

OBSERVER CORPS

THE ROYAL

RECOGNITION



Vol. I MARCH 1959 No. 3



ombert

"IT IS A SOBERING THOUGHT that one modern bomber in a single sortie can unleash as much explosive energy as that contained in all the bombs dropped in the Anglo-American bomber offensive against Germany." Those words are part of a statement made in 1957 by the C.-in-C. of Bomber Command, AIR CHIEF MARSHAL SIR HARRY BROADHURST, K.C.B., K.B.E., D.S.O., D.F.C., A.F.C., and were of course a reference to the capabilities of the R.A.F.'s V-Force of Valiant, Vulcan and Victor bombers, all three of which are now serving with Bomber Command squadrons.

While Fighter Command provides the means of defending this country against possible attack, Bomber Command has charge of the instruments of retaliation. Primarily, of course, our V-bombers exist as a deterrent force, and one might say, paradoxically, that if ever they have to be used in anger they will have failed in their main purpose. But it is just this knowledge, that they are there and are ready at any hour of day or night to take off and deliver such a crushing blow against an aggressor as would stop him dead in his tracks, which forms the deterrent.

The effectiveness of the force is considerably enhanced by its ability to refuel itself in the air. With only slight modifications, which can be effected in a matter of hours, a standard bomber aircraft can be adapted to either the supplier or the receiver rôle; we do not, therefore, have to build an aircraft (like the American KC-135) especially for the tanker rôle. Furthermore, the bombers' flexibility of operation is increased and they are correspondingly less dependent upon overseas bases.

At last year's Farnborough Display, both the Vulcan and the Victor gave most impressive demonstrations of the LABS (Low Altitude Bombing System) manoeuvre. More popularly referred to as "lob" or "toss" bombing, this is a technique devised to enable an aircraft to launch a nuclear weapon while giving itself ample opportunity to double back away from the target before the explosion occurs. The bomber comes in towards its target at low level, but shortly before reaching it goes into a steep climb (that is what the Vulcan is doing in the picture on this page). While climbing, it releases the bomb, which is carried upwards by the impetus from the climbing aircraft until its own weight begins to pull it back to earth in a curving trajectory on to its target. The bomber, meantime, continues upwards as if into a loop, but instead rolls off at the top of the loop and speeds back in the direction whence it came; the sight of these 50-ton monsters hurling themselves around the sky in such fighterlike manoeuvres is one that really has to be seen to be believed. All V-bombers have for some time had an all-white matt finish for further protection against the effects of nuclear explosions.

These "lobbing" tactics are not of course needed for the delivery of conventional bombs, and one is perhaps inclined to forget the V-bombers capacity for such loads. The power of a nuclear weapon is gauged by its megaton yield, not by

- CONTENTS



The Royal Observer Corps Recognition Journal and Gazette is a monthly publication produced in the Department of the Assistant Chief of the Air Staff (Training), Air Ministry, and prepared in collaboration with the Ministry of Supply (Air Technical Publications). Applications for copies must be submitted through the normal official publications supply channels—not to the Editorial Office or direct to the Air Ministry.

This publication is produced solely for official use and can not be sold to members of the public. Contributions and correspondence should be addressed in the first instance through the usual Corps channels to Headquarters, Royal Observer Corps, Bentley Priory, Stanmore, Middlesex.

the mere size of the casing, but the bays of these bombers are designed to accommodate large loads of conventional H.E. bombs when necessary. It has been speculated that the conventional-bomb tonnage of the Victor is greater than the all-up weight of a World War 2 bomber, which, if correct, will give some idea of their capacity: a fully loaded Halifax, for instance, weighed some 60,000 lb., or about $26\frac{1}{2}$ tons. And we may suppose that the Valiant and the Vulcan have more or less comparable appetites.

Towards the end of 1958 there began to arrive in England the first of a number of medium range ballistic missiles, supplied by the United States. The arrival of such weapons implies no lessening of the importance which we attach to our V-bombers, nor does it mean that they are becoming obsolete. The 1957 White Paper on Defence made it clear that these ballistic missiles would be acquired to supplement, not to replace, the manned-bomber force. The performance of the latter in the rôle for which they were

designed is as good as that of any comparable aircraft in service anywhere in the world, and though Valiant production is now completed the Vulcan and Victor have much development potential in them still. Indeed, it is less than a year since the Victor entered R.A.F. Service.

