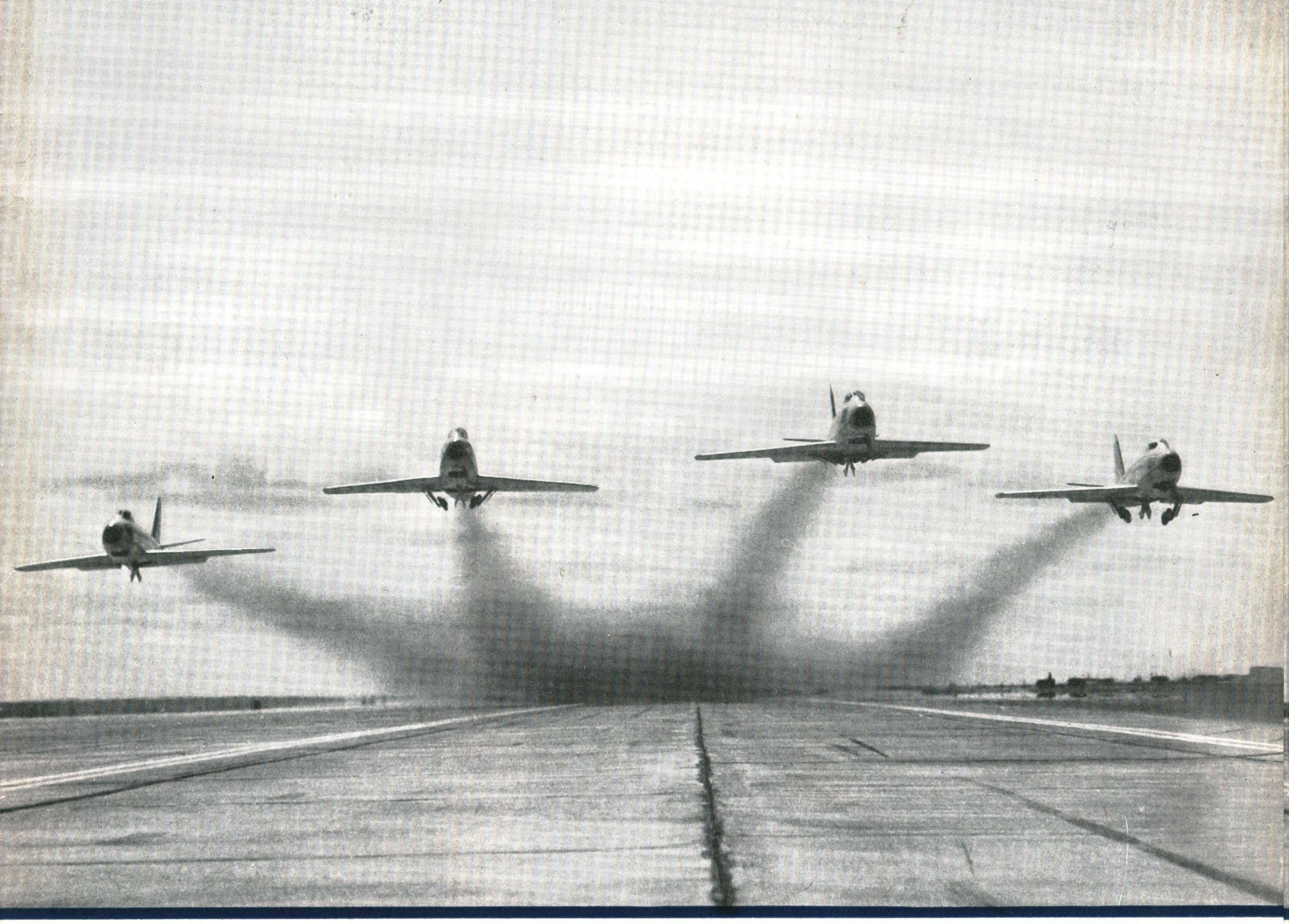
JOINT SERVICES

RECOGNITION

Journal



Vol. 6 APRIL 1951 No. 4

FOR OFFICIAL USE ONLY

Korea Combat

by FRANK WOOTTON

Air-battles between Communist MIG-15 and United Nations F-86 Sabre jet-fighters increase in size and frequency in Korea ; the bone of contention being mainly the passage of the B-29s on bombing missions. The visual differences between the two jet-fighters, though quite marked in some views, demand close comparison if mistakes in identity are to be avoided. We asked Mr. Wootton to pair them for study in combat in a typical Korean setting. This he has done in his usual excellent style. In the illustrations the MIG-15 has dived on the B-29s and the Sabre has come down on the Communist fighter. After "dog-fighting", the MIG-15 is last seen plunging earthwards. Mr. Wootton has contrived to place the aircraft in similar aspects in each picture, so that their points of difference can be examined. He shows clearly the tail-conscious " sawn-off-pipe " character of the MIG-15 against the nose-conscious, " fishy " one of the Sabre.



" Dog-fight "



" Caught in the act "



" Seen off "

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JOINT SERVICES

RECOGNITION JOURNAL

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Method and Moderation

READERS will perhaps have noted the increasing interest of some sections of the technical Press in recognition training matters. However, in view of some of the opinions expressed, we think it is advisable to clear up one or two points on training methods.

Whatever methods were used during the Second World War, it should not be assumed that improvements upon them are impossible, nor that constructive thinking upon visual recognition training problems in general has been abandoned.

There is a company of first-rate spotters whose interest in aeroplanes goes beyond recognition. With them, it is the pursuit of aeronautical knowledge. There are great numbers of these excellent spotters. They did good work during the War, and the defence of Our Country depends much upon them now. More power to their elbows and binoculars.

These enthusiastic experts can recall numerous facts and much data about almost any aeroplane one cares to name and they are able to discuss aeronautical technicalities at length with anyone.

It is radically wrong to conclude that spotting ability springs from great technical knowledge. It springs from constant contact with the aircraft—or their likenesses—in one way or another. It is also wrong to assume that it is impossible to become an efficient spotter without embarking upon an extensive study of aeronautical technology. It is also wrong to assume that many can be converted to taking a deep and life-long interest and to making a hobby of the subject. Some will be persuaded but there are many who, for lack of time or opportunity, are unable to do so.

There is, however, a large number of people in all branches of all Services to whom recognition of aircraft is essential to prevent them from shooting at their friends, but whose training *must* be done by the simplest possible methods.

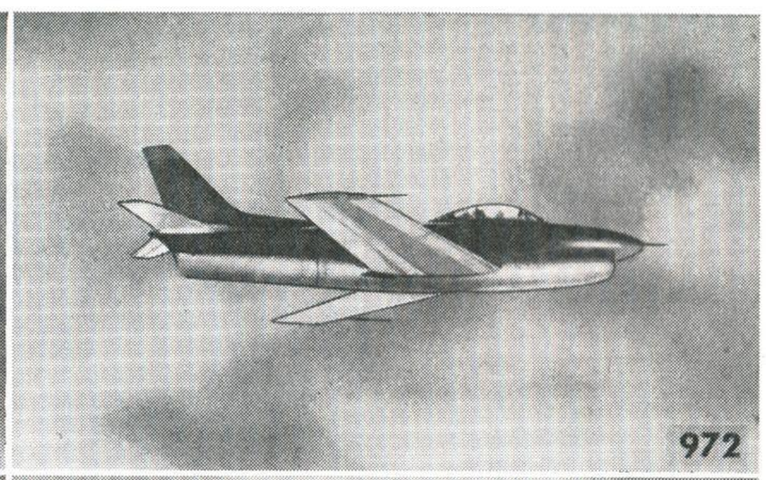
Successful recognition training is, in fact, very much more a matter of method than of memorizing data. Facts about aeroplanes can only be of value if properly and moderately blended and if used to concentrate attention upon aeroplane shapes and to link names with those shapes. To expect anyone to submerge himself in an entirely new, vast and complex subject like aeronautics, its history and its technical background, in order to recognize aeroplanes is not only asking too much, it is unnecessary.

Strangers to the subject of aeronautics and its history, therefore, should be in no way discouraged from learning to recognize aircraft—or any other set of targets—because of that lack of acquaintance. Such background knowledge as is required will flow naturally from training.

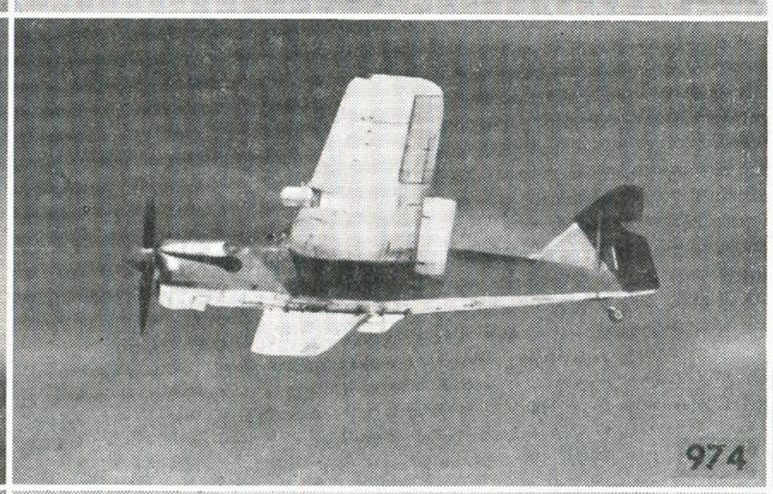
What we have said in no way implies that all those enthusiastic spotters who take a close interest in aeronautics generally are wasting their time. Far from it. They need their background, their history and their technicalities. We simply wish to make it abundantly clear that any ordinarily intelligent chap can be taught to recognize aeroplanes, ships, tanks, or any other series of objects without worrying about an extensive historical and technical background ; it certainly need not be a dull and boring process as has been suggested.

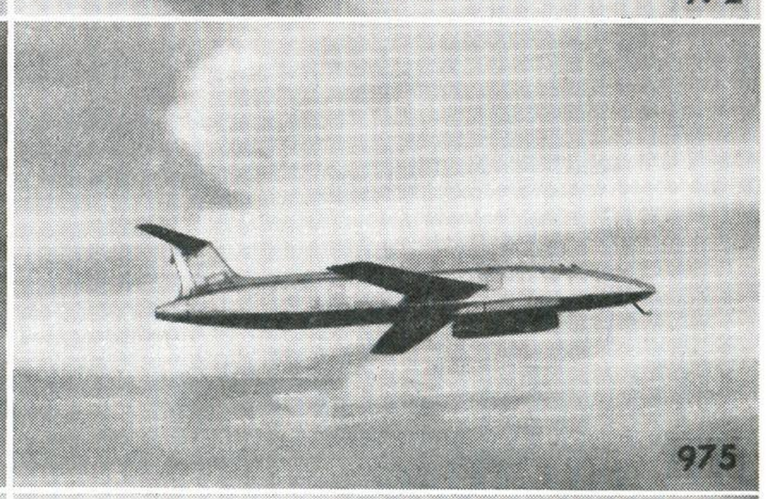

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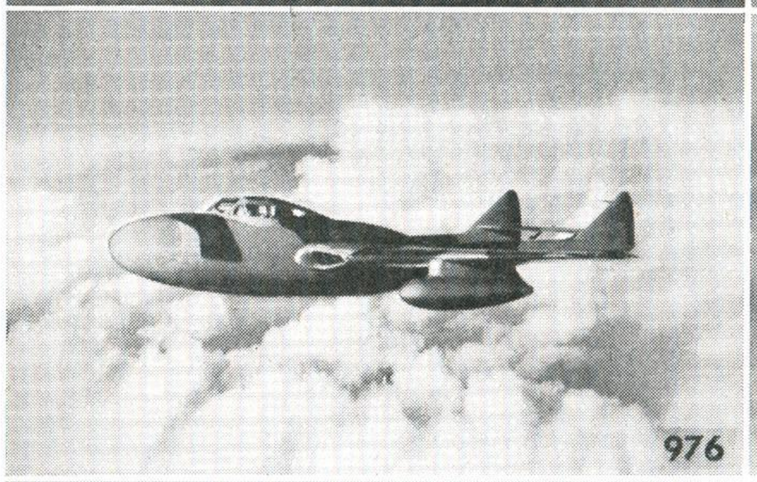

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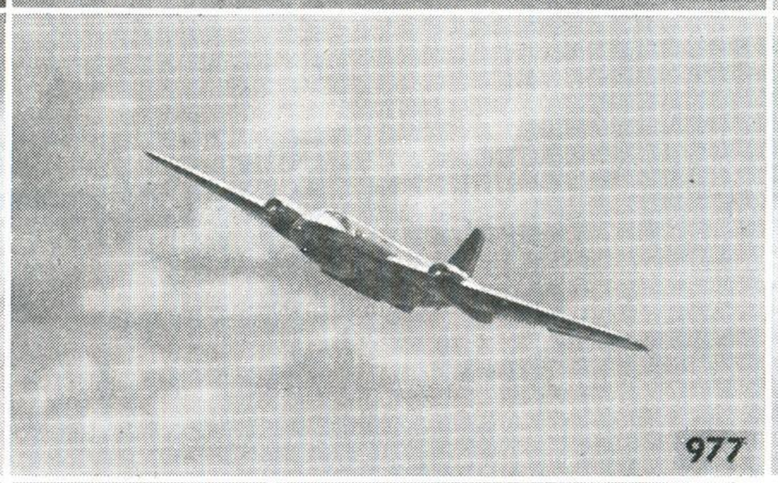

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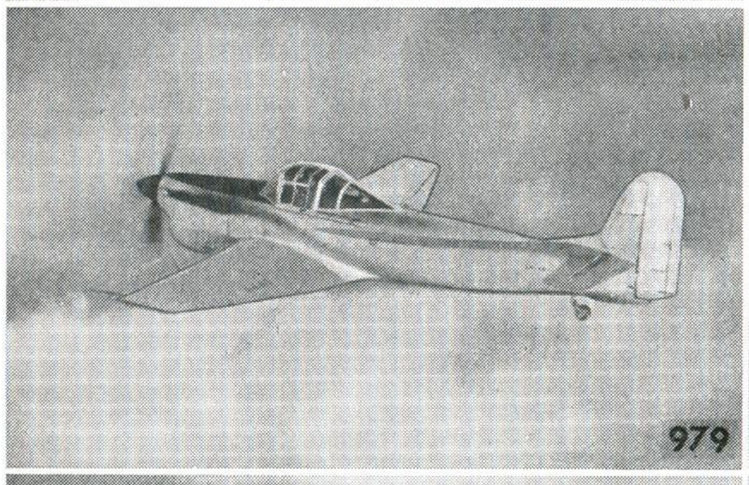

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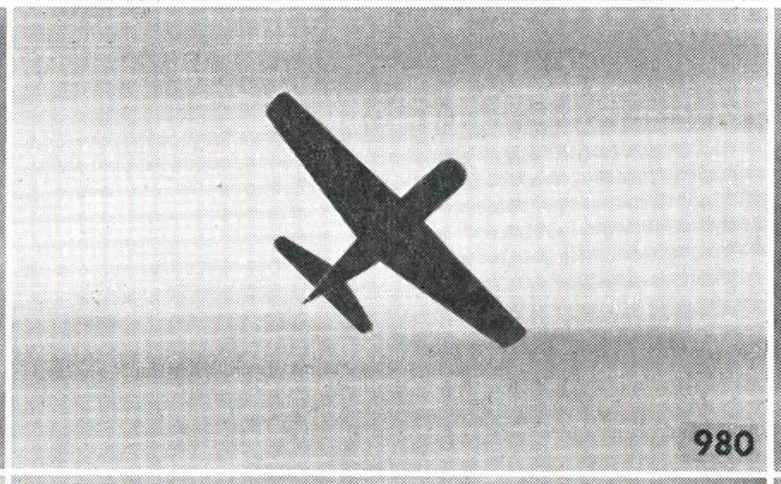

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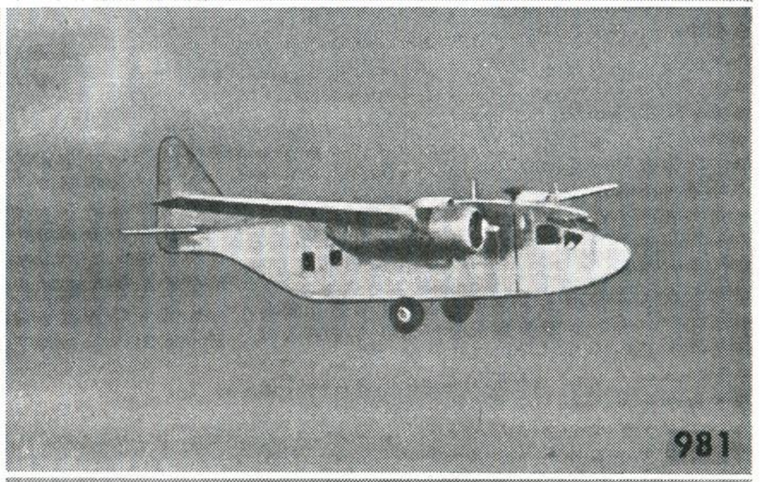

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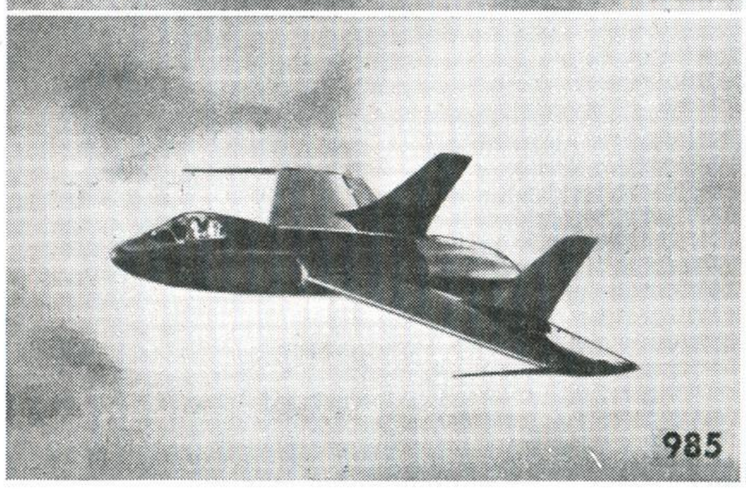

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"Tank" Recognition



An F-80, on a Korean airstrip, carrying six " tanks ". They are all napalm bombs.

by Group Captain Denis I. Coote

NOW that the *Journal* deals with tanks as well as aircraft I decided that it would be interesting to carry out a little research into the subject of tanks. Since there is more in most tanks than meets the eye, the following results of my research may prove helpful to the keener students of form.

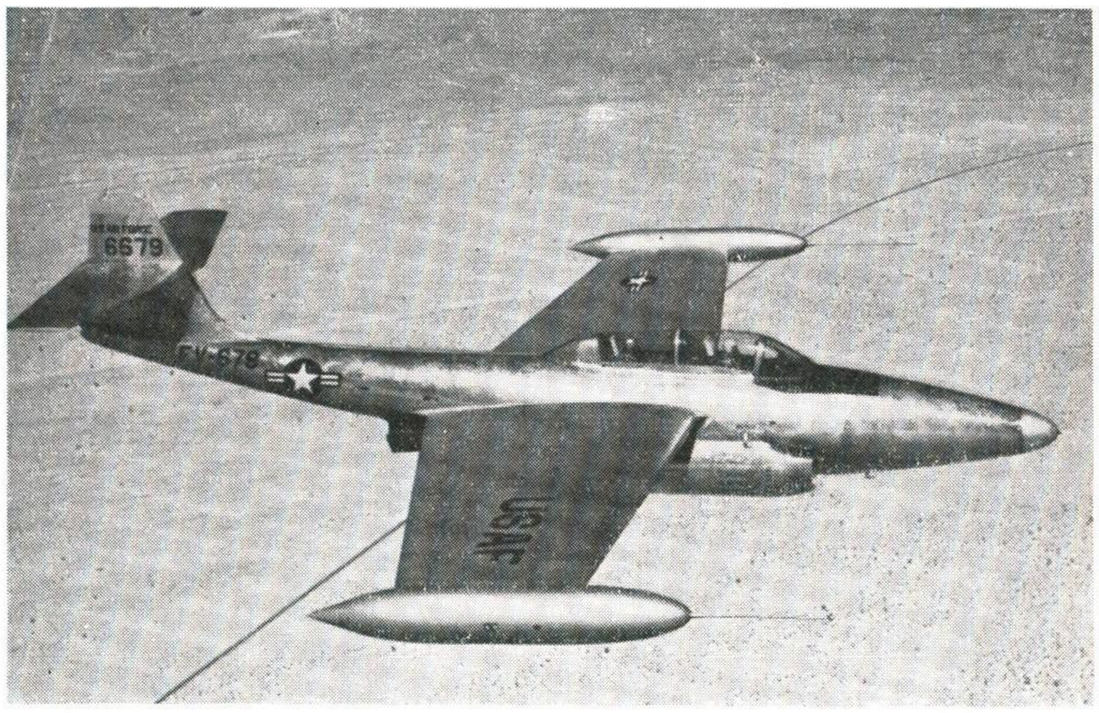
There are big tanks, middle-sized tanks, and baby tanks. In addition to the tanks that soldiers play with, there are also water tanks full of water, buoyancy tanks full of nothing at all and fuel tanks full of—well, that is too technical, so we'll leave it out. There are also special secret tanks within tanks by which certain misguided optimists attempt to evade the customs. But that is another story.

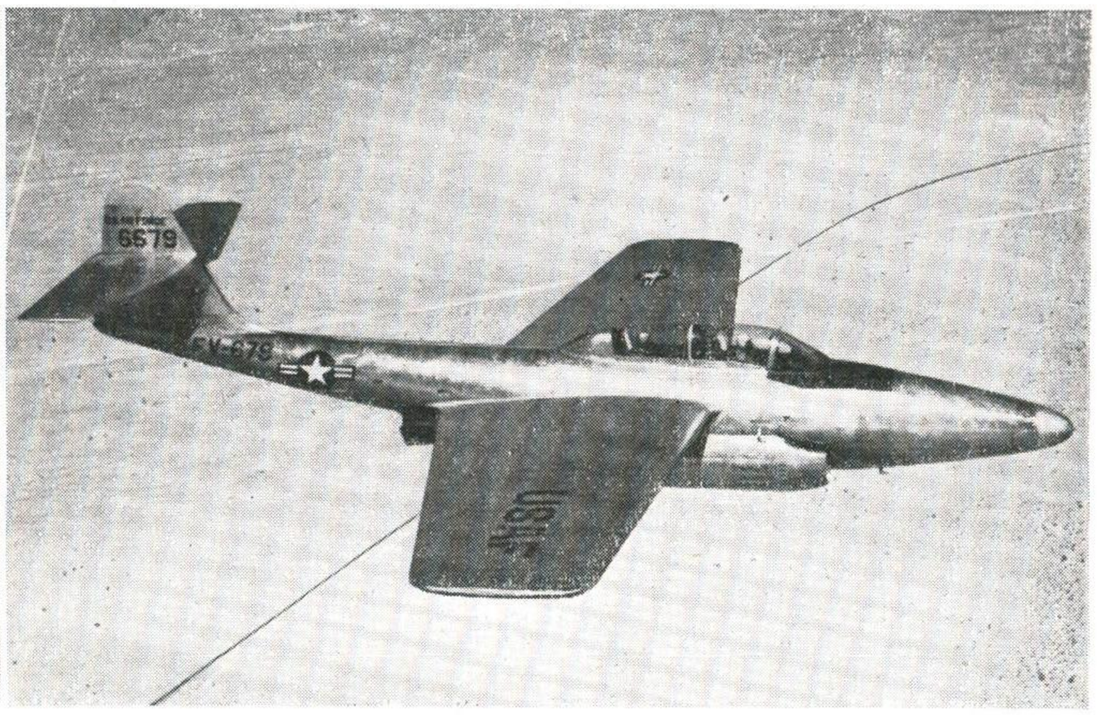
As there are so many varieties of tanks it would be muddling to deal with more than one at a time, so, from now on I am going to stick to aircraft fuel tanks.

