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*News*

MAY • 1951





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# AIRCRAFT NEWS

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## Editorial

IN VIEW OF THE FACT that one day last month the National and Overseas Press contained an item concerning an Auster which took off, unoccupied, and flew around for some one-and-a-half hours until the petrol was exhausted, readers will probably be looking for some comment on the episode within these pages. Actually this matter received world-wide announcement, so that no further comment is really necessary. It is significant though to note that an Auster can "fly itself," and that the rigging of the machine in question was obviously perfect.

A completely different subject, which has not received such wide publicity, is the obvious interest in aviation which is being developed within the schools of to-day. Children are being asked to write essays on various topics concerning aviation, and many of these children are contacting aircraft manufacturers and other authorities for information. This is a good sign, and is certainly something to be encouraged as far as possible. After all, the children of to-day are the technicians, pilots and operators of to-morrow.....there will even be some who will eventually control aviation from within the Government !

The Press is most welcome to utilise subject matter from the *Aircraft News* in whatever manner it may desire with or without acknowledgement. The Editor will also be pleased to be advised of any items suitable for inclusion in a future issue, and to receive photographs of Austers and those who fly in them.

# A Man and his Number

HOW MANY PEOPLE, when they hear somebody talking of a "Mach number," think that the Scots must have some queer telephone system? How many, too, ask, "What is a Mach number?"

Probably most people just don't bother about either, and the number of people who ask, "What is, or was, a Mach?" must certainly be negligible, yet, with the advent of high-speed aircraft, these things are something which we ought to know a little about.

Actually, a certain physicist, who died thirty-five years ago in Munich, at the age of seventy-eight, might be most annoyed if he knew why his surname is now in common use.

Professor Ernest Mach would find that his fame rested, not on the philosophy of science which he loved, but on an ordinary common term used to express the speed of aircraft in these hustle and bustle days.

The expression is "Mach number," and Mach is usually pronounced "Mac" or "Match," though the correct pronunciation should be "Mock." The bearded gentleman would no doubt hate the twisting of his surname just as much as he would hate all the rest of this present high-speed era.

A Mach number is the ratio of the speed of flight to the speed of sound. A Mach number of 1 is flight at the speed of sound, a speed twice that of sound would be Mach number 2, whilst Mach number .5 is half the speed of sound. An aircraft having a top speed equal to that of sound is known as a Mach 1 aircraft.

Mach 1, the speed of sound, is 761 miles per hour, though not always. Here the slide-rule experts will begin to get awkward and quickly point out that the speed of sound varies according to the temperature and density of the air. The speed of sound is 761 miles per hour at sea level at a temperature of 59 degrees. As the aircraft flies higher, within limits, into cold, thin upper air, the slower sound travels.

The Mach number is important because pilots and designers are more interested in the proximity of their aircraft to the so-called sonic barrier than they are in ground speeds. The sonic barrier, reached when an object

attains the speed of sound, consists of air piling ahead of the moving object. Shock waves are formed, and the object is subjected to severe stress. One way of splitting the sonic barrier is illustrated by the sweptback wings of jet aircraft.

There were no jet aircraft when Ernest Mach first looked into the ratio between the flow of gas and the speed of sound—in fact there just weren't any aircraft at all. The ratio that was to prove so useful was born around 1880, some fifteen years before the first flight of the Wright brothers.

Mach, then a professor of physics at Prague University, and a Professor Salcher, of the Marine Academy in Fiume, carried out experiments with cannon shells. Assisted by the Royal Austrian Navy, they took some eighty photographs of shells in flight. Fired at different muzzle velocities past metal plates of a condenser attached to a Leyden jar (battery), the shells took their own high-speed photographs by causing the discharge of sparks.

In discussing the visible shock waves produced by the shells in the early Schlieren photographs, Mach commented that sound waves from the end of a rod moving through fluid would "have as an envelope a cone." From this analysis came the term "Mach angle," which scientists used in their papers until it ended up as Mach number, about twenty years ago.

Mach's life was not a quiet one, although academic. He expressed strong opinions against various schools of physics and philosophy. His own ideas on the nature of space, time and motion were the basis of a movement known as "positivism." It is also said that Mach's philosophy influenced Einstein.

