

THE ROYAL AIR FORCE COLLEGE

CRANWELL







The Royal Air Force College Cranwell

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in the air . . . or on the ground

Cadets learn the fascination of flying on the
Jet Provost (*opposite*).
Future technical officers (*below*) being familiarised
with the Gnat advanced trainer.





The role of the Royal Air Force

The Royal Air Force today is the most powerful instrument of authority ever available to this country. Its purpose is to keep the peace by deterring aggression in any form. It does this by defending our national interests and supporting the great international alliances.

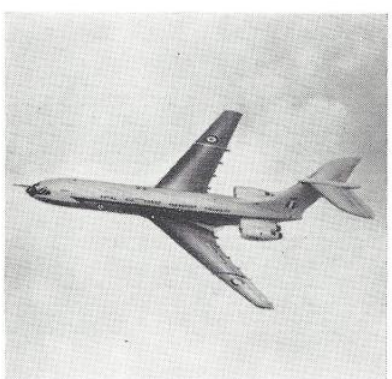
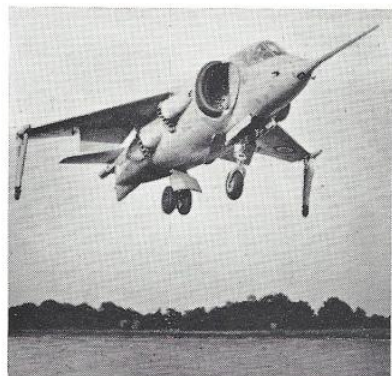
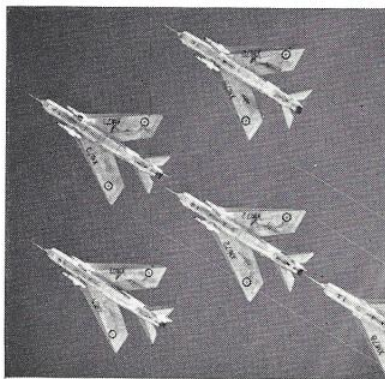
To meet these global commitments, the maximum mobility, speed and power are essential. It is the duty of the R.A.F. to provide this power by massive conventional and nuclear striking force, world-wide strategic reconnaissance, airlifting men and equipment for all three Services, air defence at home and overseas, varied support for troops in the field, and long-range striking potential against the submarine.

To carry out its role effectively, the R.A.F. has highly advanced aircraft and equipment. Already in established service are aircraft like the Lightning fighter, capable of flying at twice the speed of sound, while the V-bomber force remains a potent deterrent in its high- and low-level role.

A whole new generation of aircraft is coming along. There is a tactical/strike/reconnaissance supersonic bomber designed for low-level, long-range strikes. The vertical take-off ground attack fighter also represents a revolution in aviation history. There are no fewer than four new types of transport aircraft, including the VC10 giant jet, and the long-range Belfast transport, capable of carrying 200 fully armed men. New techniques are constantly being developed: more aircraft are being adapted for flight refuelling, while weapons like the Red Top air-to-air missile are coming into service.

Typical of what these technical and international trends mean is that R.A.F. officers are already serving with their colleagues of the United States and German Air Forces in a three-nation V/STOL fighter squadron based in Britain. Many other officers are on the staff of the North Atlantic, Central and South East Asia Treaty Organisations. The international role of the Royal Air Force, together with the constant progress in aeronautical technology, demands comparable breadth of vision from all who serve, both in the air and on the ground.

The R.A.F. therefore needs men of high intelligence and good education, able to absorb the training and character development it provides. They must have the skill and determination to take advantage of the exciting opportunities open to them in a full career. A career that can start at Cranwell and continue to the top.



Lightnings of Fighter Command can fly at twice the speed of sound.

Vulcan of Bomber Command armed with Blue Steel air-to-ground stand-off bomb.

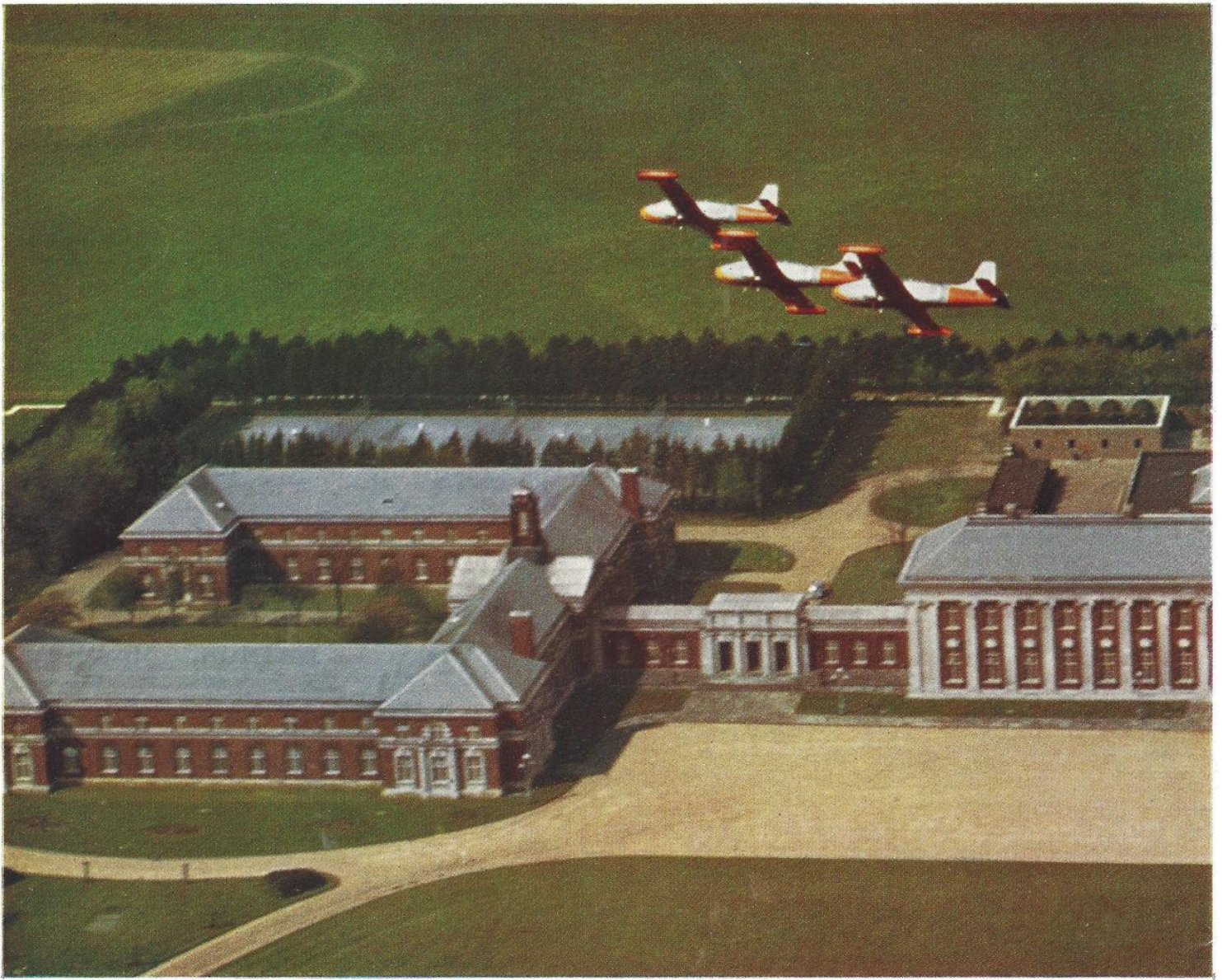
Belfast long-range transport will be capable of carrying 200 fully armed men.