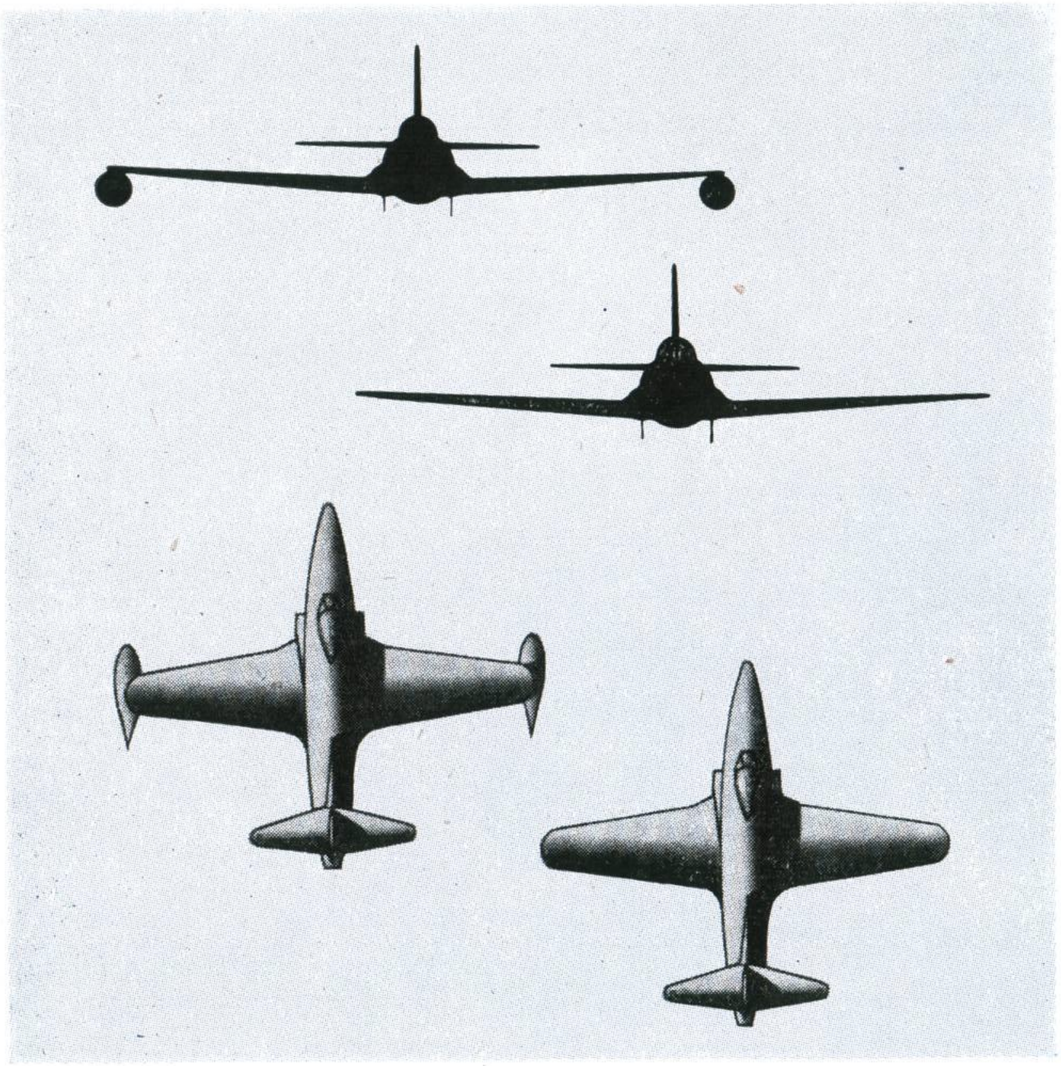
There are main tanks, auxiliary tanks, gravity tanks, reserve tanks, overload tanks, internal tanks, external tanks, belly tanks, drop tanks and probably several more besides.

There is plenty of food for thought in that little lot, especially when it often isn't possible to tell whether a tank is removable or not. The important point is, however, that if you have never known an aeroplane without its tanks and they are then removed, the effect upon its appearance is so remarkable that you may well have difficulty in recognizing it. To meet this contingency I thought it would be a good idea to study some of those aircraft upon which tanks loom largely (as far as visual recognition goes) and to compare them, on the one hand, in full dress and, on the other, in " undress ". The result seems to me to be noteworthy.

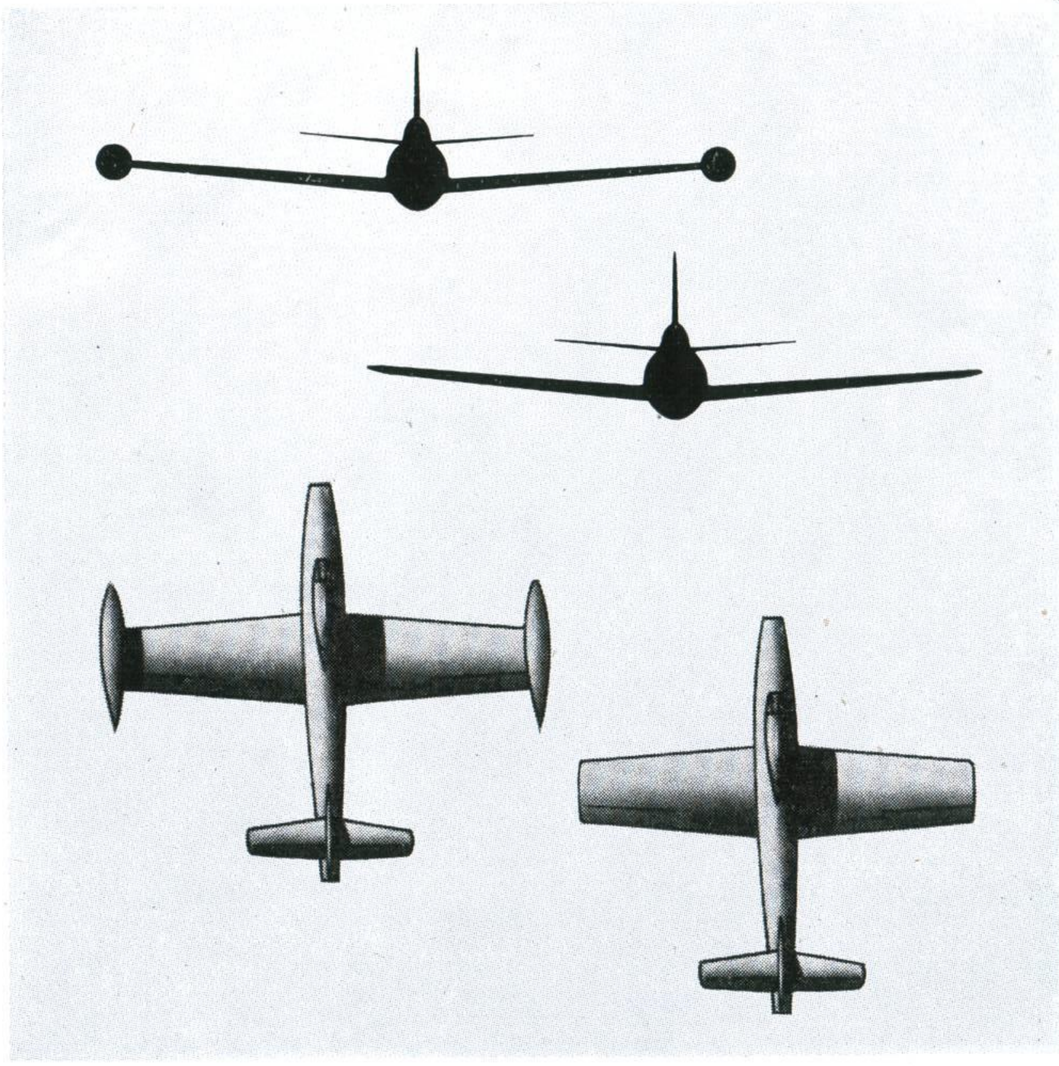
F-89 Scorpion.







F-80 Shooting Star.



F-84 Thunderjet.

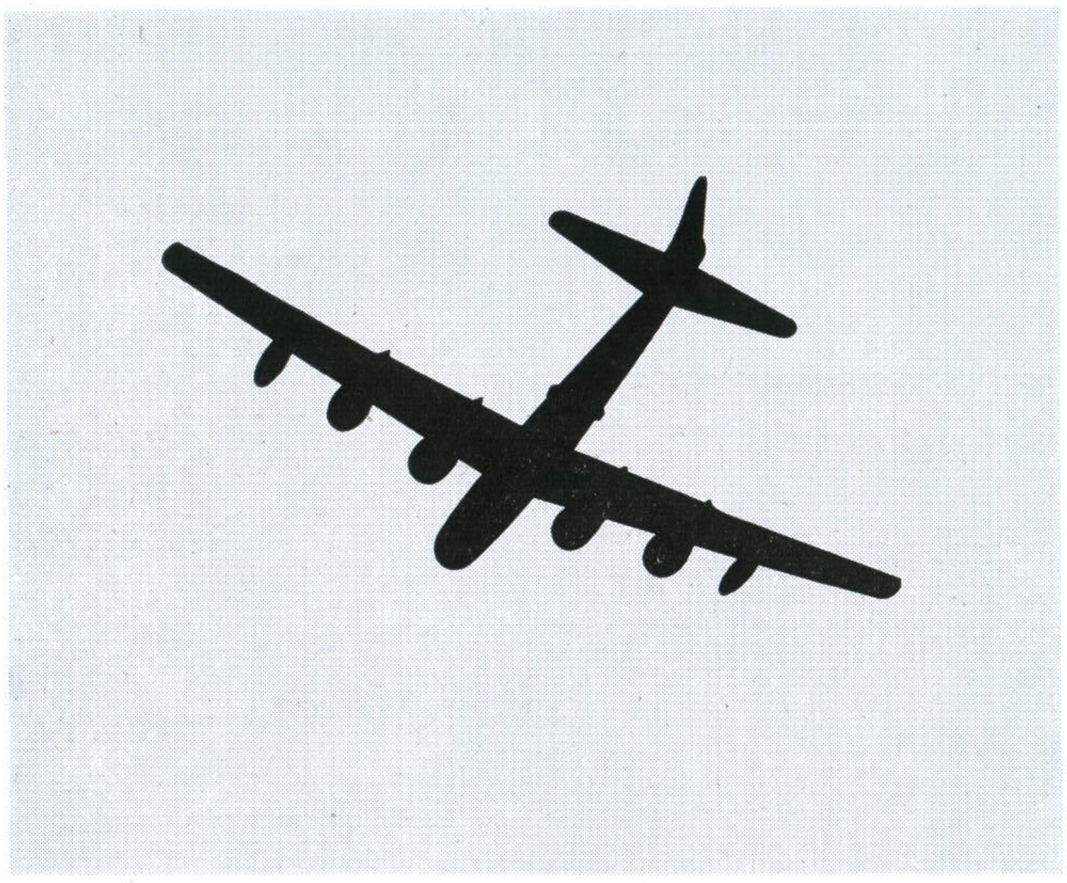
Wing-Tip Tanks

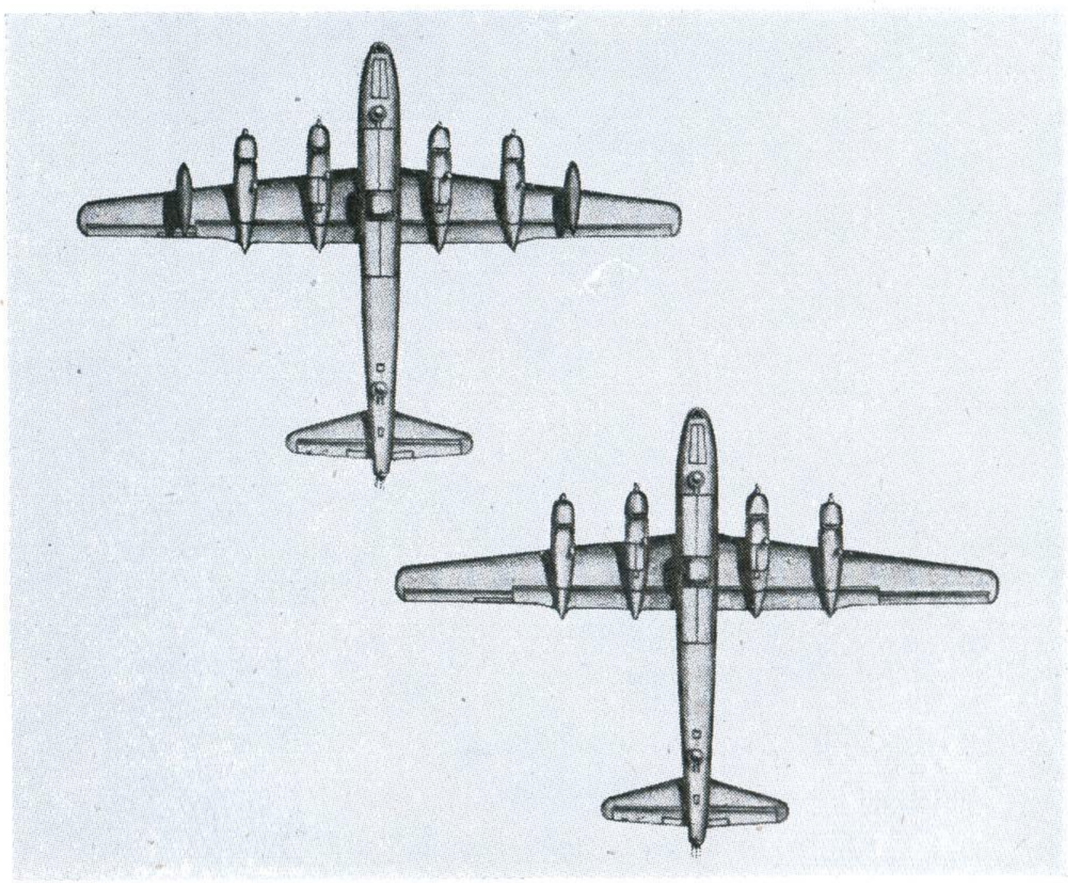
Of all external tanks on aircraft wing-tip tanks are the most unhelpful to recognition. Although they can have an element of the decorative, lend an air of two-fisted aggression and visually speed up the aeroplane to which they are attached, they also seem to have the unfortunate habit of diverting attention to themselves—particularly in the case of the smaller fighters—and of sometimes making otherwise reasonably dissimilar types of aircraft ook alike. In short, wing-tip tanks are a curse.

Most droppable tanks are of the wing-tip variety, so it is quite possible to see an aeroplane fly over with tip-tanks attached and return a short time later without them. If recognition were cricket this certainly wouldn't be! Also although many aircraft now have tip-tanks fixed permanently in position, there are frequent occasions when other aircraft of similar type may appear without them.

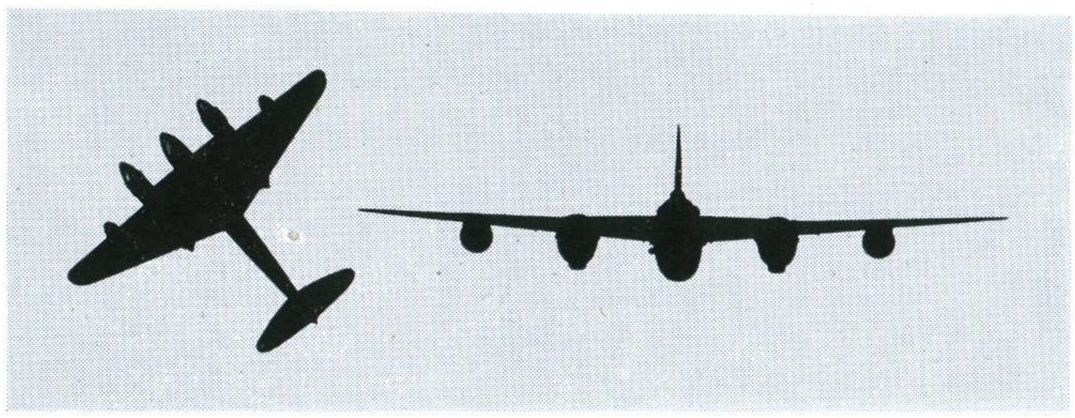
Perhaps the maximum effect of tip-tanks upon the recognition character of an aeroplane is illustrated by these views of the F-89 Scorpion. With its tanks, this Scorpion is akin to its obnoxious namesake, and the relationship of wings and tip-tanks gives an impression of prehensile, prey-seeking claws. This idea is entirely lost when the tanks are removed, and with it goes much of the ferocious element in the Scorpion's character.

The immediate effect of fixing tanks on the wing-tips of the F-80 Shooting Star is to obscure one clear cut feature—the diamond wing-shape. Its tips are sharply cut off by the tanks. Also the way in which the tanks are fitted under the wing tips seems to create the impression that the wings droop dismally.





B-50D Superfortress.



Mosquito P.R. 34.

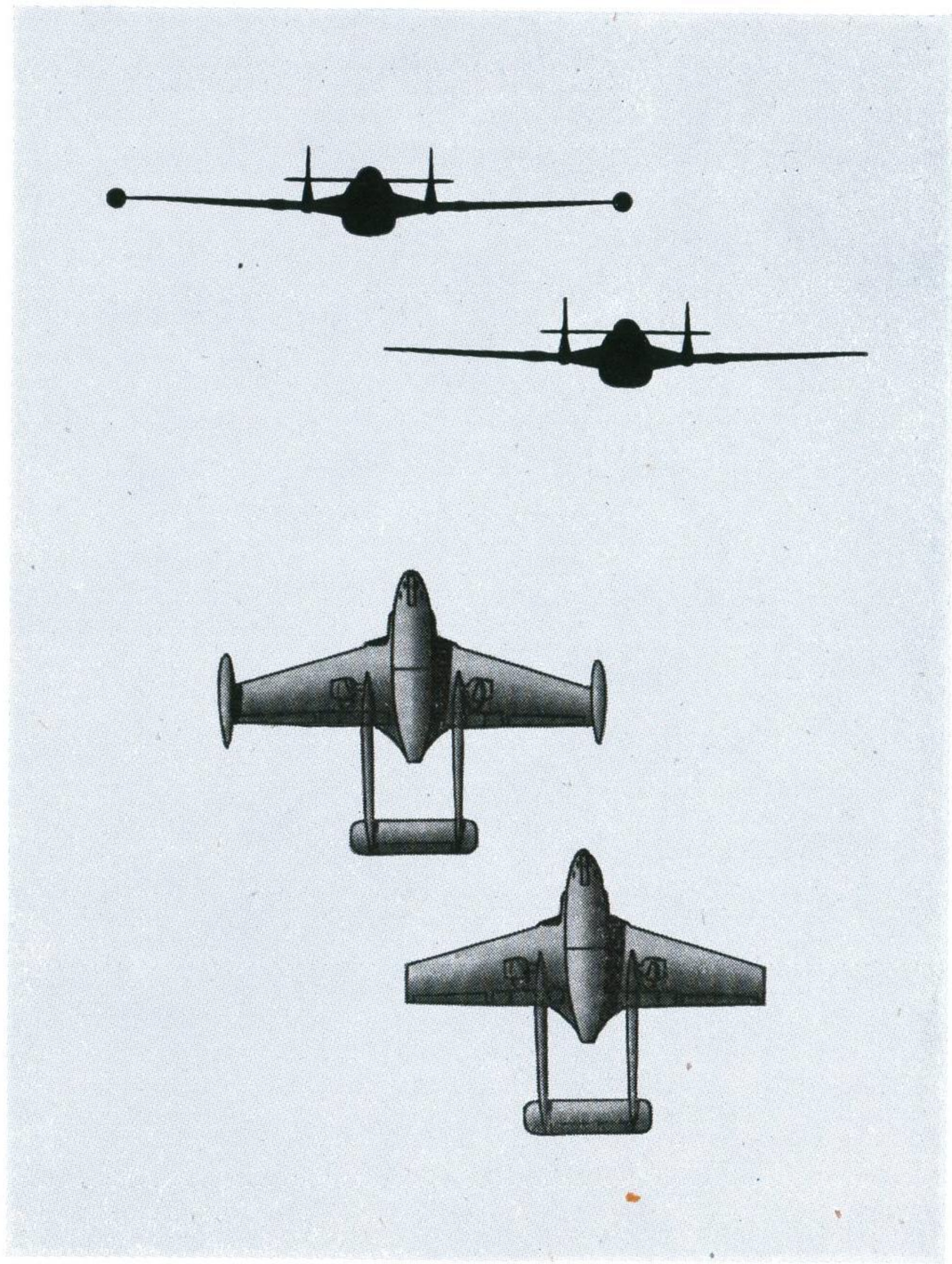
These perverse tip-tanks can have a completely opposite effect on the F-84 Thunderjet for they appear to me to produce uplift. The wings seem to be grasping their tanks boldly and one is given an impression of a two-fisted fighter going into action. In plan, these streamlined outriggers with their fine proportions greatly increase the impression of speed ; their removal leaves a curious little aeroplane which seems to be " chopped off " all round, looks much less speedy, and has lost its air of aggression.

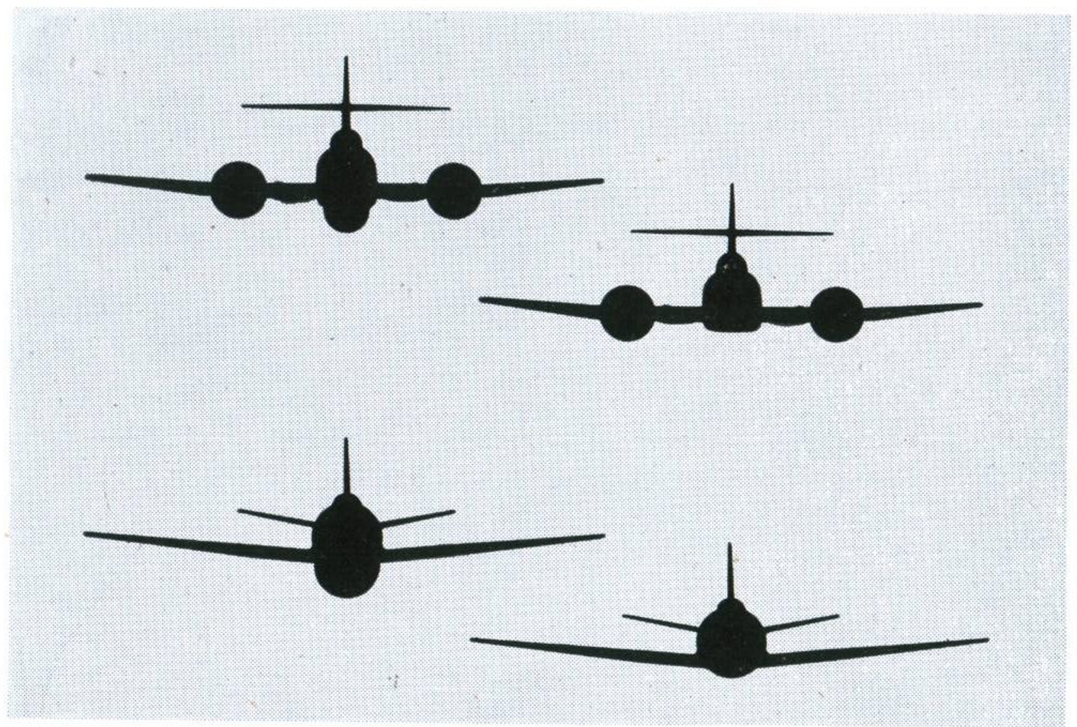
The Venom, a startling enough character in its own right, positively spurts when sporting its very slender tip-tanks. From ahead or astern the tanks tend to give the impression of uplift and to " stretch " the span.

Under Wing Tanks

Under wing tanks can have an entirely different, but still confusing, effect upon the appearance of an aero-

Venom.





Meteor F.4 (above) and Attacker.

plane. They may appear as extraneous excrescences on an otherwise neat wing, and the effect can be further exaggerated by shadows. Small wonder that the B-50D Superfortress has often been reported as " a six-engined aircraft ".

The under wing tanks of the Mosquito P.R.34, when seen in head-on view, put it visually into the four-engined class. In plan, however, the tanks are not large enough to appear more than small bulges on the leading edge and, being relatively short and fat, change the wing character but little.

Belly Tanks

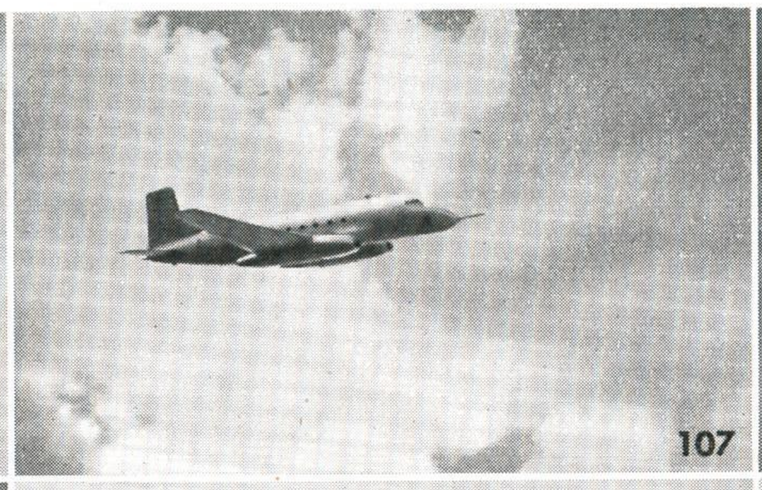
Unlike us poor humans, the most inconspicuous of all tanks is the belly tank. The two examples shown, the Meteor and the Attacker, are both likely to be seen with or without this tank. As you might expect from studying your fellow men, belly tanks have a most powerful influence upon shape and character. The effect upon aircraft is greatest when viewed from ahead or astern, as the tank appears to deepen the fuselage and to convert low-wing into mid-wing types.