In his earlier days Mach was considered a "slow" boy, and it was not until his father, who had been a tutor, whetted the boy's interest in science with simple experiments at home, that he began to make progress in mathematics and science. An experiment which specially intrigued him consisted of pushing tumblers into a tub of water to show the pressure of the air captured in the glasses. So began a study which was to include, in 1889, the first photographs of supersonic air jets.

Mach would believe that his name has to-day been used

in connection with work that was comparatively trifling, yet it is certain that his name will continue to be used more and more frequently. This is at least true of the English-speaking world. Mach does not lack the Russian disinterest which usually indicates a scientist's pre-eminence in his field. In Russia the term is often "Bairstow number" (after Prof. Leonard Bairstow, an English aerodynamicist) instead of Mach number. One of the people with whom Mach differed philosophically, you see, was Nikolai Lenin.

## A Mid-Winter Tour to the Mediterranean

### FOREWORD

IN THE FEBRUARY ISSUE of the *News* we reproduced a letter received from Group Captain R. A. McMurtie, D.S.O., D.F.C., in which he promised to let us have an account of his proposed midwinter flight to the Mediterranean. Since then both Group Captain McMurtie and his wife have very kindly submitted their own individual stories. In view of the fact that both of these cannot be included in this issue, it has been decided to publish Mrs. G. M. McMurtie's account, in two parts, and to punctuate this by additional remarks made by Group Captain McMurtie. It is felt that, for a change, it might be a good idea to give the passenger's viewpoint. Mrs. McMurtie entitles her account :

### THE TALE (TAIL) OF "ITEM WILLIE"

#### PART I.

IF THE BACK-SEAT PILOT may presume to tell the tale, here is what happened to "Item Willie" and the three who flew it in search of sunshine in January. We planned to fly across France, down the Mediterranean coast of Spain to Gibraltar, and thence to Morocco : but the best-laid plans of mice and men.....

In France we were greatly impressed by the kindness and friendliness of everyone we encountered ; and their great desire to be helpful was only equalled by their almost complete lack of knowledge of conditions at airfields other

than their own. This latter point was the cause of our flying to airfields which (a) no longer existed at all, (b) had been blitzed and never repaired or re-opened, (c) were completely water-logged, and (d) had no petrol. All this combined to give an Alice-in-Wonderland touch to our trip ; one never knew what to expect next. However, the unexpected is perhaps the "essence" of a real holiday.

I think all our difficulties, and certainly our only serious ones, came under the heading of *Weather Conditions*. I had imagined that once across the Channel we should leave behind the fogs, gales, and torrential rains of our native land, and almost at once emerge into sunshine and cloudless skies ; but see how the tale unfolds itself.



*First stop in France. Group Captain and Mrs. McMurtie chatting with the Customs Officer (avec bicyclette) whilst "Item Willie" is refuelled at Rennes (St. Jacques).*

Neville Rogers, owner of "Item Willie," flew down to Southampton alone, through fog, gales, and low clouds. Next day he picked up his co-pilot and back-seat pilot and we left in bright sunshine. "This is it," I thought ! From Southampton to Cherbourg the sun shone and the weather was good ; the Channel ships heaved their way through the white horses below us. We flew through a patch of dense cloud and I watched, fascinated, as ice formed and built up on our leading edges and made our windscreen like those frosted bathroom windows.

With a stop for lunch and refuelling at Rennes, we reached Niort in the late afternoon. There, fog clamped down and we were obliged to kick our heels and wear out our shoe-leather on its cobbled streets for two-and-a-half days. After getting bogged only once taxi-ing out, we were off at the first possible moment. From Niort we beat and bumped our way south over hilly ground towards the Toulouse gap, landing at Bergerac and Toulouse (Blagnac). The snow-covered peaks of the Pyrenees formed a solid barrier to the south. We were by now pressing on hard in the face of strong headwinds, patchy low cloud, and the shades of night, towards the Mediterranean and Perpignan.

