

# Tomorrow's RIFLE TODAY!



**LIGHTEST WEIGHT!**

**FINEST WORKMANSHIP!**

**MOST VERSATILE DESIGN!**



THE SENSATIONAL  
FAIRCHILD  
ARMALITE AR-10  
U.S. CALIBER .30 T-65

COOPER-MACDONALD, INC.  
NATIONAL MARINE BANK BUILDING  
BALTIMORE 2, MARYLAND • U. S. A.  
CABLE "COMAC" BALTIMORE, USA

Digitized by:

## THE RIFLE WHICH AMAZED THE EXPERTS . . .

The rifle which "couldn't be built". The weapon which combines in a single piece all the reliability of a fine infantry rifle. The lightness and firepower of a sub-machine gun and the potential and ammunition of a light machine gun is here TODAY in the amazing and incredibly versatile FAIRCHILD ARMALITE AR-10 automatic rifle, which has rightly been called "the most significant step forward in a basic infantry weapon in fifty years".



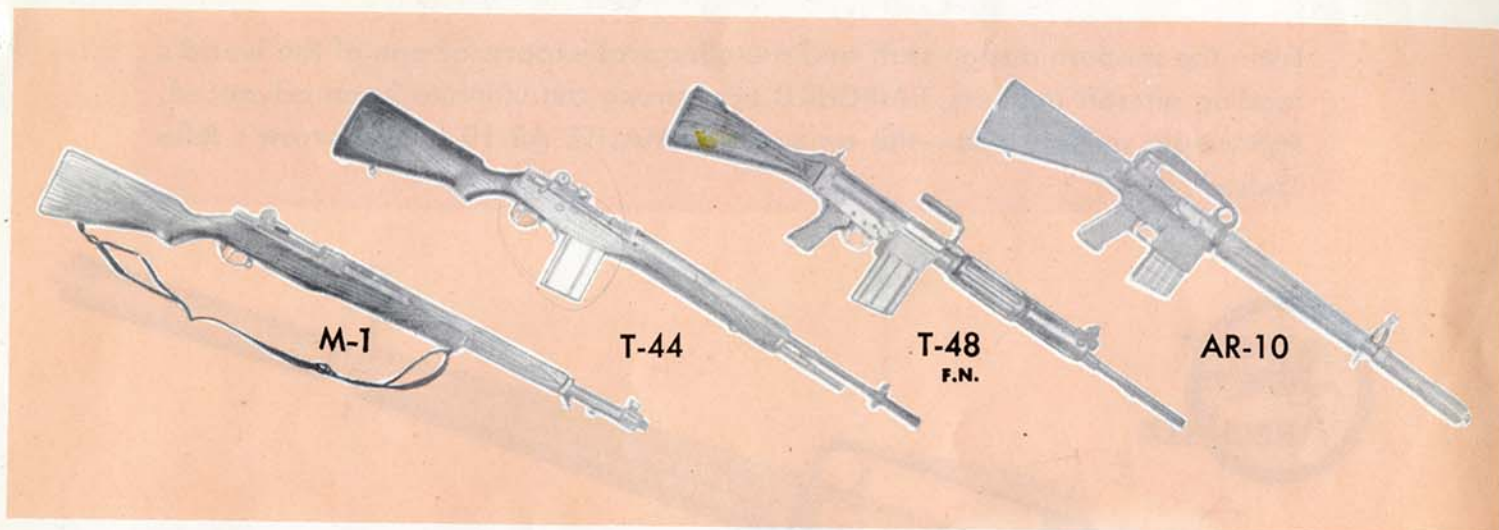
**ARMALITE AR-10**



**LIGHT WEIGHT BASIC  
INFANTRY WEAPON**

COMPARE, on the convenient table on opposite page, the features of the AR-10 with any other basic rifle in any class — and at any price range!

## COMPARISON OF BASIC INFANTRY RIFLES



	M-1	T-44	T-48 F.N.	AR-10
WEIGHT OF RIFLE	9.56	8.45	9.47	6.85
WEIGHT OF MAGAZINE	—	.53	.57	.25
LENGTH OVERALL	43.06	44.25	44.63	41.25
OPERATING ROD	YES	YES	YES	NO
TYPE OF FIRE	SEMI AUTO	SEMI AUTO & AUTO	SEMI AUTO & AUTO	SEMI AUTO & AUTO
CORROSION RESISTANT METALS	NO	NO	NO	YES
STOCK MATERIAL	WOOD	WOOD	WOOD	PLASTIC
CARRYING HANDLE	NO	NO	YES	YES
QUICK BARREL CHANGE (ON LMG)	NO	NO	NO	YES
WINTER TRIGGER	NO	NO	YES	YES
BARREL RADIATOR	NO	NO	NO	YES
DUST COVER	NO	NO	NO	YES
EFFECTIVE MUZZLE BRAKE	NO	NO	NO	YES
FRONT LOCKING BOLT	YES	YES	NO	YES

From the modern design staff and metallurgical experts of one of the world's leading aircraft builders, FAIRCHILD, has sprung the ultimate in an advanced, lightweight military rifle—the amazing ARMALITE AR-10—“Tomorrow's Rifle Today”.

