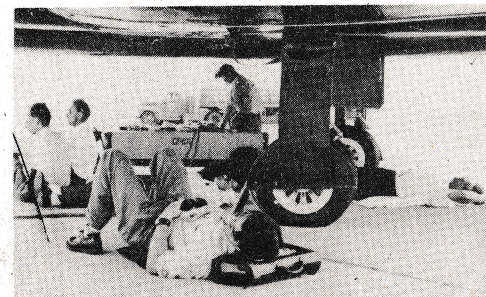
not to speak of the spectators, gratefully turned their attention to something more interesting. They could hear dull speeches any day but as Art Riley of the "Boston Globe" said in print, Bill was putting the CF-100 "through paces rarely seen in the area."



THIS B-29 TURBINE FLYING TEST BED TORE OVER THE FIELD WITH PROPS FEATHERED



JINX FALKENBERG, HER HUSBAND, TEX MCCRARY (EXTREME LEFT), AND FRIENDS POSE IN FRONT OF THE CF-100

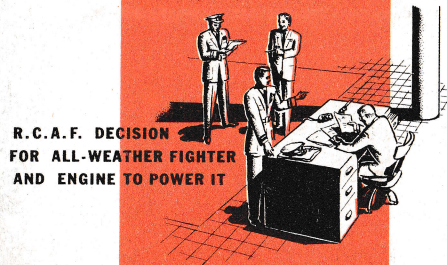


INFORMAL SHOT OF THE CF-100'S GROUND CREW

Birth OF CANADA'S ALL-WEATHER FIGHTER



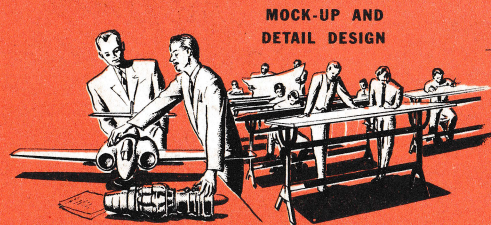
ESTABLISHMENT OF
AVRO CANADA IN 1945



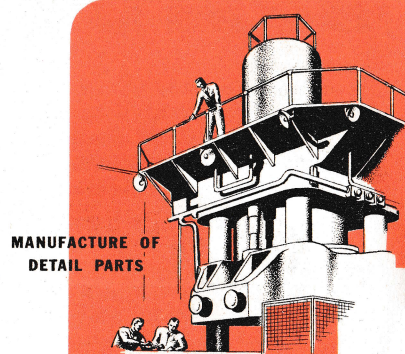
R.C.A.F. DECISION
FOR ALL-WEATHER FIGHTER
AND ENGINE TO POWER IT



AVRO CANADA PROCEEDS
WITH DESIGN OF CF-100
AND ORENDA PROJECTS



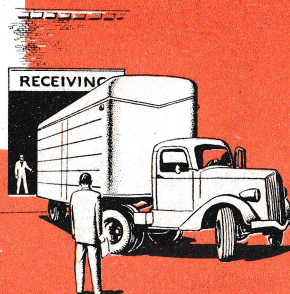
MOCK-UP AND
DETAIL DESIGN



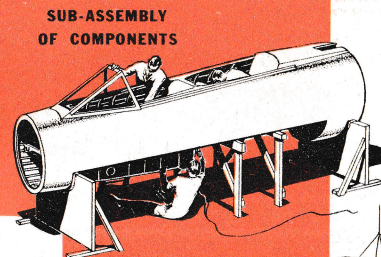
MANUFACTURE OF
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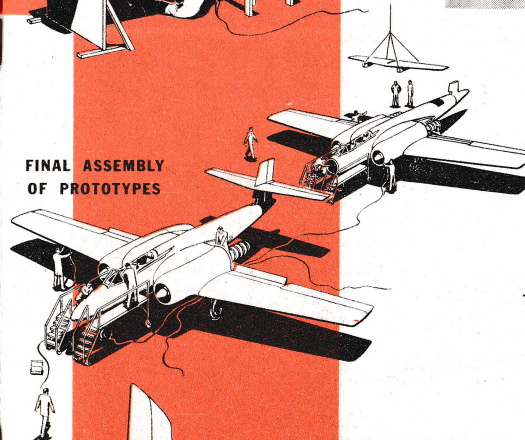
MANUFACTURE OF JIGS,
TOOLS AND FIXTURES