Further evidence of the long life expected of these aircraft lies in the production by A. V. Roe of a powered, guided bomb—or "stand-off bomb" as it is more generally known which will be carried both by their own Vulcan and by the Handley Page Victor. This bomb was first mentioned some time ago, and last September a mock-up was shown, attached under the belly of a Vulcan aircraft, in the S.B.A.C. Flying

Feature						Page			
Hunter Aerobatics (cover)			•••		33			
V-Bombers (editorial)						34			
Promising Prototypes .			•••	•••		36			
Studies in Observation-	12: Fi	shpot				37			
*Delta-Weights (Lightnin	g and l	Fishpot)				38			
The Tu-16 Badger						40			
Briefs						42			
*Camelcade						43			
In Soviet Skies (spotting	test)		•••			44			
Soviet Circus—6: Facepla	ate					45			
Whose Side Are You O	n ? (V	aliant,	Victor,	Strato	jet,				
Stratofortress, Badger, B	Sear an	d Bison)		•••	46			
Airborne Headaches No.	62		•••	•••		48			
Solutions to Lessons and	Tests		•••			48			
* Identification lessons.									

Display at Farnborough. We may expect that this weapon will be available to Bomber Command in quantity in the not too distant future, when it will increase not only the striking power, but the effective range, of their bombers.

To finish as we began, with the words of the C.-in-C. Bomber Command, Sir Harry Broadhurst said elsewhere in his statement "we must have ready in peace the instrument we will need in war." The patent good sense in this observation is equally applicable to the particular subject of aircraft recognition training. In the unlucky event of our being involved in another set of hostilities, there will be no time then to begin learning to recognise friend from foe; the battle will be fought at too hot a pace. The time to do it is now. The means to do it is put into your hands through this Journal month after month, and the opportunities to do it crop up everywhere, all the time. Ten minutes here, a quarter of an hour there, you will be surprised at what you can learn with no more than a little effort.





PROMISING PROTOTYPES



DART HERALD

The Handley Page Dart-powered Herald, alternative to the 4-Leonides piston-engined Herald, is a pressurised feeder-line transport seating 36-43 passengers and two crew, and has a wing span of 95 feet. A second aircraft is now flying following an accident to the prototype. Morane Saulnier's M.S.1500 Épervier (sparrowhawk) is a "cheap and cheerful" two-seat general purpose aircraft with two Bastan turboprop motors and can be armed and carry external ordnance loads. Its wing span is 42 feet.





SIPA 1100

VOLTIGEUR

The Sipa 1100, a French twin-engined, 2/3 seater, made its first flight on 24th April, 1958. Wing span of this light ground-support aircraft is 48 feet. Sud-Aviation's S.E.116 Voltigeur (infantryman), apart from acting as test-bed for the Bastan turboprop engine, of which it has two, is the basic design for the S.E.117 tactical support aircraft and the S.E.118 Diplomate civil transport which will utilise the same wings, undercarriage and powerplant. Wing span is 59 feet.





VERTIJET

INTEGRAL

The Ryan X-13 Vertijet (span 21 feet) is a "tail-sitting" American V.T.O. research aircraft powered by an Avon turbojet engine. Bringing a new approach to S.T.O.L. is the "blown wing" Breguet 940: the entire leading edge is in the slipstream of four large airscrews, and wide flaps extending the full span deflect this air-wash downwards to provide the lift for take-off and landing. This 7-tonner (span 57 feet) will be the basis of the 18-ton Breguet 941 military transport project.





Studies in Observation-12

The Sukhoi "FISHPOT"

SOVIET AIR FORCE FIGHTER)

T would be hard to think of a less appropriate name for this creature than "Fishpot." Surely to goodness one could satisfy protocol—'F' for fighter and two syllables for it being jet-propelled—and yet hit on a more memorable and appropriate name. Out of scores of possibles, such names as Flashpoint, Flatfish and Flatiron come to mind in an instant, and much better ones would emerge from a study of the dictionary.

