

The Haltonian Magazine

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Christmas 1926

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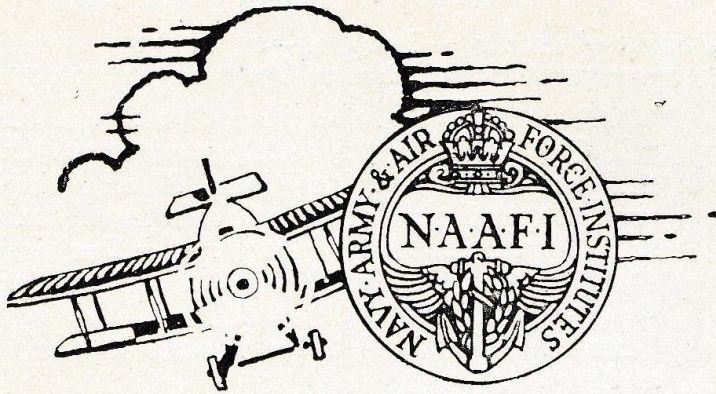


"PER ARDUA AD ASTRA"

THE  
HALTON  
MAGAZINE

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Vol. III No. 3  
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XMAS 1926



NOT LESS IMPORTANT THAN  
**THE MACHINE**  
**IS THE MAN**

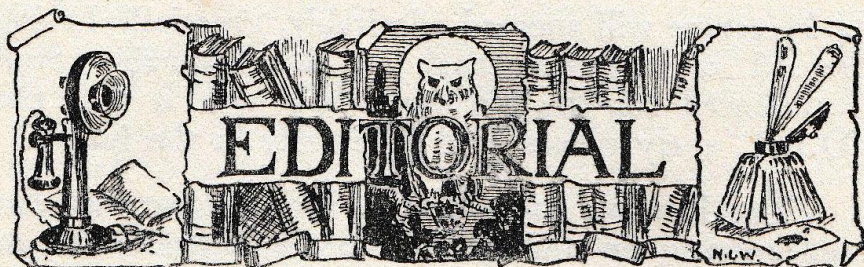


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*Navy Army & Air Force Institutes*  
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CHRISTMAS, 1926.—By the time this Magazine reaches its readers, all on the Station will be within a fortnight of Christmas leave. And so we begin by expressing our heartiest good wishes for a Merry Christmas, a Happy New Year, and a Jolly Leave to each and every one of you. This is a time for kindly thoughts by cheerful thinkers, from which it follows that the Editorial in this, our third Christmas number, must be brief.

A FEW CHEERFUL THOUGHTS.—This has been a history-making term at Halton. No. 4 Wing, Cranwell, is now No. 4 Wing, Halton, and the smoothness with which the transfer has come into being, and with which the new organisation of Wings has carried on its functions, has been a source of satisfaction to everybody concerned. It is an excellent augury for the success that will await the final reshuffling of Entries into the new Wing formations next term.

THE OLD BOYS' ASSOCIATION.—There has been one other history-making change this term. This concerns the dual decision to change the name of the O.H.A. to the R.A.F. Old Boys' Association, and to launch out upon a separate Magazine for the O.B.A. The need for the change of name will be obvious, in view of the advent of No. 4 Wing, and in view of the admitted desirability of extending the scope of the Association so as to include in its fold all ex-Cranwellians, and ex-A/A.'s of Flowerdown and Ruislip. This is an extension that appears to us both logically meritable and intrinsically excellent, and the decision to start an O.B.A.'s Magazine is an almost immediate corollary to this. We feel sure that such

a Magazine will succeed admirably, especially having regard to the excellence of the Magazine Staff announced for the purpose. We wish it and the O.B.A. every success and prosperity in the future.

THE HALTON AERO CLUB.—We hope none of our readers will be unduly downcast and pessimistic at the failure of the "Mayfly," or H.A.C.I., to put in an appearance at Lympne this year. The story of this splendid failure is well told elsewhere in this issue, and we propose confining our remarks here merely to the encouragement of all on the Station to take the long view, and to realise that because there is no school in the world like the school of experience (although it gives no certificates) there will surely be better luck and a different story to be told next time. Our confrères from Cranwell were also most unlucky in the hazards of chance, and to them, too, we wish all the best of good fortune at next year's Lympne meeting.