MATERIAL
PROCUREMENT



SUB-ASSEMBLY
OF COMPONENTS



FINAL ASSEMBLY
OF PROTOTYPES

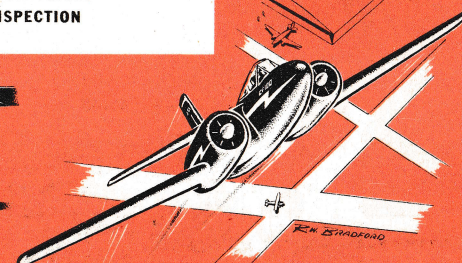
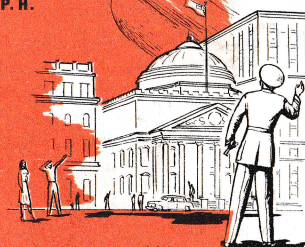


PREPARATION FOR FLIGHT
AND FINAL INSPECTION



AIRCRAFT
PUT INTO SQUADRON USE

PROVING RUNS—
TORONTO TO MONTREAL
AT 638 M.P.H.



PROTOTYPE FLIGHT TRIALS



SIR FRANK WHITTLE, ON A RECENT VISIT TO AVRO CANADA, LOOKS OVER ONE OF OUR JET ENGINES WITH WINNETT BOYD (RIGHT), CHIEF DESIGNER, GAS TURBINE DIVISION

THE JETS ARE COMING...



By Sir Frank Whittle

During the past few years, flying has started to revolutionize transport. Before the last war there were no civil airliners flying across the Atlantic. Today there are about 20 transatlantic flights every day and a large proportion of all people crossing the Atlantic go by air. There is every reason to suppose that within the next few years the airlines will carry the greater proportion of the transatlantic passenger traffic.

While the aeroplane itself is causing a revolution in world transportation the advent of the turbo-jet engine is causing a revolution in air transport.

The turbo-jet engine has already done much to revolutionize military aviation. At present this is chiefly true of fighters, but many new types of jet bombers are on the way. But I am happy to say that it is now apparent that it will have an equally dramatic effect on civil aviation.

There are quite a number of pessimists who still think I

am wrong in believing that jet aircraft will dominate the airlines in the near future, but similar pessimists thought I was wrong in believing that the turbo-jet engine was of any use at all, some 15 years ago. I am just as confident in my opinions now as I was then, and I have several years of additional experience to support them.

The chief thing the aeroplane has to offer over other means of transport is speed, and the greater the extent to which it can offer speed combined with comfort, safety, and reasonable prices, the greater the extent to which it will replace the older means of transport. The jet aeroplane makes possible a very great advance in speed.

The jet aeroplane offers greatly increased comfort to the passenger chiefly because of the complete absence of vibration. It is also expected that the noise level in the passenger cabin will be substantially reduced. Here I would like to quote from the report of BOAC's Technical

Development Director, after a flight in the Comet:-

"The outstanding sensation seemed to me to be one of smoothness of flight compared with current piston engine/propeller experience . . . the whole aeroplane looked and felt quite still; there was none of the customary quivering or rattling . . . the impression of smoothness was just as noticeable during taxiing and take-off and the aircraft seemed to glide along.

"I believe this feature will prove to be a great step forward in reducing fatigue of crew and passengers and in making air travel more pleasurable."

Another important factor is that cruising will be at a height well above the normal turbulence. Normal cruising height will be from 36,000 feet to 40,000 feet, thus the aeroplane would clear the peak of Mt. Everest by two miles.

There is a mistaken belief in some quarters that because the jet aeroplane has a very high cruising speed it cannot be flown slowly - in fact, approach and landing speeds of jet aeroplanes are, if anything, rather lower than for conventional types.