However, back to our meat—or rather our fish. Fishpot consists of the marriage between a blow-torch and a builder's trowel. The overall effect on the eye is the diminished significance of the small delta wings in relation to the fuselage. These deltas, making two very narrow right-angled triangles, have no anhedral and are set at the low mid-wing position: they are also well back on the fuselage and, in plan, are only just ahead of the tailplane.

The fuselage, owing to the engine intake being in the nose, has a blunt open front, with only a small cone jutting out at the top; then it is a slightly swelling tube—more swelled in side than in plan view—which continues to the chopped-off jet pipe. The cockpit, scarcely visible in most views, is a little bubble-like excrescence rising ahead of the wing-roots.

The fin and rudder unit is, as in most machines of the kind, a huge affair leaning back at the extreme end of the fuselage, its leading edge being more swept back than its trailing edge, with a broad flat top. The tailplane is also a swept-back unit, and also grips the fuselage at the extreme end: it is swept-back in the overall sense, not delta-shaped.

These supersonic jet fighters are more and more approximating to a small number of international patterns, and the spotter's only hope is so to imbue himself with the individual proportions and relationships of shape that he learns to distinguish the individuals from the tribe almost by instinct, and this he can do by working through the lesson overleaf.

C. H. GIBBS-SMITH.



DELTA-WEIGHTS

THE RUSSIAN FISHPOT—in the red corner—has a delta wing; the British Lightning—above—has not (even though it is well on the way towards one). Because of this distinction it might be supposed that they are easy to tell apart, but there are angles from which each might be taken for the other one. The best way out of this problem is to have identifying experience beforehand. How accurately, for example, could you give a snap decision on view 3—or view 35? When you have worked out this lesson you should be able to tackle such "awkward" shots with confidence, not only recognising the aircraft but naming—*i.e.*, identifying—them as well. List the target numbers first on a piece of paper, then write down "Fishpot" or "Lightning" against the number of each view you identify. When you have listed them all, check with the solutions on the rear cover.













R











HE designers of Soviet military aeroplanes have not often been noteworthy for building beauty into their creations, but the Badger of Andrei Tupolev is a welcome exception; and had the Badger dispensed with a defensive armament, as do most Western bombers, the result would have been still more easy on the eye. A famous U.S. aircraft manufacturer once attributed to one of his own machines "a rakish, eager poise"; if he will forgive us, we would suggest that this epithet fits few aircraft so well as it does the Badger. In this series of excellent close-ups we have an opportunity to study some of the ingredients that go to make up this Bolshevik beauty. However, rather than point out the obvious, we will leave you to explore them at your leisure and discover for yourself the intimacies of this important Russian aeroplane. Identification lessons on the Badger have been published in our December 1956 and February 1958 editions, amongst others.

BADGER

Tupolev TU-I6 Medium Bomber

A twin jet Russian bomber from which the TU-104 Camel is derived, the Badger made its first public appearance in 1954.

Span II2 feet

Length II8 feet







A collection of items of news and interest which may help your recognition.

True or False?

The picture published last month was of part of the tail assembly of a de Havilland Sea Vixen.

Lolly for Lockheed

The Lockheed Jetstar utility transport (two Bristol Orpheus jet engines) is to go into production immediately, it was announced at the end of last year. The Jetstar (*see photo*) is 58 feet long, 21 feet high and has a wingspan of 53 feet.



Messerschmitt's Magister

The first Fouga Magister to be entirely constructed in Germany was handed over to the Luftwaffe by the Messerschmitt company in November.

Flying Featherweight

Northrop Aircraft have received an initial production contract from the U.S. Air Force for manufacture of the T-38A lightweight jet trainer, one of the Northrop "family" of N-156 aircraft. A second member of this family is the N-156F fighter, designed to operate with the latest air-to-air missiles and bombs at speeds above Mach 2. Photo shows two T-38As taking shape on the assembly line. The name "Talon" has now been adopted for the T-38.



Diplomatic Début

Sud-Aviation have published design particulars for a twin-engined transport carrying 8-10 passengers. Named the S.E. 118 "Diplomate," the aircraft is to be powered by a pair of Turbomeca Bastan turboprop engines.

