

TEACHING FLYING.

By LEWIS W. F. TURNER.

[These remarks, expressed in simple, everyday language by Mr. Lewis Turner, who through 1912 was one of our busiest flying instructors, will be found of great interest. Mr. Turner was attracted towards aviation in the early days, and first tasted the sensation of flying by going up as a passenger with Mr. Grahame-White, when the latter pilot was flying at the Bournemouth Aviation Meeting in 1910. Following up his enthusiasm, he decided to learn to fly, and, selling his motor business in Dorsetshire, he joined the Grahame-White School at Hendon. That was towards the end of February, 1911. He obtained his flying credentials on April 1st, having the distinction of being the first pilot in England to obtain his brevet after the new right-hand turn test regulations came into force. Thus qualified, he joined the since defunct Aeronautical Syndicate Flying School as Pilot Instructor, and flew Valkyrie monoplanes. Leaving that School in August, he went to Russia as Chief Pilot and Engineer to the Kennedy Aviation Company of St. Petersburg. Returning to England in January of last year, he was engaged by the Grahame-White Aviation Company as Chief Pilot and Instructor to the School. Throughout the season until November, when he left that firm, he flew practically every day in all sorts of weather, and had charge of the School instruction work, proving a most painstaking tutor. Mr. Turner is now engaged as Chief Pilot to the W. H. Ewen Aviation Co.'s Schools at Hendon and Lanark.—ED.]

NOWADAYS it is safe to remark that any pupil who can keep a fairly clear head and who has quite an average amount of common sense can soon learn to fly. He does not need to be an expert at engineering, or particularly well versed in the aero dynamical considerations underlying the flight of an aeroplane. If he is an expert in both these subjects, so much the better, for with an engineer's knowledge he should have an engineer's instinct, and instinct plays a great part in the making of the future airman. A man, to be a good flyer, must necessarily have complete sympathy with his machine. He must not use it harshly, making violent movement with his controlling levers. He must use them gently, and almost you might say, persuasively. There is a great similarity between sailing a boat and flying an aeroplane. On a boat, in changing from one tack to another, you swing the rudder round gently but forcibly. If you were to throw it over suddenly, your boat would not answer her helm anywhere near as well. The same applies to an aeroplane, and personally I find that the best results are obtained by gentle and careful manipulations of the lever. Flying, in a gusty wind, sometimes you have to make harsh movements, but that scarcely concerns the pupil, as his work is confined mainly to flying in relatively calm air.

There is a distinction between putting through a pupil for his certificate and turning out a really efficient pilot who is capable of doing good, plain, straightforward flying without taking unnecessary risks. Some people have an idea that all you have to do to learn to fly is to sit in an aeroplane, have the engine started up, get off the ground, steer the machine about and keep on flying indefinitely as long as the engine remains running. If this were so, flying would indeed be easy. As a matter of fact, it is not difficult by any means, but apart from the actual handling of a machine in the air, there are such things to be learnt as the correct adjustment of controls and wires, the means whereby a sweetly

running engine may be always obtained, and so on. There are such things as plugs, magnetos and carburettors, which must be under constant supervision to see that they are doing their work properly. There may be a faulty wire. An oil pipe may become choked. For all such things as these the pupil must be taught to keep a constant look out. As regards actual flying, the pupil who goes steadily, absolutely mastering the points of his first lesson before trying other things which are beyond him, is generally the one who will make the most rapid and thorough progress. Above all, he must pay particular attention to the advice of his instructor. A pupil who is over ambitious rarely gets through his tuition without a smash of some kind, which, although he may escape uninjured, often makes him nervous for some time after, thus, of course, checking his progress. If he does not actually have a smash he will probably come very near to it, and this, most often, has the same effect.

Another thing a pupil will do well to remember is to rely upon himself and his own capabilities, and never trust to luck. He should pay no attention to any superstitious nonsense which is often heard on an aerodrome. One popular superstition is, that when one smash occurs, two others are bound to follow during the day. There is such a thing as your subconscious mind having a reflex on your actions. If a pupil goes out to fly with the idea in his head that, according to superstition there ought to be two other smashes that day, he will probably suffer one of them.

Mascots are much in vogue with some aviators, and although they undoubtedly have some sentimental value, it is of course absurd to believe that they are of any material use in preventing accidents. Personally I have quite a large collection, in fact, if I were to wear them all, I should probably be taken for a Ludgate Hill toy hawk. But whether I wear any or not, my luck, or whatever you like to call it, is invariably the same.

