The work and training of the Royal Flying Corps.

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THE ROYAL FLYING CORPS

By LORD HUGH CECIL

THE Flying Corps is the greatest of the novelties of the war. And it appeals to people in several ways. Its military importance is great and increasing; it unites in a singular degree the interest of a sport with the deeper and stronger interest of war; the gallantry of its flying officers touches sympathy and thrills imagination; and the development of its mechanical and scientific apparatus inspires wonder and almost astounds belief. The Flying Corps is therefore a very fit topic for illustration; and the pictures in this volume will be viewed by many with attention and delight.

Everyone's first thought on hearing of the Flying Corps is of the officers who fly, either as pilots or observers. The pilot is especially an attractive figure whom we imagine going up into the air, either alone or with a single companion, to face the combined terrors of aviation and war, depending on his own dexterity and presence of mind in the face of the elements and of the hostility of the enemy. If we look closer into matters we find that as time goes on and skill and mechanical resource are increased, some modifications of our instinctive imagination are required. Flying is better and better understood and more and more safely conducted* with improved machines and greater knowledge of aviation. On the other hand, the skill of the enemy is increased as much as ours, and he is able to expose our officers to much greater dangers than any escaped by their improvement in flying. The loneliness of a flying officer, too, is not quite what it used to be. He still usually has only one companion or flies alone. But nowadays flying in formation is a common practice; and the flying officer often fights as one of a flight or of a squadron rather than, as in the earlier days of the war, totally alone. But nothing changes the supreme romantic interest of fighting in the air. The

* But the dangers of training have rather increased than diminished.

reports that are sent in to the Headquarters of the Flying Corps abroad of the combats in the air are the most moving reading in the world. They are bald, jejune, unadorned to the last degree; but for that very reason they stimulate the reader to imagine what the experience of the events they narrate must be like. The climbing and falling, the "nose-diving" and "zooming-up" (as runs the strange jargon which has been invented to express the acrobatics of the air), the dodging in and out of clouds, the menace of anti-aircraft guns, the fierce individual fighting—one against one or two against two,—the danger of fire, the danger of falling, the struggling home with a broken machine, the triumph of seeing the enemy crash to the ground,—such doings as these make up a story at which the heart beats and the eyes fill and in the glow of which the works of the great masters of romance lose brilliance like a candle in the sunlight.

But the pilot and observer or aerial gunner, those shining figures whose courage and presence of mind we so heartily admire, depend upon a vast organisation which has an interest of its own scarcely less strong, but of a quite different character. The flying officers are the glittering apex of a veritable mountain of ingenuity, arrangement, and resource. They themselves have to pass through a most elaborate training. If, as is often the case, they join the Flying Corps as civilians, they begin that training as cadets, and after qualifying for a commission, they learn to fly or to be observers and aerial gunners. If they are to be pilots, they pass through three successive courses of training in aviation. If they are to be observers and gunners, two courses suffice for their instruction. All this training naturally requires schools and all the mechanism of instruction. This instruction must cover the use of the various implements which the officers will have to control, whether it be the aeroplane and its engine and all its ancillary instruments, or the machine-gun and the photographic camera and the wireless set. The officers of the Flying Corps seem indeed to unite the qualities of ancient and of the most modern warfare. In their lonely self-reliance and dependence on their own individual prowess they remind us of the knights of old; and certainly since the days of the knights there has been no such opportunity in war for the display of the personal qualities of the individual. On the other hand in their scientific training and in their association with all the wonders of human ingenuity in science and mechanics, they belong to the very latest hours of our own day. They are only made possible by the astonishing progress which the human mind achieved in its mastery over matter during the nineteenth and twentieth centuries. American humorists have imagined what

would have been the effect of modern scientific apparatus amidst the jousting and chivalry of the knights-errant of old. But of a like vision we are the actual witnesses, for we see our knights-errant of the air go forth in an aeroplane furnished with wireless telegraphy and a photographic apparatus; and we stand looking on with open mouth and distended eyes, admiring at once the gallantry and the ingenuity of the enterprise.

In these pictures are to be seen illustrations of all the various activities of the Flying Corps. We get glimpses of the aeroplanes and their engines, and are reminded of the extraordinary progress which skill and invention have made in the development of these wonderful machines. Fifteen years ago flying was thought to be impossible. Even at the beginning of the war much that is now part of the ordinary training of a pilot would have been forbidden as impossible to achieve and dangerous to attempt. Aeroplanes to-day can climb a certain height about five times as quickly as they could three years ago. They can defy the wind and pass through the air at a pace which inflicts on the fastest express train all the humiliations that it itself heaped on a stage coach. These miracles mainly depend on the engine—that amazing instrument for using the explosive power of petrol for human convenience. Its myriad detonations have been made to serve as the swiftest of all men's means of travel.

But the Flying Services do not only deal with aeroplanes. Ballooning, though an old art in comparison with modern aviation, has renewed its youth. Especially in the new form of the kite balloon, balloons are proving a valuable instrument for military observation. These uncouth sausages of the air, which are often seen in the south-west of London, stand behind the fighting line of our own armies on the front, watch towers against the foe. Service in kite balloons has dangers of its own; and it is now by no means uncommon for the kite balloons to be assailed by aeroplanes, riddled with bullet-holes, or set on fire, so that the occupant of the kite balloon's car has to fling himself free with a parachute and seek a precarious safety by falling thousands of feet to the ground.

But the main instrument of observation and reconnaissance is the aeroplane. This function is becoming more and more distinguished from aerial fighting and made a department of its own. When the war began the distinction between a fighting machine and a reconnaissance machine was scarcely recognised; and even now it is, of course, often necessary for an aviator engaged on reconnaissance or artillery observation to fight in his own defence. But so far

as possible those officers who are sent out for these duties devote their attention to their task and leave to others the business of protecting them by fighting in the air. The two great developments in the task of observation and reconnaissance which have been made during the war are in the use of photography and wireless telegraphy. The photographic section is one of the triumphs of the Royal Flying Corps. Photographic cameras and all the rest of the apparatus necessary for aerial photographs have been invented and improved by officers in the Corps. And with the utmost elaboration and completeness, as well as with the most astonishing rapidity, photographs of any area which it is desired to observe are taken and circulated among all those whom it is important to inform. The ingenuity, technical skill, knowledge and efficiency with which this part of the Royal Flying Corps' work is done deserve much more recognition and praise than they have yet received. The same, or nearly the same, may be said about the use of wireless telegraphy. Here the subject matter is so technical and obscure that it is hardly possible for anyone who has not received a special training to appreciate the difficulties that have been overcome and the skill and judgment which have been brought to bear. But the problem of furnishing aeroplanes with a transmitting set, by which the flying officer might communicate his observations to the ground, has been solved; and a judicious adaptation of the latest developments of wireless science has been made, so as to furnish young men of only moderate skill, working under circumstances of the utmost distraction, to send messages clearly and effectually to their destination. By this means the artillery have been furnished with far-seeing eyes which correct and control gun-fire till it attains deadly precision. These achievements imply not only great ability and ingenuity in the principal scientific officers of the Flying Corps, but a large organisation for training and for experiment. The pictures in this volume show something of what is going on.

Aerial gunnery, again, is an art which has been developed during the war. The working of a machine-gun in an aeroplane, the care and management of the guns and of their ammunition, the crucial difficulty of firing effectually out of an aeroplane moving unsteadily at a great pace, and hitting another aeroplane also moving unsteadily at a great pace, have had to be studied and mastered. Much ingenuity has been displayed in increasing the field of fire in an aeroplane, and, by devices which seem to the ignorant almost miraculous, in making it possible to fire through the whirling circuit of the propeller without

injuring its blades. And the success of our aeroplanes in countless combats in the air is the fruit of this resourceful cleverness. The other offensive weapon of the aeroplane—the aerial bomb—has, like everything else, been improved and developed during the war. We are familiar with the importance of this weapon because we have suffered from it in England at the hands of our enemies, and our interest does not therefore merely depend on what we have heard of operations at the front. But bombing has been in use from a very early period of the war, and we have used it at least as extensively as our enemies. As in respect to everything else in aerial warfare, wonderful ingenuity has been displayed in improving the apparatus by which bombs can be aimed and dropped and in training the skill of those who have to drop them. How difficult is the problem of accurate bomb-dropping may be appreciated by anyone who imagines an aeroplane flying many thousand feet up in the air at an uncertain speed, and needing to release a bomb so that it will fall sufficiently near its object to inflict serious damage upon it. These difficulties have only been imperfectly overcome, as the people of London know with satisfaction. It is even now seldom possible for an aviator to drop a bomb exactly or even nearly where he intends, except by undergoing the risks, which we pride ourselves in thinking are more readily encountered by English flying officers than by German, and descending to within a few hundred feet of the ground. In nothing has the courage and enterprise of our flying men been more displayed than in the risks they have run for the sake of placing a bomb accurately upon the target for which it is intended.

All these activities and all this apparatus require a great organisation for construction and repair. The life of an aeroplane is short even apart from the risks of war, and while its life lasts it wants constant adjustment and is exposed to frequent accident. The engine, moreover, bearing the enormous strain which is implied by the power it develops and the pace at which it drives its propeller, is always suffering from defects both large and small which involve supervision and repair. The delicacy and ingenuity of the mechanism do not protect it from spoiling by use; and the vital importance of its efficiency makes it dangerous to overlook even the slightest fault. Repair and replacement, as well as the new manufacture necessitated by the enlargements of the Flying Corps, need an organisation elaborated to suit the varied requirements of small and frequent repairs, of larger reconstruction, and of new production,—an organisation adaptable, efficient, and thorough, in order that the machines of the Royal Flying Corps

