THE ROYAL ARMY MEDICAL CORPS AND AVIATION MEDICINE

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"When my brother and I built and flew the first man-carrying flying machine, we thought we were introducing into the world an invention which would make further wars practically impossible."

Orville Wright (1917)

"There is another and far more important phase of aerial locomotion which, in the near future, will probably have to be reckoned with. In a few years we may expect to see men moving swiftly through the air on simple surfaces just as a gliding bird moves. Such machines will move very rapidly, probably never less than twenty, and up to a hundred miles an hour. Nothing but the heaviest storms will stop them. They will be small and difficult to hit, and very difficult to damage and their range of operations will be very large."

So said the then Lieutenant-Colonel J. E. Capper, C.B., R.E., later Major-General Sir John Capper, who was made Officer Commanding Balloon Sections in 1903, the year the Wright brothers made their successful flight. He made his prophetic statement in a lecture delivered at the Royal United Service Institution in 1906. He wanted the War Office to accept the Wright Brothers offer to come and work in England, sadly the offer was declined. He continued to recommend heavier-than-air machines and with others over the next few years began to convince the Army of their use. Some commanders were perturbed that these machines would disturb and frighten their horses. This attitude still persists today in people’s reaction to helicopters.

However, on 10 October 1910 the War Office announced that the Balloon Factory would also encompass “aeroplaning.” On 28 February 1911, an Army Order announced the formation of an Air Battalion, which came into being on 1 April 1911. On 13 May 1912 the Royal Flying Corps came into being. Its Headquarters was at Netheravon, Wilts where today Army Aviation has its second main centre.

To join the Royal Flying Corps, officers were to have the consent of the military authorities, be medically fit and obtain a Royal Aero Club Certificate. To be medically fit entailed being well in being, able to ride well and have a good marksman eye. To ride well, was an interesting point, for it was seen that a good horseman had a sense of balance and this was necessary in the early days of flight.

Along with Army Aviation development was that of the Royal Navy, who had as its far seeing prophet at that time none other than Winston Churchill, who in 1912 was First Lord of the Admiralty. A Central Flying School (C.F.S.) was proposed, to turn qualified pilots into fighting airmen. Churchill appointed Captain Godfrey Paine to be its first Commandant. The C.F.S. set up its site at Upavon, within sight of Netheravon on Salisbury Plain. It was soon christened “Siberia”. The C.F.S. opened midway through 1912. It was provided with a medical detachment of a Sergeant R.A.M.C. and an orderly, one of whom was always to be on duty when flying was in progress. It had seven aircraft only, later reaching twenty-five. The R.A.M.C. Sergeant spent some time...
teaching himself to ride a motor cycle over rough ground so that he could reach an incident in the shortest possible time.

To the C.F.S. soon after its formation came two men. One who is legendary now, and that was a Major Trenchard, a man of large frame who had to overcome some medical problems to retain his fitness and get into an aircraft. He was joined at the C.F.S. by one a Captain Ernest George Robert Lithgow, R.A.M.C. (Fig. 1) who was appointed as Medical Officer. These men formed part of the first permanent Staff of the C.F.S. (Fig. 2) and the ideas they developed persisted for many generations to come. Lithgow undoubtedly influenced Trenchard, as, Trenchard did Lithgow. One with medical standards, accident investigation and the problems of keeping aircrew fit, the other with a love of flying and the use of the aeroplane in war. Such was Lithgow’s enthusiasm that on 28 January 1913 at Upavon he obtained his Royal Aero Club Certificate No. 414 on a short Biplane then converting to a Maurice Farman Longhorn.
An extract from the flying logs of the day convey some of this early enthusiasm.

"On Wednesday, the weather was fair, and became a busy day, all the machines doing a good amount of work. Major Gerrard took Captain Lithgow on Short Biplane 401 onto the practice ground. Then Captain Lithgow went for his brevet, and in good style, doing each series of eights, and landing in exactly 18 minutes."