BELGIUM, AUGUST, 1926.—We were enormously interested in the experiment inaugurated by Capt. A. B. Fanstone, A.F.C., in taking over a party of some 30 A/A.'s to Belgium for an eight-day trip last August. The visit was in every respect an unqualified success towards which every member of the party contributed, each in his way, his quota. We congratulate them all, and we would urge most strongly that there is every good reason why, in turn, all future entries should have an opportunity of contributing a similar and similarly-chosen party for an overseas trip. And may they be as equally fortunate as the pioneer party in having such leaders of the trip as Capt. Fanstone, his sister Miss Fanstone, who acted as the M.O. of the trip, and Mr. Kermode. To all three our most cordial thanks and congratulations.

OUR COMPETITIONS COLUMNS.—The entries for our various competitions in the last issue or two have been so scanty as scarcely to justify the space allotted

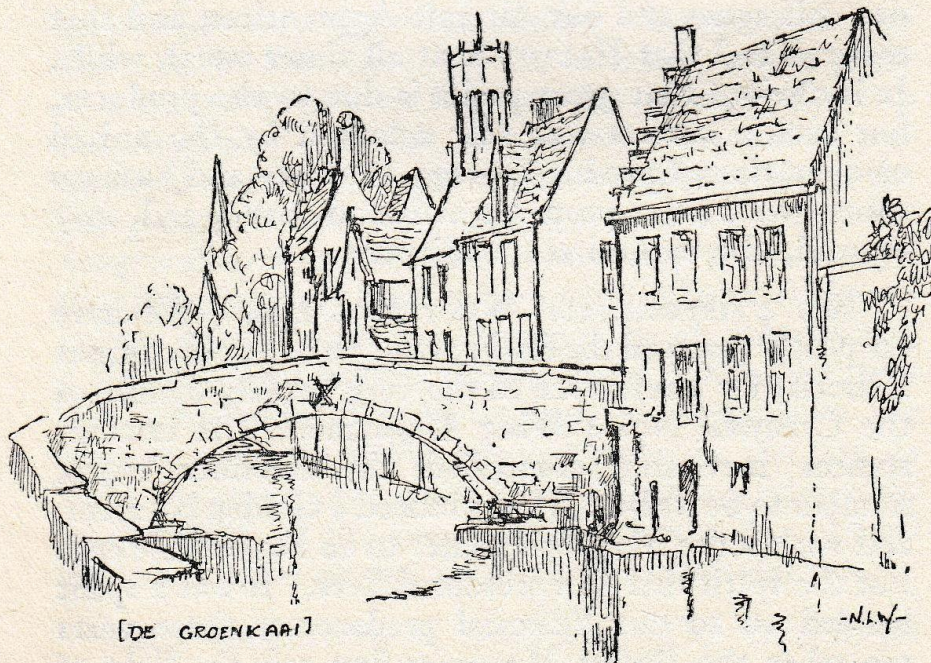
to them. There is so much increased pressure on our pages now that No. 4 Wing is with us that we can ill afford pages for competitions if it is evident that such pages do not interest our readers. We have decided to make the use of the competitions of the Christmas number our final test. Unless there is a marked increase in the number of competitors, this feature must come to an end.

“BULLDOG DRUMMOND.”—We may, perhaps, be pardoned if we take the unusual step of devoting an Editorial paragraph to the subject of the performance of the above play by the Halton Debating Society. Unfortunately we are compelled to go to press at too early a date—the third performance of the play has not yet been given as we write—to do adequate justice to the presentation in our columns. The whole undertaking, however, is such an excellent example of *esprit de corps*, enthusiasm and good fellowship, that we feel bound to offer our heartiest Editorial congratulations to all concerned. It is but one of the many instances, happily, that make us so proud of our colleagues and our Aircraft-Apprentices, and that make us feel that HALTON is at all times worth while. It is obvious that great praise is due to the producer, but such a success was only achieved by the united co-operation of producer, stage, property and business managers, actors, property assistants, band, and, may we add, the enthusiastic audiences.