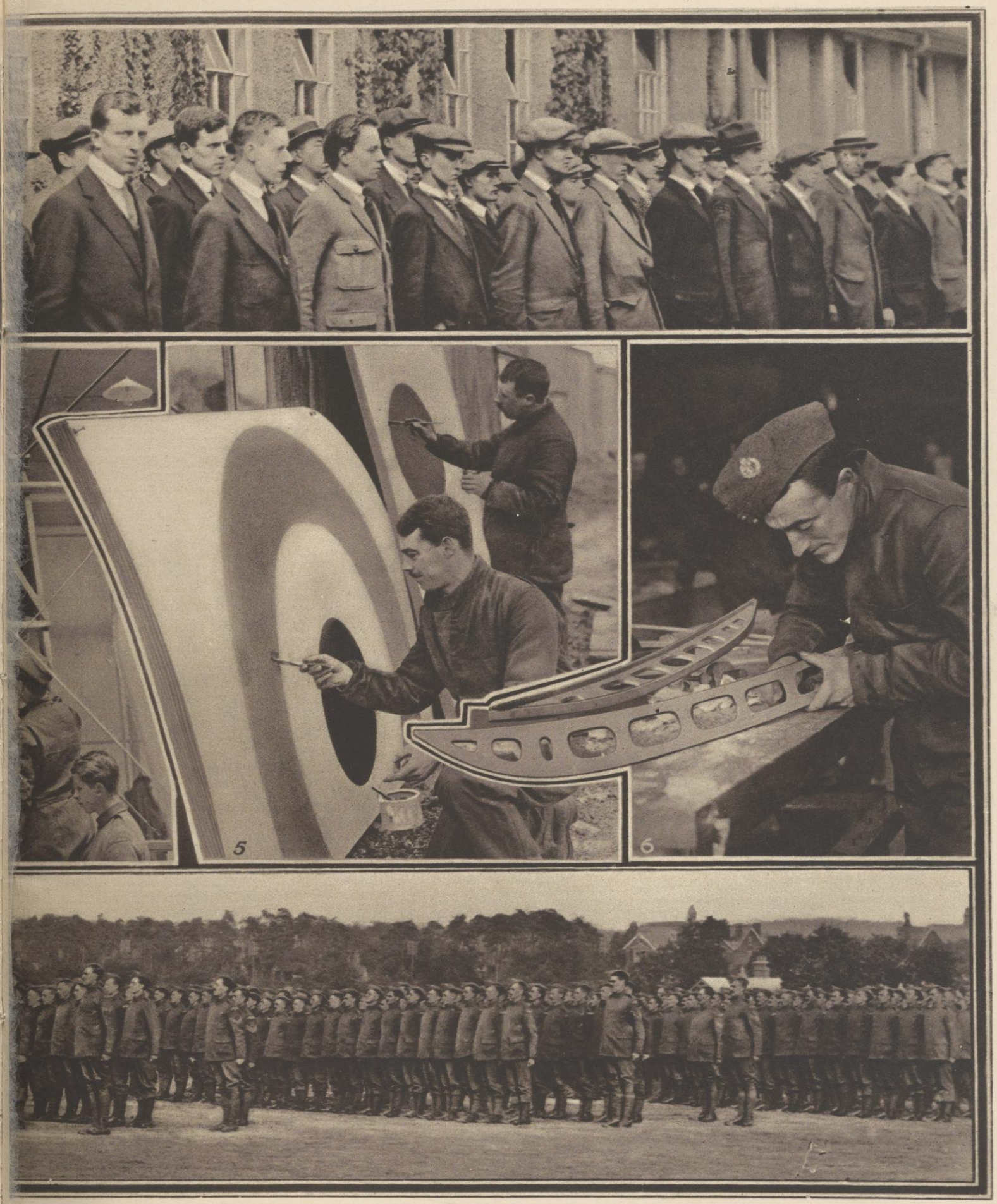
may be worthy of the gallantry and skill of its officers. What is true of the aeroplane and its engine is true also of all the rest of the apparatus which ministers to the Royal Flying Corps' activities—of the balloons, of the bombs, of the wireless sets, of the photographic cameras, and of the subordinate instruments which the Flying Corps use. And in order to make all these material resources available, and to bring the officers and men of the Flying Corps where they are wanted, a complete provision of motor transport has to be furnished—transport heavy and light, of lorries and tenders and cars, so that the officers and men, the aeroplanes, and the equipment of the Flying Corps, with what is necessary for repair, shall be to the utmost possible degree mobile, and available wherever the need of the moment may prescribe.

This elaborate organisation, these manifold activities, and, most of all, the officers and men who so gloriously use the rich provision which science has placed at their command, are illustrated in the pictures of this book. Lately, women and boys have been recruited as well as men for various functions in the Royal Flying Corps. Probably this call upon the services of women as well as men will be further extended in the future. It is characteristic of the Royal Flying Corps to use everybody and everything which can make for its efficiency, and to enlist the services of whomsoever may be needed to help in rendering the skill and courage of the officers who observe and survey and bomb and fight our enemies, as effectual and victorious as their gallantry and our good cause alike deserve.

(1) A GROUP OF ROYAL FLYING CORPS OFFICERS, PHOTOGRAPHED BEFORE THE WAR; (2) HIS MAJESTY KING GEORGE, COLONEL-IN-CHIEF OF THE ROYAL FLYING CORPS.

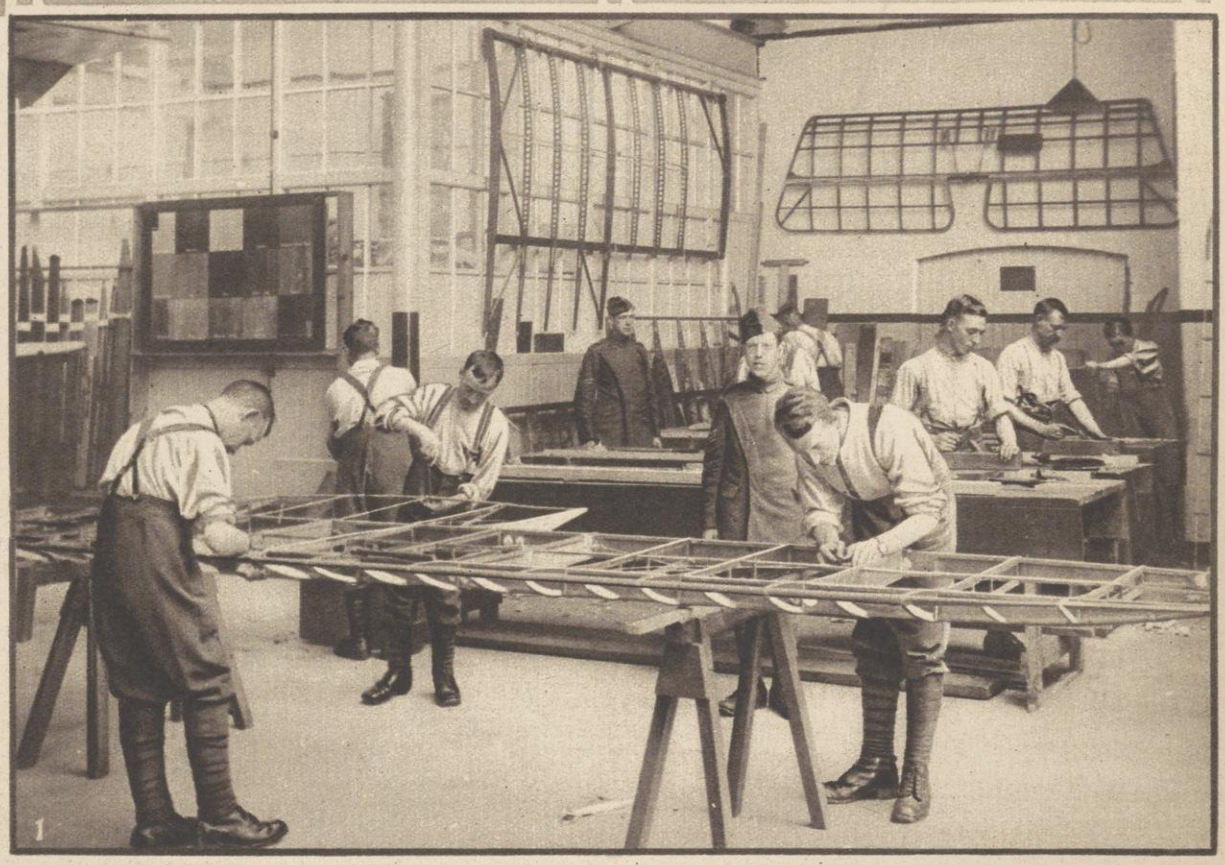
FROM THE RAW RECRUIT TO

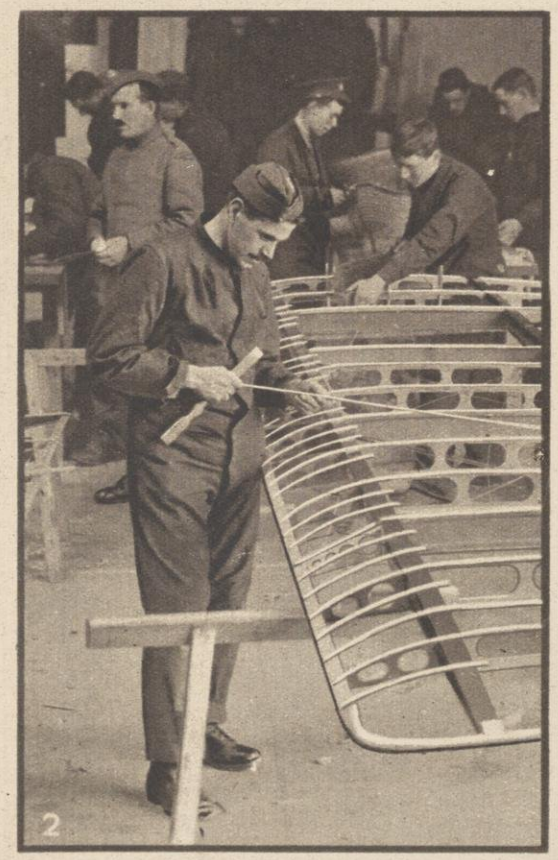
(1) TYPES OF ROYAL FLYING CORPS RECRUITS;

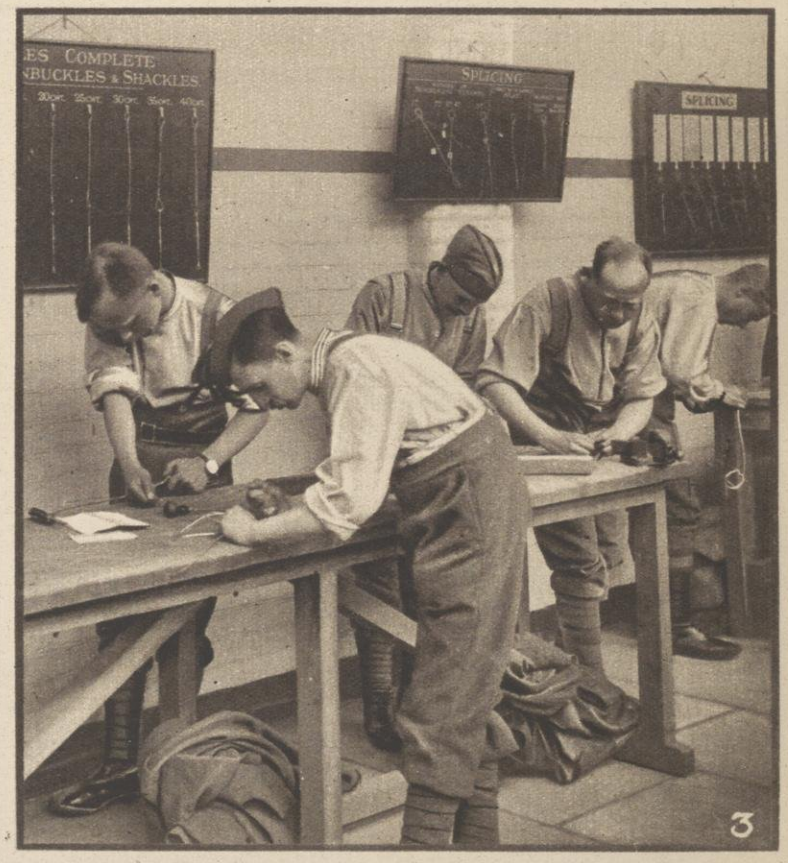


THE SKILLED AIR-MECHANIC.