*Of Niort, Group Captain McMurlie says:—*

*The airport manager and his sister were most friendly and helpful; ours was, I think, the only aircraft they had seen for weeks. There had been another British one in December, but we gathered, and it was confirmed later, that French light aircraft go to ground for the winter. Our modest landing fee of approximately one shilling a day which, if I remember rightly included hangarage, could have done little to defray the expense of keeping the airfield open in winter. These small charges we found applied to all French airfields, and our own Ministry might well consider this point since, in return, we charge very much more.*

*Of airfields in general:*

*We had by this time discovered that a "Shell" airfield list was the best form of briefing we could have; if this list showed an airfield was open, then open it was, and our Carnet was our passport to friendly service.*

*Of Toulouse:*

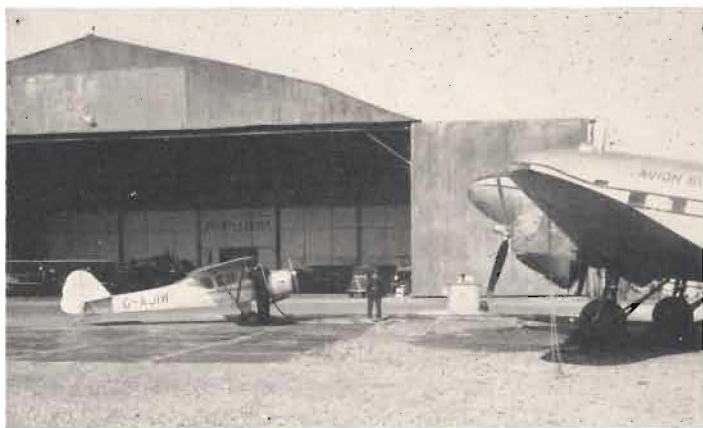
*This, our fourth stop in France, was the first place where we saw another aircraft either on the ground or in the air.*

Soon after passing Carcassonne the two pilots decided it might be possible to take a short cut, in the gathering dusk, over the foothills of the Pyrenees. With this intention we flew up a rising and narrowing valley towards the mountains, but found the clouds were right down onto them. As I tried rapidly to make my peace with my Maker, the pilot turned back down another valley away from the mountains and, as it widened out around and above us, I breathed again. After going the long way round we finally reached Perpignan.



Next day we were off again over the border into Spain. With the brilliant blue of the Mediterranean on our left, and range upon range of snow-capped mountains on our right, we flew south. We were beating into terrific headwinds, and flew over the sea most of the time, as, over the olive groves on the hilly ground near the coast, it was extremely bumpy.

And so to Barcelona, the great seaport and industrial city. None of us spoke Spanish and none of the Spaniards we encountered spoke English, but most of us spoke some French, and so that was our common language. We stayed a night in a comfortable hotel in the city and ate a late but hearty meal ; the hotel dining-room did not open till 9-0 p.m., by which time we were famished. We found



*The "Douane" checked the fuel going aboard at Perpignan (Llabener) before the flight to Barcelona.*

the people very well disposed towards us, though a surfeit of policemen was noticeable and, for the only time on our trip, our passports had to be taken by the hotel people to Police Headquarters for examination.

By this time we realised that there was a great possibility that the constant and very strong headwinds would defeat us, as, without long-range tanks, the distances between airfields were too great. However, we decided to try, if at all possible, to get to Valencia. Through the good offices

of the British Consul we were given permission to land at Rheus, a military airfield, to refuel. Here we caused considerable amazement to the crowd of Spanish troops who quickly surrounded us. The back-seat pilot, to her great embarrassment, caught her foot and dived head-first out of "Item Willie" into the arms of an astonished Spanish soldier, when alighting. None of the Spaniards spoke any French, and so it was extremely difficult to explain that we did not need petrol from them, having carried a pastic four-gallon bag with us in order to save complications. When we proceeded to empty the bag into "Item Willie's" tank, they obviously realised that all they had heard about the "mad English" was only too true. Incidentally, the airfield was devoid of aircraft—unless perhaps they quickly hid them in the hangars before we arrived!

An hour's flying further south, when we were reaching our point of no return and were not nearly half-way to Valencia, we reluctantly admitted defeat and turned back again up the Spanish coast. Landing once more at Barcelona we caused no surprise and, in fact, seemed almost to be expected. Presumably they also thought that the "mad English" were quite unaccountable. On the wings of the wind we reached France again, at dusk. The twinkling lights of Perpignan passed beneath us and the airfield lights guided us in to land.

Next day we flew east along the Mediterranean coast of France. Almost all the way to Marseilles, miles of salt beds lay beneath us. East of Marseilles the high ground comes down to the sea in the manner so characteristic of all the Cote d'Azur. Looking inland from the coast the land rises more and more steeply until it reaches the snow-covered Maritime Alps, which form a spectacular horizon.