A pupil's first knowledge of aviation is always to be gained in the hangar, where he can learn the working of the controls and become familiar with the different parts of his machine and their adjustments. Then he is taken up as a passenger by one of the school pilots, and this gets him used to being in the air, and to having an extremely noisy engine just in front or behind him. Incidentally, by keeping an eye on the pilot he will see just what movements are required to correct any variation in the attitude of the machine in the air. After a series of passenger flights he is allowed his first practical lesson, commonly termed "rolling." He is put on to a low-powered machine and is permitted to drive it across the aerodrome without leaving the ground. At first he may find a difficulty in keeping the machine on a straight course, but very soon he will pick up the "feeling" of his rudder and be able to run along the ground in a straight line without difficulty from one end of the aerodrome to the other. Having got to that stage, and still keeping up the passenger flight treatment, he is allowed to go out on a higher-powered machine. At first he keeps his engine throttled down and continues to roll until he gets used to being on a different machine. Then he is told to speed up his engine and is permitted to make short hops, using his elevator control gently to lift the machine from the ground and then immediately to return to it. In his early flying practice there is a most important point for the pupil to learn, and that is, never to switch off the motor should he find himself in a difficulty. On a motor car, if there is some difficulty ahead, it is usually right to throttle down the engine and throw out the clutch. But with an aeroplane it is the reverse, for the greater the difficulty you get into, the greater is the engine power necessary to get you out of it. Gradually the lengths of his hops increase, until he is capable of making straight flights the full length of the aerodrome, keeping a few feet off the ground. He is kept at this for some little while, increasing the height of his flights as he gains confidence. The pupil should not be hurried over this stage, because, above all, he is getting good practice at *vol planés*, and landings, which are very important.

He is now ready for a left-hand turn, and is sent out to make half turns, using his rudder very slightly at first. He progresses, and eventually succeeds in flying a complete circuit. On reaching this



Mr. Lewis Turner explains the controls of the Caudron biplane to a new pupil.

stage he can consider himself well on the way to getting his much-coveted "ticket." Having had plenty of practice at turning to the left, he will attempt to turn to the right. This, in the past, was considered the most difficult task for the pupil, but familiarity has brought with it contempt, and now the right-hand turn is considered to be quite as easy as turning to the left. When proficient with the right-hand turn it is quite a simple matter to fly a figure of eight. With all the experience that he has had up to that point he will not feel any anxiety about flying up to a height of fifty metres, which is the altitude that a pupil must obtain before he can be granted his certificate.

By now the pupil has virtually come to the end of his school tuition, and all that remains to be done is to advise the Royal Aero Club of his readiness to be examined. In his tests he will be required to make two distance flights, each consisting of five figures of eight, flown round marking posts situated not more than 500 metres apart. He must also make an altitude flight as I have mentioned before, going up to fifty metres, but this may be included in one of the distance flights. On each occasion he must land within fifty metres of a pre-determined point, and must not use his engine again after touching ground.

Providing he has satisfied the R.Ae.C. observers, he may consider himself a fully qualified pilot, and, in consequence, being

pleased with himself and with everything in general, he will undoubtedly follow the usual course of running up to town and standing himself a very excellent dinner on the strength of it.

Another system of tuition is that of dual control. This method consists of the pupil taking numerous flights with an instructor on a machine that is fitted with two sets of controls, so that either may take charge of the machine in the air. Thus the instructor can correct any mistakes that the pupil may make. By this method of instruction a pupil can probably be put through his course of training in a little shorter time, but, in my opinion, it is apt to make him rely too much upon the capabilities of his instructor, thus robbing him of that self-confidence which is so necessary.

Concluding, let me say that the possession of a Royal Aero Club certificate does not necessarily mean that the holder is an expert pilot, for there is invariably a considerable amount to learn before he becomes one. The newly-qualified pilot has as yet only been allowed out in relatively calm weather, and has yet to know what it is to fly in a really bad wind. There are also to be mastered machines which fly somewhat faster than those he has learnt on. As a matter of fact, it is doubtful whether anyone really finishes his tuition, for no one is so wise that he cannot be taught something new, and the best pilots of to-day have still much to learn and many stiff problems to overcome.

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QUESTIONS IN PARLIAMENT.

ON Wednesday week in the House of Commons, Mr. G. Locker-Lampson asked the Secretary of State for War whether serious delays have taken place in the fulfilment of orders placed by the War Department with British manufacturers of aircraft; what steps he proposes to take to accelerate the construction of these machines; and whether given periods of time may be fixed to determine the limits of construction for dirigibles and aeroplanes.

Col. Seely replied that there have been serious delays in some orders, but the experience gained by the contractors in these instances should tend to obviate delay on further orders given, and more firms are being encouraged to build to the War Office requirements. It was not considered practicable at present to fix any time limit to govern the construction of dirigibles and aeroplanes under War Department contracts, in view of the very varied conditions which have to be taken into account.