P1127 - the Kestrel - vertical take-off and landing design shows the shape of fighters to come.

Dominie rear-mounted twin-jet design is the new advanced navigation trainer.

VC10 giant jet will be entering service with R.A.F. Transport Command.

Firestreak air-to-air missile is being replaced by the improved Red Top.



Cranwell



The Royal Air Force College, Cranwell, was opened in 1920. In his reviewing speech to cadets that same year, Winston Churchill prophesied with amazing accuracy that they must look forward to meeting the problem of vertical flight; the substitution of some other form of propulsion for the airscrew or propeller; and the development of new fuels. In the intervening forty-five years, all these problems have been met and overcome – and Cranwell meanwhile has acquired a reputation as both the oldest air academy in the world and the most modern.

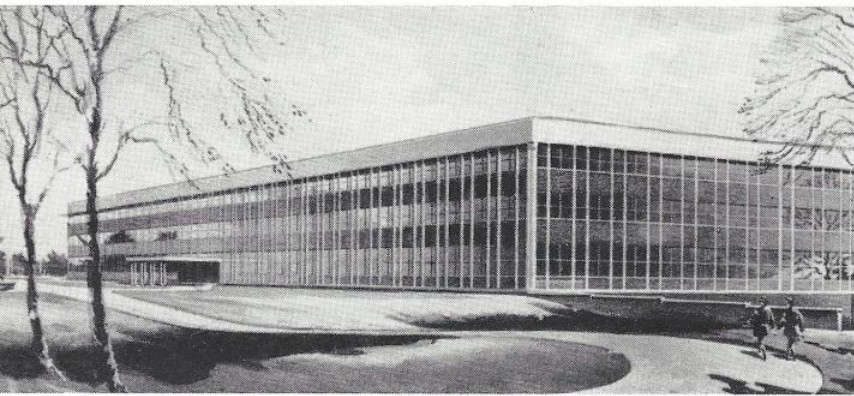
Between the wars there were historic flights from Cranwell to Karachi and South Africa, and 1939 brought a fresh phase, when Cranwell became a war-time flying training school.

Then, on a May evening in 1941 at Cranwell, an ex-cadet of the College, Frank Whittle, saw the

culmination of his labours when jet propulsion became a fact. The Gloster/Whittle E.28/39 made its first flight. It had no propeller.

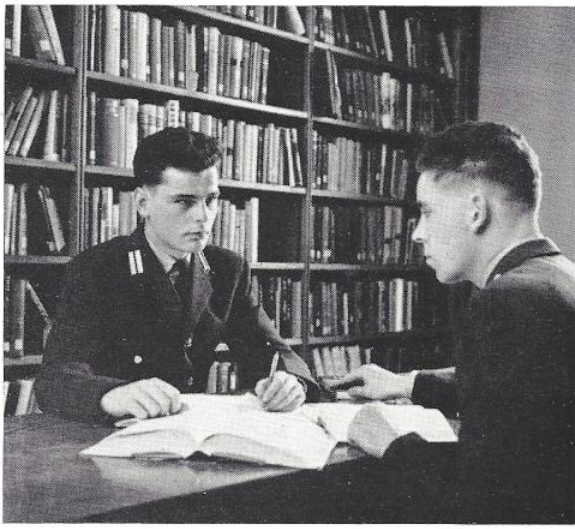
Many war heroes learned to fly at Cranwell, including Douglas Bader and the late Hugh Gordon Malcolm, the first Old Cranwellian to win the V.C. The College reopened in 1946. From 1947 onwards equipment and secretarial cadets have also been trained at Cranwell. Jet trainers made their initial appearance at Cranwell some time later.

The rapid rate of aeronautical advances has been made possible by the abilities of technically qualified men on the ground. The R.A.F. has always realised the value of its technical officers, and in 1949 the Royal Air Force Technical College was founded at Henlow, in Bedfordshire, to ensure that these officers received the professional training they required for their role.



Contrast at Cranwell between the traditional façade of the College (*top*) and the contemporary Trenchard Hall for applied science technical training.

The technical cadet scheme started in 1952. Eight years later the Henlow technical cadet course was approved for the award of a Diploma in Technology (Aeronautical Engineering) with electrical and mechanical specialisation. The academic standard of the Dip. Tech. course is that of a university honours degree. Like the aircrew officer, the young technical officer bears considerable responsibilities and has men under his command as soon as he takes up his first appointment. Now in an age of supersonic aircraft, nuclear weapons, guided and ballistic missiles and early warning radar, the need of the R.A.F. for highly trained technical officers – with high qualities of leadership and management – assumes additional importance each year. Parallel to this has been the increasing appreciation of inter-dependence between all branches of the Service. To give practical expression to this concept of integration, the Royal Air Force College and the R.A.F. Technical College are amalgamating at Cranwell in 1965. Cadets join the College to become regular officers in the General Duties (Flying), Technical, Equip-



Left: Well-stocked and comfortable library is ideal for private study.

Lower left: Under-officer in a corner of his study-bedroom.

Below: Guest night in the College Mess is a friendly and colourful occasion.



ment and Secretarial branches, and in the R.A.F. Regiment. By the time they leave Cranwell, they are ready to meet their high responsibilities.

Cadets enter Cranwell twice yearly, in March and October. The course is three years for cadets in the General Duties (Flying), Equipment and Secretarial branches and the R.A.F. Regiment; and four years eight months in the Technical branch, comprising three years' cadet training and 20 months' further training after commissioning.

There are two terms a year each of twenty weeks, with vacation periods of three weeks in the spring, six weeks in the summer, and three more weeks divided between the two half-terms in June and at Christmas. During vacations, visits and expeditions are organised at home and overseas.

The Cadet Wing of the College is divided into four squadrons. Each of these is commanded by a squadron leader who directly supervises the officer training, well-being and conduct of the cadets, and helps to foster in them the spirit and traditions of the Service. Cadets of all branches are fully integrated into each squadron, with no distinction

between specialisations.

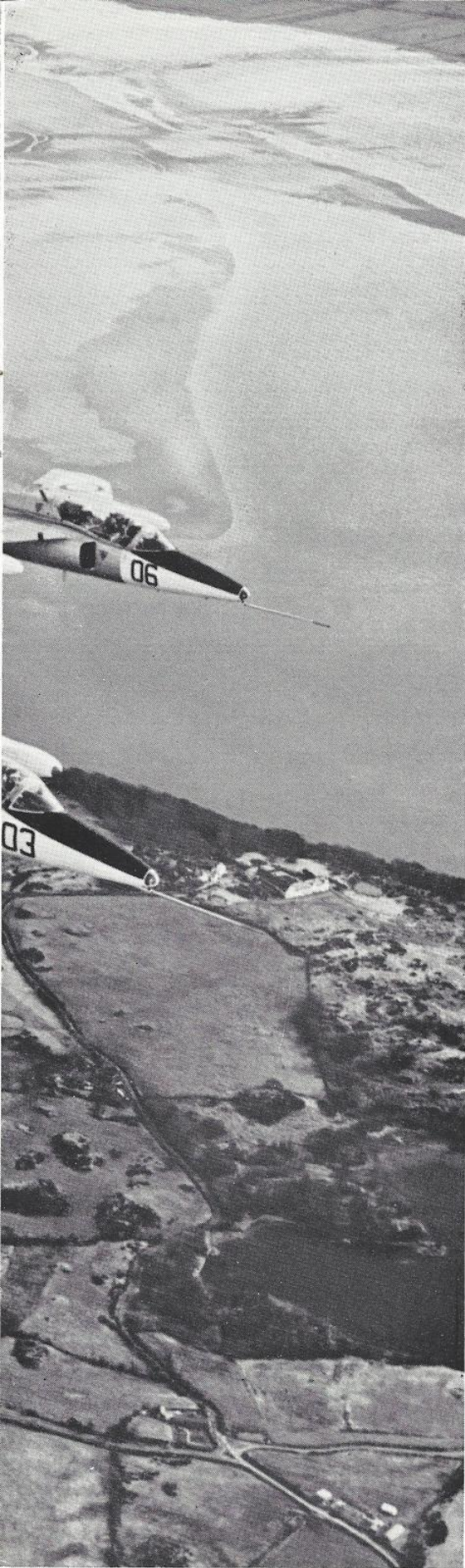
In their first year at Cranwell, cadets use the Junior Mess. For the first term, they live in small dormitories accommodating five, with a study attached, while for their second term they move to single rooms in the Junior Mess. Halfway through their second year, they transfer to the Senior Mess in the College main building, where each cadet has a study-bedroom of his own, and each 'entry' of cadets has its own ante-room.