"On the Saturday Major Gerrard in a Short Biplane, tested the air for 3 minutes. Captain Salmond on BE 417 tested the air later, and found it far too bumpy for instruction, so work was confined to the sheds."

So Lithgow became the first Service doctor to be a pilot, and one of the first Aviation Medicine Specialists.

Ernest George Lithgow joined the R.A.M.C. in 1905 taking his "English Conjoint" at St. Mary's Paddington. He was posted to South Africa. In 1907 he went to India for three years. He went to C.F.S. in 1912 and remained with the Royal Flying Corps (R.F.C.) until 1918. He was then seconded to the Royal Air Force (R.A.F.) for 2 years until 1920. Then unfortunately he was posted to Mesopotamia and never returned to aviation. He was embittered by this as he had contributed much to flying in those early days and longed to remain in the environment he loved.

In October 1916 a Medical Board was formed for the R.F.C. of which Major Lithgow was a founder member and he contributed greatly to the work of the Invaliding Board. Early in 1917 the R.F.C. Special Medical Board and many other interested
experts had a meeting. Various medical aspects of aviation were discussed and the standards of vision and fitness for flying were drawn up, again Lithgow's contribution was invaluable.

In the history of service aviation medicine Lithgow has received little recognition for his efforts. His early work, and association with Trenchard did much to produce the basic framework of the R.A.F. Medical Services which were to come.

Other R.A.M.C. Officers obtained Aero Club Certificates in those early pioneering days. The second would appear to be a Lieutenant E. W. Powell who gained his Certificate No. 1278 at the British School at Le Crototy in France on 29 May 1915 in a Maurice Farman biplane.

After this, other medical officers and physiologists began the pioneering work of making systems, enabling aviators to fly higher and safer. As early as June 1914 a prize of £50 was offered for the most suitable form of Safety Belt for aircraft.

Famous names joined the R.A.M.C. in the Great War. In 1918 Captain J. G. Priestley was working on methods of administration. In France Major G. Breyer at the same time was also working on the perfection of an oxygen system devised by himself which was taken into use. In March of 1917 Captain M. Flack also studied problems of \( \text{O}_2 \) administration and the provision of oxygen apparatus. He also studied ways of effective tests for candidates for commissions and the physiological after-effects of flying fatigue and strain.

So now the grey area of early service aviation medicine becomes clearer and the pattern of development is obvious, culminating with the formation of the Royal Air Force, on 1 April 1918.

In 1918 however, two other R.A.M.C. officers learned to fly, a Captain Hearn and a Captain Treagold. Treagold went on to serve in the newly formed R.A.F. and retired as a Group Captain having been a Consultant in medicine. He did however produce one of the first comprehensive surveys on the "Aerial Transport of Service Casualties" which was published in the November issue of the R.A.M.C. Journal in 1925, and it makes interesting reading.

Now, for the R.A.M.C., a long gap ensues, and it would seem that there was no need for the Corps to become involved in aviation medicine matters until 1959. This was in many ways a great pity, for much evidence and experience was lost during the days of A.O.P. flights, where Army Officers were the eyes of the Artillery. When the Army Air Corps was formed in 1957, no integral medical service was established and Army Aviation has grown up with a very large gap between its technological development and aviation medical support, the R.A.F. having its own problems to deal with.

On the 12 January 1959 Major Moore was to restart R.A.M.C. interest in the Army's flying problems. Major Moore spent from the 12 January until 9 October of that year, as a member of No. 137 Army Pilots Course, to gain his wings on an Auster, the work horse of A.O.P. flying.

In January of 1961 Lieutenant Colonel Ferrie joined 149 Course and learned to fly the Auster. He also attended a Short introductory course given to all R.A.F. officers at the Institute of Aviation Medicine and at last interest was being revived in a more practical way. Major Moore however retired to General Practice and Colonel Ferrie has gone onto more administrative medical matters.
In to the gap came Major P. Slatter who had gained flying experience in other places, but joined 164 Course in September 1964 through to February of 1965, and became the first R.A.M.C. officer to fly a helicopter, the Sioux. Again, unfortunately for Army Aviation, he had to leave the Service for ill health.