* *

Ab Initio Italiano

First prototype of the Macchi MB. 326 two-seat jet trainer has been flight tested and a second machine is also flying. Quantity production has begun, beginning with a pre-series batch of 20 aircraft. Deliveries to the Italian Air Force are due in late 1959.

A Dragon for Sale

A new "export version" of the Saab Draken has been announced, equipped with collision-course gunsight and modern air-to-air weapons. This version, which will be known in the Royal Swedish Air Force as the J-35B, is powered by a new high-thrust Rolls-Royce engine and will have a performance potential in excess of Mach 2.

The Mirage Maches On

Last October the first prototype Mirage III (*see photo*) successfully passed Mach 2 on a test flight. This was achieved on the turbojet engine alone, without using the auxiliary rocket motor prescribed for this aircraft.



Century Series

At the end of November the 100th Dassault Super Mystère B.2 interceptor was delivered.

Half-Century Series

Orders for the Caravelle airliner have now reached 50.

Red Current

The existence of a new Russian jet bomber has been confirmed. It has been given the NATO code name of "Bounder."

* *

Hawker Siddeley Happenings

Early in January, the Ministry of Defence announced that the Armstrong Whitworth Argosy transport is to be adopted for Royal Air Force Transport Command. Close behind this statement came one from the Hawker Siddeley Group that its Aviation Division is to develop as a private venture the Avro 748, a new short/medium range airliner powered by twin Rolls-Royce Dart turboprop engines. First flight of the Avro 748, a 36 to 44-seater, is anticipated early in 1960.

MARCH 1959

CAMELCADE

TWENTY-SEVEN CAMELS—quite a caravan! It is high time this Russian airliner was well known, and here is a short refresher course for those who need it, or an introduction for any of you who have not met it before. Write down all your answers to this lesson before checking with those on the rear cover, and be on the lookout for any jokers. By the way, on pages 40 and 41 you will find a feature on the Badger bomber from which the Camel was developed.



Wing Span 115 feet





March 1959



HE 1956 Aviation Day display at Tushino airfield was the last occasion on which Soviet military aircraft were paraded on general public view; in 1957 the display was cancelled and last year it consisted only of civil aircraft. Two single aeroplanes seen on that occasion three years ago aroused interest as being apparent developments, along different lines, of the Farmer single-seat fighter. Some initial confusion arose between these two aircraft, partly due to their both being dubbed by the Press, in default of authentic code names, as "Super Farmers." One of these aeroplanes is that now known under the NATO identification system as "Faceplate." Some sources have credited the Faceplate with a level flight speed of the order of Mach 2-which would make it roughly comparable in terms of speed with the American Starfighter or our own Lightning. In size and shape particularly, its appearance is close to that of the Lightning.



The mid- to low-mid wings of the Faceplate are narrow and sweep back very sharply at about 60 degrees; each has a full-chord boundary layer fence on the upper surface at about half-span, and a smaller three-quarterchord fence almost at each wingtip. The tail surfaces, both vertical and horizontal, are swept back at about the same angle as the wings, the tailplane leading edges being faired well forward on to the sides of the fuselage. Beneath the tailplane, two stabilising fins are fitted to the fuselage, which itself is a very straightforward affair with little taper at any point; the air inlet contains a small shock cone in the centre. A streamlined singleseat cockpit canopy is conventionally situated on the front half of the fuselage, and a "spine" fairing runs back from this to the lower leading edge of the fin. If the Aviation Day demonstration is held this summer, and if it once again includes military aircraft, it will be interesting to see in what measure this aeroplane is represented.





WHOSE SIDE ARE YOU ON?

OURS, we hope, but it is just as necessary to be familiar with the weapons used by your own forces as to be able to recognise those of the opposition. Here is a collection of bombers from both sides: from Britain, the VALIANT (view No. 30) and the VICTOR (No. 21); from the U.S.A. the STRATOJET (No. 7) and STRATOFORTRESS (No. 58); and from Russia the BADGER (No. 6), BISON (No. 61) and BEAR (No. 29). Using these as starting points, identify the 63 remaining aircraft. Answers on the rear cover.

















16











20

11







Cover Picture: Nine of the famous black Hunters of No. 111 Squadron.