On the following day, a similar question was addressed to the First Lord of the Admiralty, to which Dr. Macnamara replied that aircraft for naval purposes are at present in an experimental stage of development, and there have been a good many delays in manufacture due to this cause. In proportion as naval requirements become settled, rapidity of manufacture will become practicable. It would not be reasonable in present circumstances to make contracts unduly strict in respect of the time allowed for construction.

Mr. Joynson-Hicks asked the Secretary of State for War whether, in consequence of the report on aeroplane accidents by the Committee appointed by him, he is permitting the renewed use of monoplanes to the Royal Army Flying Corps, and whether he intends to use both kinds of machines in the future. He asked further whether any of the Flanders, Deperdussin, and Martin-Handasyde monoplanes delivered during the past four months for the Military Wing, Royal Flying Corps, are in flying order, if so, how many of each, and, if not, in what state they are at present; and whether the Nieuport, Blériot, and Bristol monoplanes, bought for the Military Wing, Royal Flying Corps, prior to October, 1912, are in flying order, if so, which of them are fit to fly, and, if not, why they are not fit.

Col. Seely: All the machines referred to are in flying order, but are not being flown pending some alterations in conformity with the recommendations of the Monoplane Accidents Committee.

Mr. Joynson-Hicks asked the right hon. gentleman whether he is aware that a French Parliamentary Committee has been appointed to report upon aviation from a military standpoint; and whether, having regard to the importance of an adequate organisation to this country, he will appoint a Select or Departmental Committee on the subject.

Col. Seely: In France there is a special commission for the study of military aviation, and the Budget Committee has a sub-committee for the study of aeronautics. As regards the second part of the question, these matters are dealt with by a special sub-committee of the Committee of Imperial Defence and by Lord Rayleigh's Advisory Committee on Aeronautics.

Mr. Joynson-Hicks asked whether the total effective aeroplane strength of the Military Wing, Royal Flying Corps, is made up as follows: No. 2 Squadron, two "B" biplanes and three Maurice Farman biplanes, at Montrose; No. 3 Squadron, one "B" biplane and two Maurice Farman biplanes, at Lark Hill; No. 4 Squadron, two Breguet biplanes and two "B" biplanes, at Farnborough; if

any of these squadrons possess any more aeroplanes, what such aeroplanes are, and whether they have been flown by officers of the Royal Flying Corps.

Col. Seely replied: It is not considered to be in the interests of the public service to publish the detailed distribution of aeroplanes. I will make a full statement as to the total numbers on the introduction of the Army Estimates, but I may say at once that the statements in the question are not accurate. All the machines now with the Royal Flying Corps have been flown by officers of the corps.

The Aerial Navigation Act Regulations.

In the House of Commons on Wednesday week, Sir J. D. Rees asked the Home Secretary whether airships travelling at a height of over 3,500 ft. can be identified or attacked, and what steps the Government proposes to take to enforce the regulations recently issued under his authority.

Mr. McKenna: The answer to the first point depends on the state of the weather. In normal weather the form and type of the airship will in most cases be sufficiently distinguished for purposes of identification. Where the regulations are contravened the police will deal in ordinary course with the offence, if the airship lands. Airships which do not land when signalled to do so will be dealt with by the military authorities.

Mr. Hunt: Will the right hon. gentleman say how an airship is to be dealt with at night?

Mr. McKenna: If they land they will be dealt with. If they fail to land the hon. gentleman should address his question to the military authorities.

Sir J. D. Rees: Does the right hon. gentleman think the regulations really are a serious proposition in existing circumstances?

Mr. McKenna (emphatically): Yes, sir, most serious.

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ROYAL FLYING CORPS (MILITARY WING).

WAR OFFICE Summary of work during week ending 14th March, 1913:—

No. 1 Squadron.—In the early part of the week the wind was very suitable for kiting work, and about 40 ascents were made. On Wednesday, the "Beta" underwent an 8 hours' test, going to Folkestone and back, and finishing up with a tour of the country round Aldershot. The following day the "Beta" was put through some climbing tests. The "Gamma" carried out a long reconnaissance flight, observing the operations of the Officers Training Corps. On Friday, the wind was again favourable for kiting, and numerous ascents were made.

No. 2 Squadron.—Throughout the week the weather at Montrose was very boisterous, but most of the officers managed to put in a certain amount of flying during temporary lulls in the wind.

No. 3 Squadron.—A good deal of flying took place during the week. Several officers carried out reconnaissance flights over the opposing forces in a field day of the Officers Training Corps on Thursday.

No. 4 Squadron.—Numerous flights were made on Wednesday and Thursday, the nine officers having returned from the Central Flying School after passing their technical and theoretical examination. A new 70-h.p. Renault B.E. machine was out testing, with very satisfactory results. It is shortly to be fitted with "wireless."