As cadets progress through the College, they are given greater responsibility in the administration and discipline of their squadrons until, in their senior term, they take a major part in running cadet affairs and are promoted to the rank of senior flight cadet or under-officer.

All successful cadets are appointed to General List Permanent Commissions in the rank of pilot officer. Those appointed to Technical branch commissions continue their training for a further one year eight months. On graduation all cadets are posted for service in one of the Royal Air Force Commands at home or overseas.



The Syllabus



The Cranwell course can be conveniently divided under three headings :

SPECIALIST TRAINING

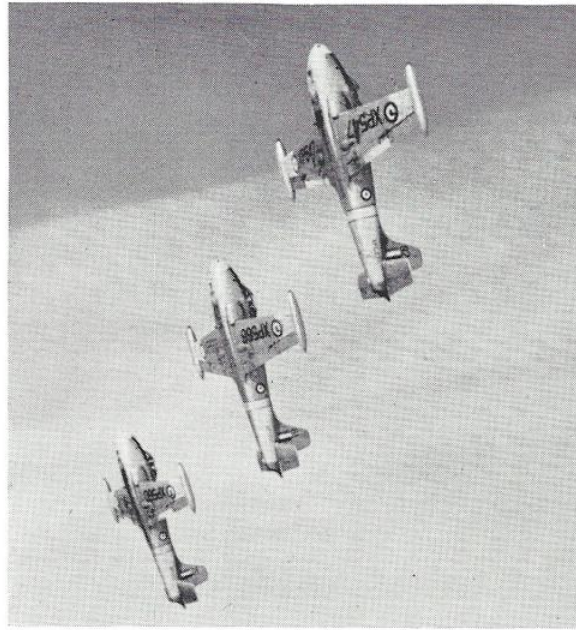
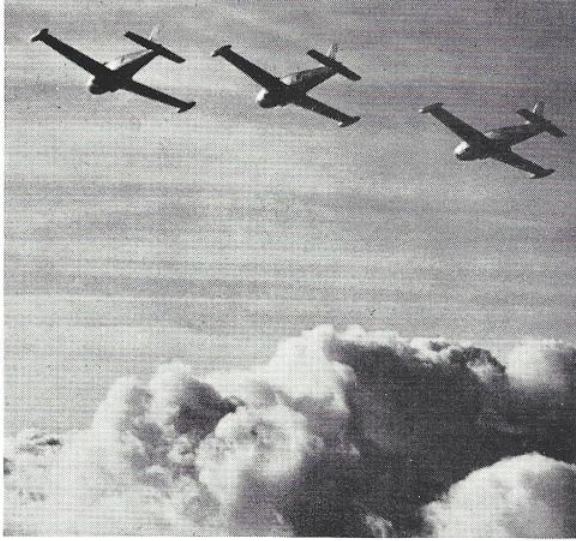
(pilot, navigator, technical, equipment, secretarial, or R.A.F. Regiment)

ACADEMIC STUDIES

GENERAL SERVICE TRAINING

Specialist Training





Pilot Training

Basic flying training is carried out on the Jet Provost. This training occupies the second and fifth terms, when Jet Provost instruction is completed. The cadet thus receives two intensive spells of basic flying training. In his sixth and final term, the pilot cadet completes his advanced flying training. The other three terms – the first, third and fourth – are devoted to academic studies and general service training.

The flying syllabus includes general aircraft handling, navigation, instrument flying, formation and night flying. Cadets have to reach a very high standard of pilot ability, and their progress is carefully monitored by their individual instructors and by the supervisory staff. At appropriate intervals, the flight commanders, squadron commander and the chief flying instructor fly with all cadets and check their progress. Throughout this training, there is a special relationship between instructor and student, based on their shared experience of flying together.

Any cadet who is unlikely to qualify as a pilot has the opportunity, if he is otherwise suitable, of transferring to navigator training, with equal career prospects, or to one of the ground branches. By the end of their training, cadets have completed 170 hours on the Jet Provost plus some 70 hours' advanced flying. On graduation, cadets are awarded their Wings as qualified Service pilots and are then posted to the operational conversion units of the Command for which they have been selected.





Above: There is a happy relationship between the pilot and his instructor.

Below: Instructor explaining the controls of a Jet Provost to an overseas cadet.





Navigator cadets receive over 200 hours of flying training. Flights overseas form part of this training.



Navigator Training

Navigators take their specialist training at the same time as pilots. Basic navigation is studied throughout their second and fifth terms, and while pilots are receiving instruction in advanced flying during the sixth term, navigators are undergoing their own advanced stage of training.

Flying exercises are generally practised beforehand in classroom plots and with simulated conditions in the dead reckoning navigation trainer/simulator. Ground instruction is given in navigation, instruments, radar, radio, compasses and other allied subjects. During the third and fourth terms, navigator cadets concentrate exclusively on academic studies. The fifth term includes a revisionary period of ground instruction and refresher flying.

The sixth term is devoted to advanced navigation, with further training in applied navigation, meteorology, astronomy, instruments, compasses, radar equipment and weapons.