I hope that this short treatise on tanks will have helped you to realize that things are often not what they seem. " Tank " recognition isn't quite as easy as you might think, but forewarned is forearmed, and I am sure you won't be tricked by tanks in the future.

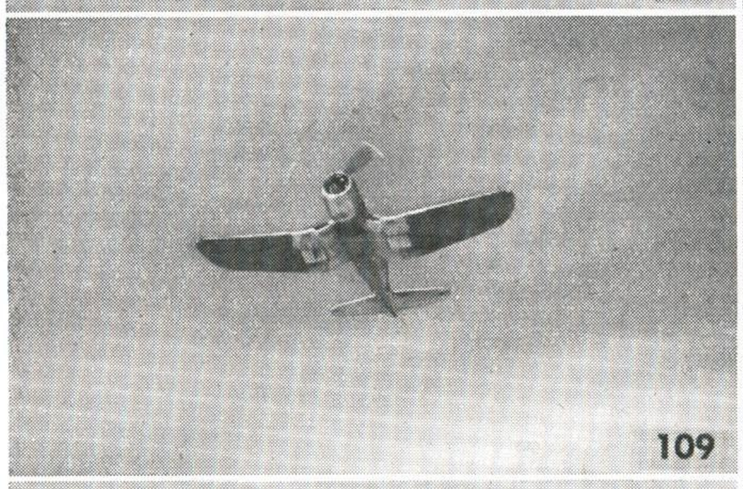
" . . . tip-tanks are a curse."

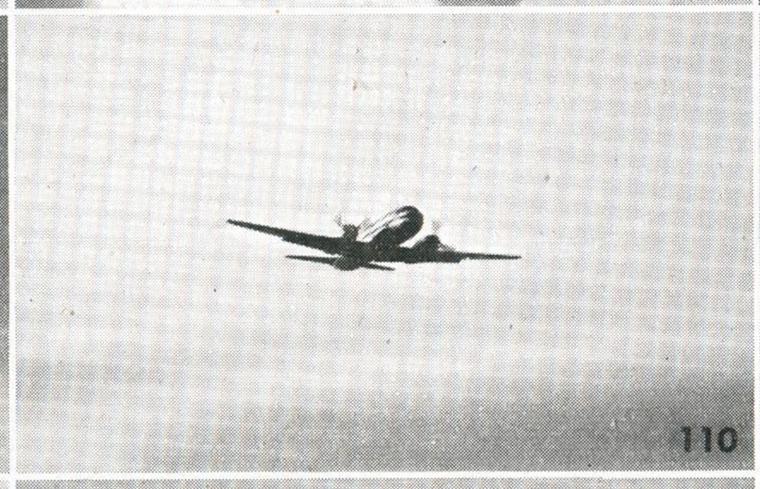



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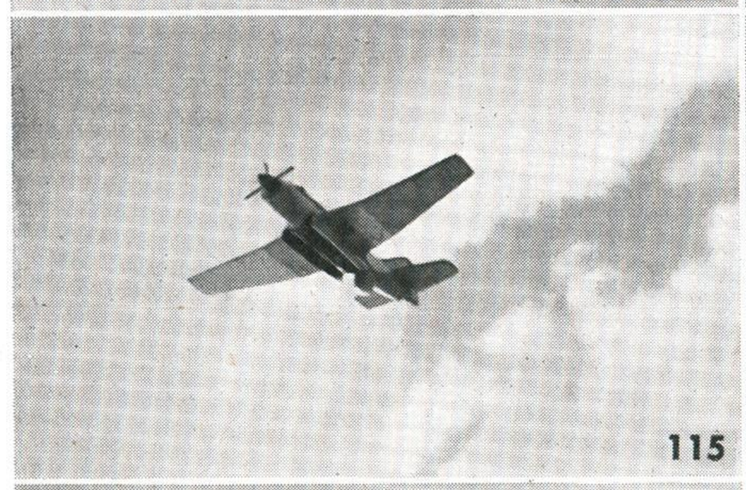

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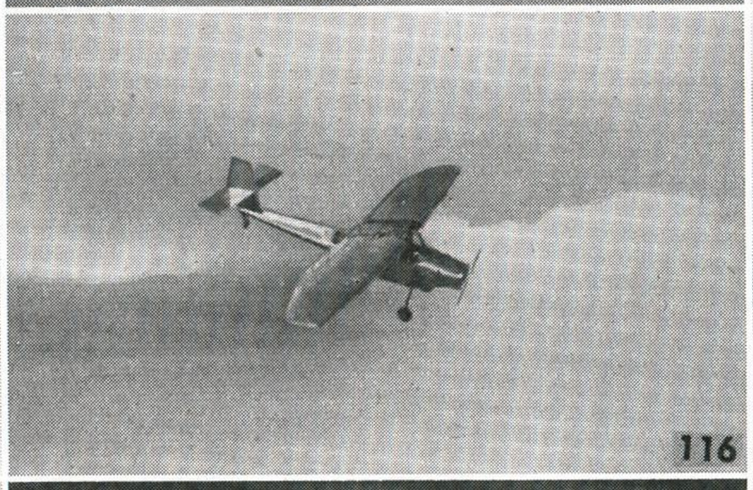

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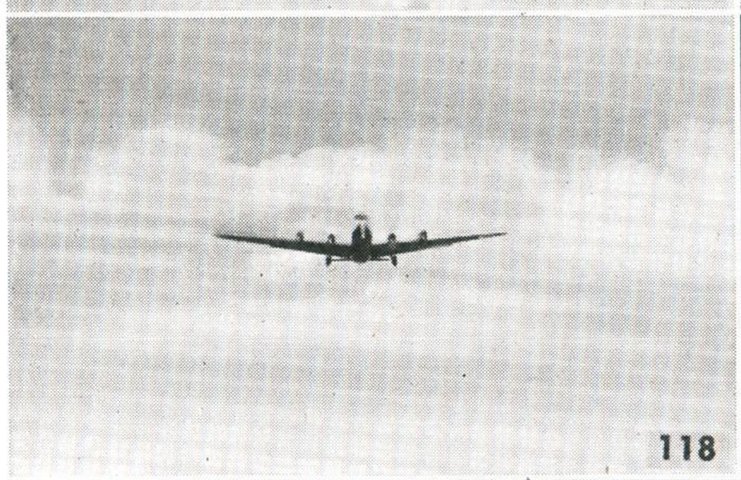

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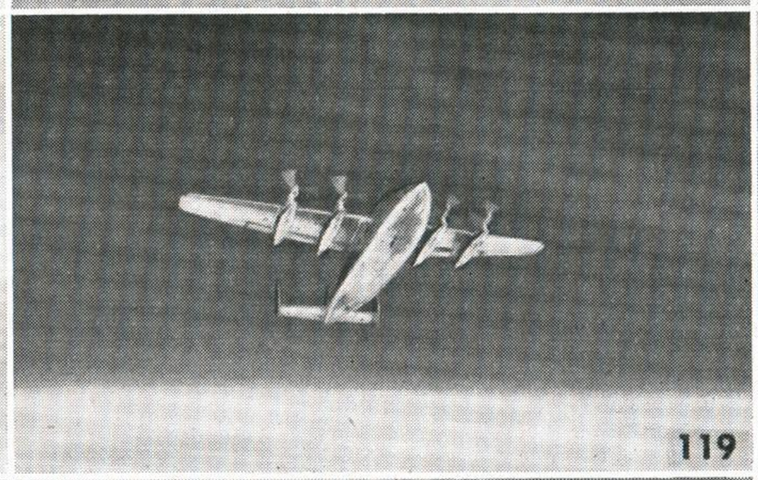

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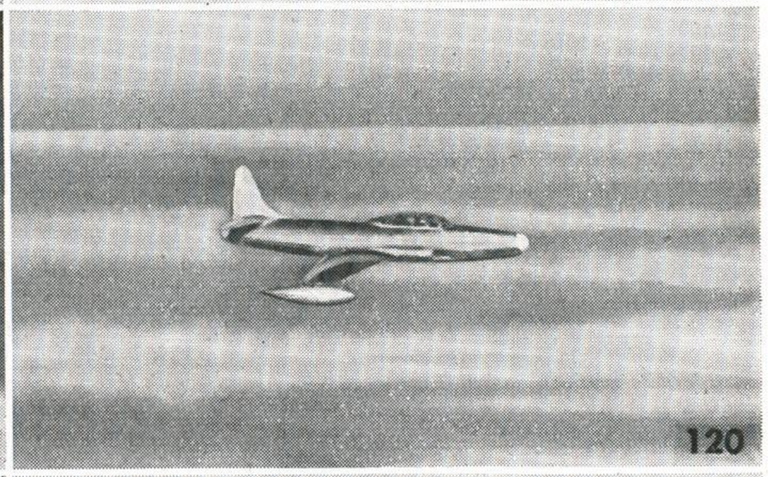

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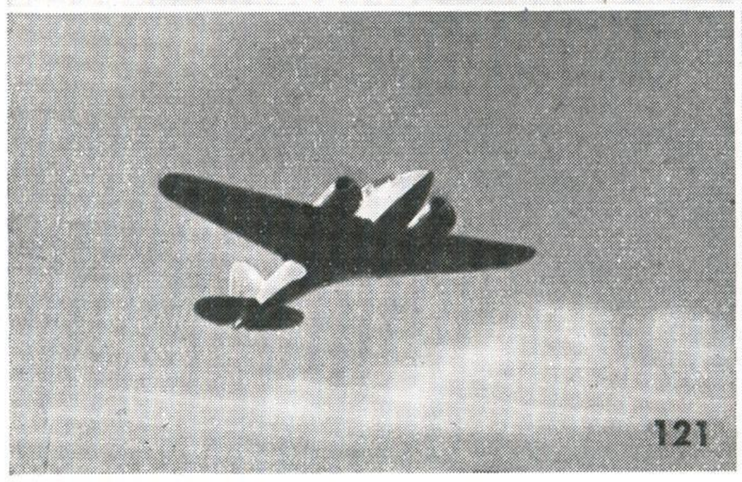

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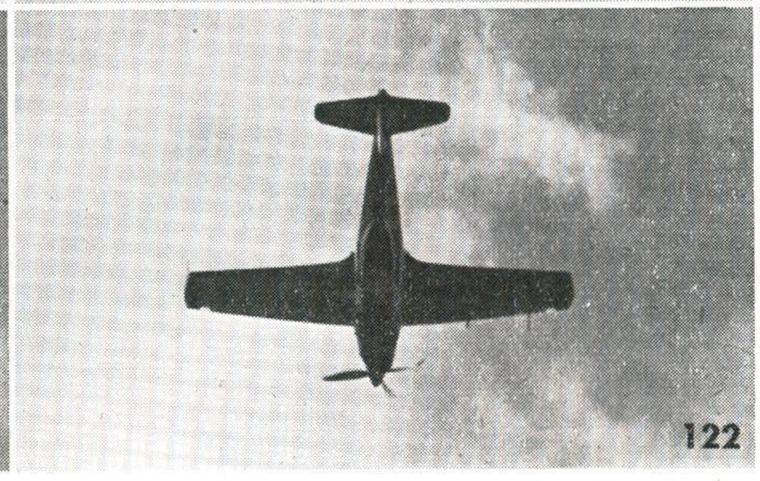

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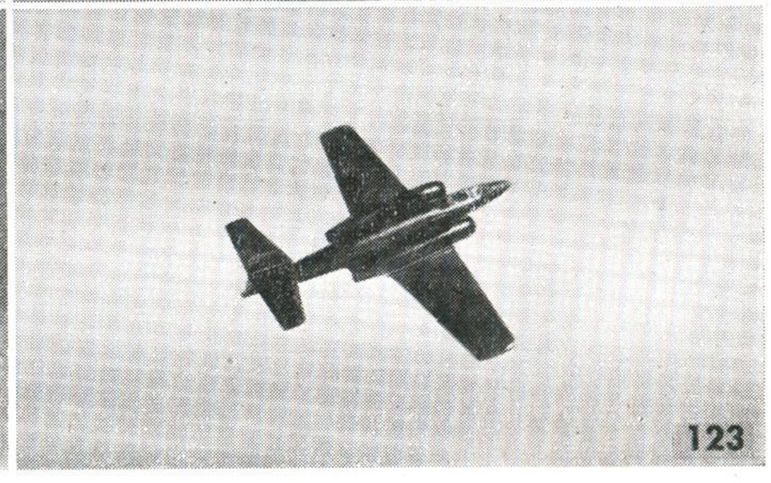

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ADVANCED SPOTTING

CHARACTER STUDY No. 14

The F-89 Scorpion

THIS aptly named fighter from America is a sleek affair of broad flat angular surfaces, borne along by a slippery fish with two spindles clapped against its belly.

The wings of the Northrop Scorpion have broad, almost equi-tapered surfaces—generally tipped with old-fashioned Zeppelin-shaped tanks—and with no dihedral. They sprout from a high, mid-wing position, with no fillets. This gives them a rather abrupt look and accentuates the angular feeling of the whole group of flat surfaces.

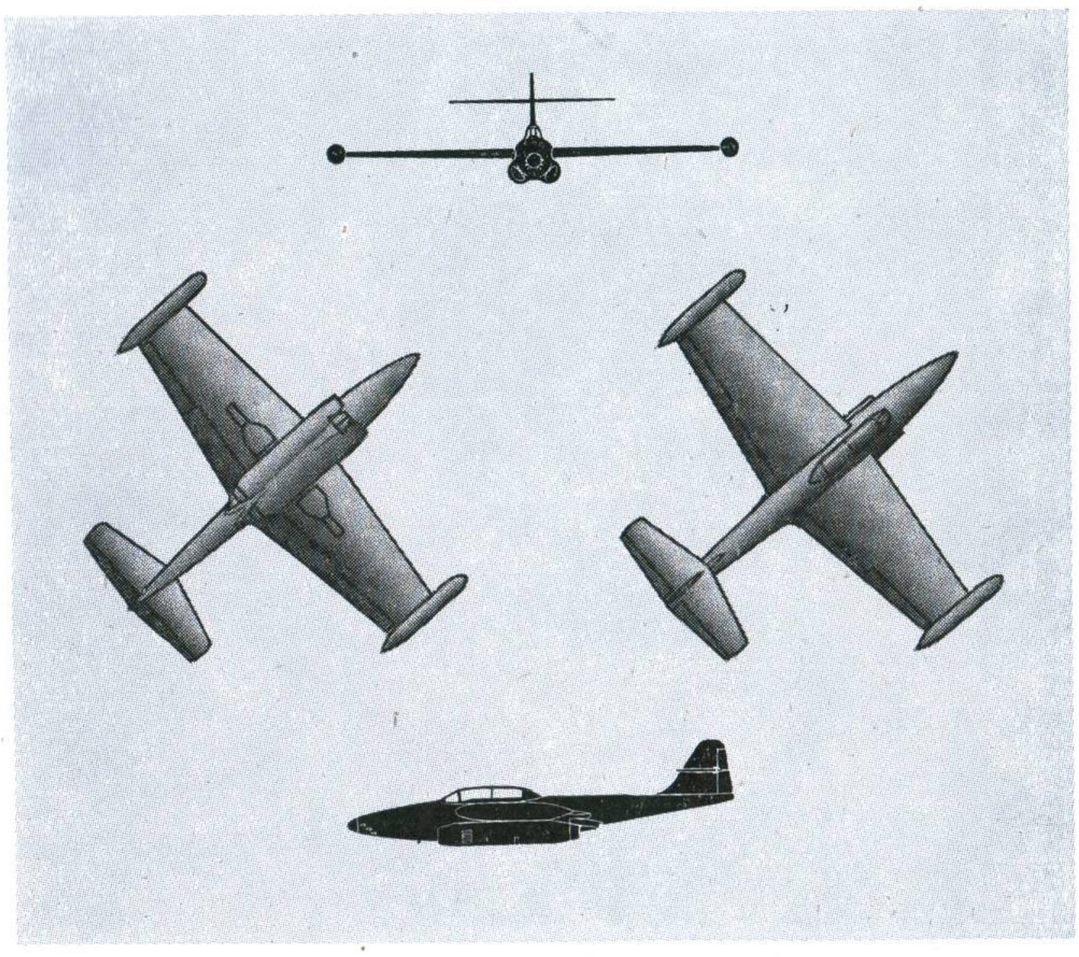
The two turbo-jet engines, in long flattened pipe-like nacelles, look as if they have been fixed on to a glider as an afterthought. They project well forward of the wings and their after end is flush with the trailing edge. But owing to their large size, the engines are visible as a great centre-section bulge from nearly every angle, even from dead above or below.

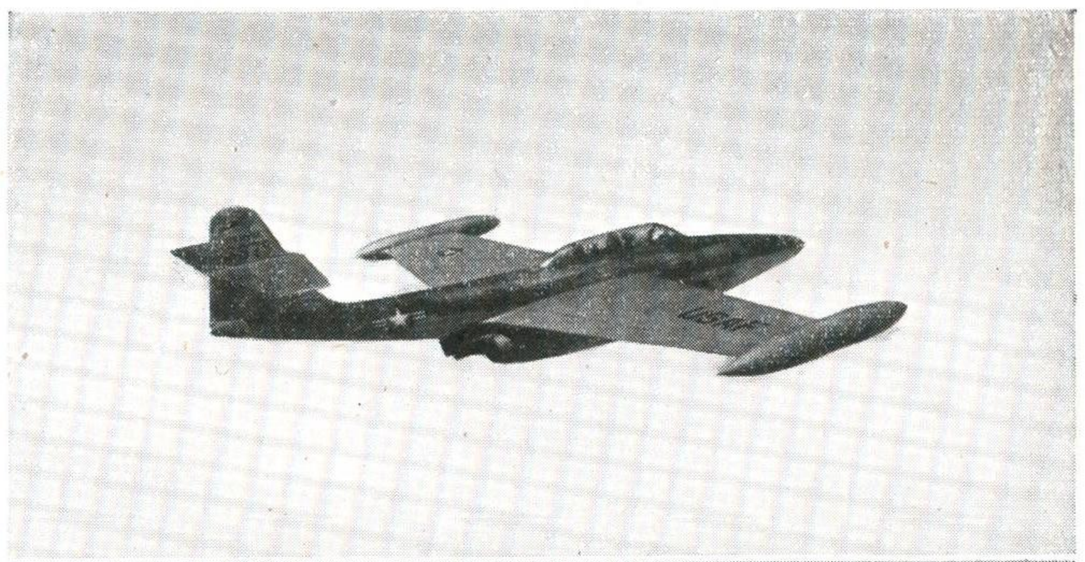
The fuselage is smooth, with a fine bullet-tapered nose and a long thin taper aft of the wings. Its straight top and swept-up underline helps to lend the whole aircraft that swept-up appearance which gave rise to its name Scorpion. The underline is, of course, completely broken up by the engines, and the top line mildly upset by the greenhouse, its seats, fairings and occupants.

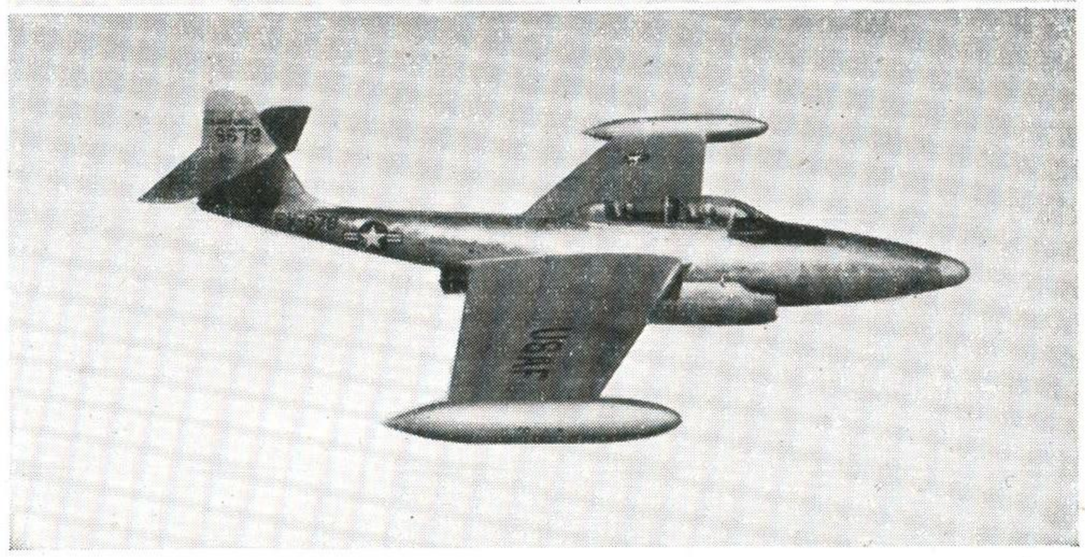
The tail, seemingly set higher than it is (because of the fuselage sweep-up) is a combination of thin sharp and angular shapes, with a graceful top and down curve of the fin. Tailplane is set high and looks neatly sliced through by the fin and rudder. The former has pronounced leading-edge taper and trailing-edge taper so slight that it should be treated as non-existent. Leading and trailing edges of both fin and rudder, and tailplane, optically coincide—there is an actual slight protuberance forward.

The Northrop Scorpion first flew in 1948 ; it is in series production for the U.S.A.F. Principal figures are : Span 55 ft. Length 52 ft. The Scorpion carries six 20 mm. cannon in its nose and its top speed is approximately 600 m.p.h.

