

Jet-age Runway Problem Solved? . . .

only 165 acres (one-quarter of a square mile). Yet the length of the perimeter, i.e., the runway, is approximately two miles—long enough for most aircraft of today, but more important, probably long enough for the aircraft of tomorrow. The circular format implies that the runway is in fact “endless,” and thus provides for a run of one mile, two miles, or indeed ten miles if necessary.

As will be seen from Fig. 2, this runway is steeply banked. Aircraft are thus enabled to touch down at very high speed; and if the banking is vertical at the outside edge, it will be impossible to leave the runway no matter how fast the aircraft is travelling. On the other hand, take-off should present no problem, since it is only necessary to continue round the endless track until safe flying speed has been attained.

An encouraging line of thought arises from consideration of an “endless” runway of this type. It is impossible to overshoot, whether on take-off or landing; and it must surely be equally impossible to undershoot. The conventional straight runway is inherently difficult in this respect, since it must start somewhere more or less suddenly and come to an end more or less equally abruptly.

The circular runway implies, however, a different approach-pattern. Aircraft arriving over the airport will lose height in a spiral glide directly over the runway throughout the landing. Undershooting, as stated, is thus impossible. Pilots will gain in confidence in bad weather in the knowledge that their glide-path is free from obstructions, and throughout the approach the control tower is only 500 yd away on the pilot's port side.

The capital outlay in this type of aerodrome must be considerably less than for large airports such as London—which has, for example, no fewer than six runways—the saving in valuable land requirements alone being enormous. Where capital cost is not

a limiting factor, however, or can be recovered by means other than from the air transport industry, consideration may be given to another attempt to solve the problems already touched upon.

The “elevated” airport makes use of the force of gravity to assist landing and take-off (Fig. 3). Here the main source of income for investors is a massive skyscraper which houses, in addition to the usual airport accommodation with hangarage and repair shops, a wide variety of industries, offices, shops, flats, theatres, restaurants, etc., all providing rental to the enterprising financiers. Modern soundproofing methods eliminate unwanted noises. Occupants enjoy the convenience of an “airport on their doorstep.”

A shorter landing run is envisaged by virtue of the uphill gradient, coupled with a runway surface (Fig. 4) designed to offer resistance to travelling uphill while permitting rapid acceleration downhill for take-off. The height of the elevated aerodrome gives an added advantage when the surface-wind velocity is appreciable. At, say, 500ft pilots can count on an extra 10-20 kt which will again assist take-off and help to slow up the aircraft at touchdown. Passengers are embarked under cover in the airport building, travelling up to the top platform in lifts. Similarly, arrivals taxi into the lifts and are taken below for unloading.

The “elevated” design, like that of the “circular,” makes good use of the available land space, and, if high enough, need only cover about 200 acres.

No doubt other ideas will be forthcoming in the search for an answer. One thing is certain, for many years to come the conventional aeroplane will hold the field. Speeds will continue to increase, and so will landing and take-off speeds. Existing runways will not be able to cope, and it is well that some thought is being given to finding the answer. Perhaps the aviation vocabulary will soon include CTOL—“circular take-off and landing”—and/or GATOL—“gravity-assisted take-off and landing.”

H. TEMPEST

Leaves from a Line-book

On the Tarmac in the Twenties (when Life was not so Grim and Earnest)

THE Avro 504K was diving steeply earthwards. To the airmen on the tarmac it appeared that a crash was inevitable, but with minimum height to spare it zoomed, levelled off just before the stall and continued an erratic course across the aerodrome. The flight commander danced with rage, muttering in his native French awful imprecations which foretold dire penalties for the pupil—if he survived—who had taken up an aeroplane without authority and without ever before having flown solo.

The time was the mid-1920s and the place No. 5 Flying Training School, Sealand. The “pupil” was, in fact, a young flying-officer instructor who loved to play practical jokes on his seniors. On this particular occasion a fresh batch of pupils had just arrived and been kitted-out with flying clothing. “Borrowing” brand-new Sidcot, helmet, goggles and gauntlets, the practical joker had arranged with his colleagues to notify the flight commander that one of the new boys had taken off on his own.