(2) to (6) PRELIMINARY TRAINING; (7) AIR-MECHANICS ON PARADE.





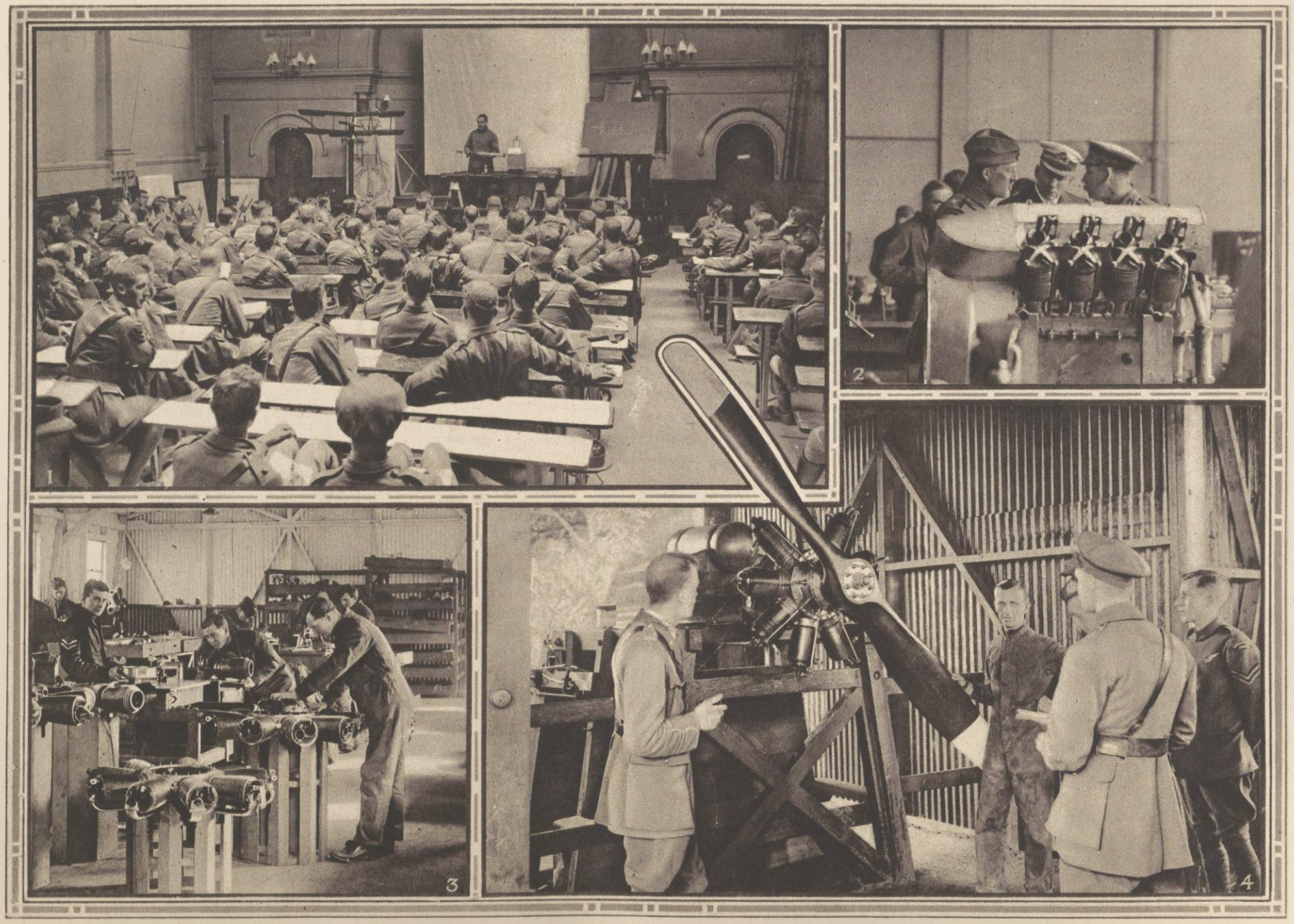


INSTRUCTION IN RIGGING AN AEROPLANE.

(1) & (2) CARPENTERS MAKING PLANES; (3) INSTRUCTION IN WIRING.

INSTRUCTION IN RIGGING AN AEROPLANE.

PHOTOGRAPHS SHOWING THE WIRING OF A MACHINE.

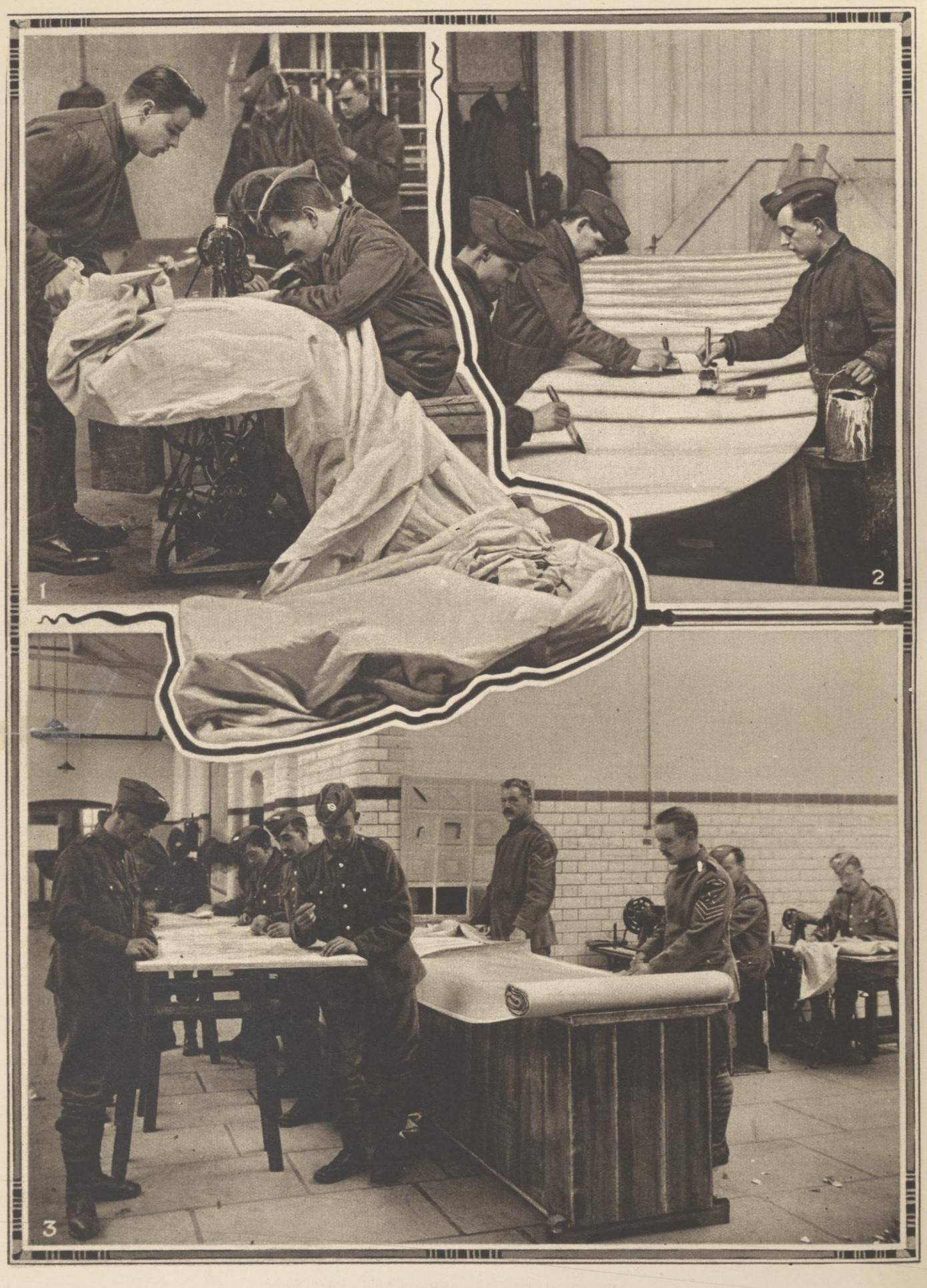


INSTRUCTION IN THE WORKING OF AEROPLANE-ENGINES.

(1) A LECTURE ON ENGINE-FITTINGS; (2) THE KING INSPECTING AN AEROPLANE-ENGINE; (3) AIR-MECHANICS ASSEMBLING AN ENGINE; (4) AN ENGINE TEST-BENCH.

INSTRUCTION IN THE WORKING OF AEROPLANE-ENGINES.

(1) TYPES OF ENGINES BEING EXPLAINED; (2) A LECTURE; (3) INSTRUCTION ON ASSEMBLING AN ENGINE; (4) AN ENGINE REPAIR-WORKSHOP.



COVERING PLANES WITH FABRIC.