NO. 4 APPRENTICES' WING MAGAZINE.—We have purposely reserved the final paragraph of our Christmas Editorial for a reference to the very healthy demise of the Cranwell No. 4 Wing Magazine. The circumstances inevitably compelled the Summer, 1926, number to be its last. It was indeed a Golden Number, and with it the Magazine comes to an honourable end. But the spirit that it represented lives. It was a spirit handed on to our Editorial predecessor three years ago when the *Halton Magazine* first saw the light of day, and transmitted from him to ourselves. It will

be carried on by our own successors in their turn. Throughout its fine career, the Cranwell Apprentices' Magazine has been fathered, mothered, shepherded and directed by our old friend and colleague, Mr. D. E. Williams. For his unselfish and untiring services, and for the fine ideals that inspired them, not only No. 4 Wing, but all in the Service, owe him a measure of thanks that cannot be exaggerated. We for our part, are glad to take this opportunity of according him such thanks, and to assure him on behalf of all our readers, new and old, what a keen satisfaction it is that he remains with us to give us the continued benefit of his ripe experience and advice.

ARMISTICE DAY.—It is with great pleasure that we hear from Mrs. Lambe that the sale of Poppies in connection with the Armistice Day observances in the Camp resulted in the fine total of £104. We heartily congratulate, not only Mrs. Lambe, but also all those who rallied to her support, both by work and by subscriptions, on so splendid a result.



A Memory of Belgium—August 1926.

## The Halton Aero Club



It is with deep regret that we have to send in this report before our first machine has taken the air, especially as it is, we hope, only a matter of days before that great event takes place (perhaps it is rash to prophesy even now!).

The "Mayfly"—as she has been facetiously called—has so far lived up to her name, and we feel that an explanation is due to our members.

As it appears to those outside the Committee, the situation is this: A Club has been formed (one of the largest of its kind in existence) and a large sum of money has been collected. One of the objects of the Club was to enter a machine at Lympne this year—another was to provide lectures to members of the Club. Neither of these two aims have been accomplished, and it is only natural that the subscribers should ask, "Why not?"

The explanation is not difficult, and it is very genuine. The failure to appear at Lympne was due first and foremost to the fact that the rules for the Competition did not appear early enough to give amateur clubs a chance, in fact, it is significant that even the aircraft trade itself only produced one new machine for the event. We had only some six or seven months of spare time work, and this included both Easter and Summer leave periods: the average time taken by an aircraft firm on full-time work to design and build a new machine is about a year. It is true that designs had been in hand a very long time before this, in fact, before the formation of the Club—but these had to be modified when the rules came out, especially as it was found impossible to purchase an engine of 60 h.p. and 170 lbs. wt. (for which the machine had been designed), and so we had to fall back on the "Cherub" of 90 lbs. wt. and 33 h.p. We were severely criticized for purchasing the "Cherub," and we were repeatedly told that no "Cherub" engine would be able to get a machine through the eliminating trials, let alone the Competition; only four machines succeeded in getting through both the eliminating trials and the 2,000 Miles Competition—all four were fitted with "Cherub" engines.

The Committee fully realized that it would be difficult to get the machine ready, but on the other hand it was felt that the entry would give us something definite to work for, and there is not the slightest doubt that the machine would not have been finished even now had we not aimed at Lympne. Several members sacrificed various portions of their summer leave, and work was carried on continually. As the



time for the Competition approached work became more and more frantic, and it may not be generally known that work on the machine never ceased day and night for over a fortnight. Many of us will long remember doping planes or tacking 3-ply on to the fuselage at 5 o'clock in the morning! Hope was not given up until the night before the Competition, and even then a renewed effort day and night was made for another week in the hope that the machine would be ready for the Grosvenor Cup Race. This final effort was again abandoned at the last moment.

Such is the story of our first failure, one of the most tragic results of which is in the fact that in the hurry it was found impossible to rectify certain mistakes which had been made, and it certainly should be made clear to all members of the Club that both the external dog bracing and interior control (the two eyesores of the machine) are quite unnecessary from the point of view of the original design, and that it is hoped to build very shortly a new set of main planes with these mistakes rectified.

The failure to provide lectures is easily explained—the Committee have felt all along that it would be unwise to talk too much until the machine has flown, and it has therefore decided that the machine must be got into the air before anything else is done. Consequently it has been decided to test the machine with the external wires, although this will, of course, considerably hamper the performance.

Everything is at last ready—the R.A.E. have approved the strength of the structure, the A.I.D. have made their final inspection, and by obtaining a loan from Station funds, we have obtained sufficient money to insure the machine and pilots for one year.

A full programme of lectures has been arranged to take place after the General Meeting, which will be held as soon as the machine has flown.