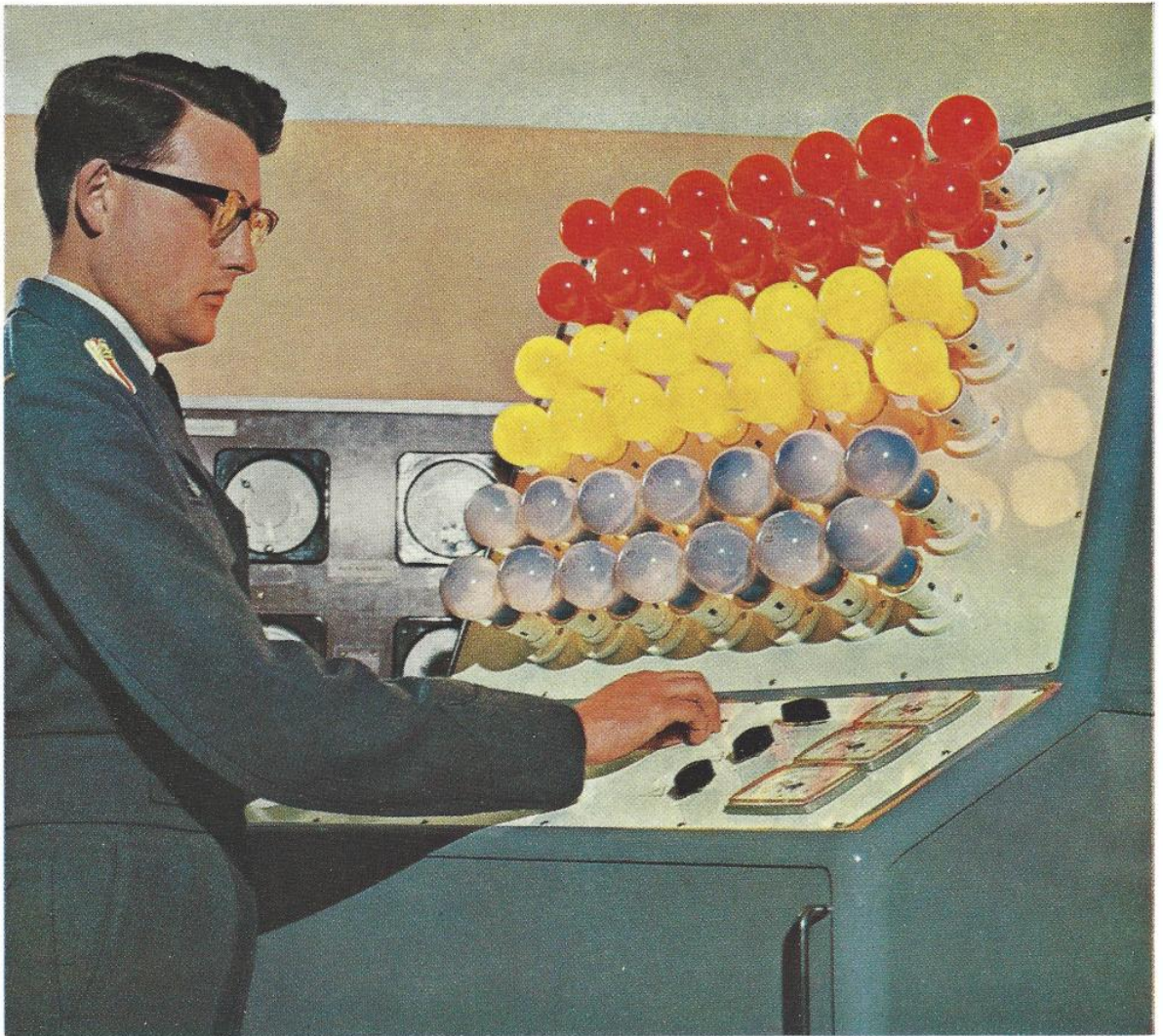
By the time they graduate, navigators complete 133 hours' flying during basic training plus 76 hours' advanced training in the last term, making a total of over 200 hours. When they have successfully completed the advanced phase, students are awarded the Navigator's Brevet.

Left: Navigator cadet at his plotting table on a training exercise.

Right: Steering by the sun, a cadet takes a 'sextant shot' through the astro-hatch.

Below: Navigation instruction in a Valetta flying classroom.





Technical Training

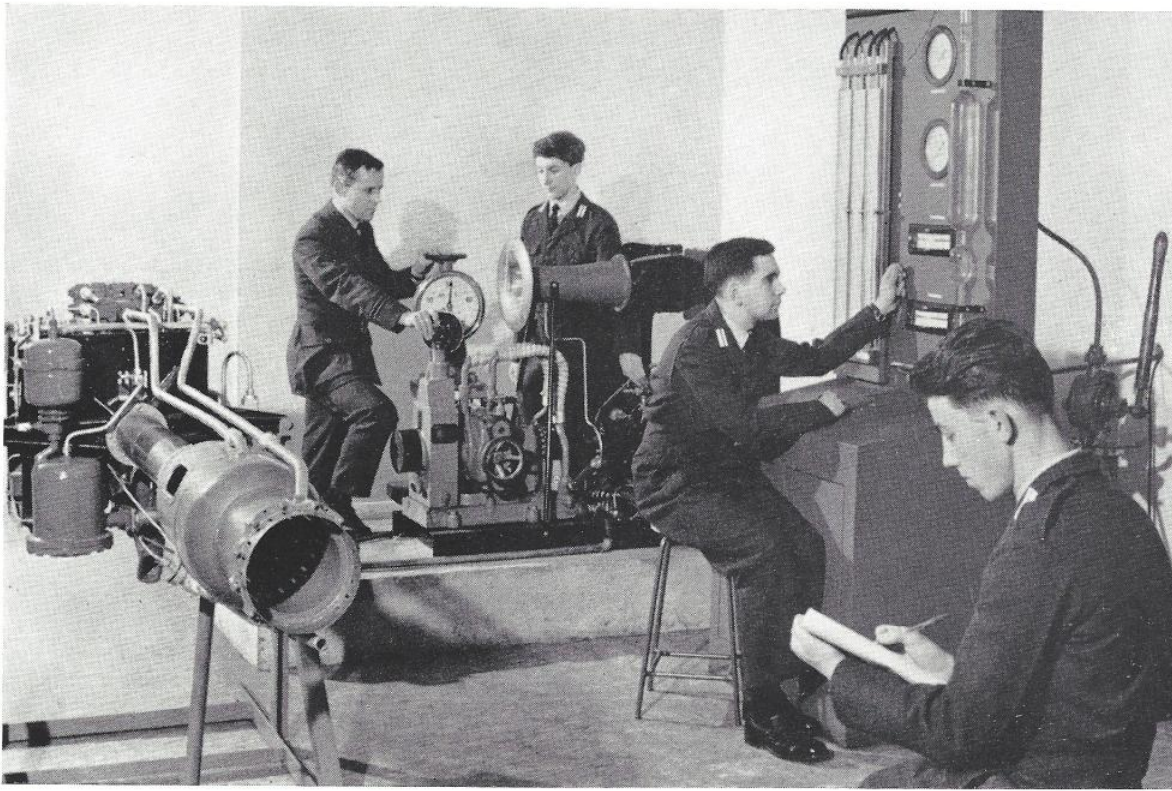
Cadets studying to become technical officers follow a course lasting for four years eight months. This course combines liberal studies and technical education with practical training, while also allowing for periods of attachment to industry and selected Royal Air Force units. In addition, technical cadets will have the opportunity of undertaking elementary flying training.

Technical cadets will normally study for a Diploma in Technology (Aeronautical Engineering) with an electrical or mechanical engineering bias. Those who are unable to maintain the very high level of studies on the Diploma in Technology course may be allowed to transfer to a course leading to a Higher National Diploma.

The first year of the technical course is common to both the electrical and mechanical specialisations. During this period, subjects are studied which form the basis of later training, including mathematics, mechanics, physics, chemistry, engineering drawing and workshop organisation.

For the rest of the course, cadets study subjects appropriate to their specialisations, following

Above: Three-phase resistive loading unit for an A.C. generator using ordinary coloured electric bulbs to show each phase.