A great increase in safety can be expected. I think that every pilot who has flown a jet aeroplane will agree that they are easier to fly than the conventional types. I personally found the Meteor much easier than the Spitfire or Hurricane. Part of the rea-

son for this is due to the simpler engine controls: one does not have to worry about radiator shutters or cooling gills because there aren't any: there is no mixture control or propeller pitch control, and the number of engine instruments required is much reduced. Amongst other things this simplification will mean quite a big reduction in the time required to do the check before take-off. Also because of the simplicity and the short journey time, the jet aircraft can operate with a smaller crew.

The reduced noise level and absence of vibration in the cockpit will contribute to safety partly because of the reduction in crew fatigue and partly because of the improved radio communication made possible.

The greatest contribution to safety is the big reduction in fire risk. The fuel used by turbo-jet engines is paraffin (or kerosene as it is called in North America) and there is no doubt at all that it is very much safer than petrol. I believe that the risk of passengers being trapped and burnt to death in a minor crash is negligible. If we remove the fear of this happening it is probable that far more people will travel by air than do so now.

The chief job of an aeroplane's power units is the supply of thrust equal to the air resistance. At very high speeds at low heights this re-

sistance is very high, and we can only combine high speed with low resistance by flying at great height, where the density of the air is very low. One of the chief characteristics of the turbo-jet engine is that its efficiency increases with speed, in fact, at speeds above 500 m.p.h. it is more efficient than a piston engine and propeller. It follows that for good fuel economy the jet aeroplane must fly high and fast. If it flies very fast low down, the fuel consumption is high because the aircraft resistance is high. If it flies slowly low down the fuel consumption is high because the engine efficiency is low. A measure of the importance of height for good economy is the fact that at 40,000 feet the air miles per gallon are nearly three times the sea level figure. Thus any length of time flown at a low height means an excessive fuel consumption. That brings me to the question of air traffic control.

At present civil airliners have to carry considerable reserves of fuel to allow for the possibility of diversion to an alternate airfield due to weather or for having to circle around for some time due to traffic congestion. These reserves reduce the payload which can be carried. World-wide improvements in meteorological forecasting, radio communications and traffic control methods, would permit considerable re-

ductions in fuel reserves and thus greatly improve the economics of operation of all civil aircraft. This is especially true in the case of jet airliners because it is most important to avoid long periods of waiting at low speeds and low height. Thus, for example, if we can rely on the captain of the jet airliner knowing whether or not he has to divert before he begins to lose height, that alone would mean a substantial reduction of fuel reserve and a corresponding increase in payload. To satisfy this requirement means that the captain must know about 45 minutes before he is due to land whether or not there is any possibility of having to divert due to weather. This, in turn, means that meteorological forecasts must be reliable; there must be good radio communication between the airport and the aircraft when the aircraft is at a height of 40,000 feet and a distance of about 300 miles.

Delays due to traffic congestion can be greatly reduced by the application of techniques already known and improvements in traffic control procedure. Great improvements have been obtained already in the U.K. and in the U.S.A. by the introduction of ground-controlled approach by radar, the instrument landing system etc. The introduction of a new instrument known as the zero reader is expected to improve matters considerably in the future.

Not only does the Comet offer great increase in speed with increased comfort and safety but there is every indication that these great advantages will be obtained with reduced operating costs.

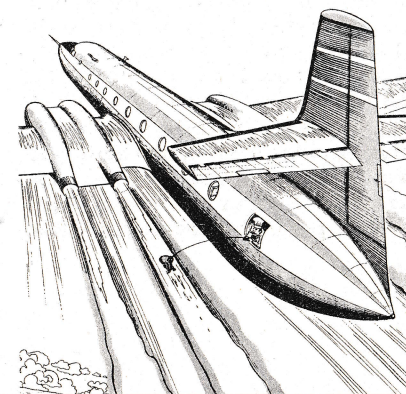
De Havilland's have recently made a study of the economics of the Comet and their chief conclusion is that the operating cost per revenue ton mile is about 20 per cent lower than the Constellation, while its earning capacity for the same obligation per year is about 60 per cent greater. In fact, the obligation of a jet aeroplane should be greater than that of a conventional type because of the increased reliability and reduced maintenance. For example, it is possible to change an engine in less than one hour - this, with the other big reductions in maintenance, may easily have the effect of reducing the maintenance personnel of an airline to less than half of that required for conventional aircraft.

