

originally invented. Its introduction was, of course, a flagrant breach of the tradition of using army ammunition, to which system all airborne armament had previously been pledged. The lame excuse heard here that electrical ignition would be unreliable has been disproved sufficiently by facts established by operational usage.

Admittedly, certain of the later Luftwaffe guns, the Rheinmetall MK.108 and the Mauser MG.213/C in particular, were not yet fully developed when pressed into operational service, and thus were not quite free from teething troubles. This is not surprising in view of the extremely short development times and the war conditions prevailing. On the whole, it must be said that the intensified German development achieved its purpose well: useful weapons were evolved for air interception which are still unequalled anywhere. Modern Russian fighters use guns of German war-time design. Unfortunately, as will be seen, this country helped to provide Soviet Russia with the German experts she needed.

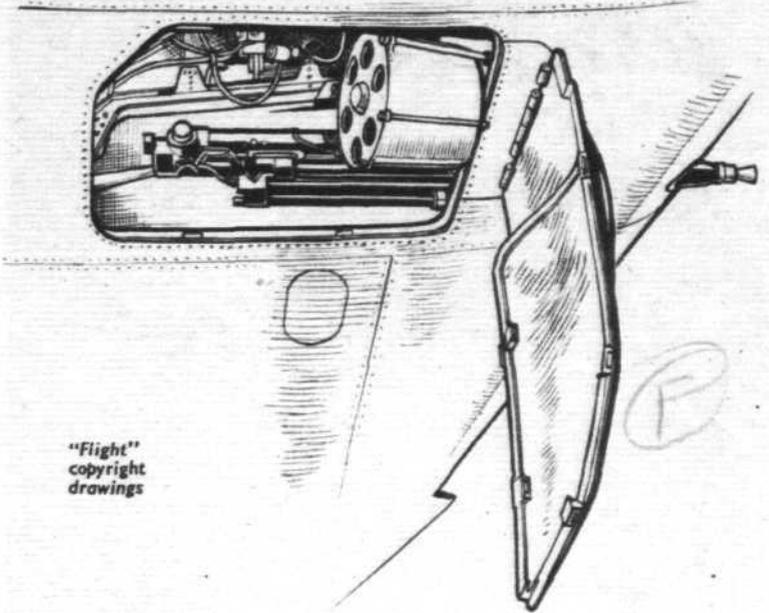
Hard pressed by the Allied air offensive, the Luftwaffe armament technicians were prodded into still greater activity to provide weapons for interceptors. One task was to supply large-calibre shell-guns for attack over wide ranges and with a certainty of destroying by a single hit or a near miss. Another approach concerned self-propelled missiles, i.e., rockets. Such air-to-air rockets must not be confused with the ground-attack rockets used by British fighters: the latter are sub-sonic in speed of flight, while the former must travel at supersonic speed if they are to replace gun shells.

With improvised spinning rockets, a first and noteworthy success achieved against American bombing squadrons (near Schweinfurth, on October 14, 1943) led to further intensified development. As a result, one of the most successful and promising air-combat weapons was created, the R.4/M, a 4-kg high-explosive rocket ("M" stands for "Mine," i.e., thin case with substantial high-explosive charge, signifying that the projectile depends primarily upon blast for its effectiveness).

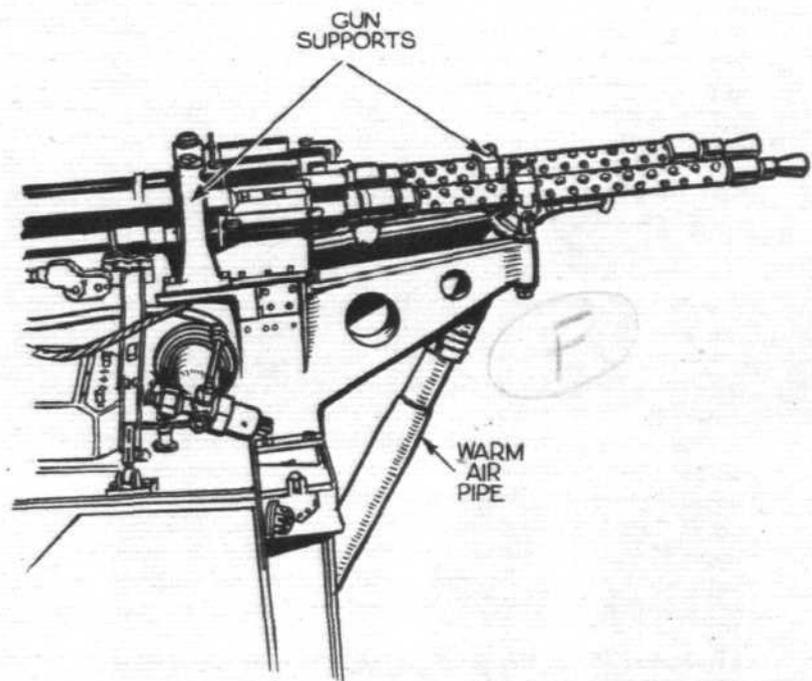
This country could easily have taken a similar step forward towards effective interceptor armament: as early as the spring of 1941, detailed proposals for a supersonic air-to-air rocket missile were submitted to M.A.P., only to evoke a curt refusal of further consideration by the Millbank omnipotents. A post-war comparison of the 1941 proposals with those followed by Luftwaffe experts with so great a success showed that the designer had been on the right track, and that it was the official experts who had blundered and erred once again.

The general assertion that, because the Germans lost the war, their fighter armament cannot have been any good, does, of course, not apply to the matter under consideration here: it is established, from unchallenged air-combat statistics, that the latest Luftwaffe fighter armament actually had an alarming technical and tactical superiority when Germany surrendered. At the end of 1944, the armament of the Me262 jet fighter—delayed by Hitler's "intuition" that this type should be used as a day bomber—was standardized at six 30-mm Mk. 108 guns (to be replaced by MG.213/C) and 48 rockets; for long-range attacks a 50-mm MK.214-A gun, with rigid installation, was scheduled early in 1945 and probably used. Single-engined jet fighters, it was decided, should have three 30-mm guns and up to 60 R.4/M projectiles. On the British side, most fighters had not even yet the standard equipment of four 20-mm guns, and American fighters had no shell-guns at all, but relied on 0.5-in machine guns.

Armament ranges increased steadily, but not to the extent which had been anticipated in the light of aircraft speeds and consequently decreased manoeuvrability. Average combat ranges rarely exceeded 400 yd for firing and even at 300 yd fire was but seldom opened. Gun stoppages were of less common occurrence than during the First World War. In the Second War, with the rifle-calibre Browning machine-gun a stoppage occurred, on the average, once per 15,000 rounds fired, while with the Hispano gun, in 1944-45, the 2nd Tactical Air Force experienced one stoppage per 1,560 rounds fired. Reasons for the relative all-round improvement were



Outboard 20-mm Oerlikon FFs on FW 190A



Fuselage-mounted 7.9-mm MG.17s (FW 190A)
(Below) Inboard 20-mm MG.151/20s on FW 190A