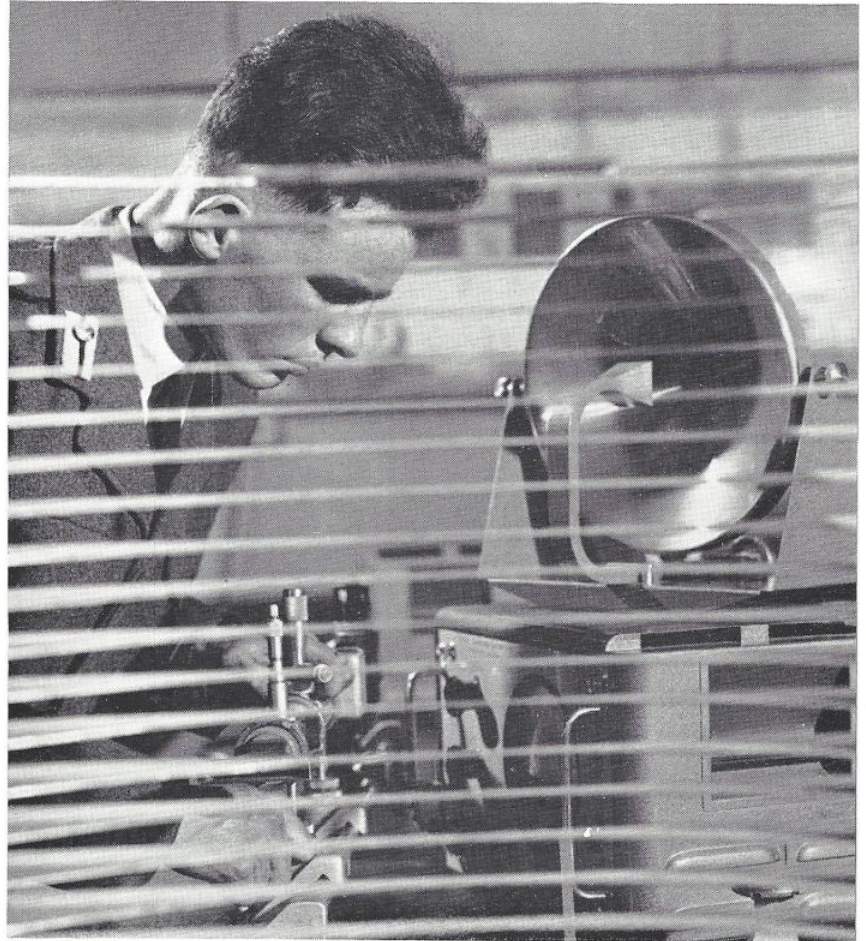


Above: Carrying out a check on a gas turbine engine. The console on the right gives a visual display of the results.

Right: Measurement of aerial power-gain at an X-band wave-guide test bench.

separate but parallel syllabuses. Cadets in each specialisation, however, are taught the elements of the other because they may later work in fields where such knowledge is necessary: for example, in modern weapons systems. Among the subjects covered are aerodynamics, thermodynamics, aircraft structures, electrical engineering and electronics. The syllabuses are aligned with modern technological developments and include an introduction to weapons systems and space technology. Management and work study are also important parts of the syllabus for all students.

Cadets successfully completing the first three years of training are commissioned and leave the Cadet Wing to continue their technical course as officers, initially in the rank of pilot officer. The Diploma in Technology or Higher National Diploma, as appropriate, is awarded at the end of the four years eight months to those students who have achieved the required standard in examinations and course work. Whichever qualification they attain, they have equal prospects for a career in the Technical branch.





Equipment Training

Three-quarters of a million different items are needed to keep the R.A.F. equipped as an efficient fighting force – from nuts and bolts to complete aircraft. Over a million tons of equipment are handled annually.

The Equipment branch is responsible for obtaining and delivering virtually all the material needs of the Service. Equipment cadets are therefore given a thorough grounding in all aspects of the supply and movement of equipment – both in Britain and overseas.

Training includes the organisation and administration of a supply squadron; calculation of requirements and distribution of stocks using computer systems and automatic data processing; storage and packaging methods for varying climatic conditions; storage and handling of fuels and explosives; transport of troops, weapons and equipment by air; management and work study practice. Practical training is particularly emphasised and visits are paid to R.A.F. stations at home and overseas, as well as to civilian business and industrial concerns. On graduation, equipment cadets start their officer careers in a junior executive post at a station in one of the operational Commands.

Top: Load distribution is vital when transporting men or materials by air. Here, equipment cadets are learning about loading with the aid of a Beverley model.

Opposite: Training for R.A.F. Regiment cadets includes advanced weapon handling, military tactics and a basic parachutist's course.

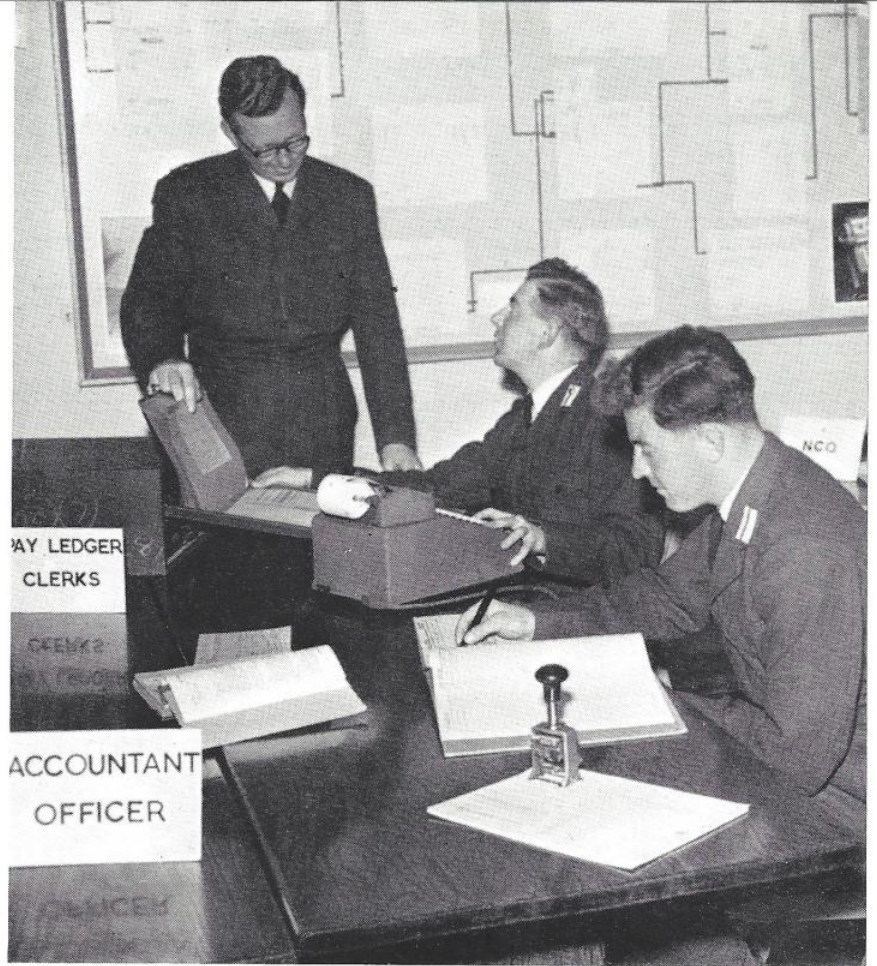
Secretarial Training

A secretarial officer in the Royal Air Force has a career of considerable variety. The Secretarial branch contributes to the operational efficiency of the Service by discharging those administrative duties for which a flying or technical background is not essential. In addition to general organisation and administration, these duties include accounting, law, intelligence, codes and cyphers, work study, recruiting and personnel selection.

Secretarial training at Cranwell lays special stress on administration, organisation, accountancy, and the application of management and work study techniques. Formal instruction is supplemented by visits to banks, courts of law, civilian business concerns, business efficiency exhibitions and R.A.F. stations at home and overseas.

On graduation, the secretarial officer is ready for productive duty and is posted to a junior executive post at an operational station.

Cadets training to be secretarial officers can look forward to a varied career in administration.



R.A.F. Regiment Training



The Royal Air Force Regiment is a specially selected and highly trained force which plays a vital role in the defence of British air bases throughout the world. It provides mobile, hard-hitting, operational units – including a parachute squadron – for the ground defence and light anti-aircraft defence of selected R.A.F. airfields and installations. It also provides airmen for duties with short-range transport and helicopter squadrons, and staff and instructors for training the Royal Air Force in all aspects of ground defence, including defence against nuclear attack. Other duties of the R.A.F. Regiment include the aircraft crash-rescue and fire-fighting services.