The Comet in its present form is not suitable for relatively short stage lengths of the order of 200-500 miles, but there are other British gas turbine-engines aircraft suited for these distances, one of them is the Vickers Viscount which has turbo-prop engines; another is the Jetliner recently produced by A. V. Roe Canada. There is still a lot of argument about which type of power plant is best suited for short stages

and it is a point on which I have not yet wholly made up my own mind, but I regard the great simplicity of the pure jet aeroplane as a very powerful argument in its favor. One thing is certain - either the turbo prop or the turbo-jet airliner will replace the conventional type on short stages.

The Comet, the Jetliner, etc., are by no means the last word. Good though they are, they merely mark the beginning of the jet age in civil aviation. I expect the future editions of the same basic aeroplane to show big improvement. In addition, new types will appear. I expect to see substantial improvements in aircraft drag. Every step in this direction is a step in favor of the turbo-jet engine.

I hope I have convinced you that the jet airliner is bound to become dominant in civil aviation. No airline can afford to ignore its great advantages of increased speed, increased comfort, increased safety and reduced operating costs; and no civil aviation authority can afford to neglect to provide the necessary facilities.



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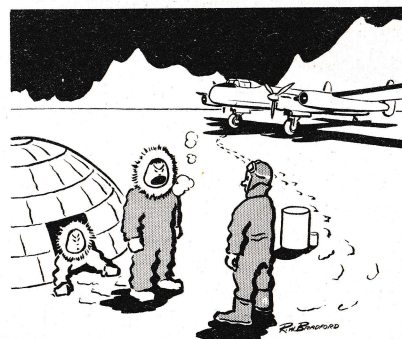
ROAD WORK

A very interesting and worthwhile project has been undertaken by three of Avro's employees, Cora Morris, Tabulating; Bill Mino, Shipping; and Jerry Saunders, A/C Engineering in the construction of model road building projects for the department of Highways.

These scale models have been shown at the Canadian National Exhibition at the Ottawa Exhibition, at Montreal and at numerous other places in Eastern Canada. The main idea is to give the public a scale view of the successive stages of road construction. As an example, the initial model will show construction workers together with scale models of all equipment, clearing the road through a thick forest area. The equipment involved includes caterpillars (motor kind that is), steam shovels, and numerous trucks and smaller vehicles. Successive models will show the first secondary road, then a hard surfaced road, and

finally the concrete pavement such as the Queen Elizabeth Highway. There is naturally a period of time between each stage of construction, and this is accounted for with the inclusion of houses, farms, and commercial buildings, which spring up with the development of the highway.

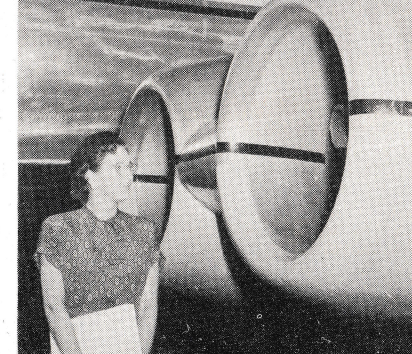
The models are six by nine feet in size and are constructed in spare time at the Department of Highways' shops at Malton. They are built to scale, 1/4" to the foot, and material used consists mainly of balsa wood, toothpicks, glue, buttons, straw and, we quote "anything handy". Some idea of the detail work involved can be realized when the models include such items as running rivers, trees, small bushes, rocks and even amateur artists at work along the way. To top it off, the models are built in perspective, simulating an actual road as it becomes smaller with distance.



I DON'T GIVE A DAMN ABOUT THE SEAL OIL -
WHERE'S MY AVRO NEWS?