Another gap in continuity with a caretaker, who attempted to learn to fly but never had the full opportunity and he deserves mention in this short history and that is Major E. Davies R.A.M.C. known to many student pilots as “Ted the Med.”

Now these early sixties for Army Aviation were critical, but very few were interested in accident and incident investigations.” Equipment was made available for Army Aviation which was quite unsuited for their needs. The helicopters introduced into Service were often designed without “man in mind” and problems arose which were difficult and sometimes impossible to put right. A ten-year gap resulted, which today some five years later has only been reduced a fraction.

We come now to the Author’s own posting to Army Aviation. To recount his own experiences and problems are outside the scope of this article but his experiences do enable him to state what some of the problems facing Army Aviation medicine are.

The main differences between the Army and R.A.F. aviation medicine problems are that the Army has to “fly and fight”, for anti-tank helicopters are now a part of their inventory, under so many different environmental stresses of heat and cold, wet and dry, in machines that have no closed protected environment, for long periods of time, in difficult conditions, without adequate rest and feeding facilities, and still do anything from “attack to casevac”, all day and all night if necessary. All this in machines that were sadly, as already mentioned not really designed with “man in mind” and wearing equipment not really suited for Army needs, for the pilot cannot leave his noisy vibrating environment when trouble occurs. He is obliged to remain with his aircraft to the ground. Trenchard would not allow parachutes in the early R.F.C. days because they would destroy the man’s desire to get his machine home in some sort of difficulty. Unfortunately, no escape system is yet available for helicopter pilots, and so, his aircraft has to be suitably prepared to meet the ground and enable the pilot to survive. This has resulted in various design problems for seats, harnesses and protective clothing, problems which only recently have begun to be studied.

The “man-machine interface”, is a phrase worth noting, for it means that the pilot and his machine should be as one.

“The engine is the heart of an aeroplane, but the pilot is the soul.”

Sir Walter Raleigh

To do this instruments, control systems, etc. cetera, should be designed for the man to understand instantly the behavioural problems of his aircraft and enable him to respond and feed in correct data to enable his mission profile to be accomplished, if one may use technical phraseology.

It costs something like £35,000 to train an Army pilot, to fly machines costing as much as £250,000 each. The man selected for this role must be well selected, fit, and maintained as well as the machine he flies, and when things go wrong, he too must be investigated as thoroughly as his aircraft is, to ensure that this expensive man/machine group can function to its maximum economic capability.

Having quoted a few of the problems, what of the future?
Another R.A.M.C. Officer has recently qualified as a pilot, Major T. J. B. Bryan, and prior to his flying course No. 204 got his Diploma in Aviation Medicine after the Course at Farnborough.

In these times of military manpower shortage, and the R.A.M.C. is no exception, questions are asked about this speciality which has now come about, as a branch of Army Health, and is it really necessary. The R.A.F. also has its problems like the R.A.M.C., and people talk of integration. The subject encompasses “Medicine” as well as “Health”, it is also a subject where there is a requirement for long experience and close involvement with the flying environment and personnel involved.

The Army has today a large air fleet, one of the largest in Europe, becoming more and more sophisticated, with more scope and greater lift capabilities, highly trained pilots in expensive aircraft who are very necessary in the eyes of modern warfare. The R.A.M.C. is needed to support this arm of the Service, and whilst no-one would ever dream perhaps of an Army Institute of Aviation Medicine, there must be a trouble shooting department, with its own group of highly specialised experienced experts, who can give long continuity to back up Army Aviation, and not allow the mistakes of history to be repeated. The motto of the present Department is that “We Serve Aviation, and Safety, first.” The men on the ground keep the machines in the air, and must continue to do so, in the spirit summed up in the last quotation.

“It is not extravagant to say, that the 17th December 1903, when the Wright Brothers made the first free flight through the air in a power driven machine, marks the beginning of a new era in the history of the world.” Sir Walter Raleigh (1922)

It is the Author’s personal opinion that we have a duty to be aware of and back up this new era in history.

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REFERENCES