By the time we reached Nice we were learning a little wisdom in the matter of how to spend—or how not to spend—all our francs. So we did *not* take a taxi and demand to be driven to the "best" hotel. We went by bus and looked around till we found a good hotel with reasonable charges. Surprising though it may seem, we lived more reasonably at Nice than anywhere else in France.

At Nice we attained our object of finding the sunshine. The sun shone brilliantly, the sea was intensely blue, and the mimosa was just coming into bloom. *But it was cold!*

Winter woollies and greatcoats could not be discarded, although the men of our trio needed dark glasses all the time. Our summer clothes lay unused in the bottom of our bags. We found the combination of bright sunshine and cool air most invigorating. We ate enormously at amusing little restaurants we found ; we walked a great deal, and we all felt very fit.

We explored other famous places along the Riviera : Cannes, with its lovely harbour ; Antibes ; St. Raphael, where the damage caused by invasion was still very evident ; Monaco, with its Prince's Palace and its comic-opera policemen in the fascinating old walled city perched high above the harbour. And Monte Carlo we liked very much. I was amazed and somewhat awed by the heavy air of



*"Item Willie" at Nice Airfield, where it was parked during the stay at the Cote d'Azur.*

respectability of its famous Casino. One felt one must say "Pardon" if one inadvertently dropped an "h" in its vast chambers.

One day we went up into the Maritime Alps to Valberg, where winter sports were in full swing. It was all very colourful, and the deep snow, with its blue shadows, and the encircling mountains attracted us greatly. We found we could have stayed there very reasonably *but* our clothes were chosen for flying to Morocco and not winter sporting in the Alps ; so we reluctantly left Valberg.

After ten days at Nice we started back up north. And here again *weather* became the main issue. We delayed our

departure for twenty-four hours to allow the Mistral, blowing at 40 m.p.h. down the Rhone Valley, to die down. At my request we were returning via the Rhone Valley despite the mutterings of our R.A.F. type about it being "the graveyard of French aviation." An hour or two later I could see what he meant. By that time we had descended lower and lower over the river, with the clouds covering the tops of the mountains which enclose this narrow valley. We overshot Montelimar airfield, where we should have landed to refuel, and we landed instead at Valence-Chabeuil, a small flying club, and replenished an almost empty tank.

*(continued on page 16)*

## Indian Air Force Eighteenth Anniversary

MR. SUNDRA, India's Auster Concessionaire, reports that the Indian Air Force Display held at Willingdon Aerodrome on the occasion of their eighteenth anniversary was a most excellent affair. In the exhibition section Austers and other aircraft attracted much attention, and evidence of this can be seen from the following photographs.



*An Auster of the Indian Air Force being scrutinised by a section of the crowd.*



*Visitors milling around, and in, aircraft lined up on Willingdon Aerodrome*



*I.A.F. police stand by while visitors throng around the Exhibition tents*

## **Service Bulletins**

SINCE THE ISSUE of Service Bulletin No. 19 in the April *News*, there have been no further developments or servicing hints to announce.



*Phyl Weir*

# Auster Personalities

## No. 9. PHYL WEIR

PHYL WEIR, a member of the Denham Flying Club, is a girl who holds a pilot's licence, yet, for some reason, seems to prefer parachute jumping. She was a pupil of T. W. "Dumbo" Willans. On her first jump, lack of nerves would have done credit to far more seasoned parachutists; she jumped from 1,500 feet and hit Denham airfield dead centre. On that first occasion A. J. Harrison was dropped to check drift for her.

Phyl's initial drop was made from a *Dragon* because it was necessary to carry a parachutist "drifter" and an instructor, but all subsequent drops have, and will be, made from an Auster Mk. 5. The Mk. 5 is considered to be the best aircraft for parachuting at Denham, and it has been selected because of its comfort, excellent downward visibility when the starboard door is removed, its slow-flying characteristics and good exit.

As a relief from parachute jumping, Phyl works as a clerk in a London Insurance Office, although perhaps, on second thoughts, the converse applies. In any event the two would appear to go hand-in-hand!

## Starting Up Light Aircraft

NOW THAT THE MAIN FLYING SEASON is upon us again it is perhaps an opportune moment to repeat the contents of the Ministry of Civil Aviation Information Circular No. 96/1950, which deals with the starting of light aircraft.