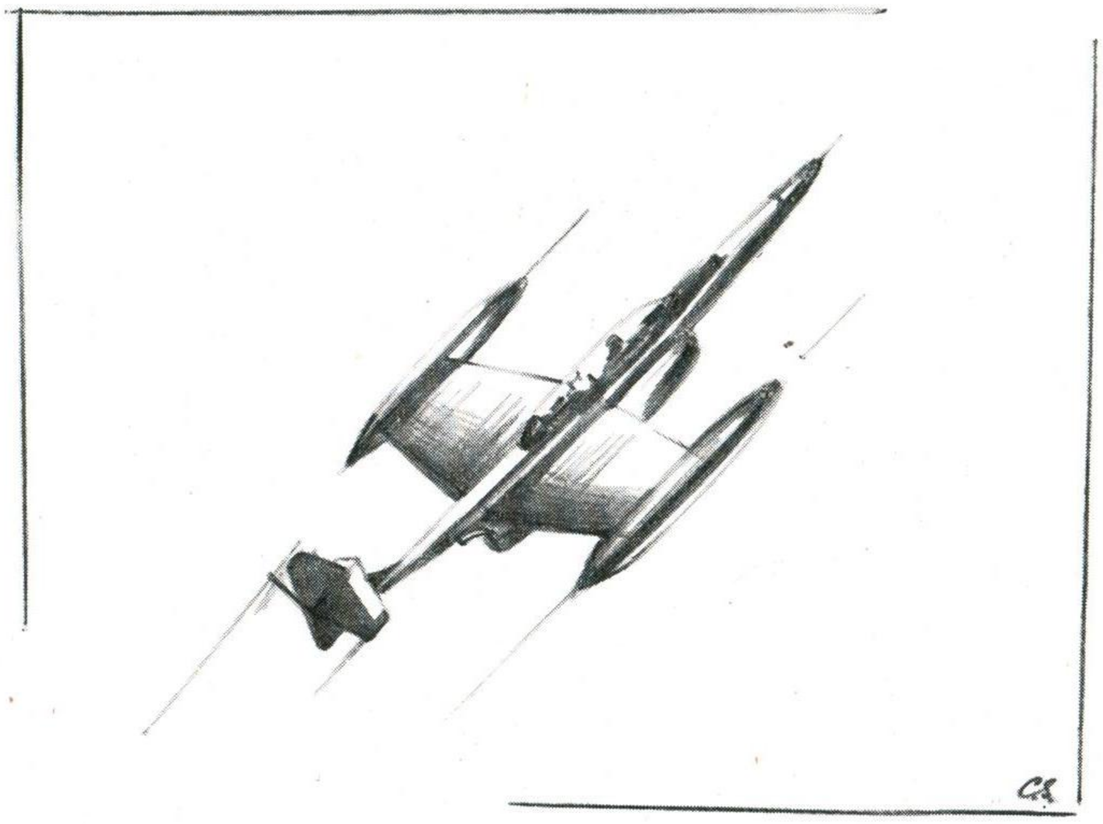
C. H. GIBBS-SMITH

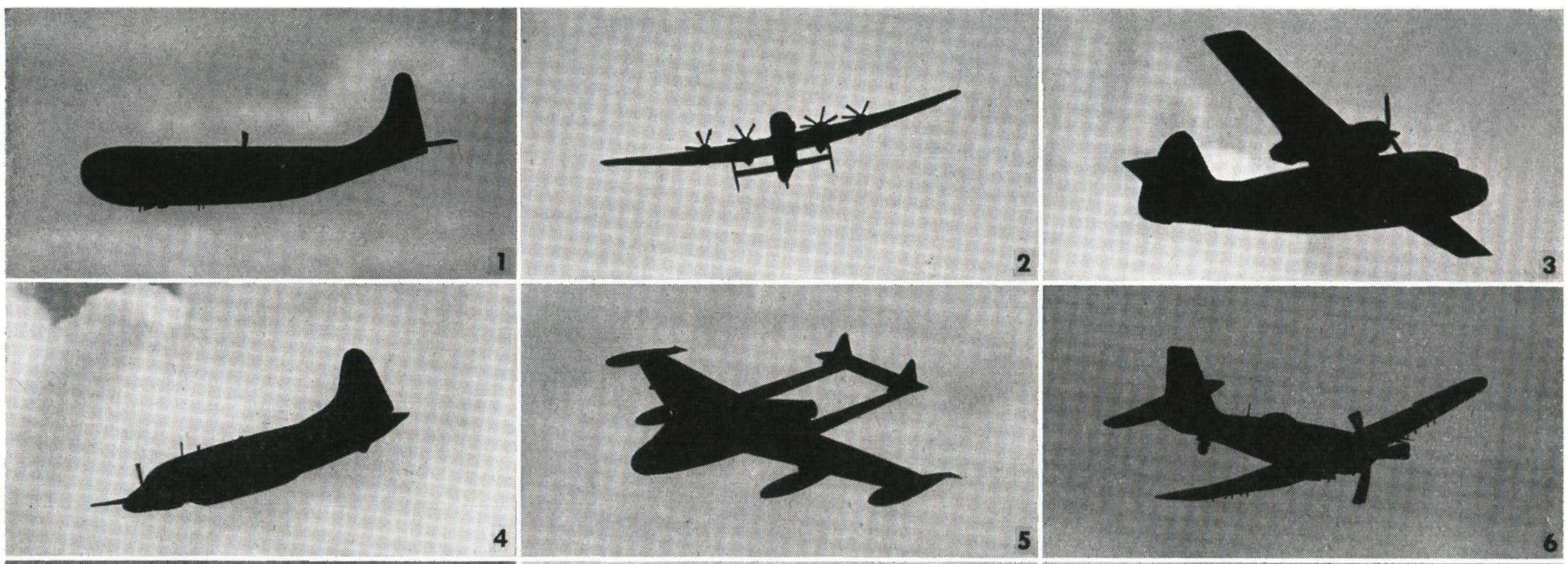






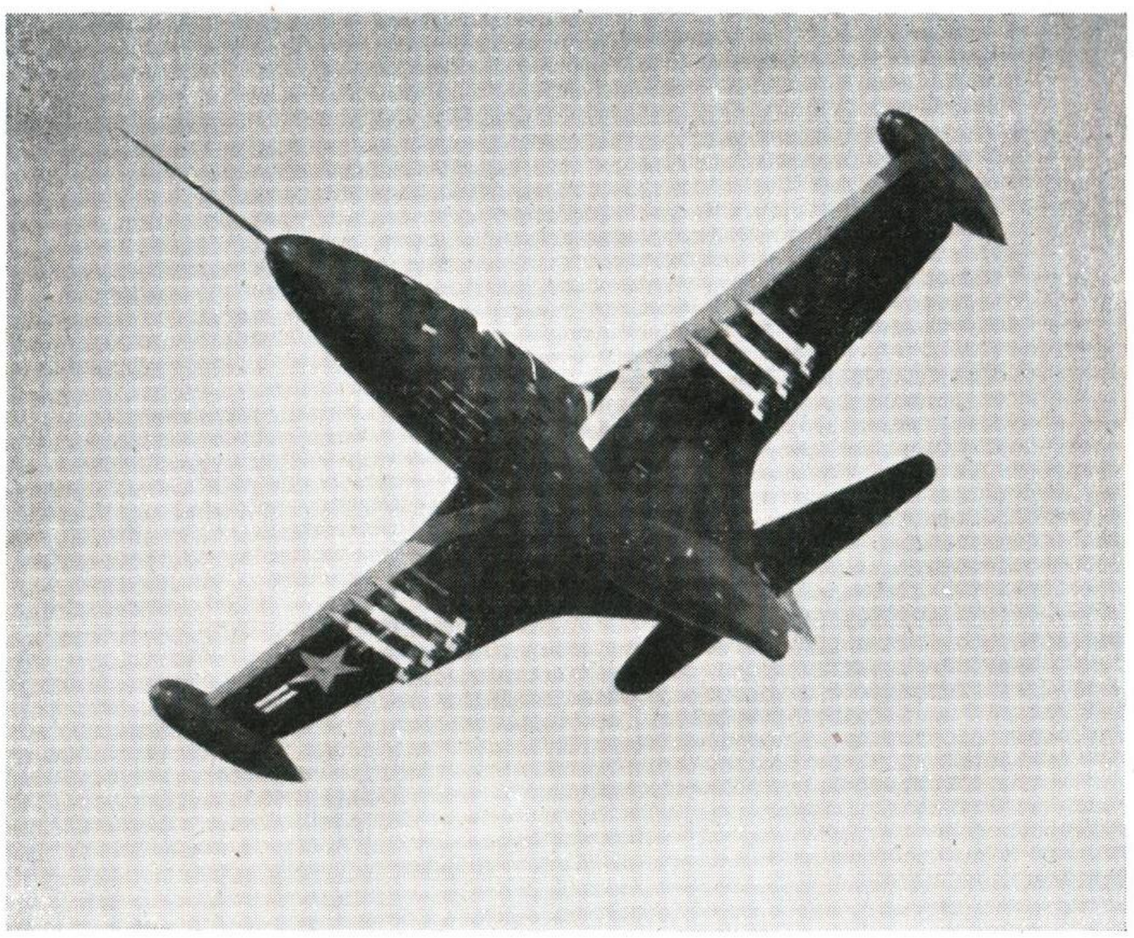
'Spindles and boards"

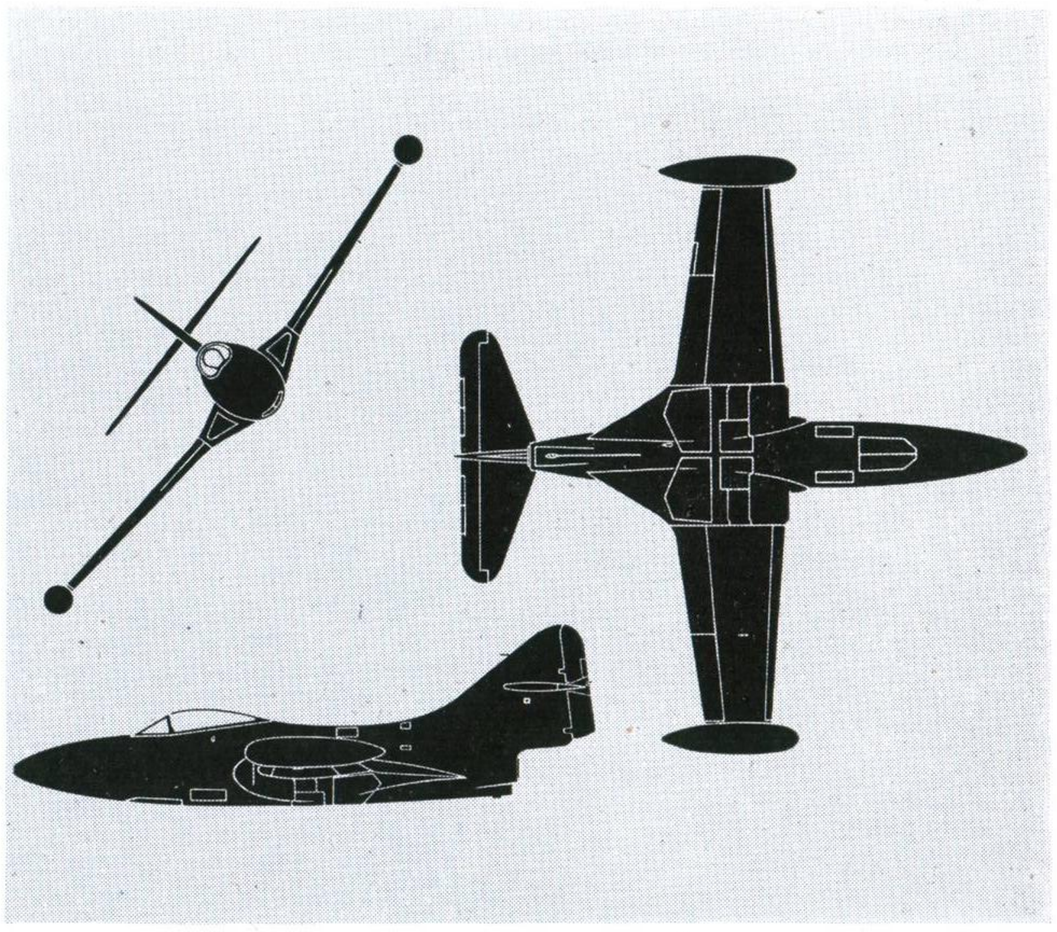




SILLOGRAPHS

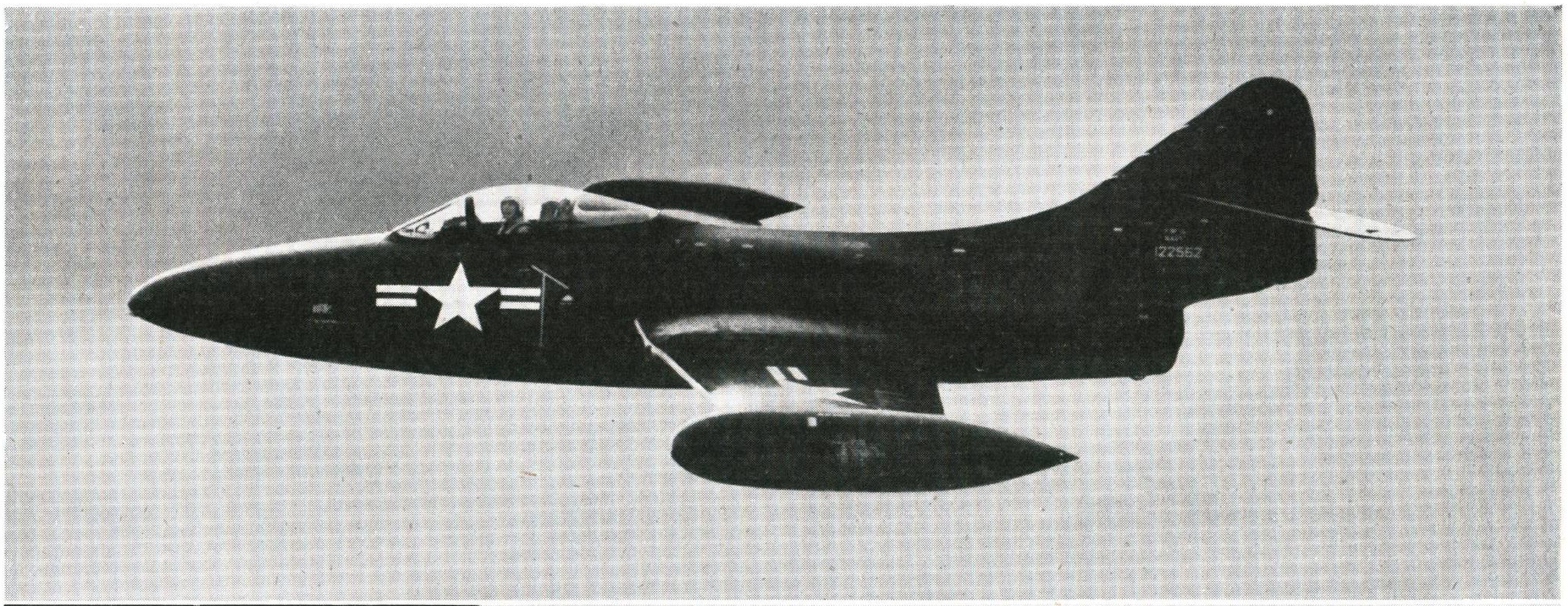
PANTHER IN SERVICE





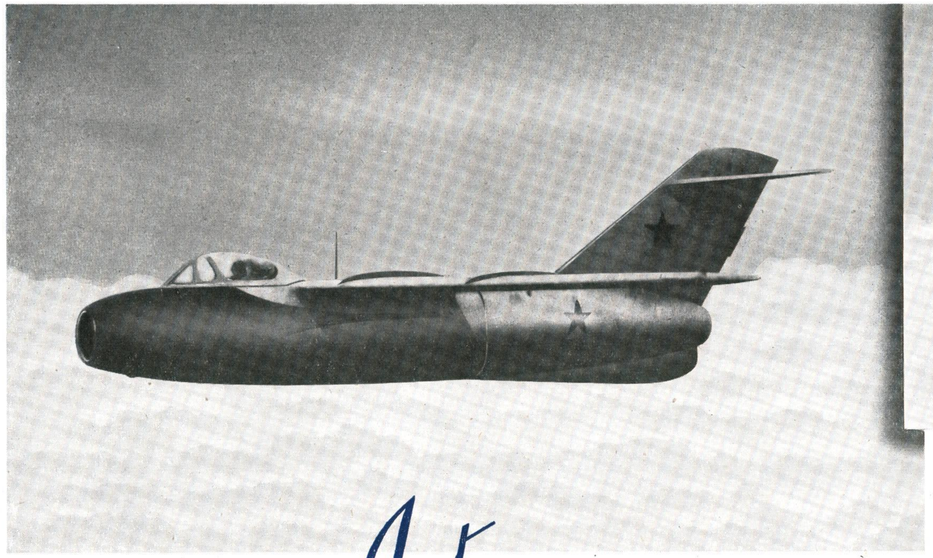
THIS sleek and polished Panther is an aeronautical hybrid : it falls into a recognition class between " pod and boom " and formal fuselage types. It is distinctive and looks deadly. A view in which it loses some distinctiveness is the head-on one and it should be carefully compared with similar views of contemporary fighters. Underneath views are easier to recall by its extravagant nose length projecting from a slightly tapered wing generously " webbed " almost to the back-tapered tailplane. Sideways impressions of the Panther recall that over-used household utensil, the can-opener.

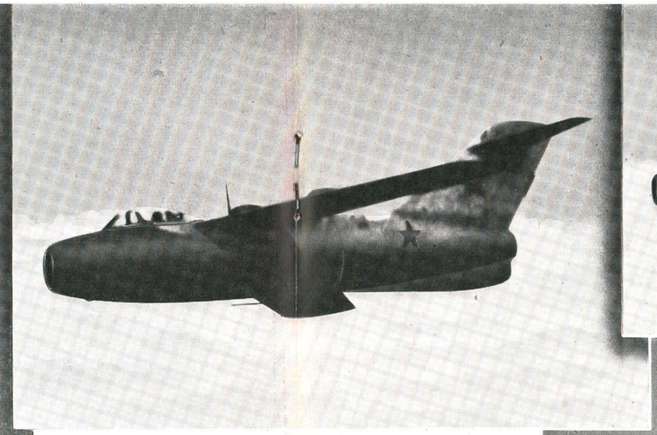
Designation : **F9F-2 and 3 Panther.** ***Duty :*** **Naval Fighter.** ***Data :*** **Span : 38 ft. 6 ins.**
Length : **35 ft. 9 ins.** ***Max. Speed :*** **521 + knots (600 + m.p.h.)**

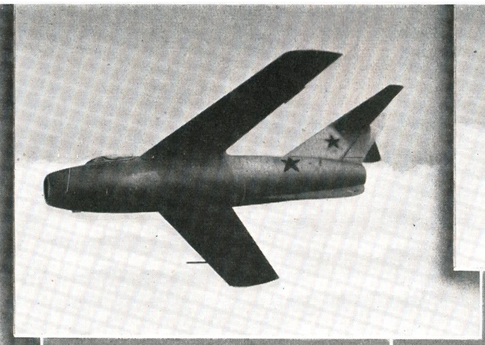




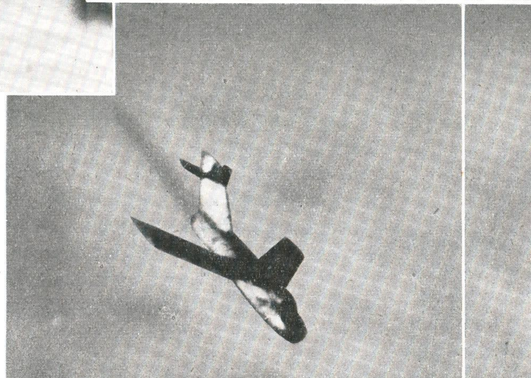
LAVOCHKIN *Jet Fighter* ЛАВОШКИН

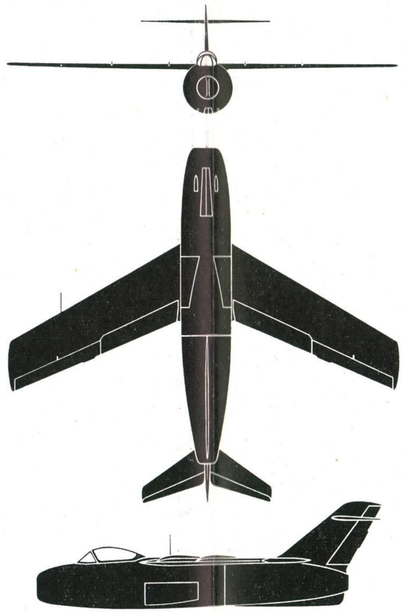


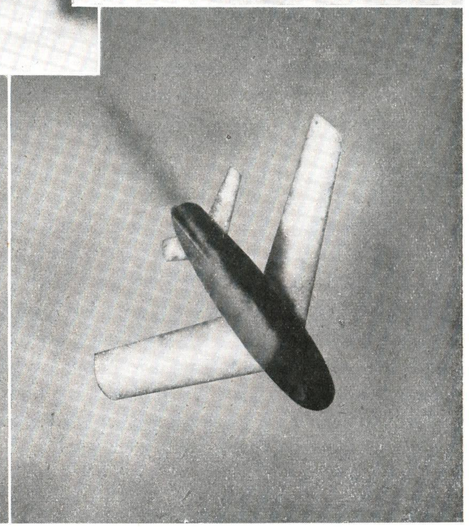




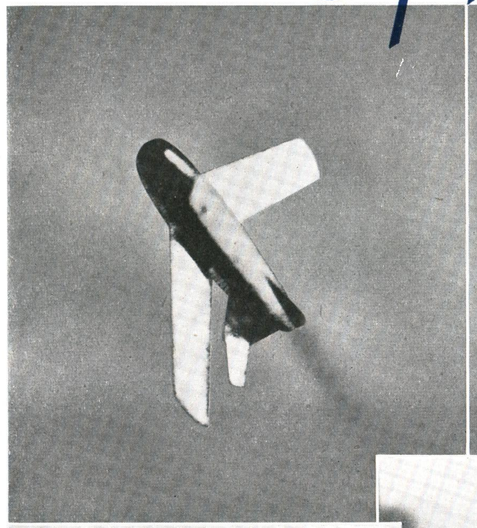


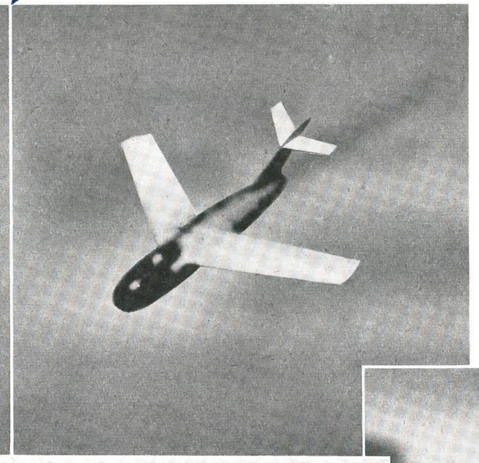




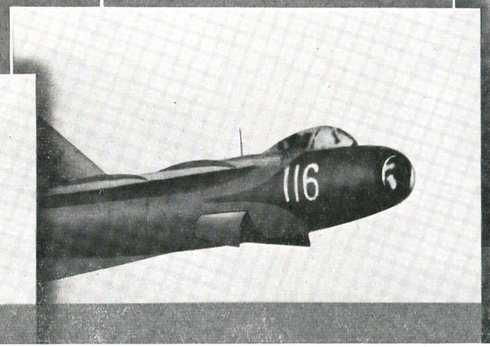


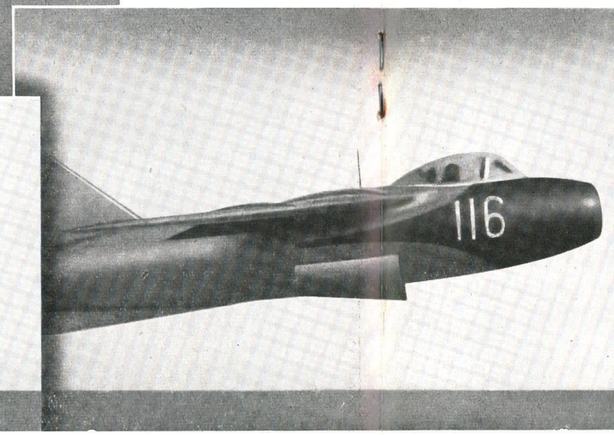
This series of pictures of the new Lavochkin swept-wing fighter shows clearly the points which distinguish it from its contemporary the MIG-15. The lower set of photographs show it bounding off the runway and tucking its wheels into the fuselage. This undercarriage arrangement has enabled its designers to use an extremely thin wing. The fuselage in the MIG-15 is "pipe-like" and chopped off at both ends—a ventral fairing adds to the effect. Not quite so tail conscious as the MIG-15 (the rake is not so pronounced in the fin) this little fighter, has, nevertheless just as distinctive a character. It has approximately the same dimensions as the MIG-15.

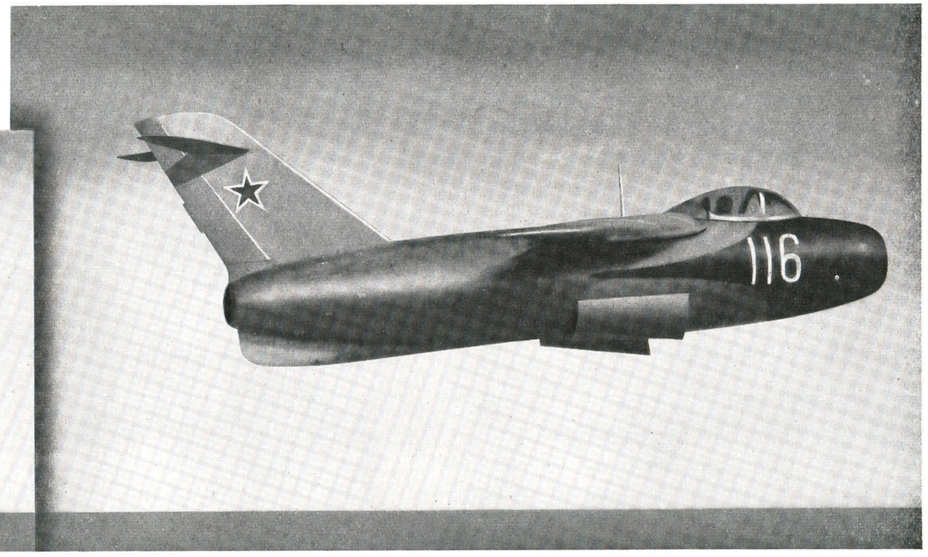












Teaching and Testing

It is easy to confuse testing and teaching in recognition training, so we asked an expert to define the differences between these two important training functions.

