



# The History of the Central Air Traffic Control School



## RAF Air Traffic Control – the origins

We can trace the origins of Air Traffic Control (ATC) to the earliest days of the Royal Flying Corps and the Royal Naval Air Service - flying control in those days came from the Watch Hut. From the Watch Hut the Duty Pilot could keep track of aircraft departures and arrivals, but little else; his equipment consisted of an aircraft movements board, a weather board, a very pistol, a signal lamp, a megaphone and a telephone. After the First World War civil ATC began to develop and when the first air routes were created, civil Area Control Centres were also opened at various locations in the United Kingdom.

It wasn't until 1937 after a marked increase in aircraft activity that the RAF began to realise that a more positive control system was required. After visiting the USA in 1937 Air Cdr Leckie, then Director of Training, issued a report proposing that the Watch Hut be redesigned and enlarged and be manned by a Flt Lt vested with the authority to re-direct aircraft in the air, to prevent the departure of aircraft if weather became unfavourable and to re-route aircraft if an area became congested. The first real development of this concept occurred when the AOC-in-C Bomber Command suggested the opening of Military Air Control Centres to control en-route traffic. This was agreed in January 1938 and the responsibility for the organisation and administration of these centres was vested in Bomber Command, who co-operated direct with the Civil Aviation authorities in setting up Regional Military Control Centres. Area controllers were trained at Bomber Command HQ until December 1938, when training was moved to Boscombe Down and later Mildenhall. It is interesting to note that at the outbreak of war in 1939, there were only eight qualified Flying Control Officers in the RAF.

## ATC Training During and after World War 2

As the complexity and intensity of flying operations increased, so the need for more positive local and regional control became apparent and pilots could no longer be spared to man Watch Huts and eventually Direct Entry Recruitment was introduced. The first RAF ATC training course was held at Brazenose College, Oxford in July 1940 and later a School of Flying Control was opened at RAF Bridgenorth to cope with the ever-increasing demand for air traffic

controllers. By 1941 there were still only 150 controllers in the newly formed Administrative and Special Duties Branch, consequently, output from the School was increased to 40 controllers per month.



**The School of Air Traffic Control, RAF Watchfield**

In 1943 the School of Flying Control moved to RAF Watchfield operating alongside the Blind Flying School. Ground Controlled Approach (GCA) equipment entered service in 1944, after being developed from the basic British invention of radar by the Bendix Corporation of America. This early equipment was known as MPN 1 and was used operationally as early as January 1945 at Epincy in France. Formal courses for GCA technicians and operators began at Atherstone near Stratford-upon-Avon; however, the GCA operators were not drawn from the ranks of air traffic controllers. Terminal Air Traffic Control training continued at RAF Watchfield after the war, when the unit was re-named the School of Air Traffic Control.



**Cathode Ray Direction Finder (CRDF) training**

The principal recovery aid at that time was manual D/F, but eventually Cathode Ray

Direction Finder (CRDF) was introduced and with this equipment the high level controlled descent procedure was developed for the new jet aircraft. In 1946 the MPN 1 training course moved from RAF Stratford to RAF Watton and the first recorded course began there on 10th September. Officers were trained for talkdown duties, with airmen trackers and NCO Directors and it was not until No.25 course in July 1949 that ATC Officers were permitted to use this new, highly sophisticated equipment. The course produced on average six controllers every six weeks, which was sufficient to man the five GCAs in the UK and the three in RAF Germany.

### **ATC Training at RAF Shawbury**

In 1950 RAF Watchfield closed and the Joint Air Traffic Control School moved to RAF Shawbury, joining the Central Navigation School on 10th February to become the Central Navigation and Control School. The training of associated ATC personnel, such as GCA operators and operations clerks, was still being carried out at various stations under different Commands and in the years following the move to Shawbury, all training connected with the increasingly important ATC specialisation was brought together on one station. In 1952 the introduction of the CPN 4 and MPN 11 radars at Watton caused a split of controller training from technical training, which resulted in the GCA School arriving at Shawbury in March 1953.

By January 1955 the ATC training element had developed from one small training squadron into a major training organisation with over 200 students in residence. The ATC training squadron was removed from the jurisdiction of the Chief Instructor Navigation Wing and an Air Traffic Control Training Wing was formed commanded by a Wg Cdr, designated the Chief Instructor. The Joint Air Traffic Control Squadron delivered the Joint Air Traffic Control Course (JATCC); the Radar Approach Control Squadron was responsible for the Radar Approach Course (RAC) and trained directors, talkdown controllers and radar trackers using MPN 1, CPN4/MPN 11 and ACR7 radar equipments.