The Avro made a shaky turn, slid around the end of a hangar and dropped on the grass with a thud which must have taxed the rubber cords of the undercarriage to their limit. Before it had rolled to a halt the flight commander was running out to order the pupil from the cockpit. Just as he was level with the tail a burst of engine temporarily halted him and blew away his cap. Without waiting to recover it he resumed the pursuit, but the apparently flustered occupant kept “blipping” the engine and the exhausted runner finally gave up the chase as the engine was opened up to full revs. The aircraft took off, gained some altitude, then turned and dived at the now retreating figure. As it climbed away on a steady course and the angry flight lieutenant returned officewards a crowd of grinning erks on the tarmac diplomatically disappeared . . .

Did someone who witnessed this, I wonder, later introduce the version which became a popular feature in the repertoire of every air circus in the 1930s and has so often been repeated at flying displays right up to the present day?

The practical joker must be nameless, for he is now a Very Senior Staff Officer; but his pranks outshone any ever thought-up by the high-spirited pilot-officer pupils, whose scope in this direction tended to be stifled by discipline.

One foggy winter's day when the aircraft were all in the hangars and the office stoves were roaring away this same instructor was seen walking along the flat annexe roof, carrying sods borrowed from a garden-making exercise and placing one on each chimney-top in turn. A few weeks later he developed a variation of this theme by introducing giant squibs through the outside flue-doors. They certainly dislodged the soot—most of it into the offices!

MOST readers know the classic anecdotes of the golden days of aviation between the wars . . . the instructor who threw away his control column . . . the V.I.P. who stepped overboard from the flying-boat. Here are some others, hitherto unpublished (as far as we know) and guaranteed genuine by their author, who today holds a senior technical post with a leading firm of aircraft constructors.

It was not surprising, therefore, that the practical joking habit spread. A sergeant-pilot instructor who later became a well-known test pilot took his ticket and got a job barnstorming with a joy-riding concern. When they later visited the district he looked up his old pals in the mess one evening and was subjected to a good deal of ribbing on the score that he was “robbing the public.” “Damn shame,” they told him, “taking ten bob off them and only doing a five-minute flip.”

His critics found out the registration letters of the aircraft which he flew and next day two of them formed on him when he was airborne, forcing him into a wide circuit and providing the lucky passengers with a fifteen-minute ride.

Don't let it be assumed from the foregoing that the station at that time was staffed by playboys. Those same instructors turned out a considerable number of pupils who later achieved distinction in all spheres of aviation, while some of the instructors themselves are by no means unknown today.

There was, for instance, a young flying officer, reserved in manner, whose crazy flying had to be seen to be believed. He is now Air Marshal Sir Thomas Pike, C.B., C.B.E., D.F.C. Then there was F/O. the Earl of Bandon now Air Marshal, C.B., C.V.O., D.S.O. And among the N.C.O. pilots there was F/Sgt. Sparkes, whose development work in sustained inverted flying contributed largely to the successful inverted formations which became a feature of the pre-war R.A.F. Displays at Hendon. His hobby was motor cycling, and seldom was he seen without his brown spaniel riding with him on a cushion strapped to the tank. He competed in reliability trials with such consistent success that he was given special leave to ride a manufacturer's new model on a world tour.

Another instructor, F/L. J. A. Mollison, had still to come to fame as a pioneer of long-distance flights, but his dead-stick landings were a by-word. In a Bristol Fighter at about 1,500ft over the aerodrome he would switch off the engine and ease up the nose until the propeller stopped turning; then, descending in a series of side-slips, he would make a three-point landing on the grass, always so perfectly judged that the “Biff,” with only the drag of the tailskid to bring it to a halt, would just roll to the edge of the tarmac.

Taking a new mechanic out on a morning test, another expert