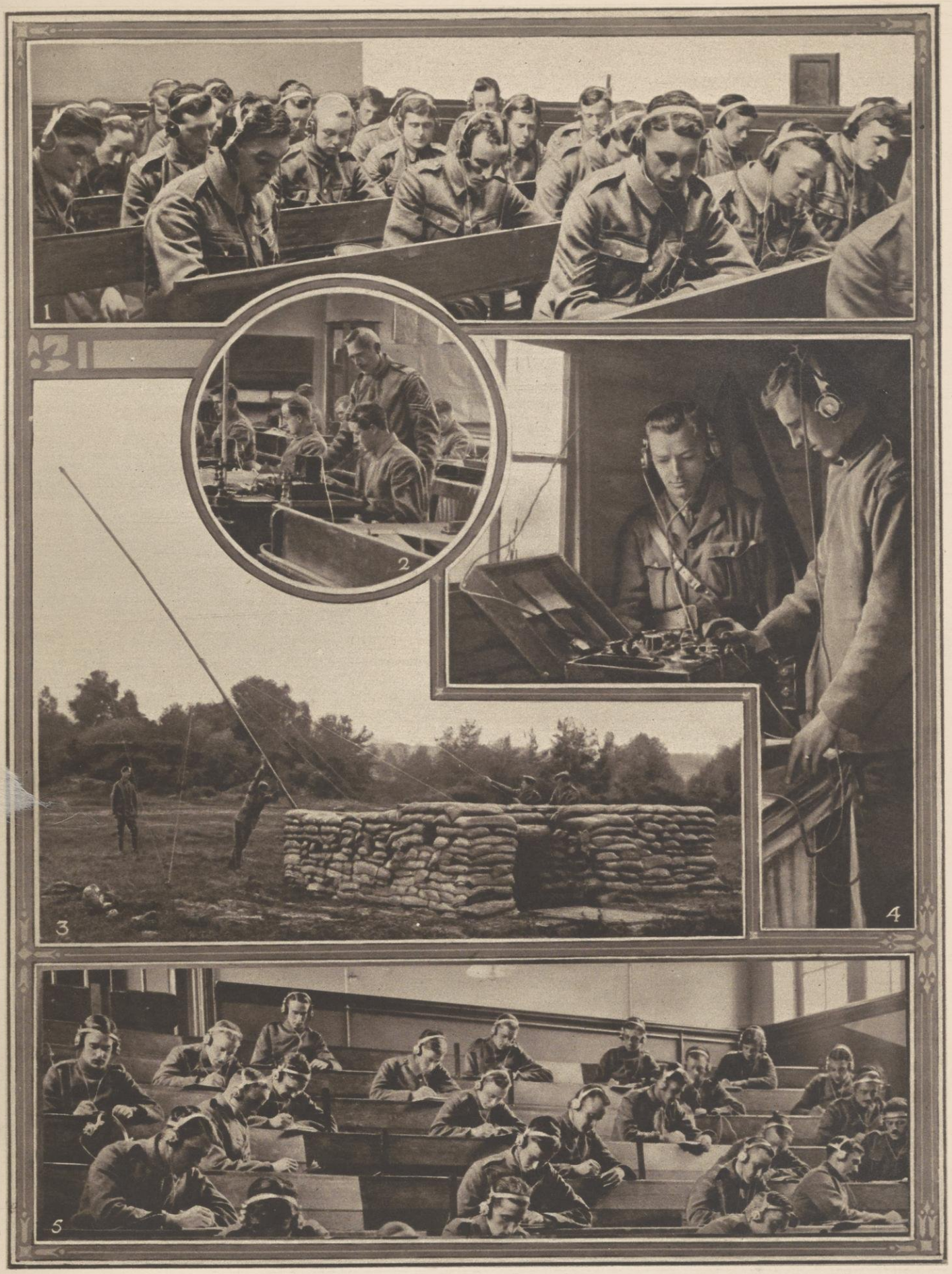
(1) & (3) AIR-MECHANIC SAIL-MAKERS CUTTING OUT FABRIC; (2) VARNISHING THE FABRIC, ON A PLANE.

THE STORAGE OF AEROPLANE PARTS.

PHOTOGRAPHS SHOWING SPARE PARTS OF MACHINES.

INSTRUCTION IN AERIAL GUNNERY.

(1) THE FITTINGS OF A MACHINE-GUN BEING EXPLAINED; (2) & (3) SIGHTING A GUN; (4) A CLASS OF INSTRUCTION.



INSTRUCTION IN WIRELESS: TRAINING MEN FOR WIRELESS OPERATING.

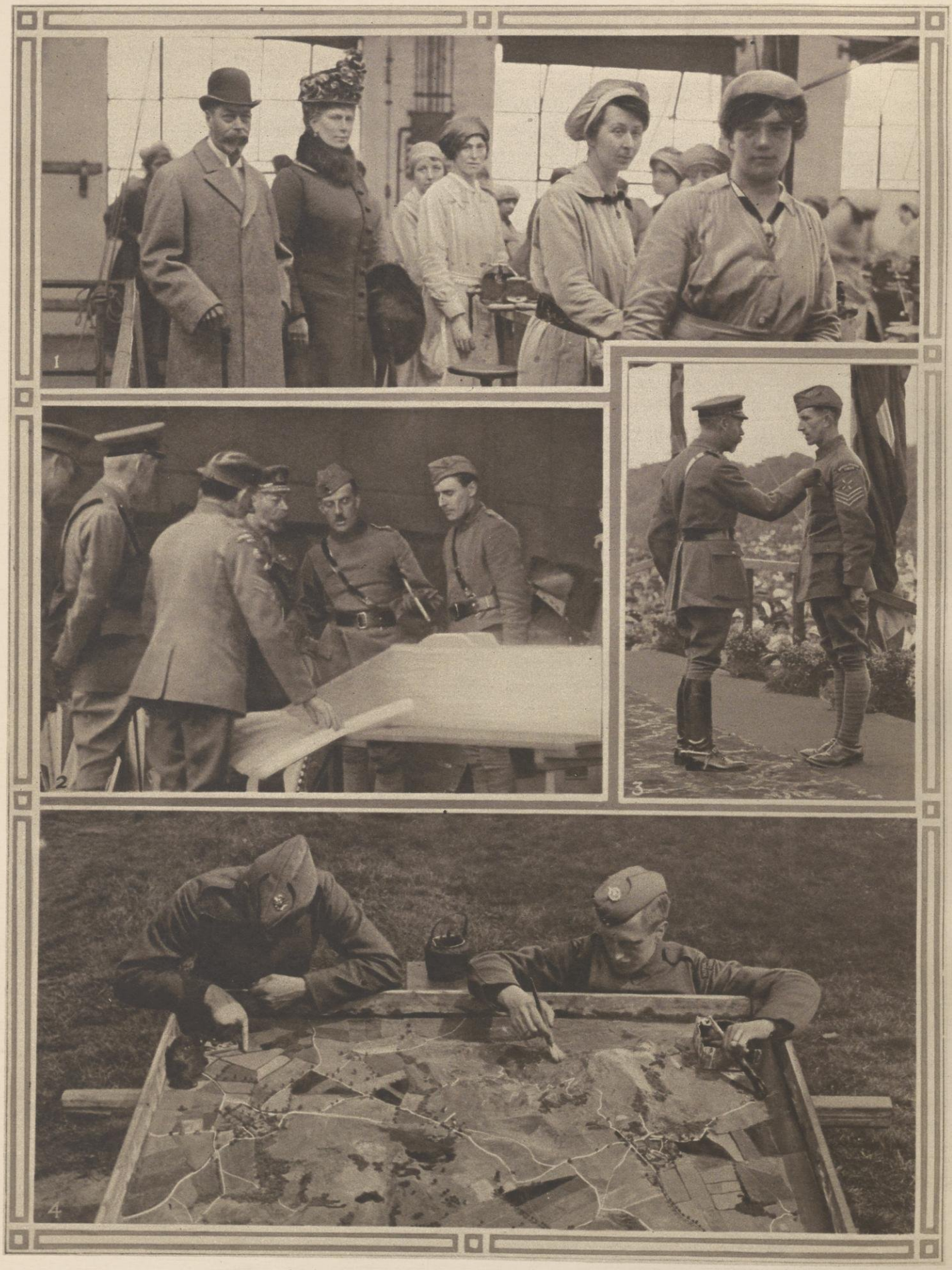
(1) & (5) INSTRUCTION IN RECEIVING; (2) TRANSMITTING; (3) FITTING UP A DUG-OUT WIRELESS STATION; (4) IN WIRELESS COMMUNICATION WITH AN AEROPLANE.

TRAINING PILOTS FOR THE ROYAL FLYING CORPS.

(1) STUDYING A MAP; (2) THE "RIGHT AWAY" SIGNAL; (3) INSPECTION OF FLYING KIT; (4) EXAMINING A MACHINE; (5) AN UNREHEARSED LANDING; (6) INSTRUCTION TO RUSSIAN AIRMEN.

A ROYAL FLYING CORPS TRAINING CAMP.

(1) THE CAMP; (2) "BIDDY," THE MASCOT; (3) COOKS' MATES; (4) A ROYAL FLYING CORPS BAND.

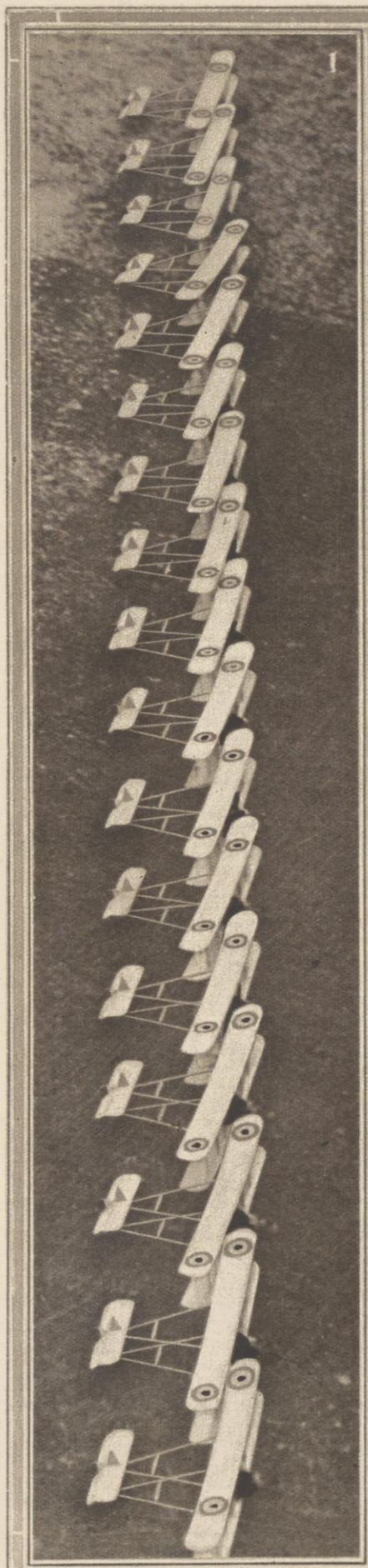


THE KING AND QUEEN AT AN AEROPLANE-FACTORY.

(1) INSPECTING THE WORK OF WOMEN METAL-WORKERS; (2) EXAMINING WORK OF A SQUADRON; (3) DECORATING A ROYAL FLYING CORPS SERGEANT; (4) A MODEL AERIAL MAP, USED FOR INSTRUCTION.

FERRY PILOTS—THE MEN WHO FLY OUR AEROPLANES OVER TO FRANCE.