At the end of 1958, training ceased on the MPN1 and ACR7 equipments and by early 1959 the Air Traffic Control School concentrated its efforts on training aerodrome and approach controllers through the JATCC and radar director and talkdown controllers through RAC courses using CPN4/MPN11 radars. These were the infamous Red and Black trucks positioned at RAF Sleaf airfield to the northwest of Shawbury. The CPN4/MPN11 radars were interesting pieces of equipment; with two cramped combined search and precision approach radar positions in each truck and a particularly challenging curved PAR

centreline. The two radar trucks operated simultaneously, with aircraft being positioned for approaches to two different runways at Sleaf. Long before the emergence of the current over-prescriptive Health and Safety at Work legislation, prospective controllers had to be ready to 'tweak' the radar controls with a small screwdriver, or plunge their hand into the rotating radar equipment behind them to physically turn on the rain plates; many controllers hands from this era still bear the scars from these days.

During the late 1950's, with the advent of turbo prop and jet airliners, the congestion of UK airspace increased and controlled airspace gradually became more extensive. This posed a threat to the flexibility and tactical freedom required by military aircraft and so area radar trials were conducted at Heathrow by RAF controllers using the T264 radar on the airfield. As a result of this experiment and the recommendations of the Patch Report, the obsolescent air defence radar stations at Sopley, Bishops Court and Hack Green were acquired by UK ATS (now NATS) for use as Air Traffic Control Radar Units. Initially training was undertaken at Heathrow, but was later moved to RAF Sopley (Southern Radar) where the first Joint Air Traffic Control Area Radar School (JATCARS) course commenced on 10th October 1960. Civil controllers (Board of Trade and Department of Trade and Industry) were trained alongside RAF and RN controllers; practical training was given on analogue simulators, with live familiarisation on the consoles of Southern Radar.



**The RAF Sopley (Southern Radar) Operations Room**

### **The Central Air Traffic Control School**

Meanwhile in 1961 fundamental changes were about to take place in the live flying training at Shawbury, when Marshalls of Cambridge took over responsibility for all live flying under contract to the Ministry of Defence. In February 1962 the Central Navigation School departed from Shawbury to join its counterpart at RAF Manby. The title of the Air Traffic Control School was then changed to the Central Air Traffic Control School and Her Majesty the Queen later

approved a badge with the motto 'Securi Transeant' (Safety on their Way).

On 2nd September 1968, the Air Traffic Control Squadron and the Radar Approach Control Training Squadron were amalgamated to form the Joint Air Traffic Control Training Squadron. A new 12-week syllabus was produced, incorporating all the essential elements from both old courses, and students were taught straight through from basic procedures to advanced control techniques, before finishing off with some live controlling in Shawbury Tower.



An AR-1 / SLA-3C training simulator in the 1980s

Training on MPN11/CPN4 also ceased and the new Plessey AR1 Search Radar and Standard Telephone and Cables (STC) SLA-3C Precision Approach Radar (PAR) came into use both in the simulators and for live flying training. This time of change also saw the live flying squadron, operated by Marshalls of Cambridge, become equipped with Jet Provosts 3A aircraft to replace its ageing Vampire T11s. The new course was finally extended by one week in March 1971, so that students received 13 weeks of training before being posted to their operational stations.



The Area Radar Simulator in 2007

In September 1972, after 78 courses and the training of over 1000 controllers, the Area Radar School moved from Sopley to Shawbury to become the Area Radar Training Squadron (ARTS), thus finally bringing all military ATC training together at the Central Air Traffic School. ATC Instructor training was formalised in the early 1980s with the introduction of the seven

week Air Traffic Control Instructors Course (ATCIC) to ensure new instructional staff were fully equipped and prepared for their tour training the next generation of controllers. Today, the JATCC lasts 27 weeks and is based around an old disused airfield called Cottam, rather than Shawbury, six modern radar simulators replicate the layout and equipment of a standard Approach Room and live flying has been replaced by an advanced Visual Simulator (VISSIM). Nevertheless, many of the basic ATC principles taught back at Watchfield all those years ago are still being taught at CATCS today. Currently CATCS is responsible for training all RAF and RN ATC training and has also frequently trained numerous Foreign and Commonwealth personnel when additional capacity has been available. In FY 2010/11 CATCS ran 6 JATCC, 4 ARTS, 2FOTC, 9 FOA, 5 TMT1 and 2 TMT2 courses graduating a total of 260 students to operational units. CATCS is probably the only RAF specialist training unit that can commemorate spending over 62 years at the same RAF station.