THE MONTREAL "STANDARD" TOOK THIS PHOTO OF MARG O'HEARN TO ILLUSTRATE A FORTHCOMING PHOTO-STORY ON THE CF-100. WHAT'S IN THE BOX? ITS SECRET



MISS CLAIRE WILSON, U.S. CIVIL AVIATION ATTACHE AT OTTAWA, SHOWS INTEREST IN THE JETLINER ON A RECENT VISIT. HER JOB IS USUALLY CONSIDERED TO BE ONE FOR MEN ONLY

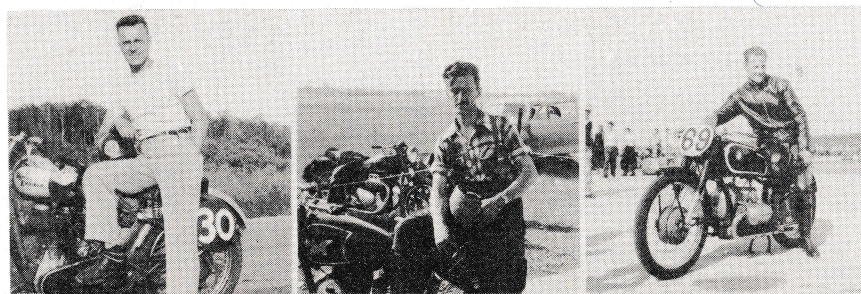
JETMAIL

Don Rogers, our test pilot who flew the first official "jetmail" in the world on the Jetliner's flight to New York April 18 had a letter the other day from George L. Kerns, of Spring Hill, West Virginia. Mr. Kerns wanted Don to autograph two valuable "first flight covers", one to India and the other to Australia which Mr. Kerns had sent on the Jetliner. The cover to India illustrated went to a

small community high in the Himalayas near Tibet. Despite the fact that this letter was carried for the last 45 miles on the back of a "mail runner," who cancelled and autographed the "Tak Runner" stamp, the whole journey only took ten days. Mr. Kerns visited the small community about ten years ago and he says the going is pretty rough.



In case you sent out any of these "first flight" covers yourself you might be interested to know that their value has increased many times and will go up even more. They are apparently selling for several dollars now whereas they only cost 17 cents to send.



Not only has Avro Canada the fastest jet planes in Canada, but also some of Canada's fastest motorcyclists. At the Airport Race Meeting at Edenvale Airport recently no fewer than four of the competitors were from Avro Canada, namely J. Lewin (left), D. Bailey (centre), W. Duncan (right), and D.R.

Engels (unpictured). Bill Duncan's German-made B.M.W. is always a centre of interest.

Bud Bailey, whilst in England last year, put up an extremely fine showing in the International Six Day Trial, winning a Gold Medal. He was the first rider to represent Canada in this type of event.

Poetry Re-Retooled

Oh let us take these would-be bards,
And stack them like a deck of cards,
In a jet pipe blast let's tape their wrists
And we'll roast these blooming plagiarists.

The 102 will surely be
Judged by its built-in-quality.
For nothing to success has rode
From praise in a warmed-over ode.

I hope that I shall never see
Another corny parody,
For a parody's a horrid curse
That's placed on someone else's verse.

J. Pile

Editorial Note: We're not too sure whether parodist Pile would include himself out of the fate he is calling down upon Rid Dowding and ourselves for our Poetry Retooled last month. Are you?

JETLINER JARGON



Air Intake - crowd noise at demonstration of Jetliner.

Bank - something you can do on the future of jetflight.

Bogie - device used to support aircraft, particularly piston-driven ones when they are compared with the Jetliner.

Booster - any Jetliner passenger.

Burble - reaction after having ridden in the Jetliner.

G - expression used by pilots or passengers undergoing the above reaction.

Induced Drag - attempt to wangle a ride on the Jetliner by acquaintance with friend of friend of Avro Canada executives.

Jet Pipe - device on Jetliner used for balancing pencils and glasses of water.

Jump Seat - any seat on a vibrating piston-driven airliner.

Loft - place where pigeons and the work of designers are kept.

Pitch - an out-of-date publicity line used by hysterical prop men.

Prop - device needed to support outdated aircraft.

Retractable - what happened to our publicity releases announcing the Jetliner's Atlantic flight.

Skid - what the jet put under the prop.

Skin Friction - what happened to the Jetliner on its second flight.

Sonic Barrier - milestone rather than millstone.

Strut - what happens when the orders finally come in.

Swept Back - new type of hair-do acquired by anyone sticking their heads out of the Jetliner's windows.

Wing Loading - practice of putting bathing beauties on aircraft wing for cheesecake photographs.

Yaw - suppressed yawn given if you get to the end of this.

Ross Willmot.