We have talked a great deal about our failures—it is our duty to explain them to the members of our Club; but, on the other hand, it must not be forgotten that the Club has done real good. Every one who has been concerned with the design and building of the machine has made mistakes; there is no experience like the making of mistakes. The liaison between shops and school, between fitters and carpenters, has been very considerably improved. *The Aeroplane* has stated that it would be difficult to imagine any better means of testing the efficiency of Halton training than the carrying through of a task of this kind from the first designs to the finished aeroplane.

Again, the Technical Editor of the same journal writes (after a special visit to Halton to see the machine): "A first-class example of high-grade workmanship, and a very high testimonial to the quality of the training which is given at this School."

And now let our motto be—The "Mayfly" must fly! All else will follow in due course.

A description of the machine follows these notes.

A. C. K.

## The H.A.C.I.

### DESCRIPTION.

The machine, an unequal winged biplane, is of the single bay type with interplane bracing and X struts splayed out from the lower to the upper planes, an unusual if not unique arrangement.

The main planes are constructed of glued-up box spars and girder-type ribs, whilst the fuselage is of the box type, consisting of four lightened and tapered triangular longerons continuous throughout the whole length, vertical and horizontal struts, and covered throughout with 1 mm. "mallite" 3-ply.

The "Ver" type undercarriage is of steel tubes, with the usual elastic cord shock absorbers, steel tubes also being utilized for the centre section struts which support the petrol tanks, shaped to conform with the wing section.

The tail plane of cantilever design passes through the rear centre of the fuselage, to which is attached a single elevator, and above which are the fin and balanced rudder.

External wires have been avoided, as far as possible, in the tail unit by employing a vertical tongue tube in the fin, connected by short horizontal wires to the rudder kingposts, and also a single central elevator kingpost actuated by wires running inside the fuselage throughout.

### Weights.

Weight was the first consideration, of which the only known items were :

Engine .. .. . 95 lbs.  
Pilot and passenger .. .. 340 „

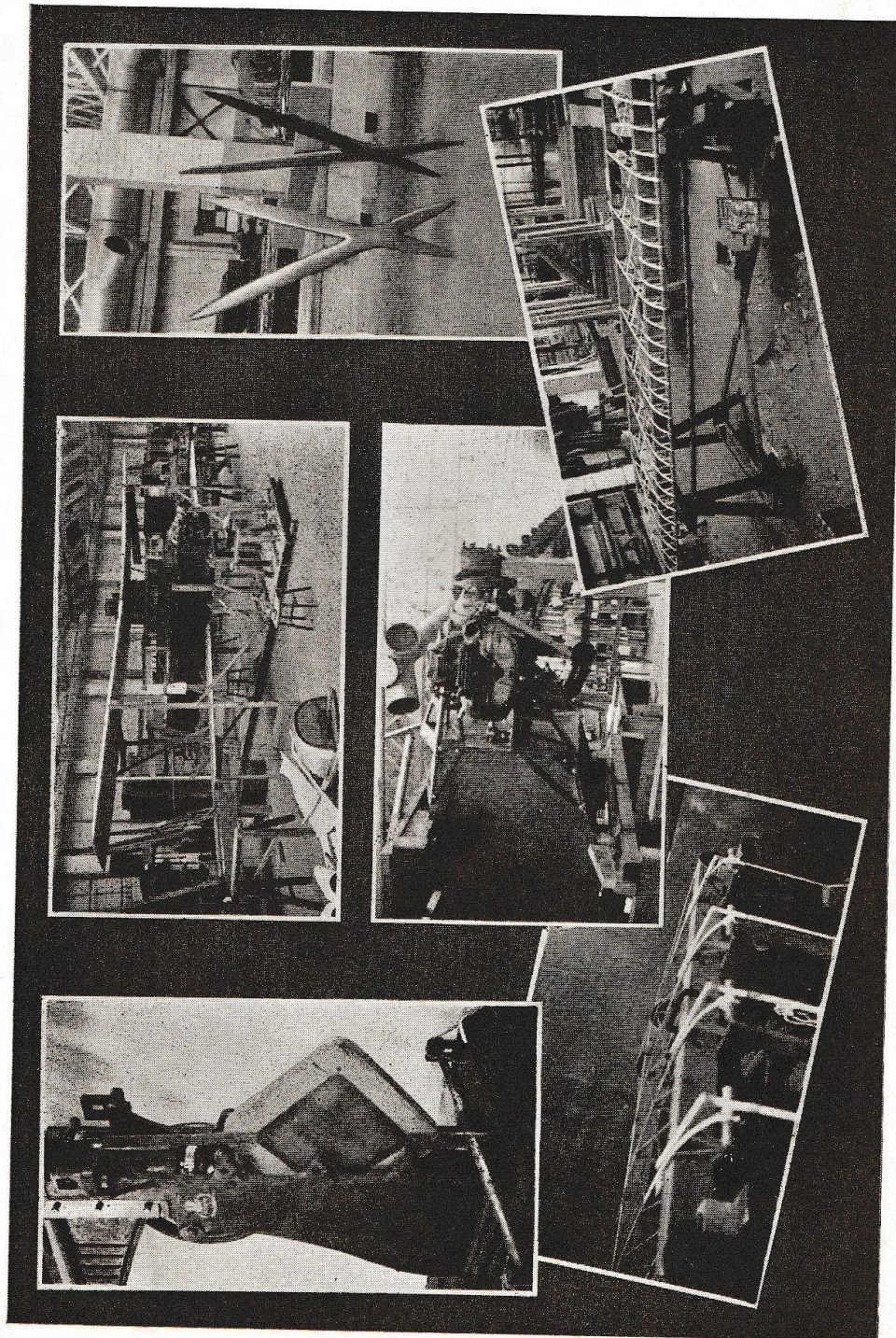
Allowing 20 lbs. for controls and instruments, 60 lbs. for fuel and tanks, and a further 20 lbs. for the engine-mounting and propeller, the basic total became 535 lbs.