ONE of the most vital problems confronting the recognition instructor—aircraft, A.F.V. or ship—is the distinction between training a man and testing him. Each process has its own technique, its rules and its dangers ; and a confusion between the two can mean a confusion in the student's mind and a confusion in his combat verdict of friend or foe.

TEACHING

The job of teaching recognition is to plant facts, evidence and the power of discrimination in the mind of a student. The job of testing him is to present to his eyes the greatest variety of views or aspects of the objects he has been taught to see if he can recognize with speed and accuracy the material that he has been taught. To test is to assess ability.

Somewhere between the two comes the added task of mechanically speeding up the student's eye-brain reflexes, where teaching and testing are brought together and where the testing exercises themselves perform a teaching function by further exercising of the faculties. But this is a special problem with which we are not concerned in this article.

In the case of recognition, the basic task of teaching the student is to make him (or her) as familiar as possible with the aircraft, tank or ship. This involves, ideally, the following basic information :—

1. **The Name of the Object**—what it should be called and what the student might hear it called by others, by no means the same in all cases.

2. **A Minimum Amount of Information** about what the object is for and what it can perform.

3. **Its True Shape and Proportions** as opposed to its apparent shapes and appearance. In other words the " blue print " aspect of the object ; its bare unvarnished facts ; what is where ; what in relation to what ; relative heights and breadths ; plans and elevations ; what is curved and how ; what is straight ; what is flat ; what is swelled. For this job the general arrangement drawings, silhouettes, and blue prints, are essential. It is these accurate, impersonal diagrams which give the necessary information.

4. **How it is Put Together**—its basic structure. This is important because it is difficult, if not impossible, to learn and appreciate shapes if one does not understand how they came to be what they are and where they are. Also, a knowledge of the structure allows the mind to think round an object, to realize what happens to lines and shapes when they go out of sight. In other words *structure* spells *meaning ;* meaning aids *observation*, and observation leads to intelligent *appreciation*, which finally means accurate *recognition.*

5. **What the Actual Object looks like in Isolation and at Rest.** Here, it is the appearance of the solid object that is to be studied. The real object is best ; photographs the next best. Now it can be studied " in the flesh ", so to speak ; seen, scrutinized and touched ; perspective views appreciated and the hundred and one impressions stored up in the mind.

6. **What the Object Looks Like in Action.** Again, the real object should be studied if possible ; otherwise, still photos and films. Moving shapes, shifting shadows, and the vagaries of light and shade, all become apparent.

Such is a description of the ideal (although not always possible) basic training in the recognition of all target objects. The stages seem long and elaborate when set out ; but in practice such a routine does not take long with a good teacher and an apt student.

But in this teaching routine there are, so to speak, some overriding dogmas. The most important is the question of size and clarity of the teaching material. To teach is to present clearly and efficiently, to inculcate facts and shapes. To do this the teaching material should be as large as possible to allow the eye and mind to move freely and easily over the shapes without strain and stress. Strain sets up resistance and diverts

ENGLISH ELECTRIC CANBERRA B Mk. 2

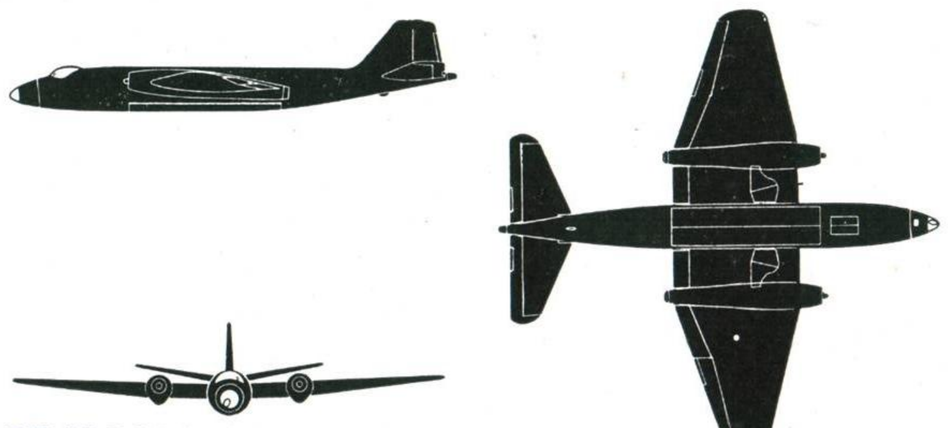
Three seat light Bomber

TITLE

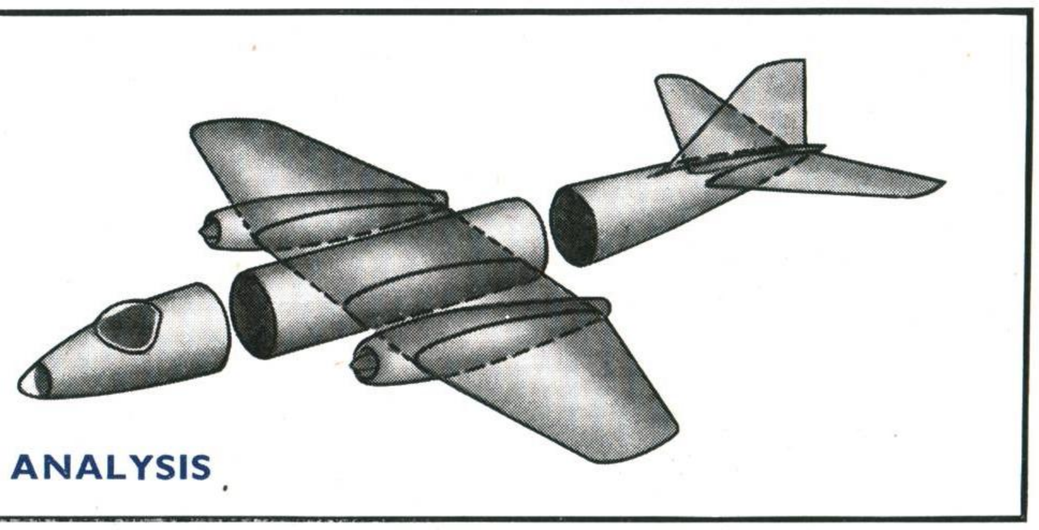
Engines: 2 Rolls-Royce Avon 3 turbojets.
Span: 63 ft. 11 ins. *Length:* 65 ft. 6 ins.

As well as being produced in Australia, America and Great Britain, this versatile aeroplane of outstanding aerodynamic quality is being considered for several different rôles. Performance can be judged from the recent non-stop unrefuelled transatlantic flight of 2,100 miles . . .

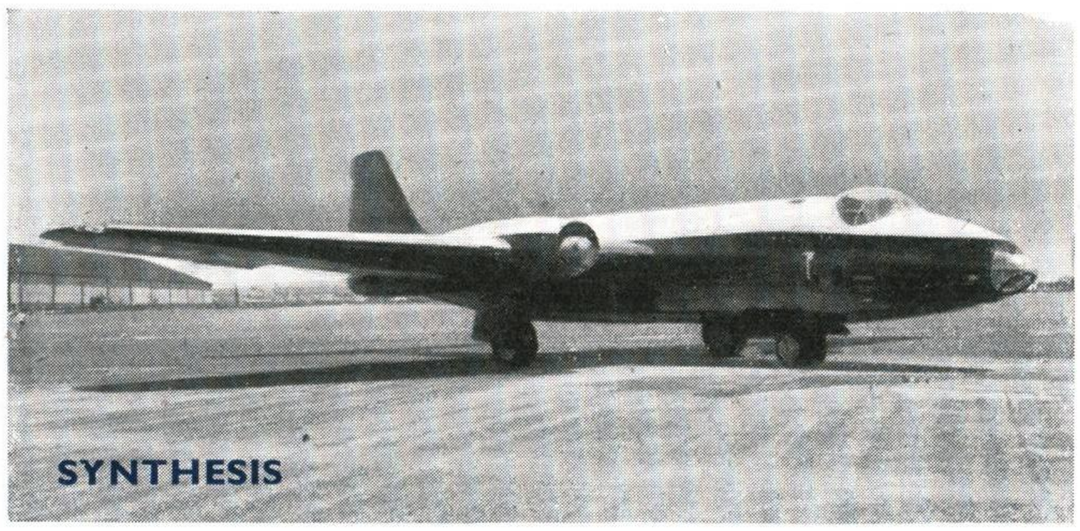
INTRODUCTION



SILHOUETTE



ANALYSIS



SYNTHESIS



PRACTICE

attention. In such a way are the lessons learnt and the shapes stored up in the mind, ready for instant use, for instant recognition.

TESTING

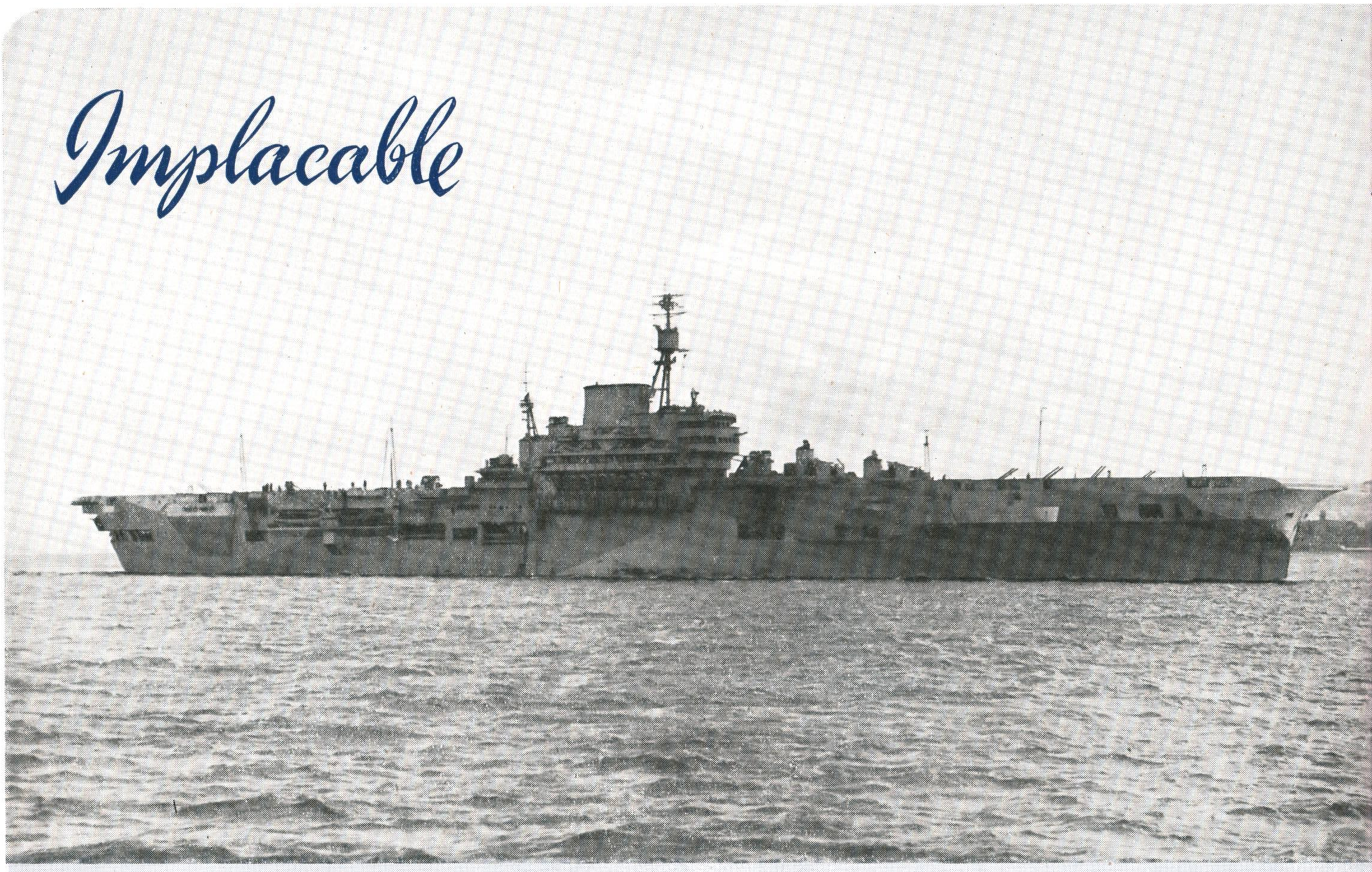
The testing process is a very different story. If a man has learnt his recognition material calmly and thoroughly, there should be no difficulty when he is confronted with the most unusual view, the most fleeting view, the haziest view or the most distant view—or their photographic counterparts—of the aircraft, tank or what you will.

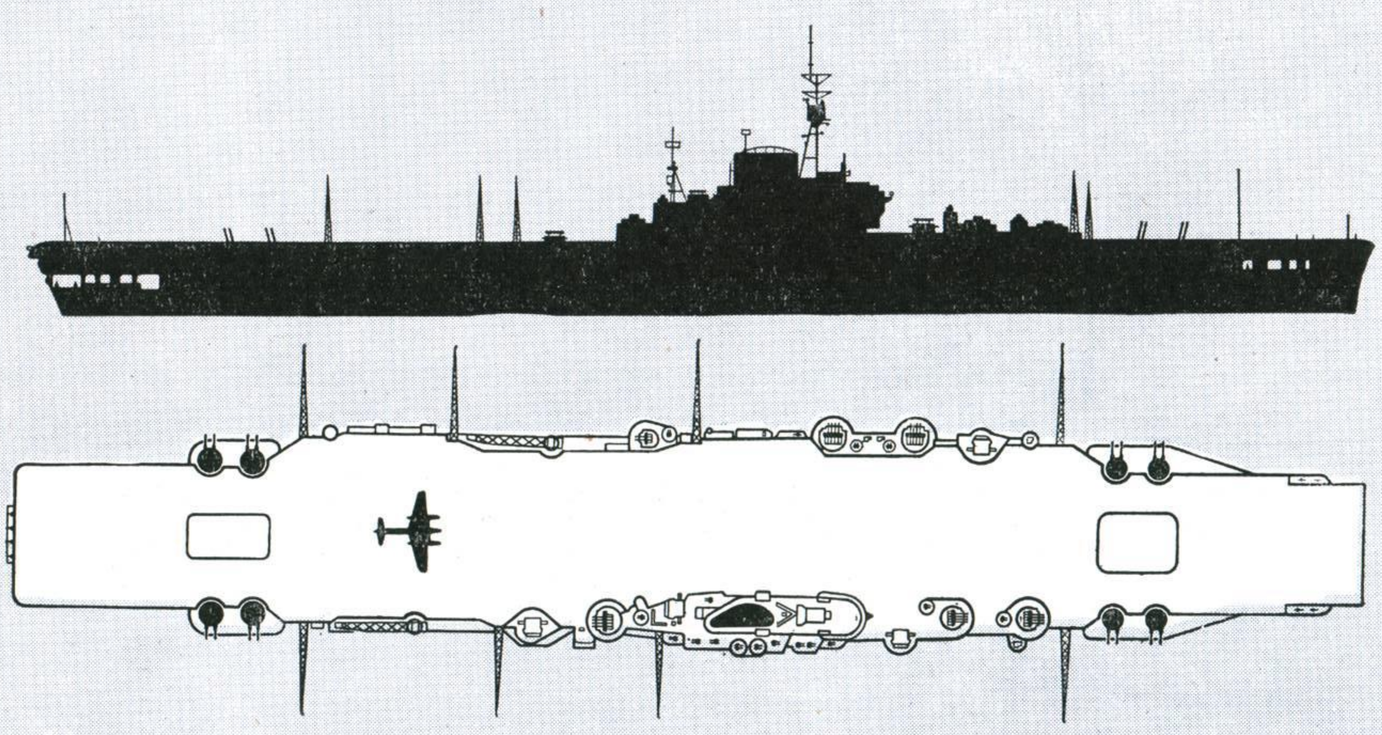
What has been calmly and efficiently learnt will be instantly and accurately identified if it is identifiable. The success of the recognition business depends on easy teaching and difficult testing. But it is essential that no student is tested beyond the material he is supposed to have learnt. This is a most damaging practice ; it depresses the student and invalidates the test. The teaching should impress the ordered evidence ; the testing should present the unexpected and the distantly difficult ; the student should instantly recognize the latter from the facts and evidence he has learnt.

This brings one to the problem of whether to use distant views, bits and pieces, hazy views or trick shots, for teaching. The answer, surely, is an unequivocal **" NO ".** To learn a subject one needs ordered information, accurate information, clear information. This induces in the mind reliable images, all related to one another, coherent and intelligible. Then when the student is confronted with detail or disorder, the odd or the indistinct he can instantly relate it to the orderly images he possesses and make his diagnosis. If one trains a man on the odd and the fortuitous he can only build up an inaccurate and incomplete picture in his mind. This picture cannot be satisfactorily built up from disjointed elements, chance elements and indistinct elements. But such elements, no matter how many come and no matter how much of a hotch-potch they form, will be appreciated and diagnosed for what they are worth if, and only if, there is an intelligently formed mental structure to receive them.

The fortuitous views which will be seen in the subsequent practice of target recognition—and in the tests he receives—will of course go to enrich the stock of mental pictures already possessed, but they must enter the eye after, not before, the groundwork has been laid by teaching.

Implacable





DATA :

Displacement: 23,000 tons (32,110 fully loaded).

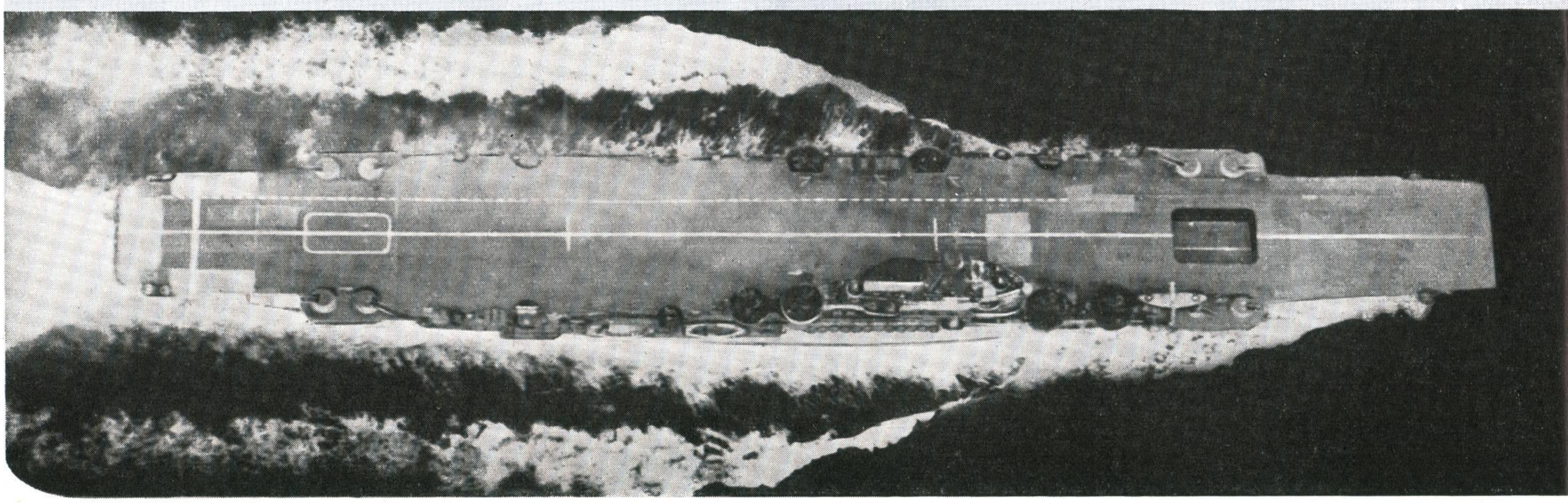
Dimensions: Length : 766 ft. 5 ins.
Breadth : 95 ft. 9 ins.

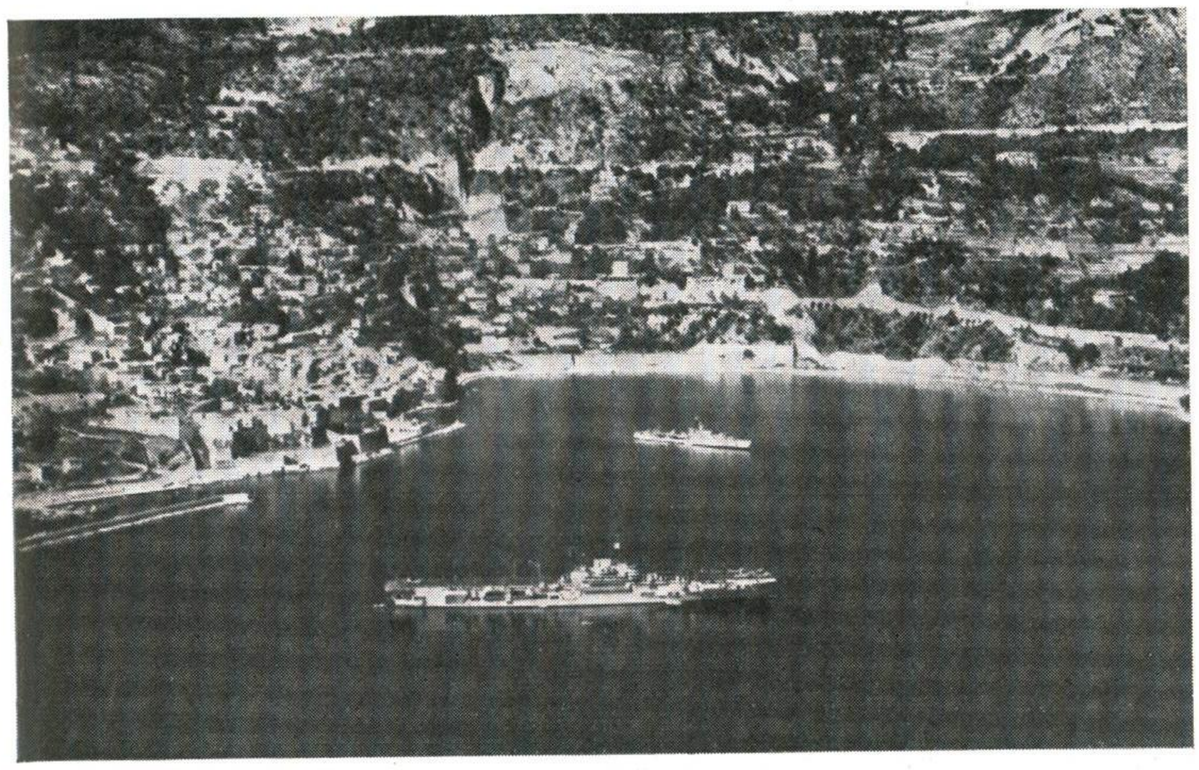
Aircraft : Over 60 strike aircraft.

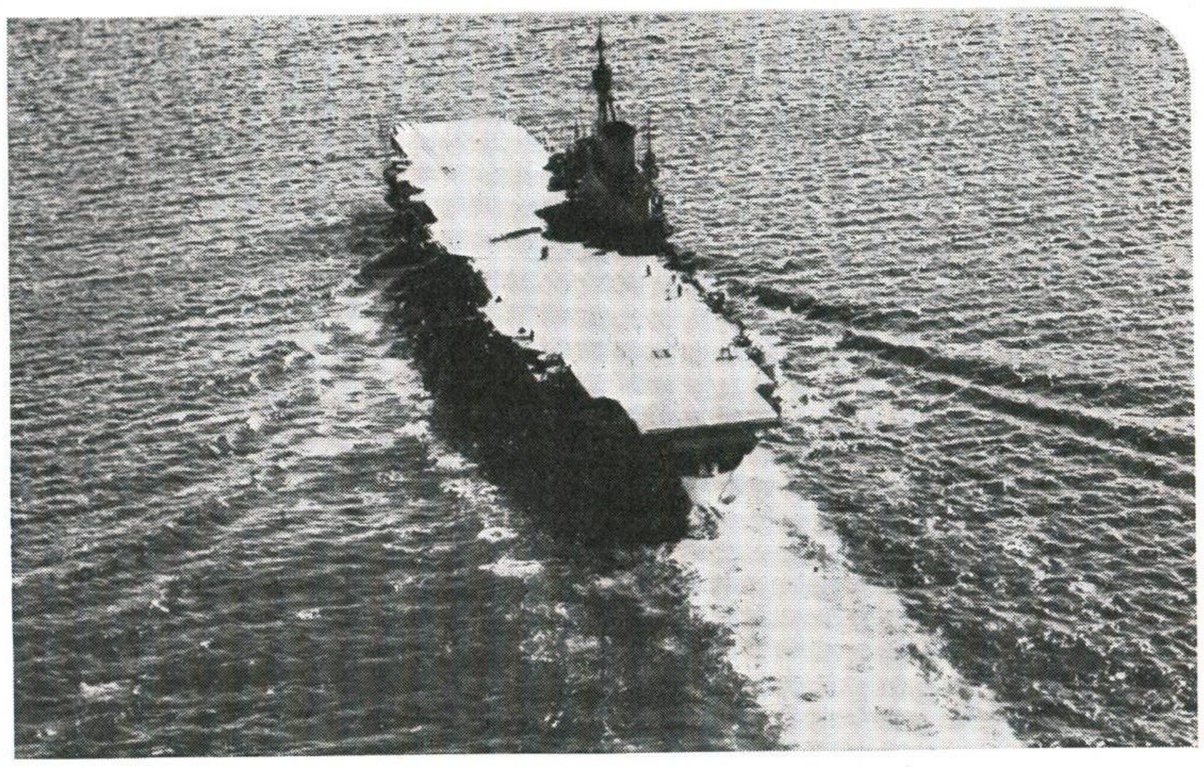
Armament : 16 × 4.5 H.A.
12 × 40 m.m. A.A. (Bofors).
21 × 20 m.m. A.A. (Oerlikon).
56 × 2 pdr. Pompom.
4 × 2 pdr. saluting.