(1) A PHOTOGRAPH TAKEN HIGH ABOVE THE CLOUDS ON A RAINY DAY; (2) & (3) THE KING AND QUEEN TALKING TO FERRY PILOTS; (4) A GROUP OF FERRY PILOTS.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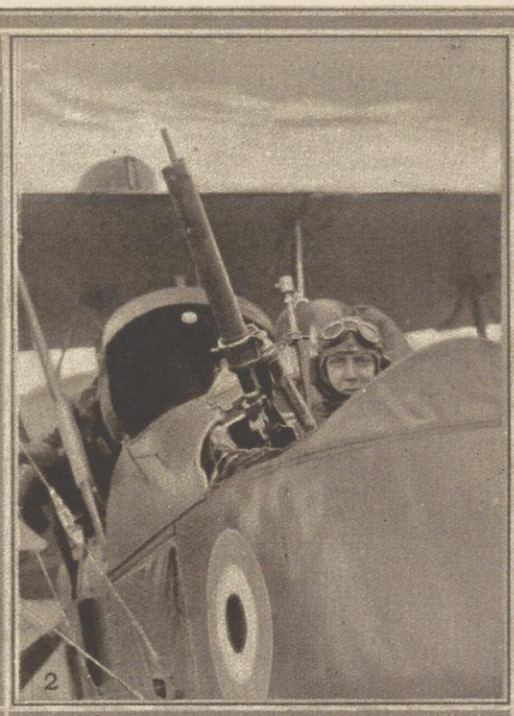
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6

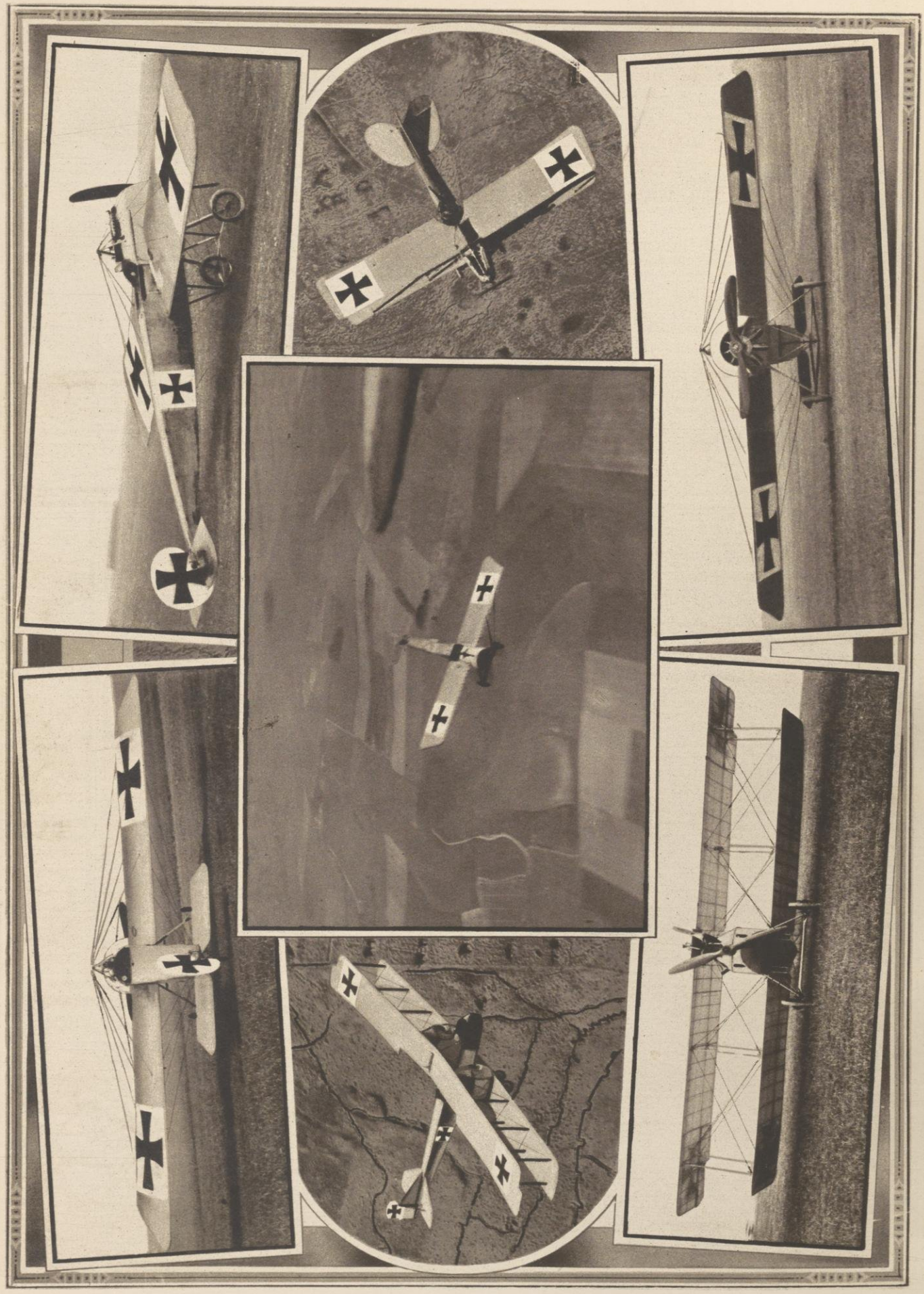

7

THE FIGHTING AEROP

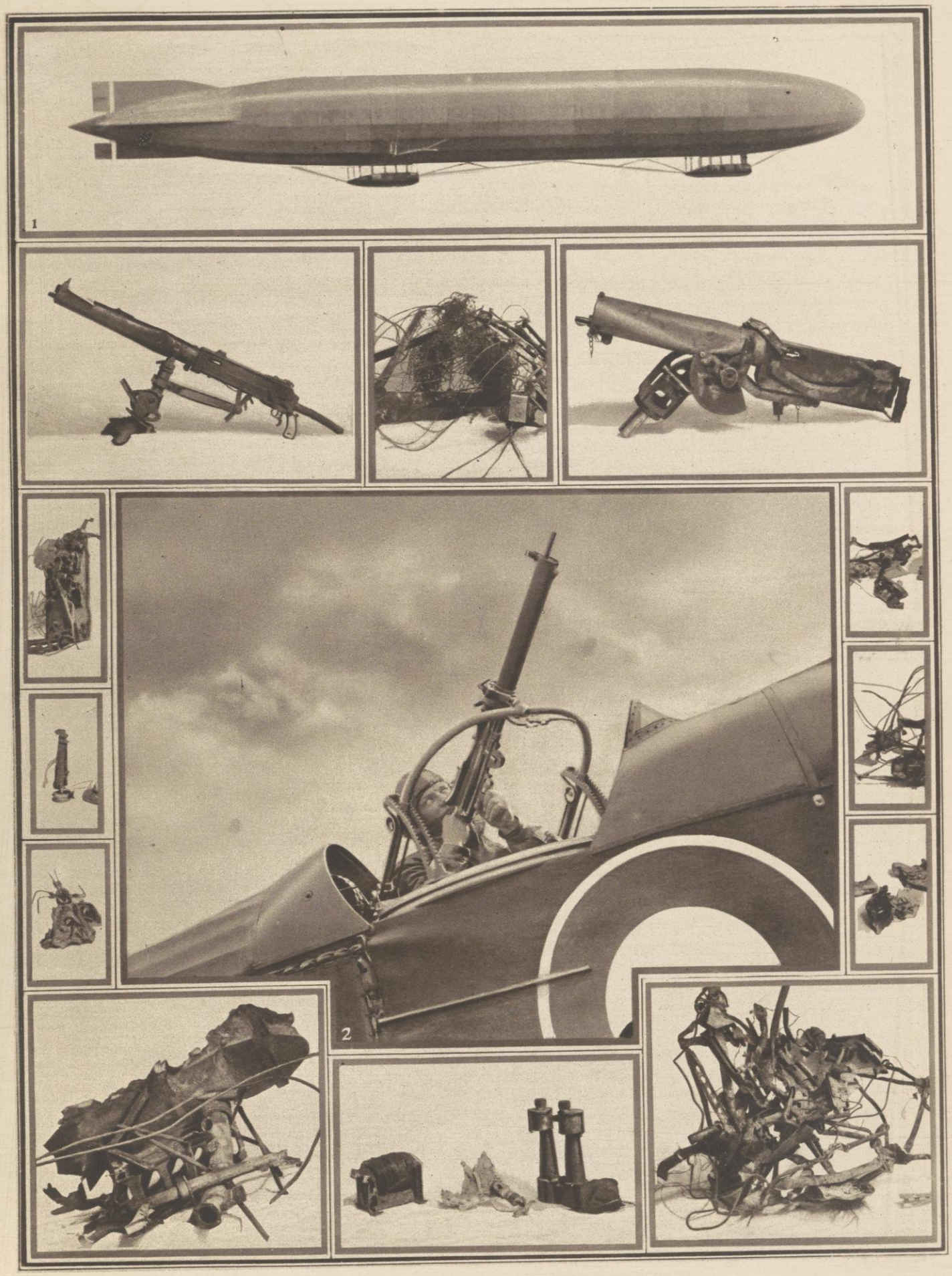
(1) AEROPLANES IN FRANCE PHOTOGRAPHED FROM THE AIR; (2) AN AERIAL MACHINE-GUNNER; (3) A FLIGHT READY TO PROCE
(6) MACHINES READY TO ASCEND; (7) A PILOT WATCHING HIS SCOUT

AEROPLANE.

TO PROCEED OVERSEAS; (4) A LONG-DISTANCE BOMBER; (5) AEROPLANE-HANGARS PHOTOGRAPHED FROM THE AIR; HIS SCOUT MACHINE BEING PREPARED FOR A FLIGHT.



PHOTOGRAPHS OF ENEMY MACHINES IN FLIGHT AND AFTER CAPTURE.



(1) A MODERN ZEPPELIN; (2) A ROYAL FLYING CORPS AERIAL MACHINE-GUNNER.

Small photographs show the remnants of fittings from various Zeppelins destroyed by the Royal Flying Corps.

ZEPPELINS BROUGHT DOWN BY THE ROYAL FLYING

(1), (2), (4), & (5) THE FRAMEWORK OF WRECKED ZEPPELINS; (3) A UNIQUE PHOTOGRAPH OF THE REMNANTS OF
(7) A HUGE PROPELLER OF A ZEPPELIN

CORPS IN VARIOUS PARTS OF THE COUNTRY.

A ZEPPELIN AS SEEN FROM AN AEROPLANE; (6) LORD FRENCH EXAMINING THE GONDOLA OF A ZEPPELIN; (8) A ZEPPELIN PILED UP ON A BRITISH OAK.

AERIAL PHOTOGRAPHY.

(1) INSTRUCTING AIR-MECHANICS IN AERIAL PHOTOGRAPHY; (2) INSTRUCTION ON A GERMAN AERIAL CAMERA; (3) ASSEMBLING A PHOTOGRAPHIC MAP; (4) AERIAL EXPOSURES ARRIVING AT A PHOTOGRAPHIC DARK-ROOM LORRY; (5) A GERMAN PHOTOGRAPHIC LENS HIT BY ONE OF OUR GUNNERS.

AERIAL PHOTOGRAPHY.