This was assumed to represent 60% of the total weight of machine and load, leaving 20%, 17% and 3% respectively for wings, body and tail units, showing the following approximations :—

	ITEM.	WEIGHT IN LBS.
<i>Basic.</i>	Engine .. .. .	95
	Pilot and passenger .. ..	340
	Controls and instruments ..	20
	Fuel and tanks .. ..	60
	Mounting .. .. .	10
	Propeller .. .. .	10
	—	535
<i>Structure.</i>	Wings .. .. .	170
	Body .. .. .	145
	Tail .. .. .	20
	—	345
	TOTAL	880



THE "MAYFLY" IN DEVELOPMENT—SEE PAGE 17.



3-ply panel test. Panel required to take a load of 150 lbs. At 750 lbs. frame gave but panel remained intact.

Nose test on ribs.

Main planes and tail being fitted.  
Bristol "Cherub" III Engine and Mounting.

Inter-plane struts.

Top main plane under construction, showing ribs, riblets, spars, L.E. and tape strainers.

*Outline and Main Dimensions.*

By allowing a loading of approximately 4.5 lbs. per sq. ft., a wing area of 200 sq. ft. was required, and it was decided to divide this into a top plane of 135 sq. ft. and a lower of 65 sq. ft., and to work for ailerons along the top plane only.

The dimensions were fixed chiefly by consideration of "garage" requirements, as laid down by the competition rules, which stated that all machines should fold to pass through gates or doors of 10 ft. width and height.

When folded back, with the trailing edges nearly touching, a chord of just under 5 ft.—say  $4\frac{3}{4}$  ft.—was therefore possible, fixing the span of the top plane as  $28\frac{1}{2}$  ft.

The aspect ratio  $28.5/4.75$  or approximately 6, is very suitable for this type of machine, and hence the above dimensions were decided upon. The same aspect ratio gave 20 ft. and  $3\frac{1}{4}$  ft. for span and chord of the lower wing.

The economical spar positions in the top main plane, due consideration having been given to positions of the centre of pressure and depth of wing section chosen (R.A.F. 15), were found to be at 7 in. and 35 in. centres from the leading edge, making the aileron chord 21 in., and the width of centre section for folding 3 ft. 6 in.

A ratio length/span of 0.8 gave 22 ft. as the overall length of machine from propeller boss to trailing edge of rudder.

Outline drawings were next prepared with all loads shown in their respective positions, and the centre of gravity having been found, the position of the wings relative to the fuselage was also fixed.

This was followed by the detail design of all component parts and fittings.

C. H. L. N.

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## The Halton Dramatic Society

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*President*—Group-Captain W. MITCHELL, D.S.O., M.C.

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ON July 2nd, 1926, the above Society was formed, with a general Committee as follows:—

*President*—Group-Captain MITCHELL, D.S.O., M.C.

*Members*—Squadron Leader C. C. Darley, A.M.