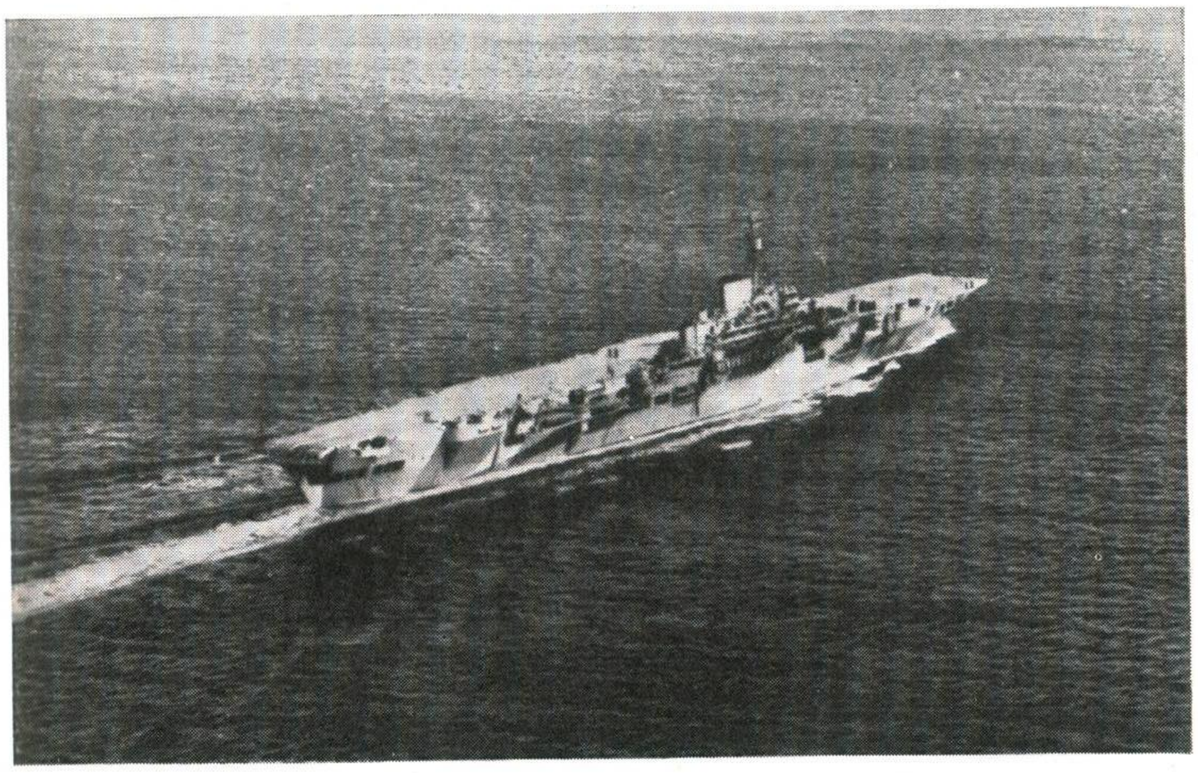
SCALE IN FEET

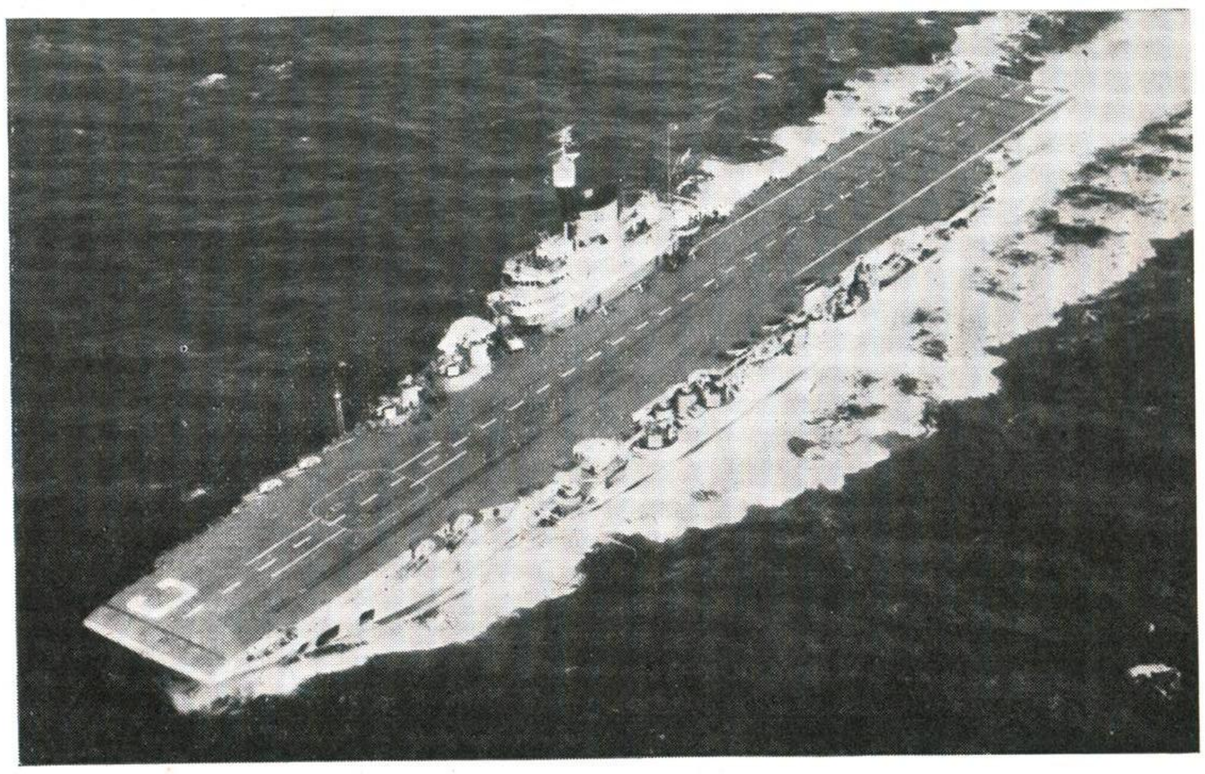
0 50 100 150 200 250 300 350











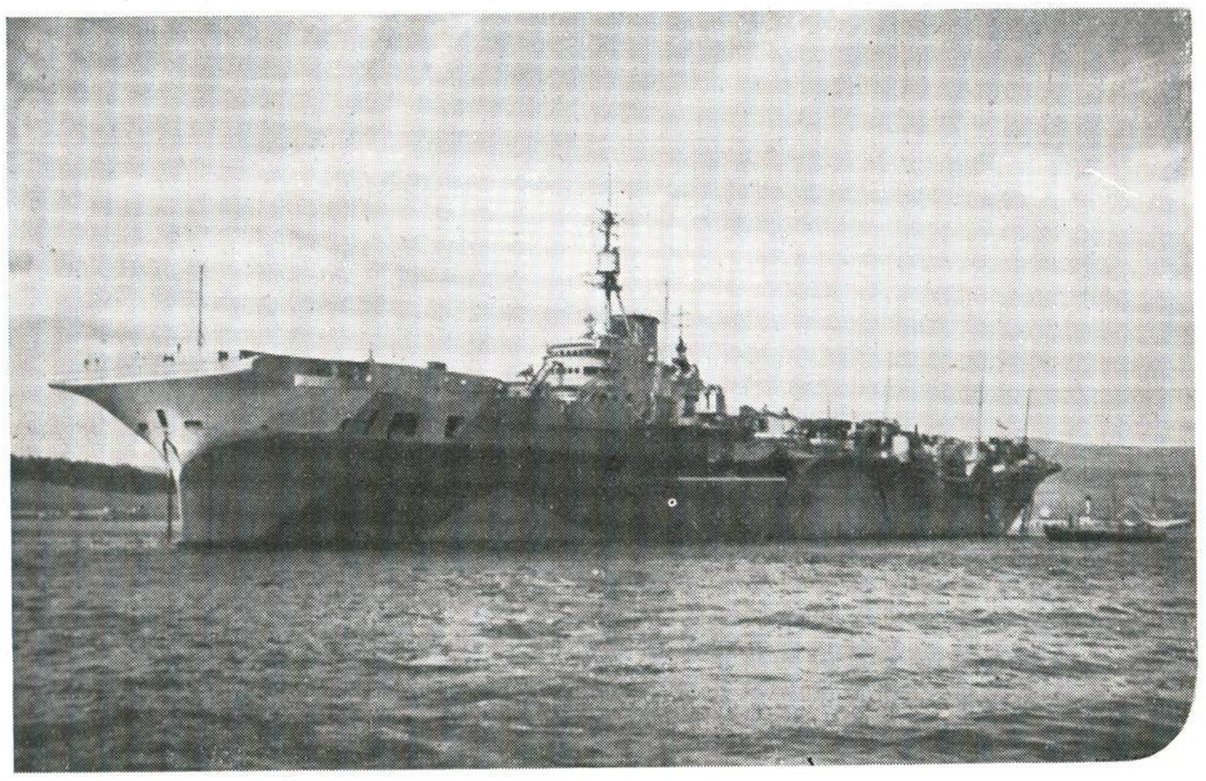
THERE are six British fleet carriers of pre-war design which can be grouped together for recognition purposes. They are : *Implacable*, illustrated here, her sister ship *Indefatigable; Indomitable* and the three sister ships *Illustrious*, *Victorious* and *Formidable*.

All these ships derive their design from *Ark Royal*, sunk in the Mediterranean in 1941 after a most distinguished record of service. *Illustrious* and her sister-ships, laid down in mid-1937, were the immediate forerunners of the double hangar-decked *Indomitable* which was laid down 6 months later, all four being completed late in 1940 or early 1941. *Implacable* and her sister-ship *Indefatigable*, were the last ships laid down before the outbreak of hostilities and reflect closely the design and lay-out of *Indomitable*, but having slightly higher freeboard and better stream-line of bridge superstructure and round-downs. All six ships saw considerable service in all theatres during the Second World War.

In plan view these ships are distinguished by a very broken outline to the flight deck, caused by fitting of the armament and directors on sponsons. Incidentally the most noticeable of the armament is the twin 4.5-in. turrets in their flat-topped gun-houses at each corner of the flight deck. As in the other five ships, *Implacable* has an aerofoil sectioned funnel set close to the tripod mast on the asymmetrical, streamlined " island ". *Implacable*, in common with *Indefatigable* and *Indomitable* has a near-square foremost aircraft lift and a long rectangular one aft whereas the three ships of the *Illustrious* class have long rectangular lifts fore and aft.

In profile all ships display a British characteristic in the round-downs fore and aft where flight deck is streamlined into bow and stern giving an unbroken side-view silhouette. The difference in freeboard, due to the double hangar, is not sufficiently marked to form a recognition feature. All our illustrations are of H.M.S. *Implacable*, save the one at bottom left, which is of H.M.S. *Indomitable*.





Avitrucs



by John W. R. TAYLOR

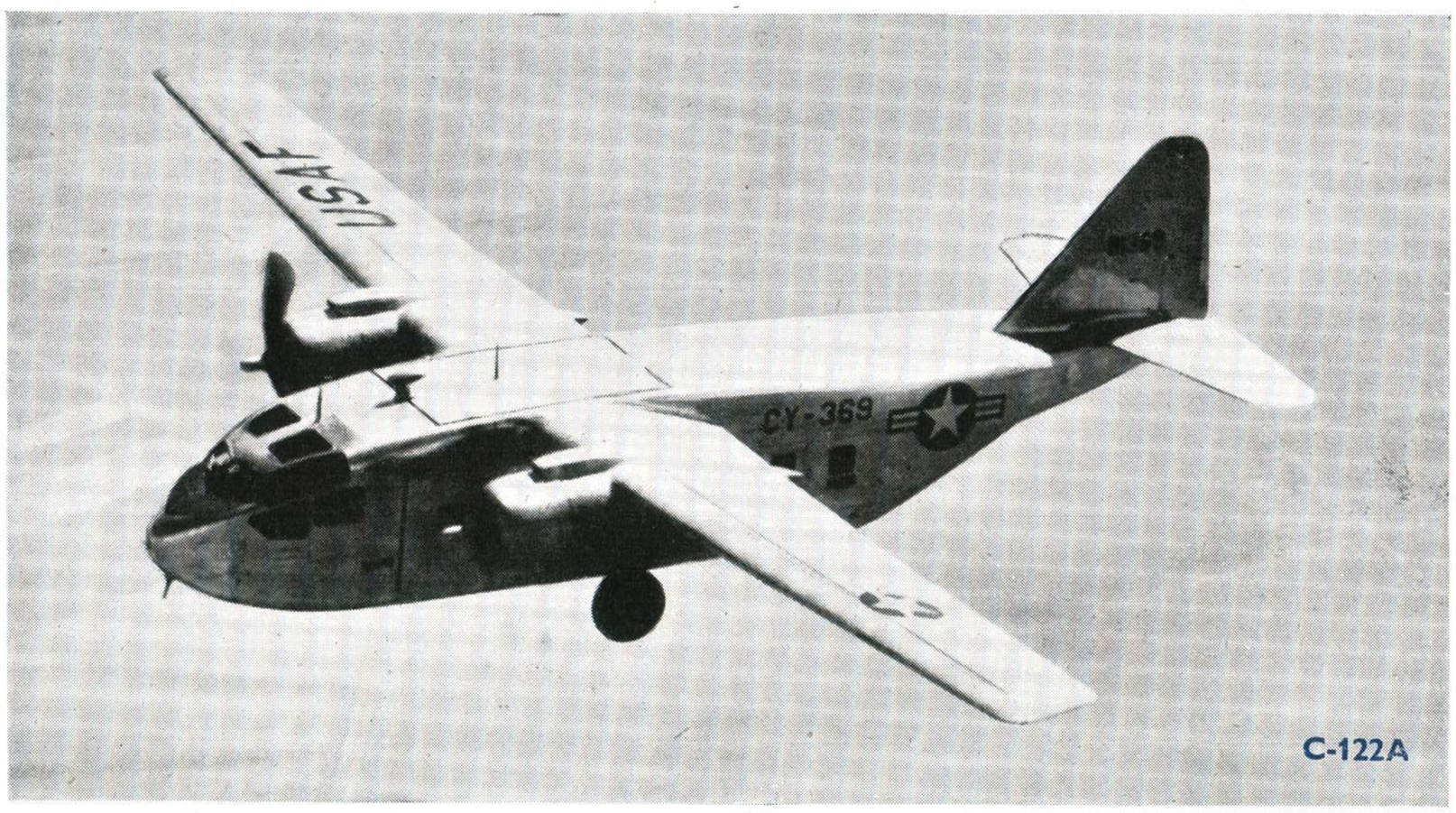
THE NAME " AVITRUC " probably means little to British aircraft spotters, but Chase Avitrucs may soon be among the most important transports in the United Nations' Air Forces. In an age of supersonic fighters, delta wings, 100-ton bombers and guided missiles, they are hardly spectacular. But they were designed to do a specific job, and they do it well : even the more spectacular aircraft can do no more than that !

The difficult U.S.A.F. specification the Avitruc had to meet called for an " assault transport ", able to fly big, varied loads of men and material to unprepared landing areas in newly-won beach-heads. Rugged construction ; a roomy, unobstructed cargo-hold ; quick-loading and unloading facilities, ability to operate into and out of small areas, all had to be combined in an airframe comparatively easy and cheap to produce, and powered by simple, reliable engines. What was needed, in fact, was a smaller team-mate for the Fairchild Packet, with the work-horse characteristics of a military glider, but less expendable.

Several leading American designers entered aircraft for the U.S.A.F. competitive trials, during which every competing aircraft was damaged, the XC-123 Avitruc more than most. Its pièce-de-resistance came on 10th March 1950, when it smashed through a section of cyclone fence, uprooted a 20-in. apple tree stump and nosed through the concrete wall of a garage. But its crew was unhurt and the Avitruc itself was soon back in the air. No more convincing demonstration of its sturdiness could have been given, and contracts were placed for a large number of C-123s, preceded by a batch of the smaller C-122C Avitrucs.

Background

The Chase Aircraft Company was formed by Michael Stroukoff, who, as his name implies, is another of the select American company of Russian-born designers which includes Alexander de Seversky, Igor Sikorsky and Alexander Kartveli. His best-known pre-war product was the Ziegfeld Theatre in New York, but his hobby was designing aerofoils, and early in the Second World War, he designed a twin-engined bomber built round a high-efficiency wing of extremely thin section. It was not adopted, but Air Force experts were so impressed by the load-carrying possibilities of the Stroukoff wing design that they asked



C-122A

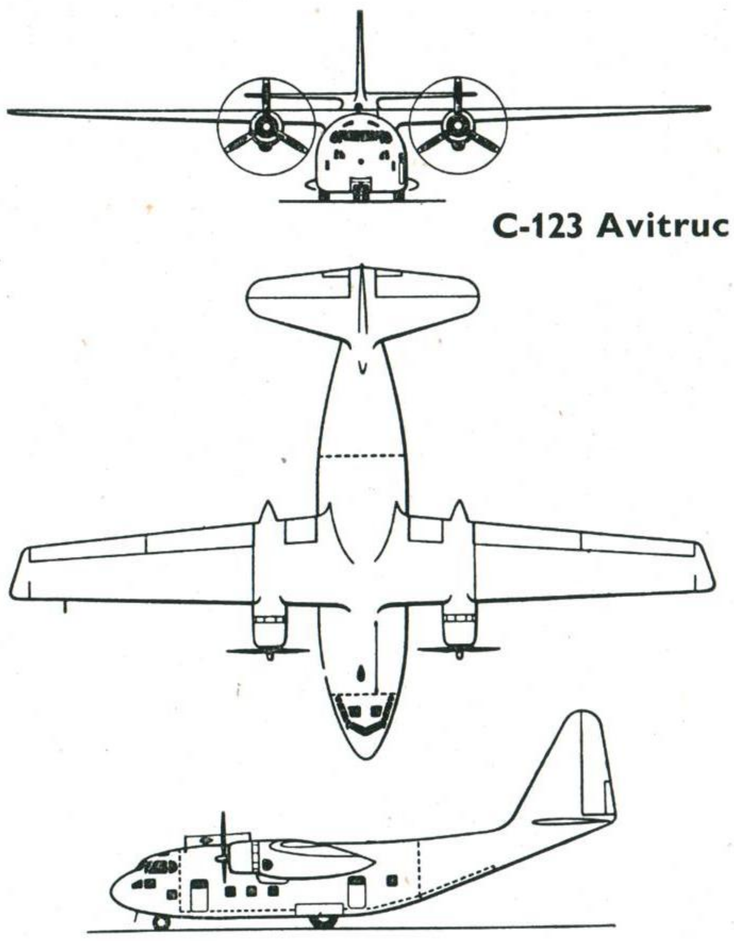
him to build a military glider on which it could be flight-tested. The result was the Chase CG-14 all-wood 14-seat troop-carrying glider, which flew for the first time on 4th January 1945. From it was developed the CG-14A, a 23-seater glider.

In 1947 Chase started work on the world's first all-metal glider—the 30-seat CG-18A—and gave it a tadpole-tail, in the underside of which they provided a built-in cargo-ramp and door, up which vehicles could be driven straight into the cavernous interior.

This layout was standardized on all subsequent designs. Consequently, they present few spotting headaches, looking rather like larger, cleaner, less stalky versions of the Miles Aerovan, with thin, high-aspect ratio wings and a single triangular fin and rudder.

The CG-18A performed so well that Chase were asked to investigate the possibility of fitting engines to convert it into an assault transport. So was born the XC-122 Avitruc, which was virtually identical with the CG-18A, which it could tow into action if desired.

Crew safety and operational efficiency are the keynotes of the C-122. A steel-tube fuselage enables it to survive extensive damage either in combat or from crash-landings and its flight deck is built above the level of the cargo floor, so that if the freight were to tear itself from its moorings it would pass under the crew. Gadgets are kept to a minimum ; only equipment for safe, adequate operation is installed. The cargo ramp operates hydraulically and unloading under combat conditions is further simplified by emergency retraction of the wheels, which brings the cabin floor down to ground level.



C-123 Avitruc

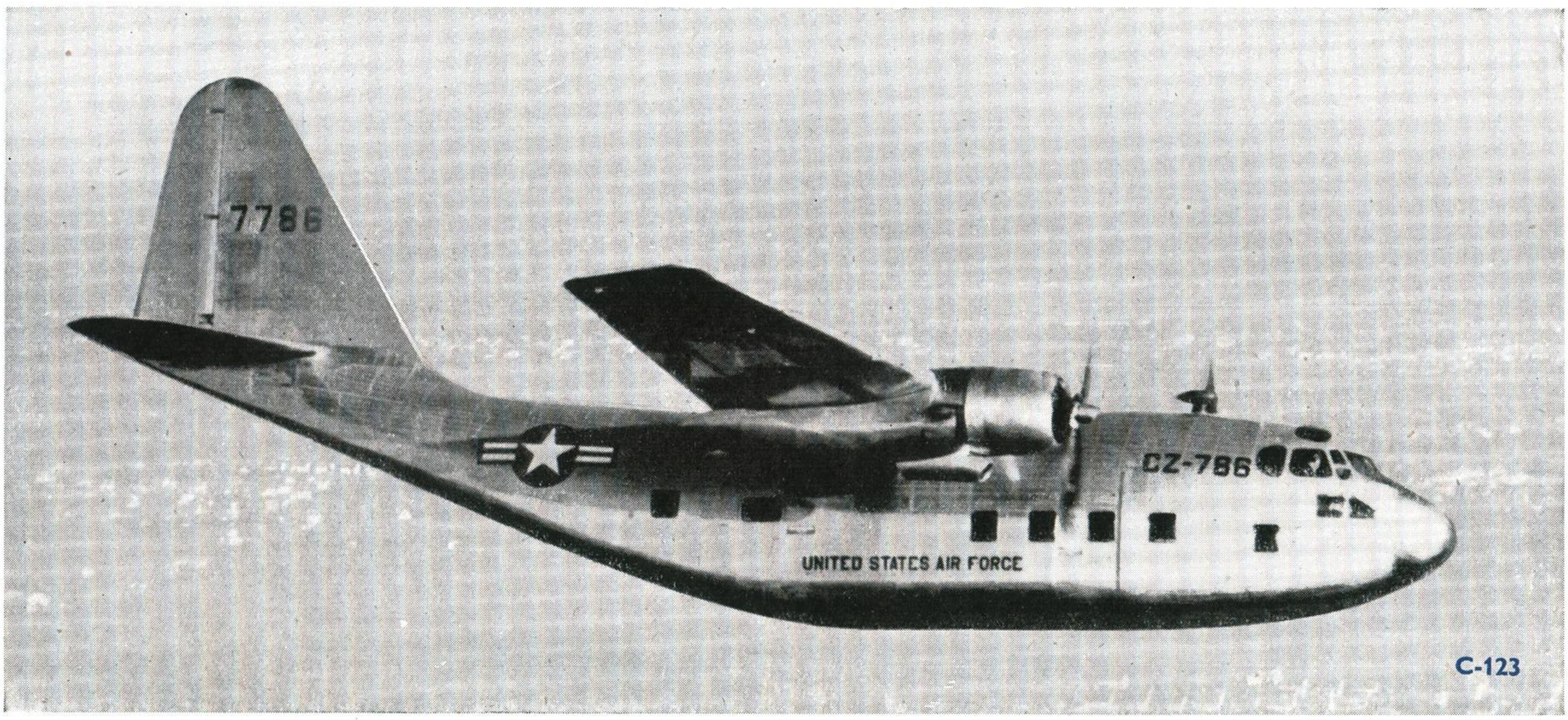
The C-123 Avitruc

The new C-123, which flew for the first time on 14th October 1949, is a logical development of the C-122, about the same size as a Liberator bomber and powered by two 2,400 h.p. Pratt and Whitney R-2800 engines. The family likeness is still there, despite the fact that the slab-sided appearance of the C-122 has given way to more graceful lines, resulting from the C-123's semi-monocoque construction. In addition, it has an upswept tail, like that of a flying boat rather than of the tadpole variety.