Regiment cadets receive specialist instruction to fit them for command of a flight in an operational R.A.F. Regiment squadron after graduation. In particular, training covers military tactics, advanced weapon handling and signals instruction. During their course, Regiment cadets join operational R.A.F. Regiment squadrons at home and overseas to obtain practical experience and to broaden their specialist knowledge.

All R.A.F. Regiment cadets at Cranwell undergo a basic parachutist's course as part of their normal syllabus of training. Cadets completing this course are awarded the parachute badge on graduation from the College.

Academic Studies

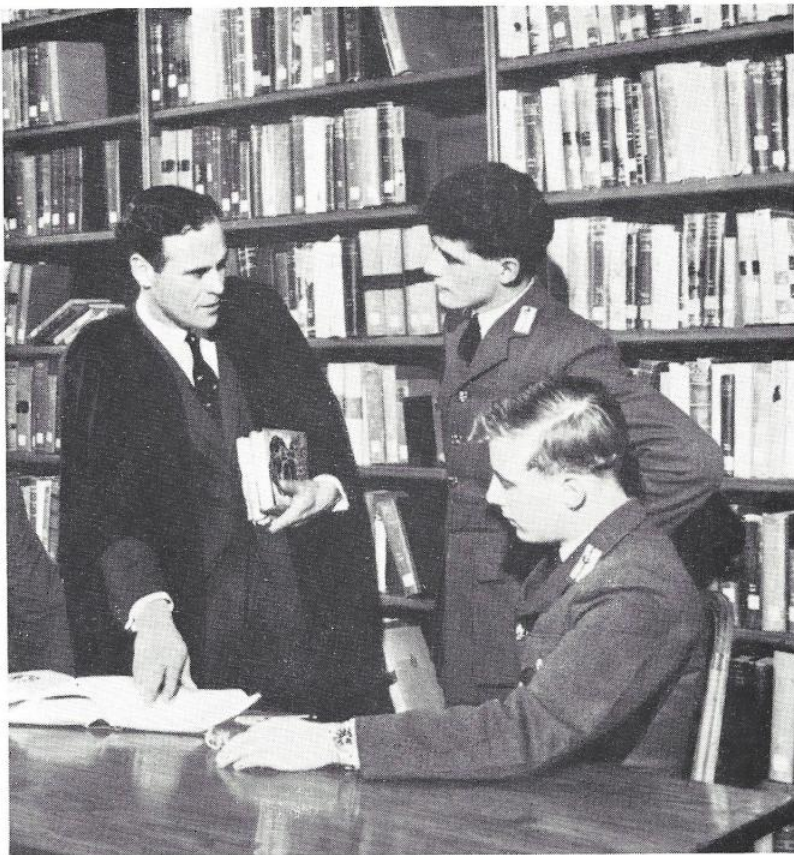
—for all except technical cadets*

The aim of the academic course is to provide further education – both in sciences and humanities – to prepare the cadet for his career as a General List officer in the Royal Air Force of today. The syllabus is designed as a challenging course of study. The general intention is that it should operate on university lines as far as the cadet's other training will allow. A considerable portion of his timetable is allotted to private study, and he has regular periods with his individual tutor.

A priority requirement is the attainment of certain basic standards in English expression, mathematics, pure and applied science, and military studies. This is the primary aim of the basic phase of the course, which extends over the first, third and fourth terms, to the end of the second year. For cadets who can attain the basic standards without difficulty, there is scope within this phase for more advanced studies.

All academic examinations will be completed by the end of the fourth term. During the final year, cadets pursue a special subject of their own choice, as time and opportunity permit. This may be a special science project, some particular field of aeronautics, further specialised study in the humanities, or the Civil Service Commissioners' Linguist and Interpreter qualifications in French or German.

*For the technical cadet, academic studies form an integral part of the technical training described on page 18.



Left: A tutorial in the library with the Director of Studies. A cadet has regular periods with his individual tutor.

Opposite top: Cadets in the jet test rig watching a practical demonstration of the principles of combustion as related to jet propulsion.

Opposite lower: Cadet giving a brief talk during a War Studies lecture. The problems of military strategy involving the three Services are discussed at these sessions.





Drill and ceremonial form an integral part of the curriculum to develop self-discipline and deportment.

General Service Training

One of the most important aspects of the Cranwell course is the syllabus of General Service Training which a cadet must complete before being commissioned. This includes officer and leadership training, physical training, weapon training and drill, Royal Air Force administration and an introduction to the history and traditions of the R.A.F. Drill and ceremonial form an integral part of the curriculum. The cadet learns foot and arms drill to improve his self-discipline, deportment and bearing. Later, as an under-officer or senior flight cadet, he commands other cadets on the parade ground, thus developing his authority and confidence.

Ceremonial parades carried out with skill and precision are inherent in the Cranwell tradition, and on all such occasions the focus is the Queen's Colour of the Royal Air Force College. The original Colour presented by His Late Majesty King George VI in 1948 has now been laid up. The Colour was paraded for the last time before Her Majesty the Queen in July 1960, when she presented her replacement Colour and graciously consented to become the Commandant-in-Chief of the College.

All cadets attend the leadership training camp at the end of their first term. This camp is run on 'Outward Bound' lines and provides a test of stamina, fitness and initiative.

During vacations the cadet is given every opportunity to travel abroad. Visits are arranged at home and overseas to R.A.F. stations, as well as to the British Army of the Rhine in Germany and the Royal Navy in the Mediterranean. The establishments of other air forces are also visited, including L'École de l'Air in France and the U.S.A.F. Academy at Colorado Springs.

Cranwell cadets visiting their counterparts of the United States Air Force Academy at Colorado Springs.