Flight-Lieut. A. Ellwood.

*Honorary Secretary and Treasurer*—F/O. E. G. JOLLIFFE.

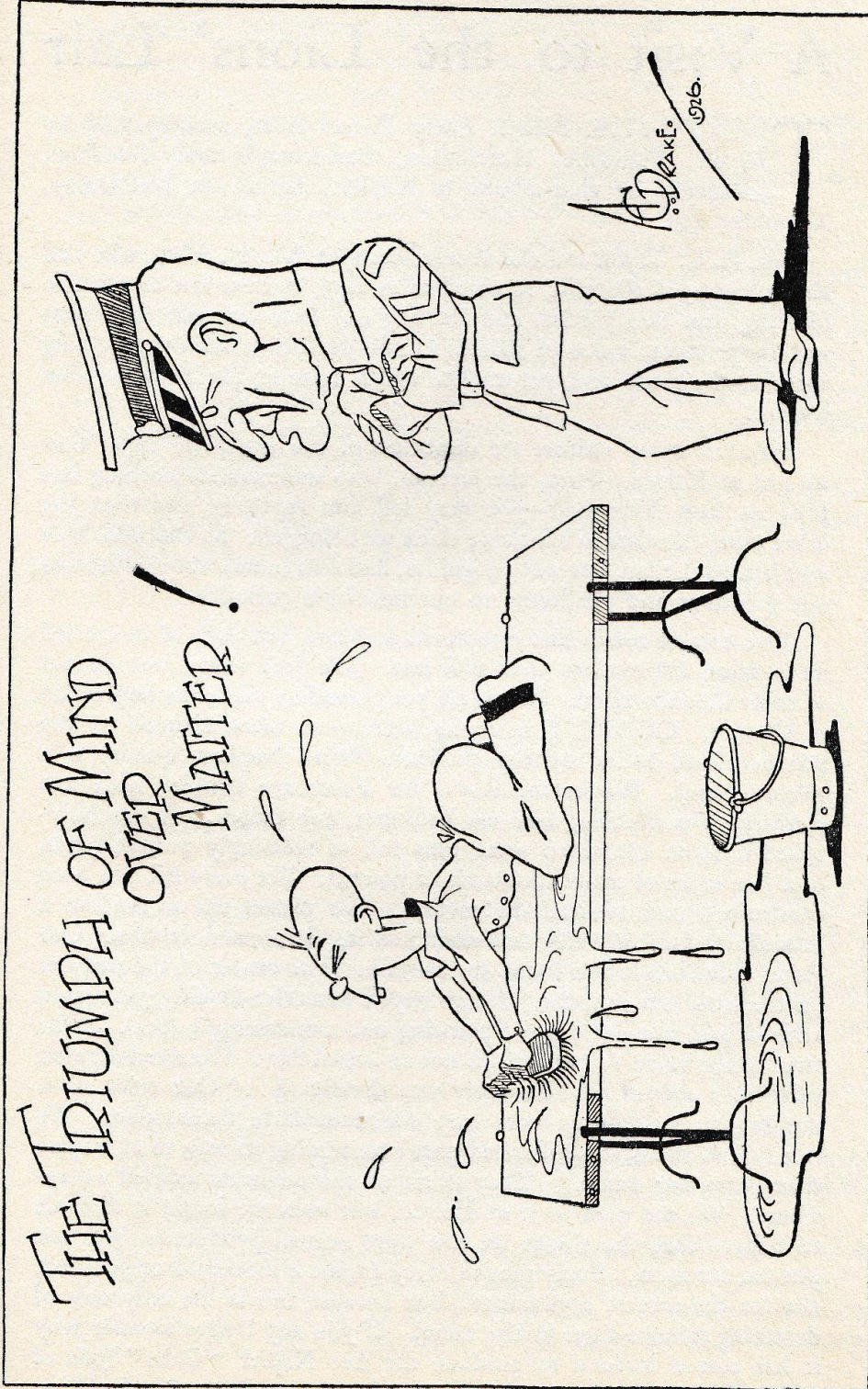
CAST COMMITTEE.

*President*—F/O. E. G. JOLLIFFE.

*Members*—Mrs. Mitchell; S/L. Tracy; F/Lt. Ellwood;  
F/Lt. O'Donnell.

The Society will produce, early in December, "A Little Bit of Fluff," and another play early in the New Year. The Honorary Secretary will be pleased to receive the names of any officers or ladies willing to assist in these productions.