### **The Flight Operations Training Squadron**

The Flight Operations Specialisation was established on the 1st April 1997 after it was decided by the Air Force Board, through "Options for Change" and the recommendations made by the Bett Report to remove all aircrew from the station Operations Rooms and replace them with Air Operations specialists. After eliminating Marham, Linton-on-Ouse, St Mawgan and Scampton, RAF Shawbury was chosen to be the first home of the newly established Flight Operations Training School (FOTS). The Flight Operations Training Design Team arrived from RAF Innsworth during February 1996 and were given building 56, the old Sergeants Mess, for their offices and classrooms whilst they designed the lesson objectives for training personnel for the new specialisation. During 2003 FOTS came under the Command and Control of OC CATCS and was made into a squadron of the wing. FOTS training is currently suspended whilst the future of the Flight Operations Specialisation is considered.



The FOTS operations room simulator

The Flight Operations Training Squadron is responsible for the training of newly commissioned officers in the Flight Operations specialisation. The Flight Operations Training Course is 14 weeks long and students will learn about Air Traffic Control, the Station Operations Room, UK Airspace, Eurocontrol, Flight Planning, Mission Planning, Battle Airspace Management, Air Power, Deployed Operations and the delivery of briefings. The course includes both theory and practical elements; consequently, the students are given every opportunity to practise the leadership skills learnt at the RAFC Cranwell, as well as the new ones learnt at the FOTS. There is also a deployed exercise towards the end of the course to assess the student's ability to work in adverse conditions.

FOTS is further responsible for the training of RAuxAF Flight Ops personnel as well as personnel from the Royal Navy, Royal Marines and Army Air Corps. Recently the squadron has taken responsibility for the training of newly promoted Sergeants (Flight Operations Managers) on the Trade Management Training (TMT) 2 course. Flight Operations students have seen active service in every global conflict since 1997 including Bosnia, Sierra Leone, Iraq and Afghanistan.

**The Trade Training Flight**

The Trade Group 9 Training Flight (TTF) was established during the early 1960s to train Operations Clerks and Runway Caravan Controllers. Many of these people were ex-aircrew and also included some men from the Fire Trade. It was also responsible for the training of junior officers on their lead in-course for the JATCC



**A runway caravan in the late 1940s**

During the late 1960s TTF began training Assistant Air Traffic Controllers. Many of these assistants went on to become controllers themselves, either as commissioned officers or as sergeants - a few eventually became SATCO's and some of the more adventurous ones even went on to become aircrew. Ex-TTF students have served

as pilots on many aircraft, as well as NCO aircrew on helicopters.

Today's Trade Training Flight is responsible for the training of young recruits to be Flight Operations Assistants in the RAF. The basic course is eight weeks long and students learn about ATC, Flight Operations, UK Airspace and procedures, Flight Planning, NOTAM's and Air Power. The course contains both theory and practical elements and students will find themselves practising the theory in a simulated operations room environment.

TTF has over the years had strong connections with the Royal Navy and as such has trained many naval personnel. It also has trained men and women from the Army Air Corps; furthermore over its history it has trained many nationalities from the Commonwealth and other Nations. Recently it has taken responsibility to train civilian assistants who go on to work in RAF control towers in the UK.



**TTF operations room exercise**

TTF is also responsible for the training of newly promoted corporals on TMT 1 course as well as overseeing the training of Auxiliary assistants at the 3 squadrons, No 602 Sqn Edinburgh, No 606 Sqn Benson and No 600 Sqn Northolt.

**The Computer Systems Squadron**

In the early 1970s the Software Programming Squadron (SPS) was established to support the introduction of a new synthetic radar simulator recently installed at CATCS. In the early 1980s SPS staffs were responsible for developing the software that enabled the adaptation of the BBC-B microcomputer for use as a Basic Radar Skills Trainer (BRST), in support of ATC ground school teaching. A PC later replaced the BRST and versions of this system are now used to support JATCC and area radar training, as well as radar training at RAF terminal units as the Airfield Training Aid (ATA). In 1987 SPS was renamed the Computer Systems Squadron (CSS) to reflect the squadrons increased roles and responsibilities,

that included maintaining the stations IT networks and desktop PC's, although this task was later handed over to contractors. Currently, CATCS operate six PC-based terminal radar simulators, running software developed in-house by CSS staff and subsequently sold back to industry. The Area Radar Training Flight, The School of Fighter Control at RAF Boldermoor and a number of other organisations have subsequently adopted this CSS software for use in their own simulators.