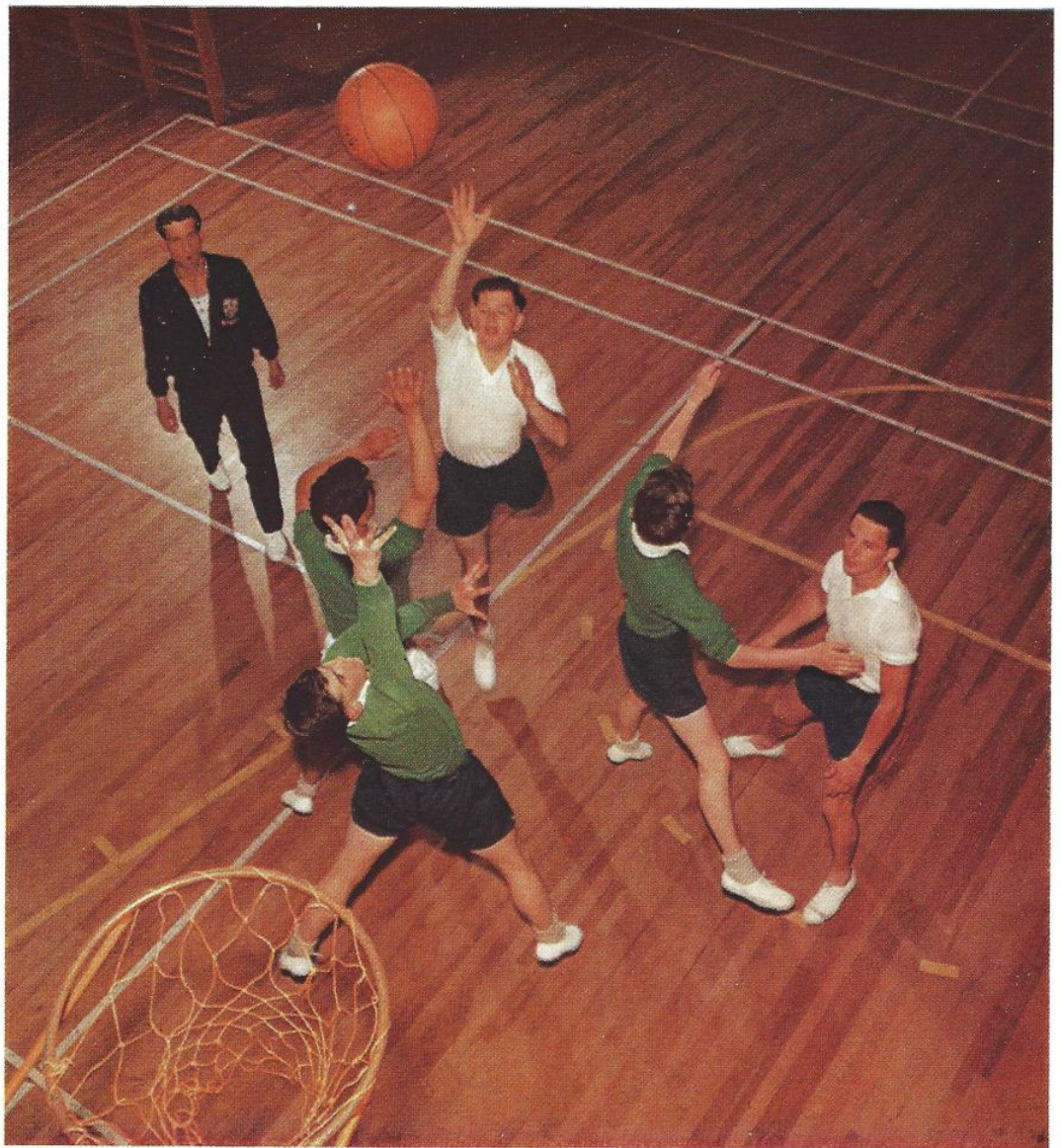
Sport

Games are very much a part of the Cranwell life – and facilities are provided for almost every kind of sport. Situated in its own grounds of 3,000 acres, the College has extensive playing fields, a fine athletics stadium, and a modern gymnasium. The heated swimming pool, 110 feet long, is a magnificent addition to the facilities for sport.

The main sports catered for in their appropriate seasons are athletics, badminton, basketball, cricket, cross-country running, fencing, hockey, modern pentathlon, rowing, rugby, sailing, shooting, soccer, squash, swimming, tennis and water polo.

All cadets take part in some College sport, and matches are held with outside clubs, schools, universities and the other Service academies. Within the College there is a keen series of matches between the four squadrons in most of these sports towards the end of each term, with the Chimay Cup being presented to the squadron scoring the highest number of points.



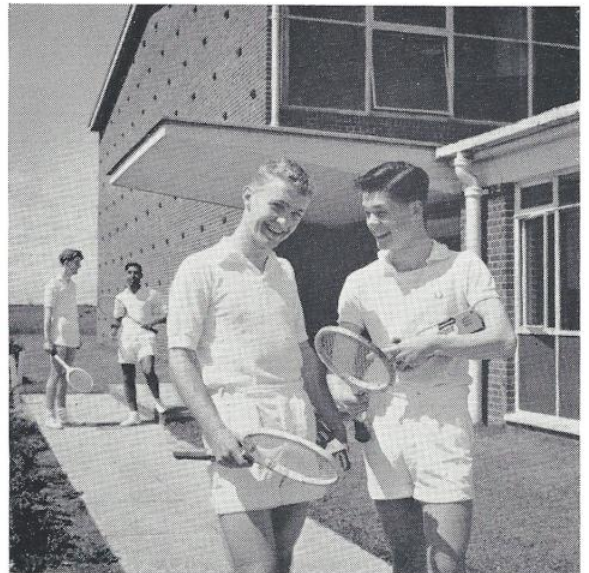
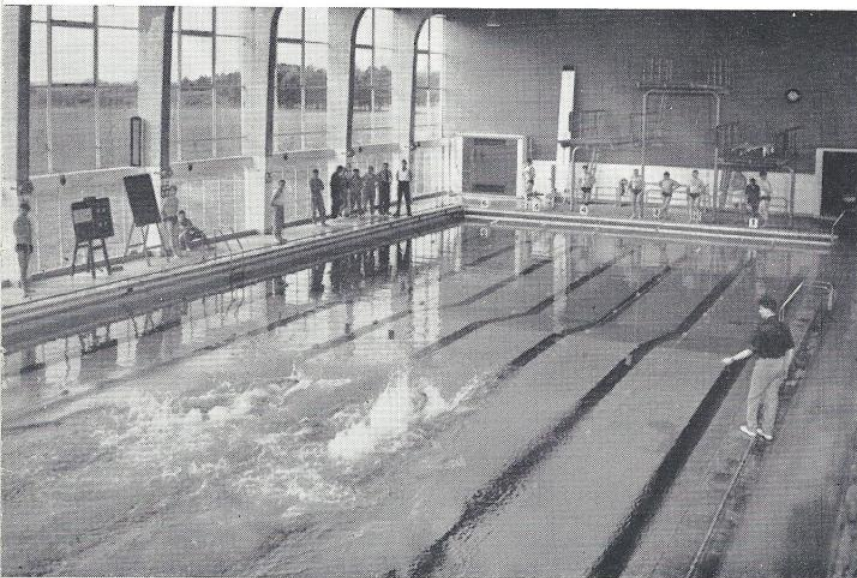


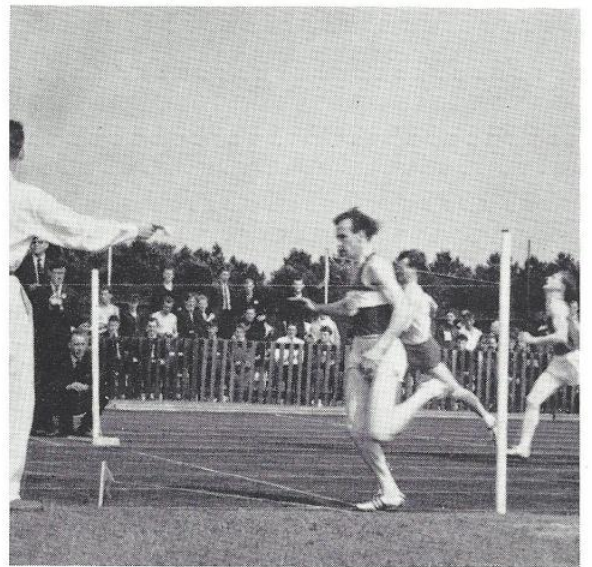
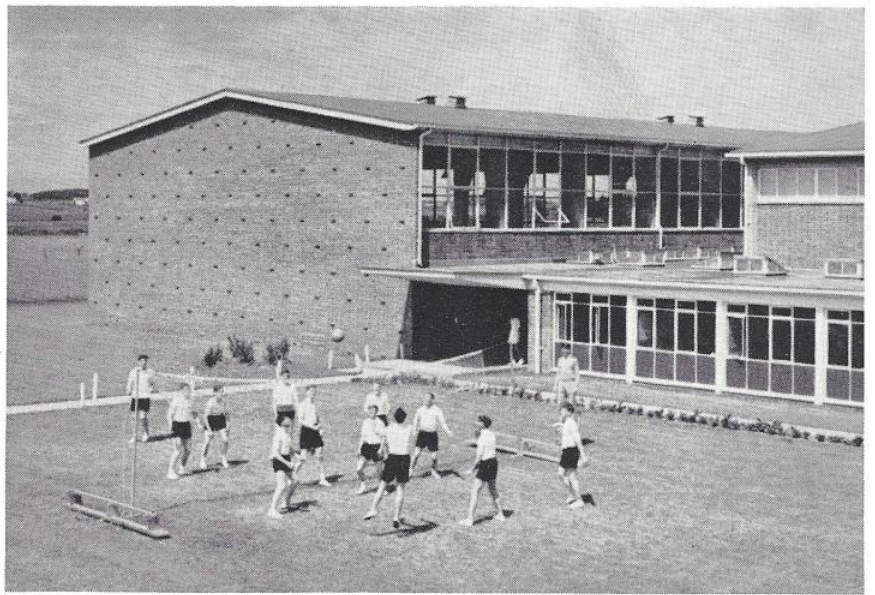
Right: Basketball is just one of the activities in the modern gymnasium.