E. G. J.



## A Visit to the Lions' Lair

**T**WENTY-FIVE Fourth Entry Fitters Aero, accompanied by Messrs. Fanstone, Hutchinson, Barraclough and Needham journeyed by char-a-banc to Napiers, Acton, on Wednesday, November 4th.

Mr. H. C. Tryon and the Works Manager, Mr. H. Allen, who had kindly arranged the visit, received us at 2.45, and we lost no time in dividing into two parties, and starting our tour through those vast workshops where 2,000 of Britain's finest craftsmen are busy putting together the 2,000 revs. per minute which make up the Stalwart Lion Engine.

Napiers' many visitors are doubtless of the same two types that we get at Halton. First, the layman, who understands nothing but tries to look interested—you may tell him anything, and then the other class, the class to which we think we belonged. So that Mr. Hall and Mr. McLellan, our worthy guides, had a strenuous time answering our questions and pandering to our insatiable curiosity.

One cannot retain half one heard and saw, but each of us carried away some impressions that will last. We feel them, but cannot so easily describe them. Above all, yet pervading all, is the impression of Quality. QUALITY in capital letters—so often claimed by the producer and belied by the product. With Napiers, quality is a solemn creed. We in the Royal Air Force are familiar with this counsel of perfection, but we had met our match. A carefully-guarded room contained some bins full of seemingly perfect parts, of a face value of many thousands of pounds. Yet every bit had been condemned and awaited destruction. We picked up at random a beautifully-finished valve and examined it. It seemed flawless. Our guide examined it and found no blemish. The owner of the number on the label was sent for. A hawk-eyed detective-looking gentleman arrived, and was not long in pointing out a microscopic speck on the stem of the valve—potential if not an actual flaw. We asked for that valve as a souvenir. The reply was significant: "Our rules allow nothing to leave the room save for immediate destruction. We can run no risk of a condemned part ever finding its way to an engine that bears our name." That spirit of thoroughness existed everywhere. We are used to it at Halton, but even we found it difficult to believe that the things we saw were normal production and not put out for show. Every part of every engine is machined or polished, not for the sake of appearances, but because this is the only way of detecting minute flaws in the metal. If you any longer wonder why it has cost a fortune to produce the five Napier "Cubs" (one of which Halton keeps as a pet), or why the ordinary Napier Lion

costs a couple of thousand apiece, go to the Napier works at Acton, and you will cease to wonder. We went dutiful students of the Napier Lion. We came away its devoted worshippers.

We cannot stay to say how this accuracy and perfection is achieved—to tell of the latest thing in machines that from a rod of steel will produce, without an operator in sight, a basketful of gadgets with four distinct processes. We can but allude to the new hush-hush Napier “Racer” that is to eclipse all Schneider Cup records, and to the latest developments in super-charging.

Space is gone. We have tried to convey our chief impressions of the visit—quality and thoroughness. Nor did these twin virtues forsake them *in extremis*, for eloquent of both was the very excellent tea, of which we were obliged to partake as guests of the firm. This finished, we visited the local cinema, which happened to be *en fête* with “Four Horsemen of the Apocalypse.” Then singing lustily to the accompaniment of a full-throated Thornycroft engine, we hied us home to Halton, and so to bed.

The thanks of the party are due to Mr. Fanstone for arranging and to Messrs. D. Napier & Sons for affording us a very pleasant and profitable outing. May it not be the last!

A. B. F.

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## Concerts

ADMINISTRATIVE SECTION, NO. 1 SECTION OF T.T. (APPS.), R.A.F.,  
HALTON.

Three impromptu concerts have been held in the N.A.A.F.I., attended by the Commanding Officer, Adjutant and Officers of the Section, the last of which was a great success, being a farewell to some personnel of the Administrative Section who are seeing the world in Iraq, India and Egypt, and others who are seeking fresh ambitions in civilian life.

The Section Jazz Band, ably controlled by S/M.1 Thomas, gave excellent renderings of some of the latest numbers.

A/C. Sanderson gave a splendid performance of Ventriloquism, and several other well-known artists performed, and a very enjoyable evening was spent.

The Section Jazz Band improve every time we hear them, and have played at the Canteen, Section Dances and Sergeants' Sports Club, and I am sure that all ranks of the Administrative Section thank S/M.1 Thomas and the members of the Band for their unceasing efforts.