

TABLE 7: ANTI-TANK MISSILES

	Launch wt (lb)	Warhead (lb)	Length (in)	Body diam (in)	Span (in)	Range limits (ft)	Speed (m.p.h.)
Bantam	13.2	3.1	33	4.3	15.8	1,000-6,500	191
Cobra	20.9	5.5	42	3.9	19	1,640-5,250	190
Entac	26.5	—	32.6	5.5	15	-5,800	190
Malkara	206	60	76	8	31	1,000-6,000+	400
Mosquito	26.5	7.3	44.1	4.7	23.6	1,200-6,600	211
Nord SS.10	33	11	33.9	6.5	29.5	990-5,250	180
Nord SS.11	64	17.5	45.9	6.5	19.7	1,650-11,500	425
Python	80	30	60	6	24	—	—
Vigilant	31	12	42	4.5	11	500-4,500	340



the German Army, 250 (evaluation) are on order for Holland, evaluations have been made by the US Marine Corps and 7th Army, and Daystrom Inc hold a production licence.

ENTAC

Medium infantry missile

FRENCH ARMY, US ARMY, BELGIAN ARMY EIGHT months ago this missile achieved the order sought by five others—bulk inventory purchase by the US Army. Entac (*Engin Tactique Anti-Chars*) was developed by the Direction des Etudes et Fabrications d'Armement, in competition with the industry-developed Nord SS.10. Taking more than twice as long as Nord, the government personnel delayed finalization in order to achieve a better weapon. Entac is lighter than SS.10, flies faster, has greater range, and—above all—has a partly velocity-type control system, instead of the difficult acceleration control. Originally Entac needed a crew of two, designated command-post supervisor and tracker, but DEFA have striven to make Entac a one-man missile. Many such improvements are being made, and we recently quoted a German rival as saying that the final, promised Entac "exists only on paper." Production has been farmed out to Nord. The US Fiscal 1961 purchase could be for some 17,000 rounds, at about \$1,200 each, triggered off by the sudden crises in Indo China, Berlin and elsewhere.

MALKARA

Heavy missile for use from vehicles

BRITISH ARMY

IN anti-tank warfare anybody who fails to kill with his first shot rarely gets a chance for a

second. While aware of the profusion of infantry missiles, the British War Office have long believed their lethality to be inadequate; and in August 1959 the sledgehammer Malkara was bought for use by the Royal Armoured Corps. Details of the missile, and its development by the Australian Government Aircraft Factories with assistance by the RAE, were given in the 1959 review. Fairey Engineering are UK foster-parent, and hold the sales-agency for all countries except the USA. British deployment will primarily be from an *ad hoc* air-droppable armoured vehicle with a crew of three, carrying two rounds on launchers and two stowed. Using a 60lb head containing 35lb h.e., Malkara is effective against any point target, such as a fort or bridge. Trials at Puckapunyal by the Australian Army and Department of Supply have demonstrated the accuracy and lethality of the missile; it can be made consistently to enter the slit of a bunker at ranges greater than a mile.

MOSQUITO

Light infantry missile

SWISS ARMY, "OTHER CUSTOMERS"

THE renowned armaments firms of Contraves and Oerlikon have now completed development of this missile, in which plastics and transistorization contribute to a low weight for its size. A rigid back-pack contains two Mosquitoes, wings unclipped, while the control unit is slung round the neck. The missile is launched directly from the ground, the forebody being supported by an adjustable rod. Arming is effected in flight either by a clockwork timer or a command signal from the operator. Contraves are in full production at Zürich, and have developed not only a simulator but a parachute recovery system for practice missiles.

NORD 5203 (SS.10)

Medium missile for infantry, vehicles or aircraft
FRENCH ARMY, and forces of 13 other nations (*Surface/Surface Missile 10*)

SS.10 was ready for service in 1953; more than 50,000 have now been delivered, out of Nord's present total of rather over 70,000 missiles of all types. Fully described in *Flight*

for February 7, 1958, it costs about £340 and is widely used from Jeeps, slow aircraft and helicopters.

NORD 5210 (SS.11)

Heavy missile for infantry, vehicles or aircraft

FRENCH ARMY, NAVY AND AIR FORCE, large evaluation orders by USA, Britain and Federal German Republic, and used by at least four other nations (*Surface/Surface Missile 11*)

SS.11 weighs too much to be a popular infantry weapon, although Nord have evolved a scheme whereby four men can handle three missiles and equipment. The marine version can be used after the guidance wires have touched the sea, and various types of warhead may be fitted according to the target character. A full description appeared on November 14, 1958.

PYTHON

Heavy missile for infantry or vehicles

PRIVATE VENTURE

STARTING with a careful electronic analysis of guidance systems, Pye Ltd, of Cambridge, have progressively evolved an optimum system which is now being test-flown. The War Office is keeping a close watch on progress, but has not injected money. Flight development continues to show promise, and a unique feature currently being perfected is that, to minimize power required for roll-stabilization, only the rear end of the missile, containing the motor nozzles, is prevented from rotating.

VIGILANT

Medium missile for infantry

PRIVATE VENTURE

DESCRIPTIONS of this weapon system were published by *Flight* on May 22, 1959, and July 27, 1961. Since they were not working for a customer, Vickers-Armstrongs (Aircraft) were able to develop this weapon with speed and economy, and it has shown itself to be the most effective infantry anti-tank device in the world. Key to the ease with which an operator can learn, and retain, certain-kill accuracy is the fact that it has an airborne autopilot, making for smooth flight and instant response to operator demand. Other advantages stem from the absence of either smoke or flash at launch, the high flight speed, the small-span wings with trailing-edge controls, and the extremely effective warhead which weighs 36 per cent of missile weight. Large-scale evaluation has been successfully completed by British Army infantry, and Royal Armoured Corps trials are in hand with Vigilants fired from Ferret scout cars. Following 5hr simulator training, operators are consistently achieving turret-strikes with their first round; and moving tanks have been hit well off to one side at only 200yd range. Production has been assigned by British Aircraft Corporation to English Electric Aviation at Stevenage; it is the task of BAC to prove that Vigilant is "the most economical and certain tank-killing weapon ever devised for infantry," despite its high first cost.

Two Continental anti-tank weapons: left, the definitive version of the German Cobra, which requires no launcher; right, the Swiss Mosquito, which (like Cobra) is made largely of plastics