Opposite page: Stumped! An exciting moment during a match on the famous 'Orange' in front of the College

Lower left: Swimming and water polo are both popular in the fine new 110-foot pool

Lower right: Pausing outside the gymnasium block before a game of doubles on one of the Cranwell courts.





Rugger, athletics, volley-ball
and canoeing – the choice of sports is
practically limitless.
The lower picture shows the all-glass
façade of the swimming pool building.



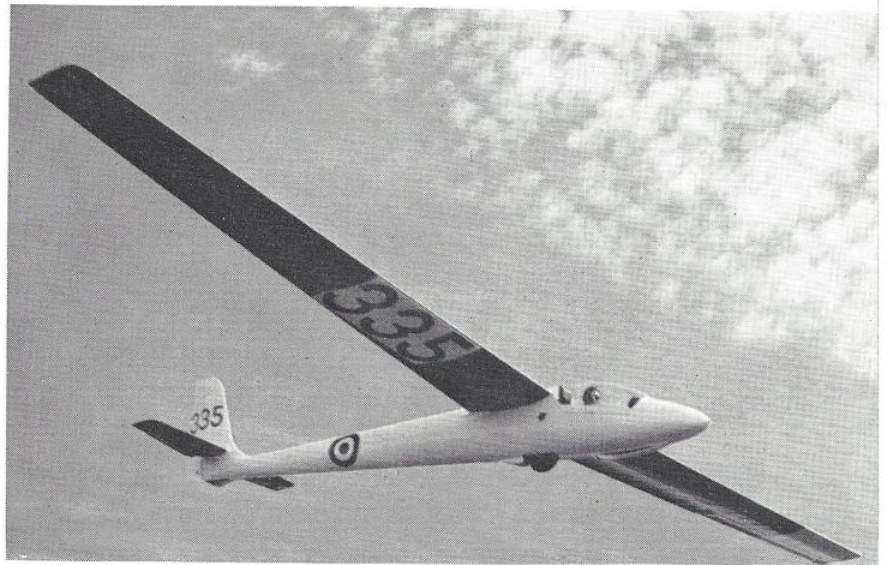
The College Society

The College Society is run by the cadets themselves. Membership enables a cadet to join in the activities of his choice.

The outdoor group includes canoeing, beagling, field shooting, karting, mountaineering, gliding, potholing, riding, ski-ing, water ski-ing, sub-aqua, and both dinghy and ocean sailing.

The indoor group embraces dramatics, jazz, debating, chess, operatics, photography, art, printing, French circle, and the production of the College journal. The engineering section has recently built its own hovercraft, which it operates. As demand arises, the Society sponsors new activities, and recent newly formed sections include those for natural history and German studies.

Ski-ing, gliding and go-karting are popular pastimes among individual groups of the College Society. And the engineering section is building a new hovercraft.



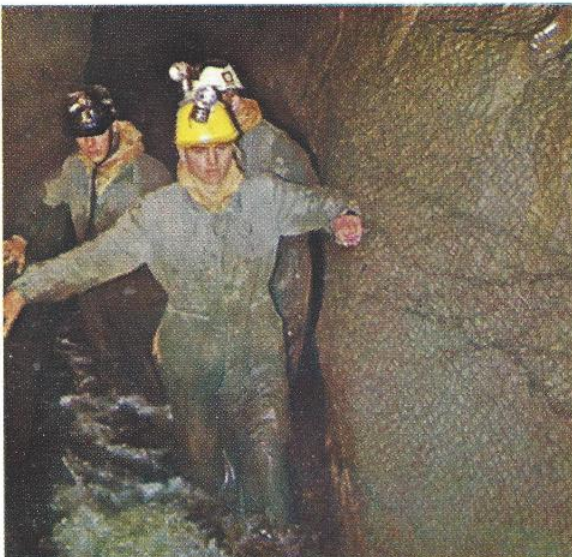


Expeditions

One of the aims of the College Society is to give cadets the responsibility for organising their own activities. Many sections plan their own overseas projects, which are often subsidised by the Trenchard Memorial Award Fund.

Recent surveys have taken groups from the College to the islands of Mykonos in the Aegean Sea, and Pulau Tinggi off the Malayan coast. The sub-aqua section has completed an underwater survey tracing the outlines of the ancient Roman harbour of Sabratha near Tripoli.

There has also been an eleven-day canoe expedition from Switzerland to the mouth of the Rhine; canoeing across Sweden; a party to trace Lawrence of Arabia's operations in the first world war; mountaineering in Turkey and Morocco; potholing in the Pyrenees; a group to trace Hannibal's route over the Alps; and one to assist in rescuing wild life near the Kariba Dam.



From high among mountains to deep down in potholes, expeditions take cadets to all sorts of places at home and overseas.

Entry Qualifications

Conditions of Eligibility

Educational Standard

To be eligible to be considered for a cadetship at Cranwell, a boy must expect to attain a laid-down pattern of passes in subjects either in the General Certificate of Education (or in the Scottish Certificate of Education) with certain passes at Advanced (or Higher) level, or equivalent qualifications. A Grade I pass in the new Certificate of Secondary Education is equivalent to an 'O' level G.C.E. pass. Full details of subjects required are contained in PAM(AIR) 296, obtainable together with application forms and advice from: Ministry of Defence M10 (R.A.F.), Adastral House, Theobald's Road, London, WC1.

Other Conditions

Candidates for cadetships must have reached the age of $17\frac{1}{2}$ and be not over $19\frac{1}{2}$ at the date of entry; be unmarried; be British subjects or citizens of the Irish Republic; satisfy a medical board of their physical fitness, and a selection board of their suitability to be trained for a full-career permanent commission in the Royal Air Force.

Selection Tests and Medical Examinations

Cadetships are limited in number and awarded in competition on the basis of:

- a. Educational qualifications (provisional selections are made pending results of examinations);
- b. Satisfactory performance in general and flying aptitude tests at the Officers and Aircrew Selection Centre, Royal Air Force, Biggin Hill. The results of the flying aptitude tests will affect only those candidates who are being considered for cadetships in the General Duties Branch, but all candidates are given flying aptitude tests.
- c. Personal qualities (as distinct from academic qualifications) as determined by tests and interviews.
- d. Medical fitness as determined by an R.A.F. medical board.

R.A.F. Scholarship Scheme

This scheme offers tax-free grants to parents or guardians to assist them to maintain their sons or wards at school long enough for them to obtain the necessary G.C.E. Advanced level qualifications to enter Cranwell. The scheme is open to candidates for the General Duties and Technical branches. Applicants for a scholarship must have reached the age of at least 15 years 8 months at the time of the competition and expect to attain the necessary passes at Advanced level within a maximum of six terms following the award of a scholarship. Full details of the R.A.F. Scholarship Scheme are contained in PAM(AIR) 296.

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