1. Since June, 1948, three accidents to light civil aircraft have been caused by lack of care on the part of the pilot when starting up. The following features are common to all three accidents:—

- (a) The engine was started by hand-swinging of the propeller.
- (b) The cockpit was unattended.
- (c) The wheels were not chocked.

In addition, two of the aircraft were not fitted with a parking-brake, and in the third the parking-brake failed.

On each occasion the aircraft could not be prevented from moving forward when the engine started, with the result that the aircraft was extensively damaged.

2. In the most recent case the pilot was convicted for operating his aircraft in a negligent manner in contravention of Rule 10 of Schedule II to the Air Navigation Order, 1949, and was fined £10.

3. Having regard to these facts, pilots are reminded that, other than in exceptional circumstances, aircraft engines should not be started unless the cockpit is occupied by someone capable of stopping the engine in an emergency. At all times during starting operations the wheels of aircraft not fitted with a parking-brake should be suitably chocked, and on other aircraft the parking-brake should be used with addition of chocks where possible.

4. Although these measures are particularly important when starting an aircraft engine by hand-swinging of the propeller, the use of chocks and parking-brake is equally desirable when starting aircraft engines from inside the cockpit.

## Puzzle Corner

### WHAT IS IT ?

THIS PHOTOGRAPH is of something very well known, but hazard a guess at it before looking at the answer on page 16.





## A FRAME-UP?

THERE SEEMS TO BE a certain amount of doubt in geometry when combined with a pair of scissors. For example, try drawing a square 8 inches by 8 inches, which, according to most accepted theories, gives an area of 64 square inches. Now cut the square into four pieces, as shown in Figure 1, and arrange them as shown in Figure 2. Obviously the shape is no longer square. However, measure the sides (or count the squares) and they will be found to be 13 inches

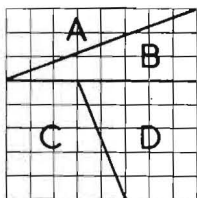


Figure 1

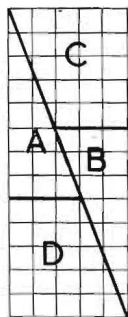


Figure 2

by 5 inches. Now get out a slide-rule, seven-figure book of log tables, mechanical calculator or comprehensive ready-reckoner and it might be concluded that the area is 65 square inches. Of course many brilliant mathematicians can work out such problems in their heads, but we ordinary mortals are often dubious about this mental arithmetic business. Now it may not worry you unduly, but it must be admitted that for 64 square inches to grow into 65 square inches for no apparent reason is something a bit queer.

## In Lighter Vein

I LIKE WORK, it fascinates me, I can sit and look at it for hours.—*Jerome K. Jerome.*

IT'S A GOOD THING to give credit where credit is due, but it is far better to be paid in cash.

## A MID-WINTER TOUR (continued from page 10)

We were cleared for "visual" flight to Lyon (Bron), but by the time we had flown further on up the valley to Lyon the visibility was extremely poor. We knew we were bound to locate Lyon if we flew just over the river all the way and so, in fact, we did; but then to find the airfield outside the city was not so easy. When we had circled all round Lyon and failed to find it in the murky gloom, we called the Control Tower and told them we were over a race track on which we had made our approach, thinking it was the airfield. They then kept unseen airliners stacked up above us while we came in under V.F.R.

(To be concluded)

*Puzzle photo answer.*—The photograph was taken by Randal Porteous from an AUTOCRAT when flying almost directly over the crater of the volcano Vesuvius.

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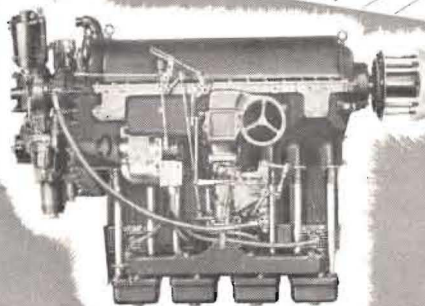
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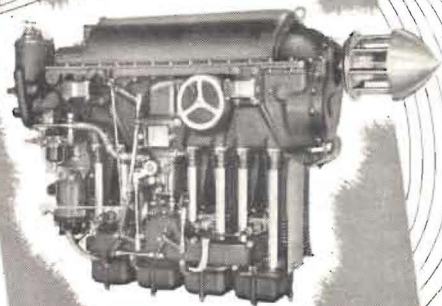
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