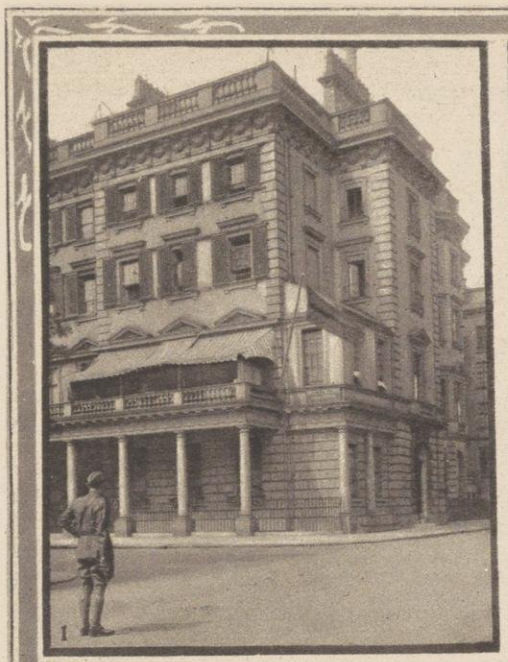
(1) A PHOTOGRAPHIC MACHINE PREPARING FOR A FLIGHT; (2) A PHOTOGRAPHIC LORRY SNOWED UP; (3) CHECKING AERIAL PHOTOGRAPHS; (4) GERMAN AERIAL CAMERA; (5) SECTION OF AIR-MECHANIC PHOTOGRAPHERS AT WORK; (6) THE KING AND QUEEN INSPECTING ROYAL FLYING CORPS PHOTOGRAPHS.

PHOTOGRAPHING FROM THE AIR.

(1) AN AEROPLANE FITTED FOR PHOTOGRAPHY; (2) PHOTOGRAPH OF A TOWN IN FRANCE, TAKEN FROM THE AIR.

BOMBING AN ARAB WATER-TANK IN THE DESERT.

(1) A BOMB DROPPED FROM AN AEROPLANE HITTING THE SIDE OF THE TANK—PHOTOGRAPHED BY THE AVIATOR;
(2) THE SIDE OF THE TANK BLOWN AWAY BY THE BOMB, AND THE WATER RUNNING TO WASTE.



THE ROYAL FLYING

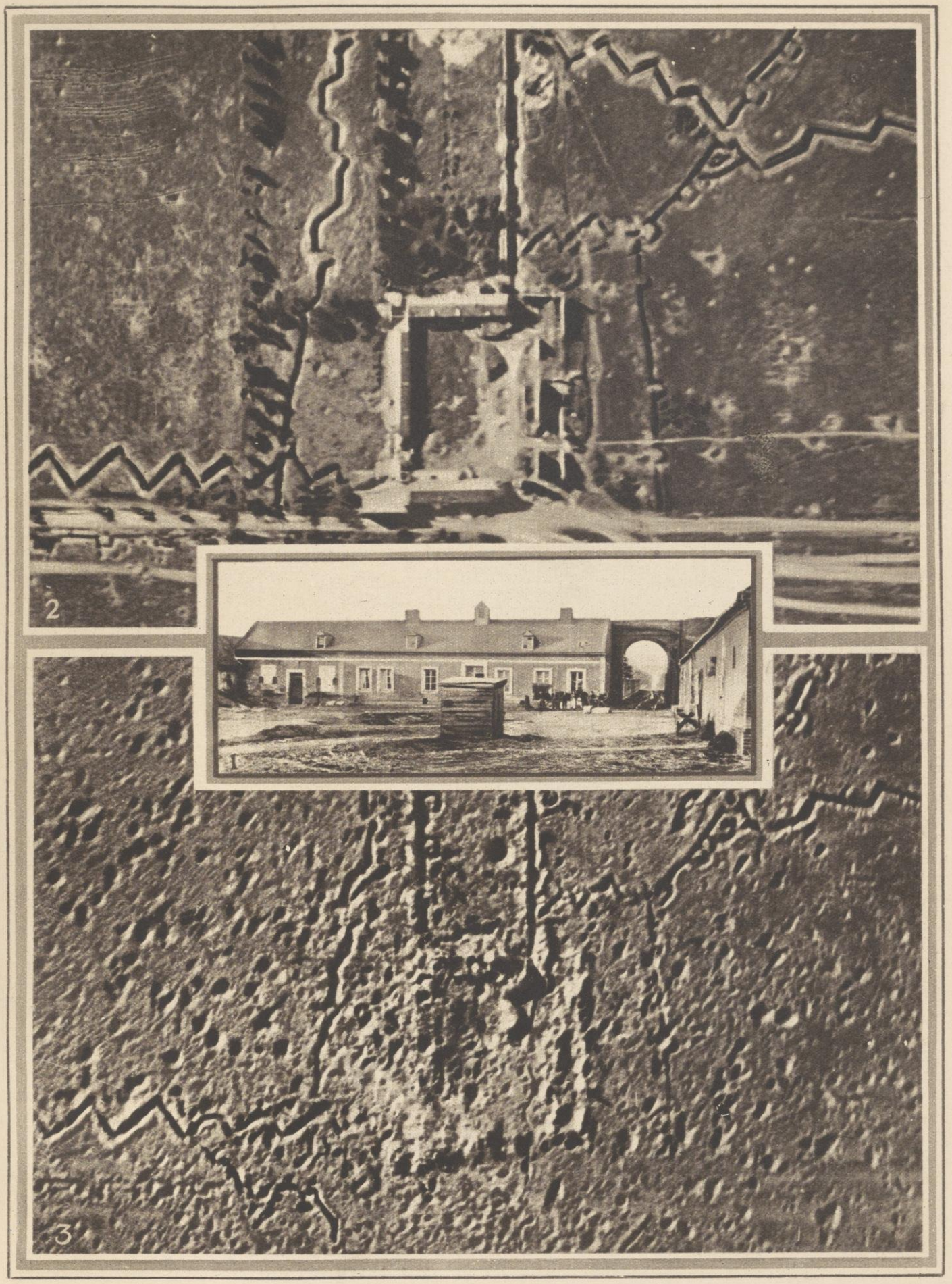
(1) THE EATON SQUARE HOSPITAL; (2) INTERIOR OF A WARD; (3) THE HOSPITAL STAFF; (4) A VISITOR;
(8) PATIENTS IN THE GARDENS; (9) THE HOSPITAL STAFF

CORPS HOSPITAL.

(5) THE MESS-ROOM; (6) OPEN-AIR TREATMENT FOR R.F.C. OFFICERS; (7) THE BRYANSTON SQUARE HOSPITAL; (10) THE LADY SUPERINTENDENT, R.F.C. HOSPITALS; AND PATIENTS.

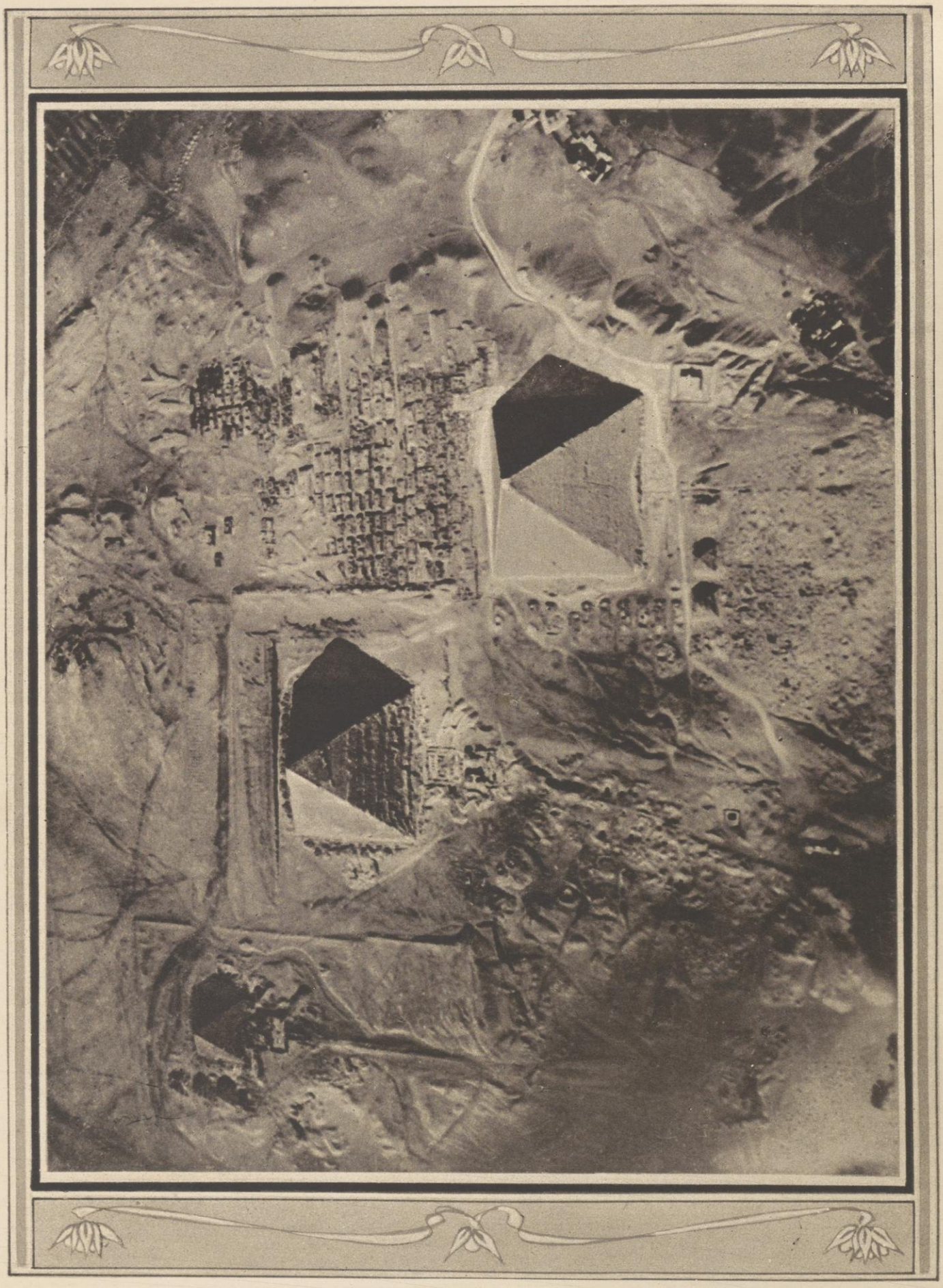
THE RUINS OF YPRES AFTER THE BOMBARDMENT.