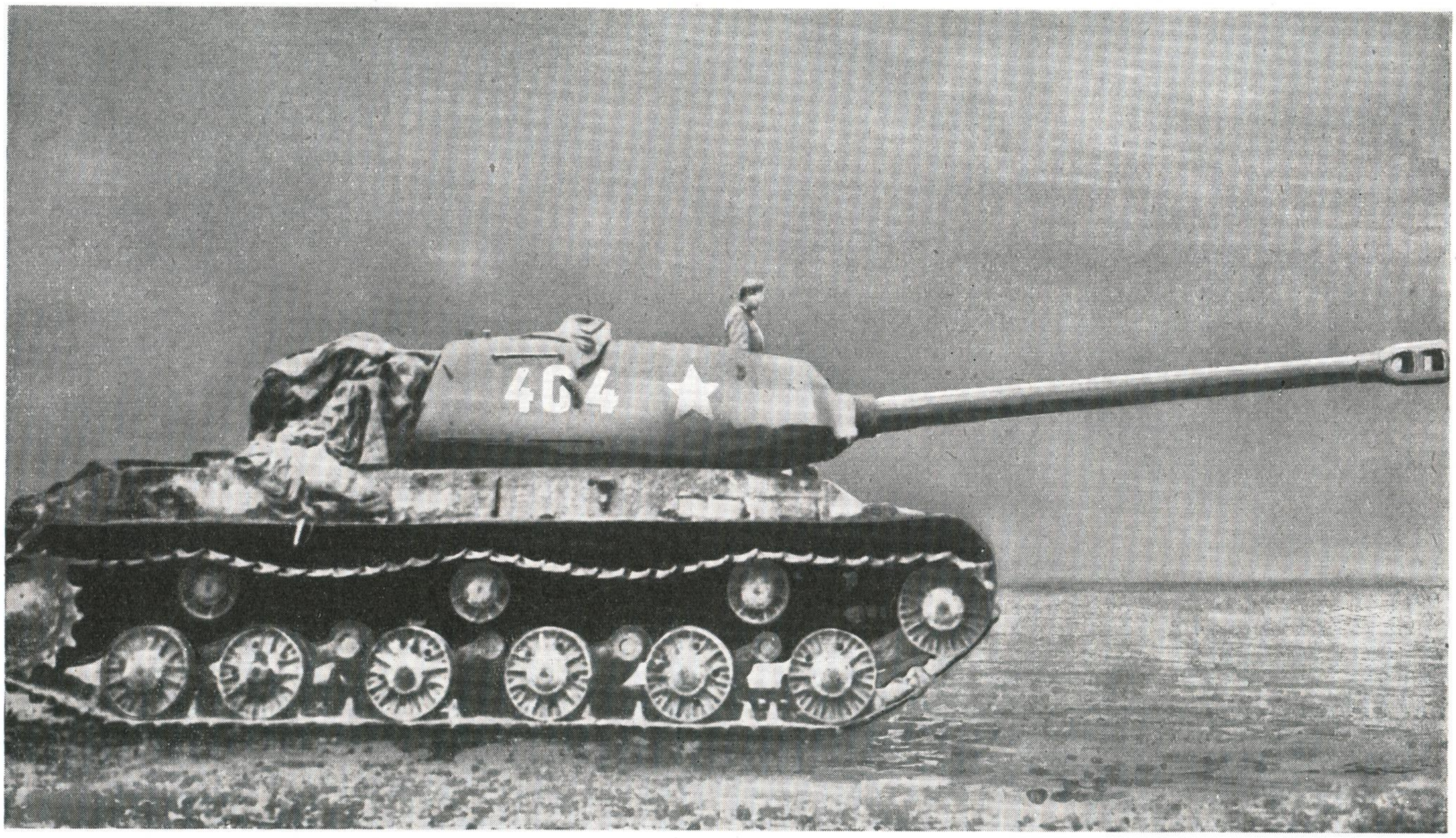
The C-123 is nearly twice as heavy as the C-122 and carries twice its load, with a maximum of about 10 U.S. tons for ranges of 1,850 miles. Its fundamental aim in life is to haul cargo, and its clear cabin space of 36 ft. 8 in. by 9 ft. 2 in. by 8 ft. 2 in. enables it to carry freight of all sorts, shapes, dimensions and density, mobile, immobile or motorized. Weapons as large as a 155 mm. howitzer can be accommodated at the same time as an army truck. Alternatively, as a personnel transport, it can accommodate 60 fully-equipped infantrymen, or 50 litter and 6 walking patients plus 6 attendants. Paratroops can jump simultaneously from the cargo ramp and from two smaller side doors. Furthermore, the C-123 can be used as either a tug for gliders weighing up to 30,000 lb., or as a glider itself, with or without engine nacelles.

DATA :

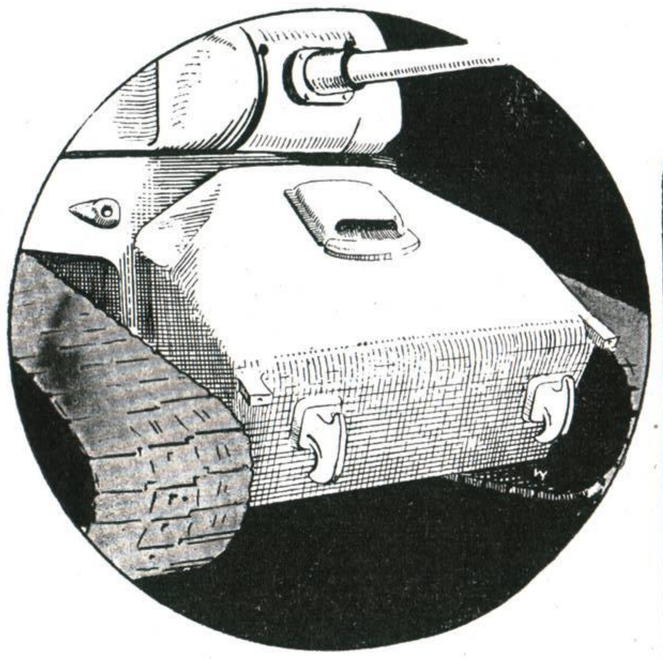
	C-122	C-123
Span	95 ft. 8 in.	110 ft.
Length	61 ft. 7½ in.	77 ft. 1 in.
Height	22 ft. 3 in.	32 ft. 8 in.
Loaded weight ..	31,000 lb.	54,000 lb.
Max. speed	220 m.p.h.	250 m.p.h.
Power Plants ..	Two 1,350 h.p. Cyclone radials.	Two 2,400 h.p. R-2800 radials.



C-123

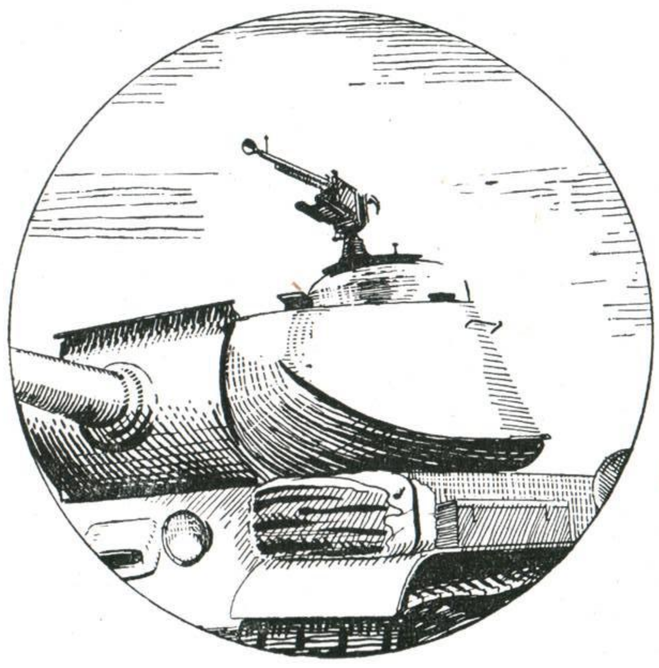


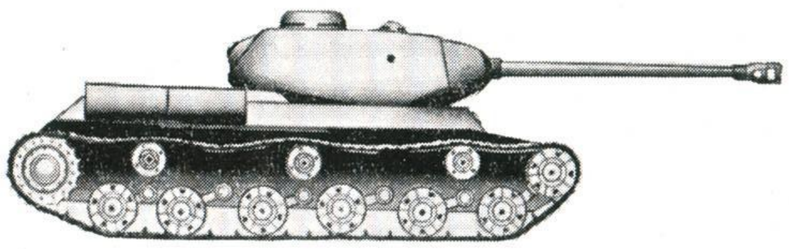
JOSEF STALIN I AND II



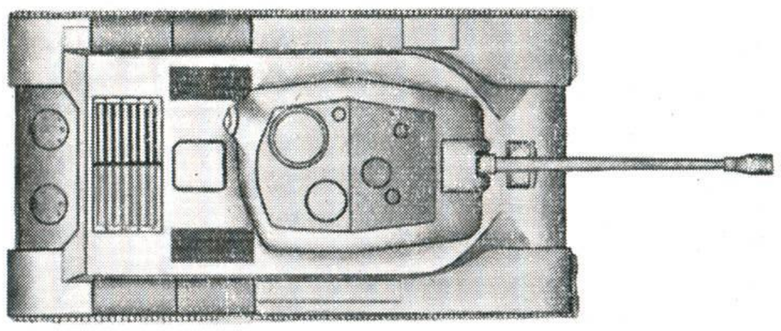
Glacis Plate of J.S.II

L.M.G. on Cupola



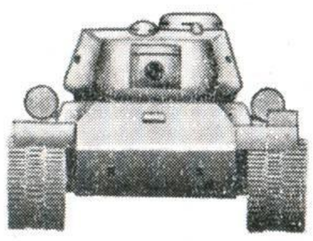


Length : 21 ft. 10 in. (excluding gun)

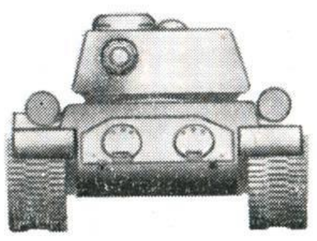


Width : 10 ft. 3 in. (overall).

Height : 9 ft. 0 ins. (approx.)

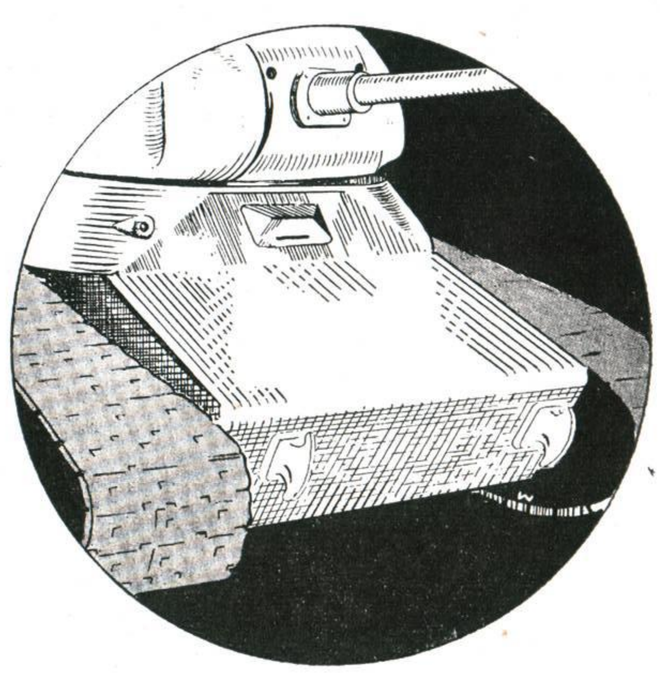


FRONT



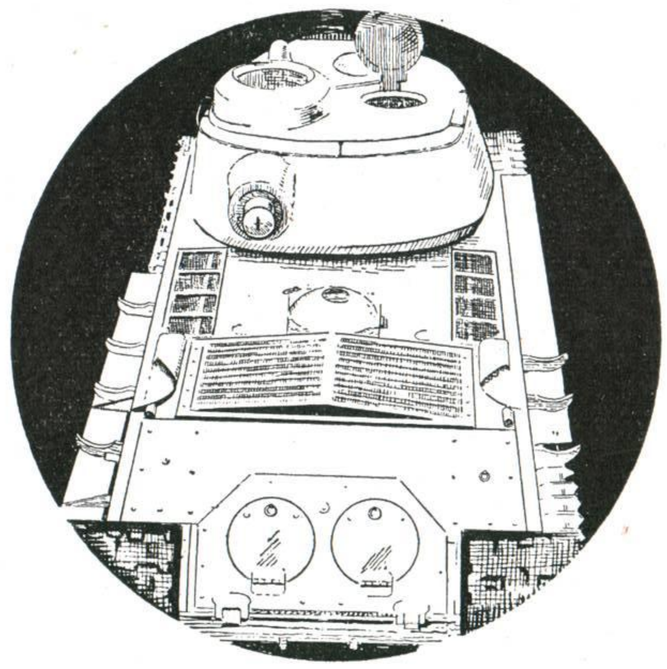
REAR

Track Width : 2 ft. $1\frac{1}{2}$ ins.



Glacis Plate of J.S.I

M.G. Mounting and Tailplate.



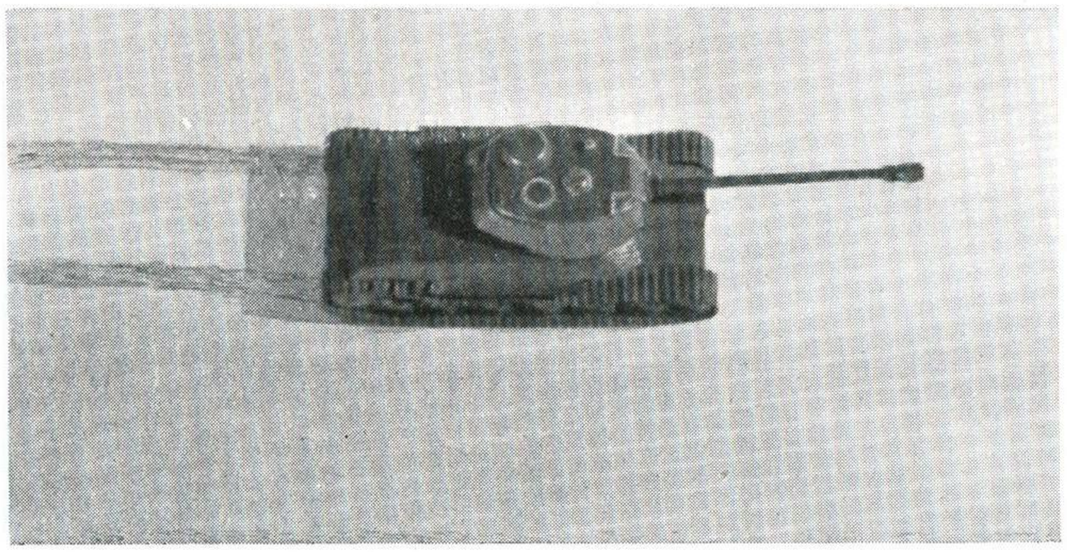
THESE two tanks of the Josef Stalin series are in the heavy class. The chief external differences between them are in the form of their respective glacis plates, which we specially illustrate opposite. There may also be one or two minor differences in turret detail. All other illustrations on these two pages will serve to cover both types of tank. The basic features of the type include : heavy cast turret (with bulging mantle) in a forward position ; a large turret cupola offset to the left, a prominent ball-type machine-gun mounting on the left rear face of the turret and air louvres on the rear deck of the hull formed as a shallow-pitched roof. The suspension has six road-wheels and three track-return rollers, to carry the 25½″ wide track. There is a large driving sprocket at the rear and an idler wheel in front. The vehicle carries a crew of 4 and weighs 45 tons. It is driven by a 520 h.p. Diesel engine. The air shots are illustrated by a model of the Josef Stalin I, but regarded through half-closed eyes the images give characteristic impressions of either the J.S.I or II. Such appendages as auxiliary tanks may or may not be fitted. Track guards are usually fitted but may sometimes be knocked off or deliberately discarded.

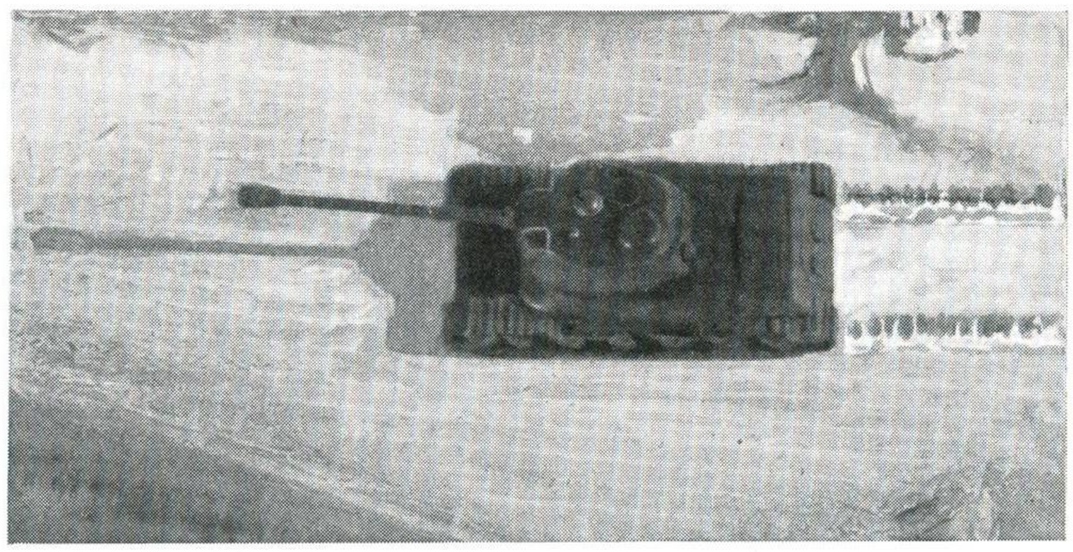
The large photograph illustrates the Josef Stalin 2 and shows it carrying a roll of tarpaulin behind the turret.

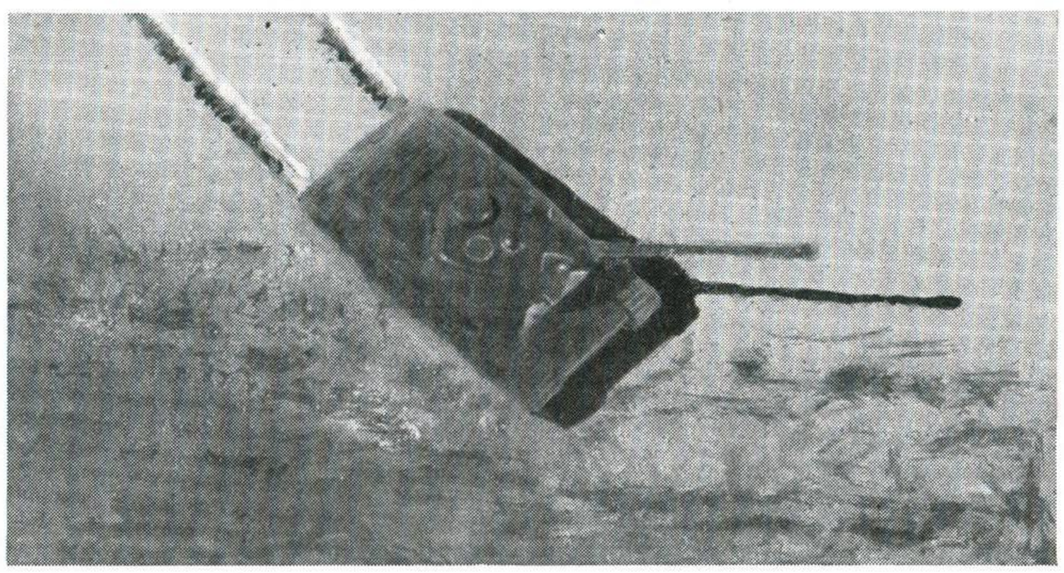
Armament includes 1×122 mm. gun and 3×7.6 mm. machine guns. Besides the machine gun in the rear turret mounting, one is mounted co-axially with the main armament, and the other in a fixed mounting in the hull front.

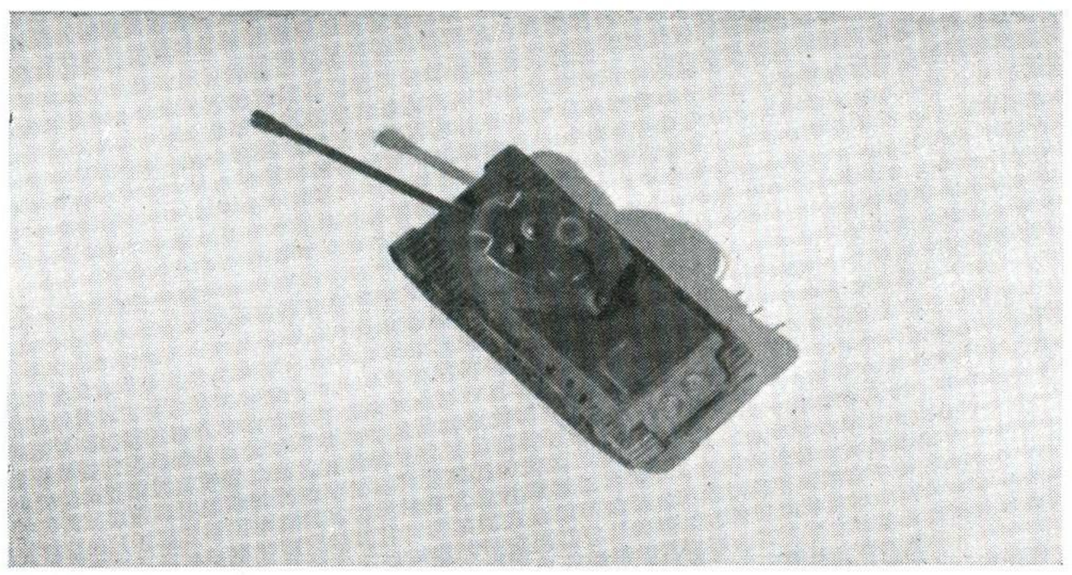


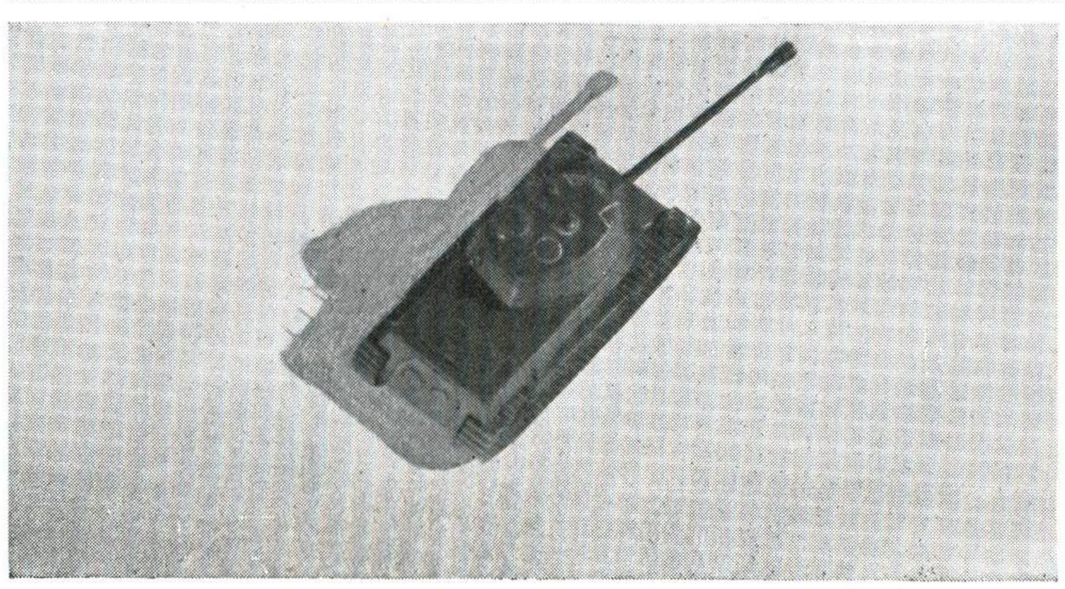


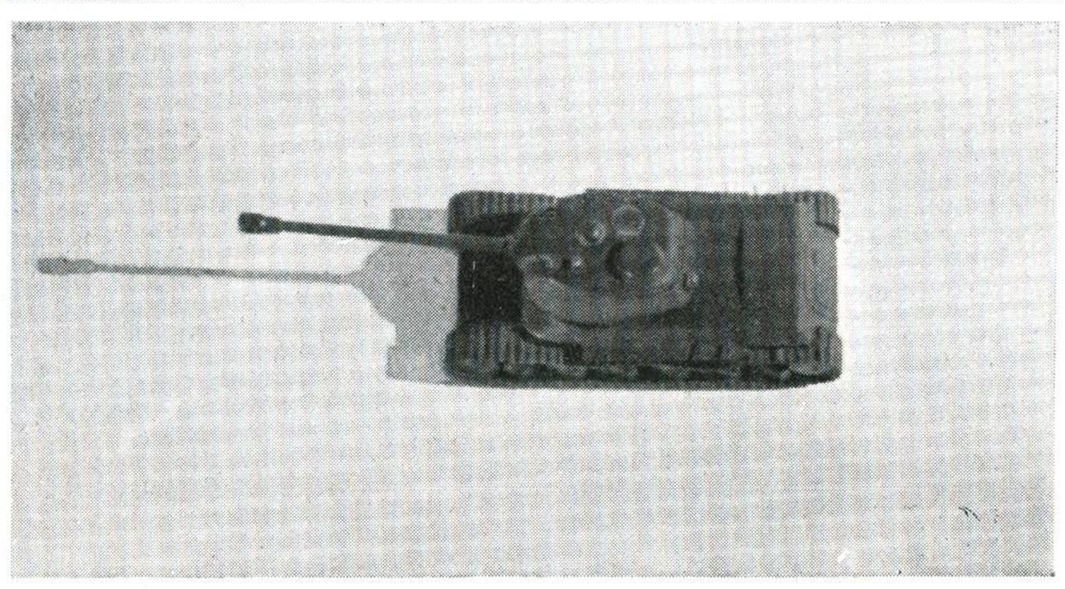














Wild Horses

Having read the solutions to Tricky Trio in the January edition, a reader observes:

"I have heard of a Musk-ox but never a Mustnag, although I suppose a Mustang mustcome Mustnag mustime—darn it—somenag sometime !"