AIRBORNE HEADACHES No. 61

The following are the solutions to the above test which was published in the R.O.C. Recognition Journal and Gazette of January, 1959:

166	Elachlight A	474	Valiant B Mk 1
400.	Fiat C.92	475	Wessey and Widgeon
468	Hunter F Mk 6	476.	Swift FR Mk. 5
469	Canberra B Mk. 6	477.	Javelin F(AW) Mk. 1
470.	Shooting Star (T-33A)	478.	Delta Dart (F-106A)
471.	Voodoo (F-101A)	479.	Seahawk FGA Mk. 6
472.	Scimitar F Mk. 1	480.	Fishpot
473.	Gannet AEW Mk. 3	481.	Badger

SOLUTIONS TO TESTS AND LESSONS IN THIS EDITION

WHOSE SIDE ARE YOU ON ?

1.	Bear	25.	Stratojet	49.	Victor
2.	Stratofortress	26.	Bison	50.	Valiant
3.	Stratofortress	27.	Victor	51.	Badger
4.	Bison	28.	Badger	52.	Stratofortress
5.	Stratoiet	29.	Bear	53.	Bear
6.	Badger	30.	Valiant	54.	Stratojet
7.	Stratojet	31.	Stratojet	55.	Stratojet
8.	Badger	32.	Valiant	56.	Stratofortress
9.	Bison	33.	Bison	57.	Bear
10.	Bear	34.	Bear	58.	Stratofortress
11.	Bear	35.	Stratojet	59.	Victor
12.	Bison	36.	Badger	60.	Valiant
13.	Victor	37.	Victor	61.	Bison
14.	Stratofortress	38.	Valiant	62.	Bison
15.	Victor	39.	Stratofortress	63.	Victor
16.	Bear	40.	Victor	64.	Valiant
17.	Stratofortress	41.	Badger	65.	Bear
18.	Stratojet	42.	Valiant	66.	Badger
19.	Stratojet	43.	Valiant	67.	Badger
20.	Badger	44.	Bear	68.	Valiant
21.	Victor	45.	Valiant	69.	Bear
22.	Bear	46.	Bear	70.	Stratojet
23.	Bison	47.	Stratojet		
24.	Stratofortress	48.	Valiant		

CAMELCADE

All the target views are **Camels** except No. 7, which is a **Badger**, and No. 9, which is a **Cooker**.

No. 62

	4/3. Gannet	AE	W PIK.	2	40	1. Dauger					F	ISHPOT A	ND LI	GHTNING		
	57		1	N SOV	IET SKIE	S			1.	Lightning	13.	Fishpot	25.	Lightning	37.	Fishpot
			Span	(feet)			Span	(feet)	3.	Fishpot	15.	Fishpot	27.	Lightning	39.	Fishpot
1.	Creek-C			41	10.	Colt		54	4.	Lightning	16.	Lightning	28.	Lightning	40.	Fishpot
2	Flashlight-A	(2000)	1277	40	11.	Fagot		33	5.	Fishpot	17.	Fishpot	29.	Fishpot	41.	Fishpot
3	Camel			115	12.	Bosun		75	6.	Lightning	18.	Lightning	30.	Lightning	42.	Lightning
4	Bear			170	13.	Ukraine (Cat)		125	7.	Fishpot	19.	Fishpot	31.	Fishpot	43.	Fishpot
5	Crate	196.643	0.940	104	14.	Badger		116	8.	Fishpot	20.	Lightning	32.	Lightning	44.	Fishpot
6.	Farmer			32	15.	Farmer		32	9.	Lightning	21.	Fishpot	33.	Lightning	45.	Lightning
7	Blowlamp		-	57	16.	Bison		171	10.	Lightning	22.	Fishpot	34.	Fishpot	46.	Lightning
8.	Badger			116	17.	Cab		95	11.	Fishpot	23.	Lightning	35.	Lightning	47.	Lightning
9.	Moscow (Coo	t)	0.000	123	18.	Camp		98	12.	Lightning	24.	Fishpot	36.	Fishpot	48.	Fishpot

AIRBORNE HEADACHES



Submission dates for answers to Airborne Headaches No. 62 will be notified by Group Headquarters.

Printed under the Authority of H.M. Stationery Office by Williams, Lea & Co., Ltd., London