(*The Border is a Photograph of Shelled Country.*)



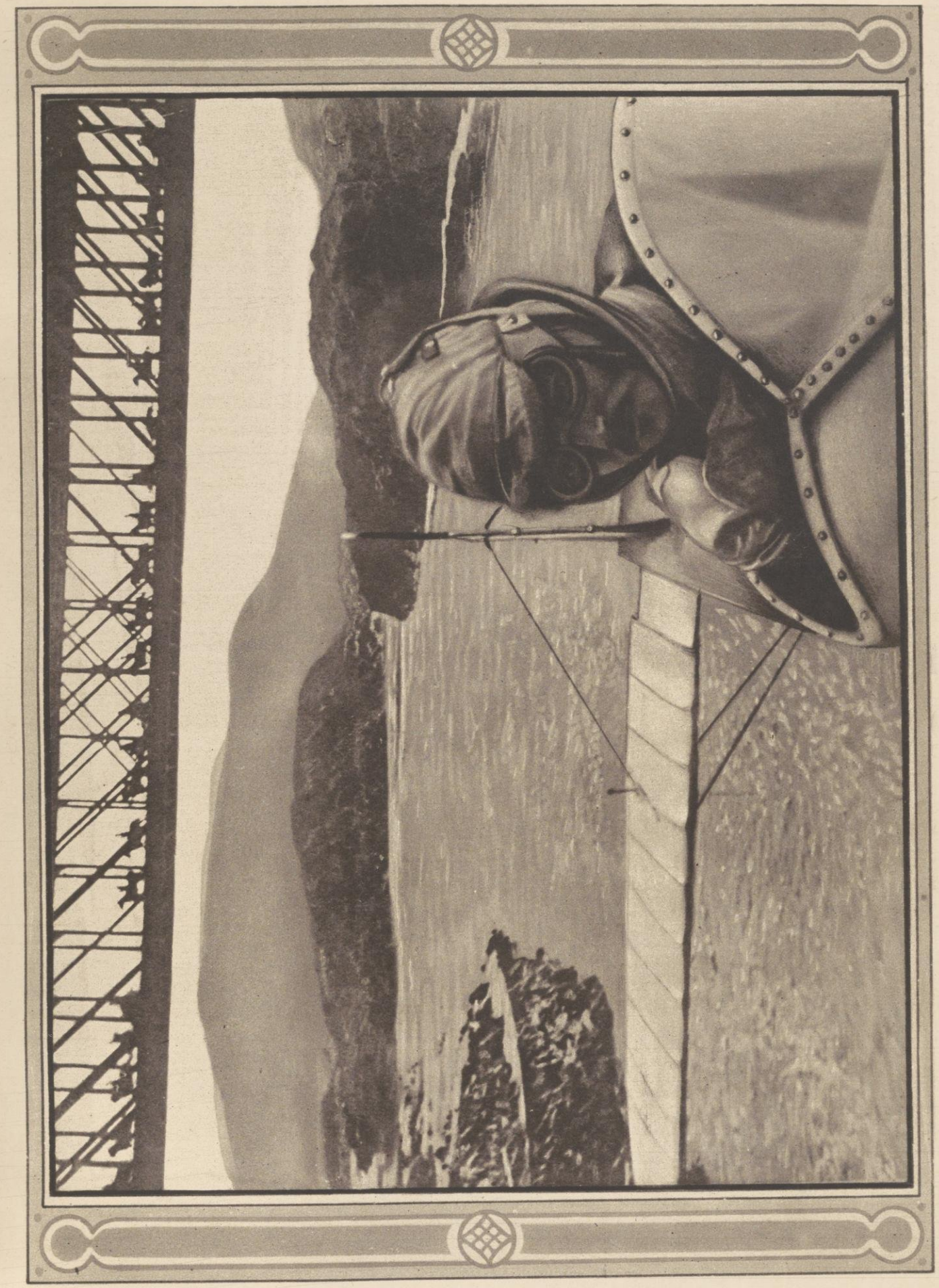
MOUQUET FARM, BEFORE AND AFTER BEING SHELLED.

(1) THE FARM PHOTOGRAPHED FROM THE GROUND, BEFORE THE WAR; (2) AN AERIAL PHOTOGRAPH SHOWING MOUQUET FARM SURROUNDED BY TRENCHES; (3) AFTER BEING SHELLED BY OUR ARTILLERY: THE RUINS OF THE FARM AND DESTROYED TRENCHES.



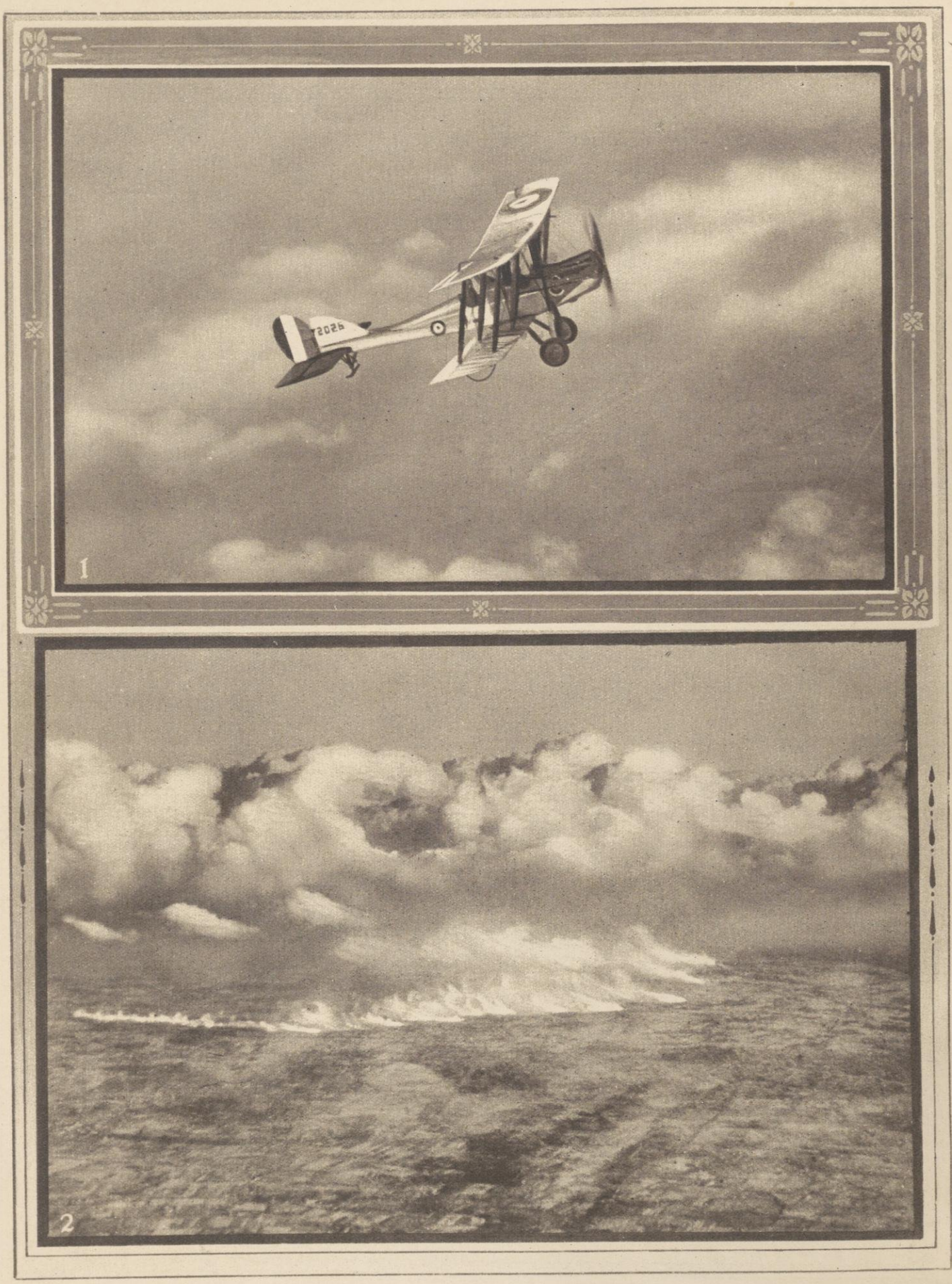
THE ROYAL FLYING CORPS IN EGYPT.

THE PYRAMIDS PHOTOGRAPHED FROM THE AIR.



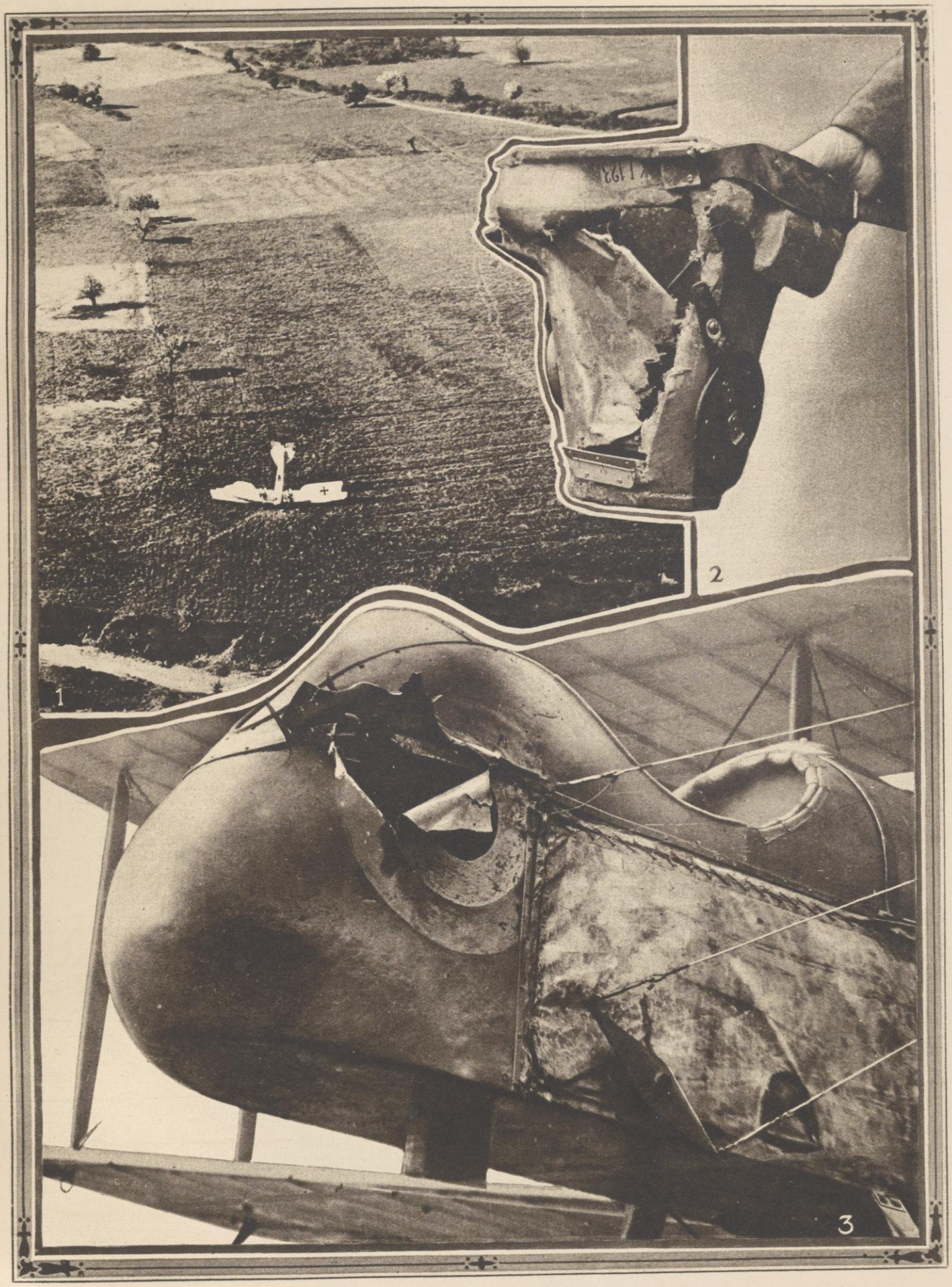
THE ROYAL FLYING CORPS IN THE EAST.