Quote

" At sea level the most difficult problem in recognition is undoubtedly the low-flying aircraft—the hedge hopper or wave skimmer. Very low flying is especially valuable as a means of outwitting anti-aircraft defences." (*Inter-Services Aircraft Recognition Journal*, March, 1943).

Misquote

The Typsey B 2—obviously for airborne typists.

Erratum

February *Journal*, rear cover, Elementary Solutions : 947 *read* Lockheed F-94A.

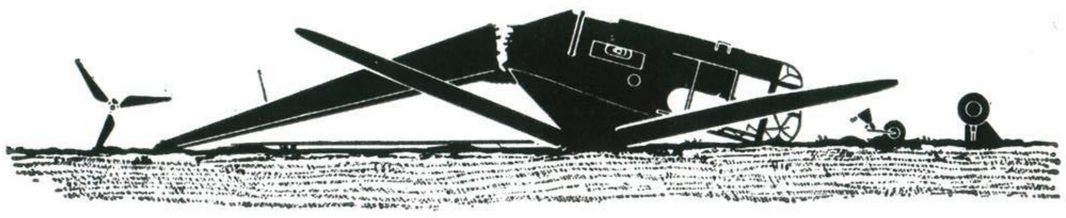
New Aircraft Recognition Material

PICTORIAL CHARTS

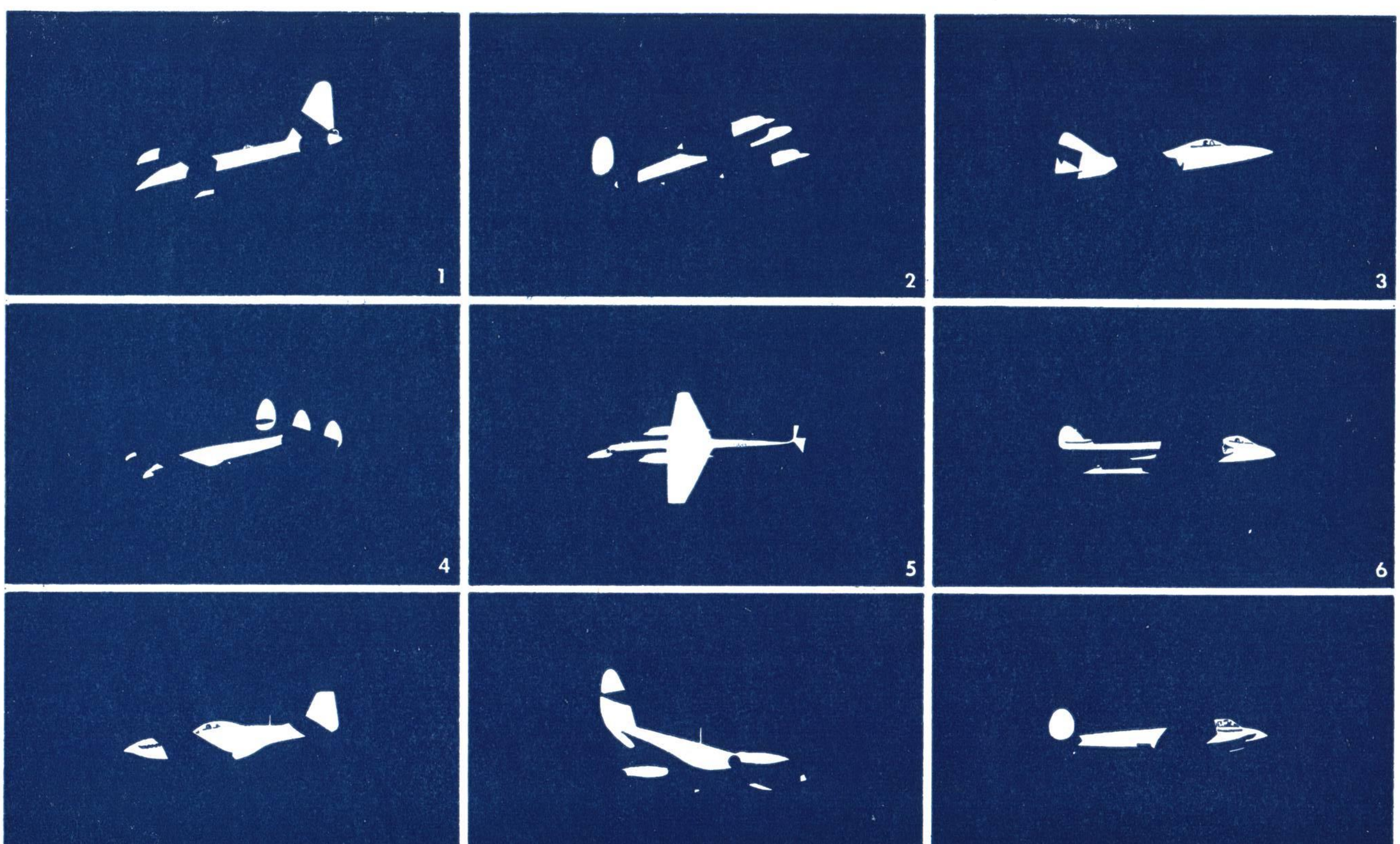
A.D.	5130	F2H Banshee
	5131	Hermes 4
	5133	Convair 240
	5134	B-45 Tornado
	5135	B-47 Stratojet

If no local arrangements are already in force, applications for supplies should be made through the usual official channels quoting reference numbers as above.

Wreck-cognition



(Answer on rear cover).



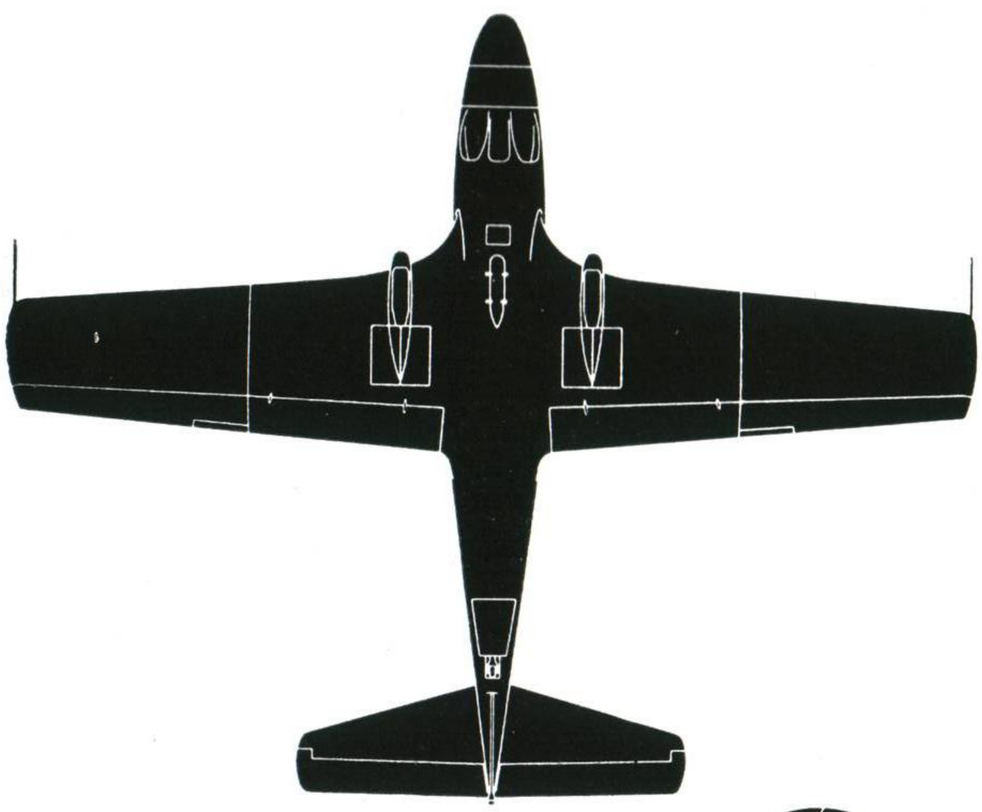


HIGH LIGHTS

SILHOUETTES — A PAIR TO COMPARE

DOUGLAS A2D-1 SKYSHARK





American Naval Attack Bomber

Engine : One Allison T 40 double turboprop

Span : 50 ft. Length : 41 ft. 6 ins. (approx.)

Recognition Features :

Wings : low-set, moderate dihedral, straight taper, root fillets on leading edge, blunt tips.

Fuselage : " stirrup " section, " birds beak " double spinner cone, fuselage swept-up and deepening towards tail in side view, perfect streamline in plan.

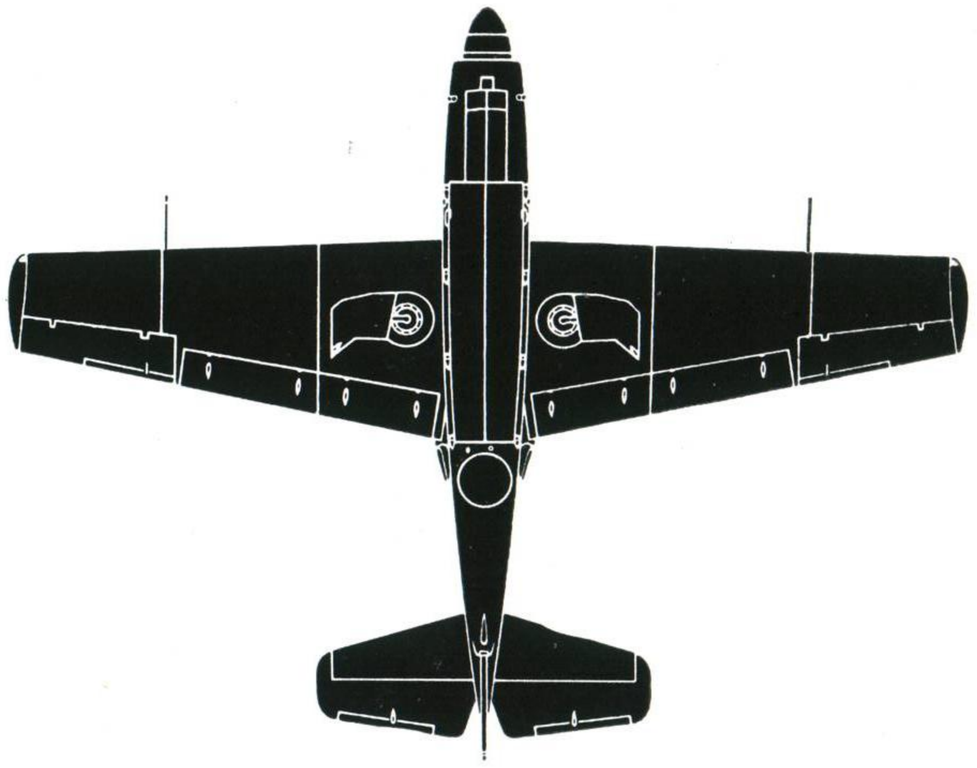
Tailplane: wide span, marked dihedral, tapered leading edge, straight trailing edge, blunt tips.

Fin and Rudder : upright straight leading edge foreshortened by dorsal fairing, straight trailing edge forming angle with fuselage baseline, blunt tip.

Detail : cockpit faired to fuselage immediately aft of spinner cone, " knuckle " fairings for undercarriage set close-in below wings.

FAIREY 17





British Anti-Submarine Aircraft

Engine : One Armstrong Whitworth Siddeley Double Mamba double turboprop.

Span : 54 ft. 4 ins. Length : 43 ft. 8 ins.

Recognition Features :

Wings : low-mid-set, inverted-gull type, straight taper, blunt tips.

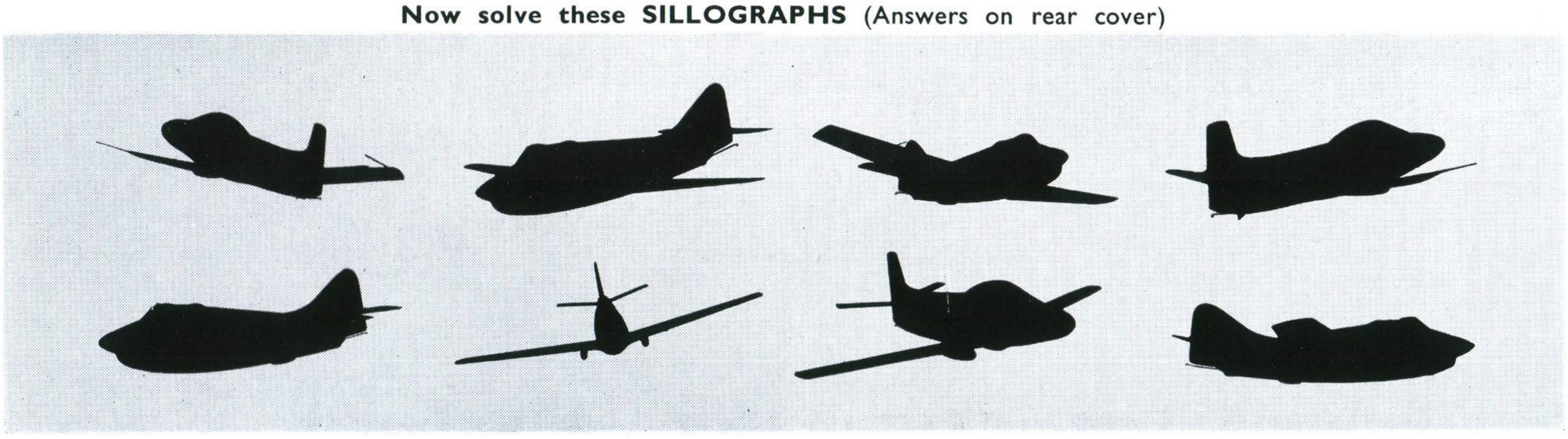
Fuselage : deep pear-shaped section, pointed double-spinner cone with intake below, fuselage tapering towards rear.

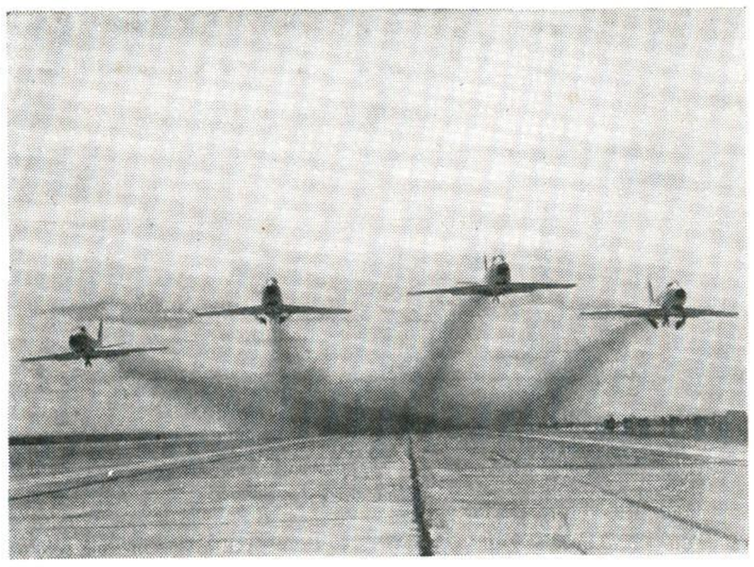
Tailplane : straight taper, blunt tips, cut-out for rudder movement.

Fin and Rudder : triangular with rounded tip, cut-out below for arrester hook.

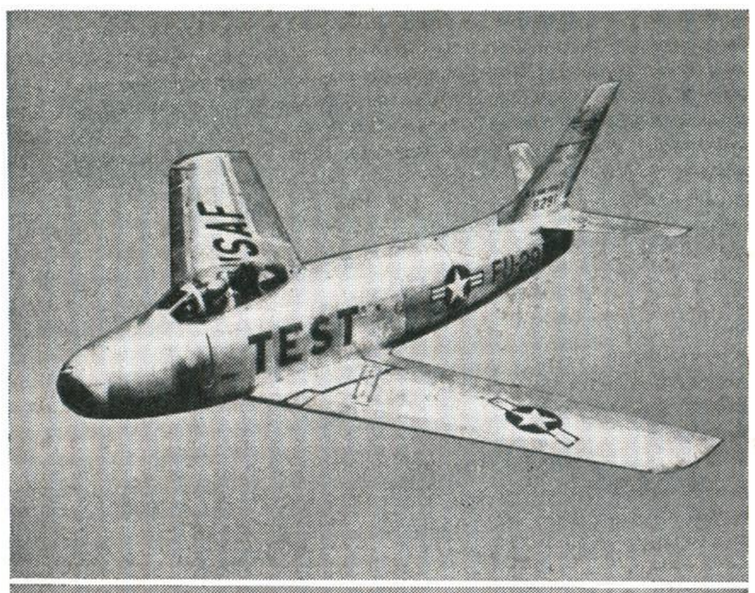
Detail : double-bubble cockpit canopy stepped-up on nose, retractable " dustbin " type radar scanner in rear under-fuselage.

Now solve these SILLOGRAPHS (Answers on rear cover)





COVER : **Gasping Goldfish**—These Sabres taking off present themselves in four aspects most difficult to recognize. Note (apparent) ugly droop of wing. Below : note graceful " swallow-tail " sweep of flying surfaces.





WRECK-COGNITION
Sikorsky S-51

SOLUTIONS TO RECOGNITION TESTS IN THIS EDITION :

ELEMENTARY

970. B-45A Tornado
971. DHC-2 Beaver
972. North American YF-86D
973. UF-1 Albatross
974. Barracuda TBR Mk. 5
975. Martin XB-51
976. D.H. 113
977. Canberra B Mk. 2
978. F4U-4 Corsair
979. Athena T Mk. 2
980. AD-2 Skyraider
981. C-122 Avitruc
982. F2H-1 Banshee
983. DHA-1 Drover
984. Republic F-84F
985. F7U-1 Cutlass
986. Comet
987 C-124 Globemaster 2

ADVANCED

106. F2H-1 Banshee
107. Avro Ashton
108. P4M-1 Mercator
109. F4U-2 Corsair
110. Convair-Liner
111. AD-2 Skyraider
112. B-26C Invader
113. North American AJ-1
114. Horsa 2
115. Fairey 17
116. Convair L 13
117. AM-1 Mauler
118. Heron
119. Marathon 1
120. Lockheed F-94A
121. Consul
122. Balliol T Mk. 2
123. Avro CF-100 Canuck

SILLOGRAPHS

1. Stratocruiser
2. Shackleton
3. Survey Prince.
4. Varsity T Mk. 1
5. Venom FB Mk. 1
6. Firebrand TFB Mk. 5
7. Sunderland GR Mk. 5
8. B-45A Tornado
9. AM-1 Mauler
10. Sea Hornet F Mk. 20
11. Martin XB-51
12. C-124 Globemaster 2
13. F8F Bearcat
14. Avro CF-100 Canuck
15. B-26B Invader
16. Martin 202
17. Meteor F Mk. 8
18. Convair L-13
19. MIG-15
20. Convair B-36
21. B-45C Tornado

HIGH LIGHTS

1. P2V-2 Neptune
2. Brigand B Mk. 1
3. F9F-3 Panther
4. C-69 Constellation
5. Ambassador
6. Sea Vampire F Mk. 20
7. F-51D Mustang
8. Meteor F Mk. 4
9. Petlyakov PE-2

TRICKY TRIO

Left to right : LA-Jet, MIG-15, MD 450 Ouragan.

SKYSHARK AND FAIREY 17 SILLOGRAPHS

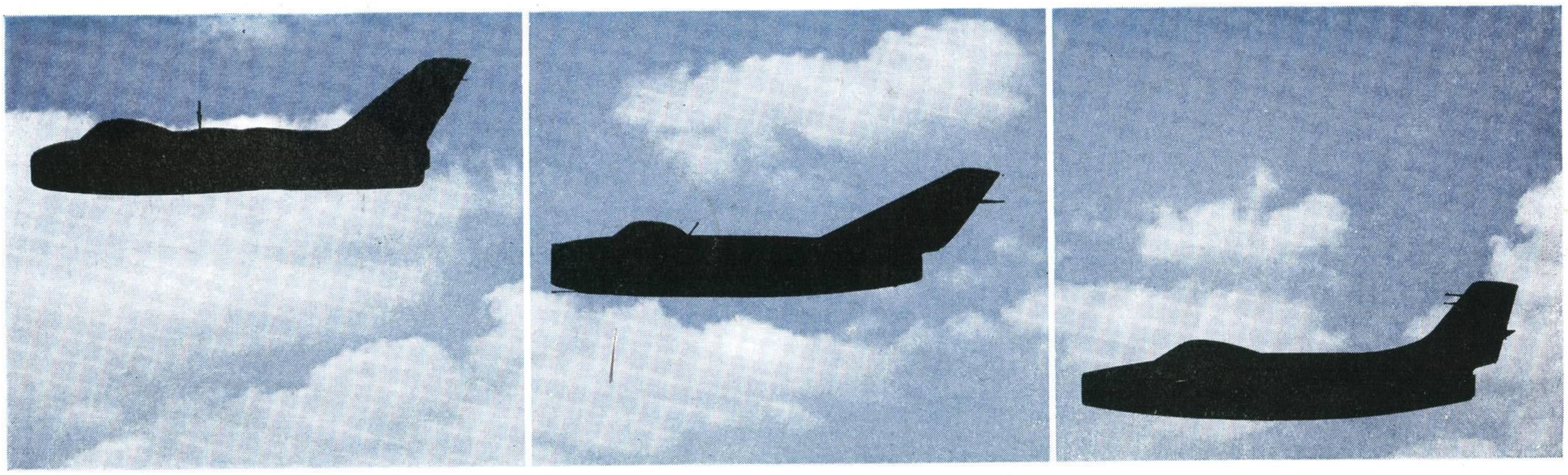
Top line : Skyshark, Fairey 17, Fairey 17, Skyshark.

Bottom line : Fairey 17, Skyshark, Skyshark, Fairey 17.

ACKNOWLEDGMENT

We are indebted to Mr. Harold G. Martin of New York, for the use of his photographs of the Panther on page 83.

TRICKY TRIO



46,120 4/51 38-241

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