AN AIRMAN FLYING OVER A RIVER. (NOTE THE HORSES AND GUNS PASSING OVER THE BRIDGE.)



OBSERVATION; AND AN OBSERVER'S PHOTOGRAPH OF A GAS ATTACK.

(1) A ROYAL FLYING CORPS AEROPLANE MAKING OBSERVATIONS; (2) A GERMAN GAS-ATTACK IN FRANCE PHOTOGRAPHED FROM THE AIR. (THE GAS CAN BE SEEN UNDER THE BANK OF CLOUDS, DRIFTING ACROSS THE COUNTRY.)

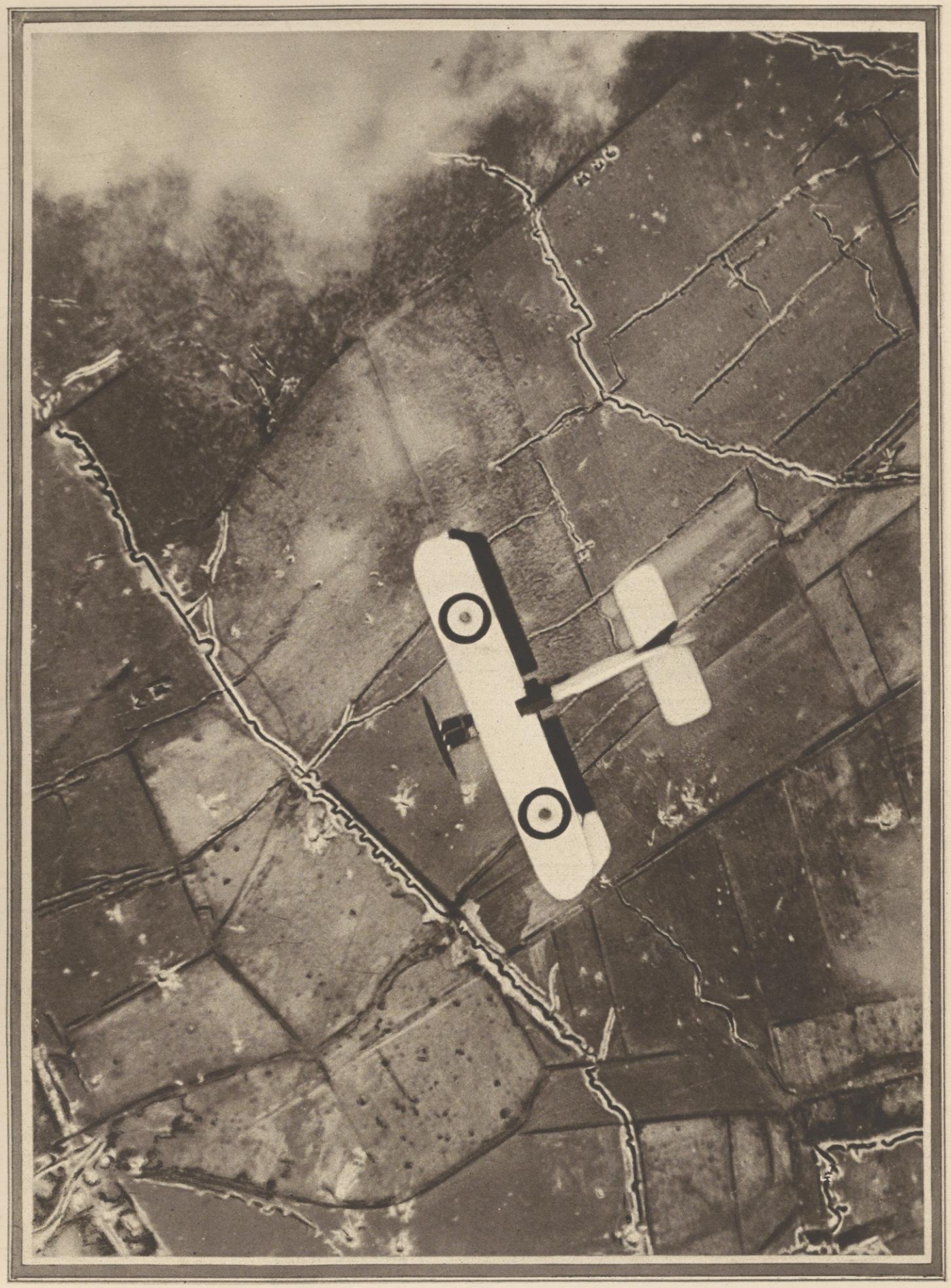


AERIAL BATTLES.

(1) A GERMAN AEROPLANE CRASHES TO THE GROUND; (2) THE REMNANT OF A GERMAN AERIAL CAMERA; (3) A BRITISH MACHINE HIT BY AN ANTI-AIRCRAFT GUNNER.

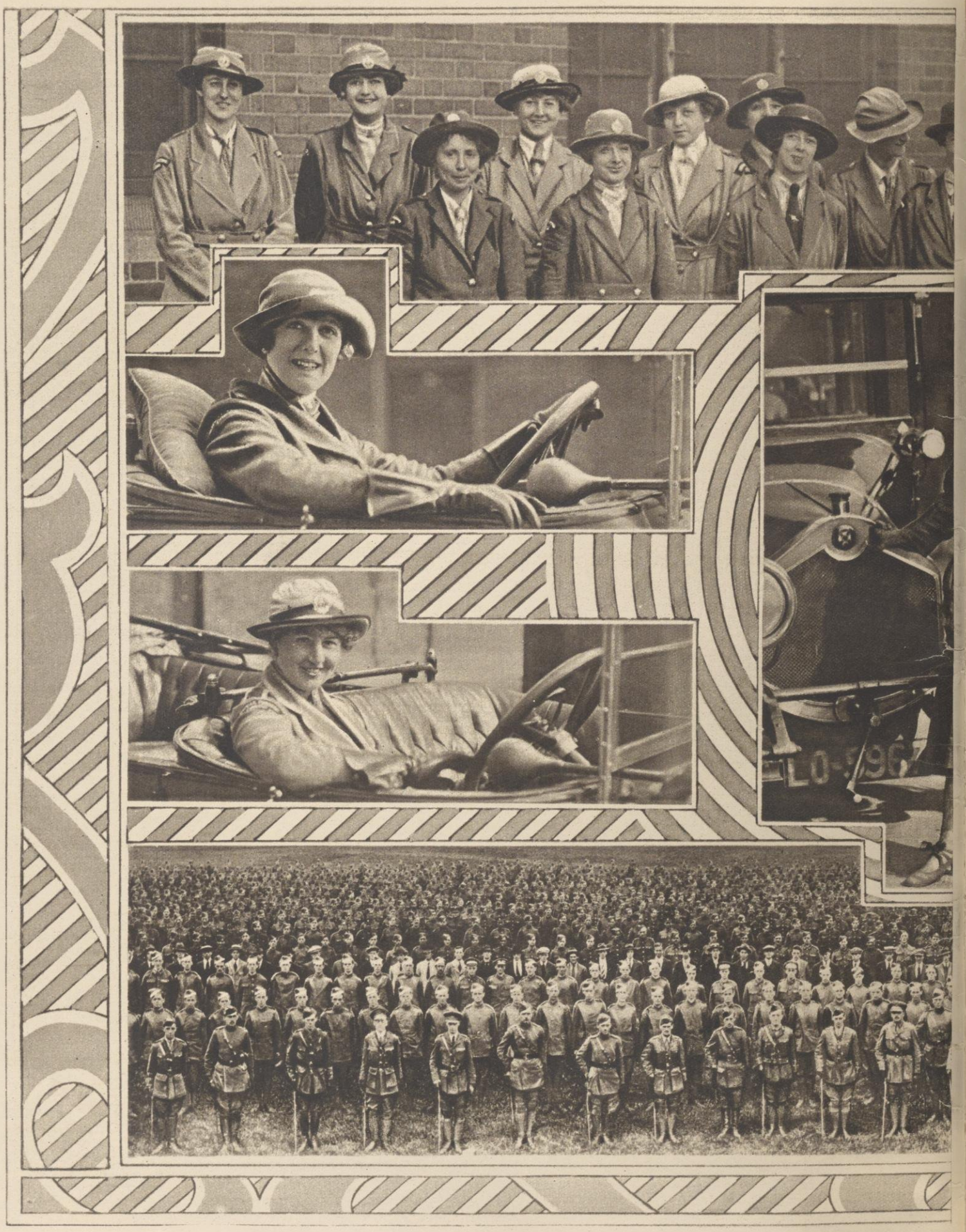
THE KITE-BALLOON SECTION OF THE ROYAL FLYING CORPS.

(1) OBSERVERS ASCENDING; (2) AIR-MECHANICS HOLDING A BALLOON STEADY; (3) A KITE-BALLOON IN THE AIR; (4) PULLING HER IN.



A ROYAL FLYING CORPS AEROPLANE FLYING OVER ENEMY TRENCHES IN FRANCE.

THE KITE-BALLOON SECTION OF THE ROYAL FLYING CORPS.
(1) OBSERVERS ASCENDING; (2) AIR-MECHANICS HOLDING A BALLOON STEADY; (3) A KITE-BALLOON IN THE AIR; (4) PULLING HER IN.



LADY WORKERS OF THE

(1) SOME OF THE DRIVERS OF THE MOTOR TRANSPORT SECTION; (2) THE LOWER

ROYAL FLYING CORPS.

PHOTOGRAPH SHOWS A GROUP OF OFFICERS, CADETS, AND AIR-MECHANICS AT A DEPÔT.

"NOT TRANSFERABLE."

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