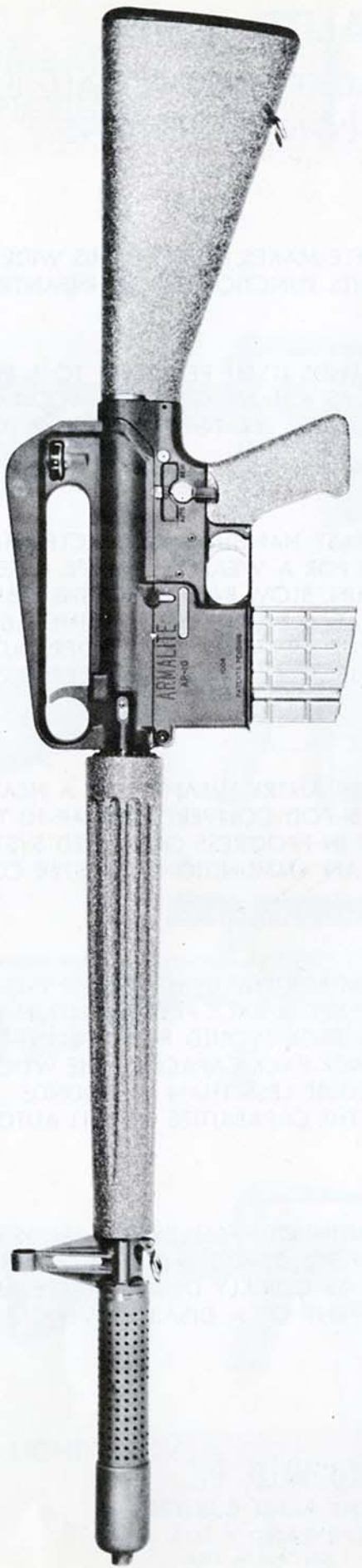


LIGHTWEIGHT AUTOMATIC  
BASIC INFANTRY WEAPON

**THE ARMALITE AR-10**

**COOPER-MACDONALD, INC.**  
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# ARMALITE AR-10



0 1 2 3 4 5 6 7 8 9 10

# THE ARMALITE AR-10

## THE ONLY WEAPON ADAPTABLE TO ALL BASIC INFANTRY WEAPON FUNCTIONS

### **BASIC INFANTRY RIFLE.**

THE DESIGN OF THE BASIC INFANTRY RIFLE MAKES POSSIBLE THIS WIDE RANGE OF USES WITHOUT ADVERSELY AFFECTING ITS FUNCTION AS AN INFANTRY RIFLE.

### **SNIPING RIFLE.**

THE CARRYING HANDLE OF THE AR-10 LENDS ITSELF PERFECTLY TO A RIGID SCOPE MOUNT WHILE NOT AFFECTING ITS USE AS A HAND GRIP. THE ACCURACY OF THE AR-10 HAS BEEN DEMONSTRATED CONCLUSIVELY TO BE SUPERIOR TO THAT OF OTHER RIFLES IN THIS CATEGORY.

### **CARBINE-SUBMACHINE GUN.**

BECAUSE OF THE LIGHT WEIGHT AND EASY HANDLING CHARACTERISTICS OF THE AR-10, THERE APPEARS TO BE NO NEED FOR A WEAPON OF THE CARBINE OR OF THE PISTOL CARTRIDGE, SUBMACHINE GUN, BLOW-BACK TYPE. THE OBJECTION TO SHORTENING THE BARREL OF A RIFLE CAPABLE OF HANDLING THE 7.62mm NATO CARTRIDGE HAS BEEN OVERCOME BY THE ARMALITE FLASH HIDER/MUZZLE BRAKE COMBINATION WHICH REDUCES THE OBJECTIONAL BLAST AND FLASH OF A SHORT BARREL.

### **LIGHT MACHINE GUN.**

CHANGING THE BARREL OF THE BASIC INFANTRY WEAPON TO A HEAVY, QUICK-CHANGE MACHINE GUN BARREL WITH BI-POD CONVERTS THE AR-10 TO A LIGHT MACHINE GUN. DEVELOPMENT IS NOW IN PROGRESS ON A FEED SYSTEM WHICH WILL PERMIT CONTINUOUS FEED FROM AN AMMUNITION CANISTER CONTAINING AT LEAST 250 ROUNDS.

### **MOBILE MACHINE GUN.**

THE DEVELOPMENT OF THE FEED SYSTEM FOR THE LIGHT MACHINE GUN WOULD ALSO PERMIT THE INFANTRYMAN TO CARRY A BACK-PACK CONTAINING 250 OR MORE ROUNDS OF AMMUNITION. THIS PACK WOULD PERMIT CONTINUOUS FIRE WITHOUT RELOADING FOR THE ENTIRE BACK-PACK CAPACITY. THE WEIGHT OF THIS AMMUNITION AND FEED SYSTEM WOULD BE LESS THAN 25 POUNDS. AN ENTIRE ATTACKING FORCE WOULD THEN HAVE THE CAPABILITIES OF FULL AUTOMATIC FIRE POWER WHILE ADVANCING.

### **VEHICLE MOUNTED ARMAMENT.**

THE LIGHT MACHINE GUN WITH THE CONTINUOUS FEED SYSTEM LENDS ITSELF WELL TO MOUNTING ON VEHICLES SUCH AS JEEPS, TANKS AND TRUCKS. THE WEAPON IS LIGHT AND MOBILE ENOUGH AS TO BE QUICKLY DEMOUNTABLE AND PLACED IN A POSITION OF DEFENSE IN THE EVENT OF A DISABLED VEHICLE OR OTHER EMERGENCY.

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**4** COMBAT  
FUNCTIONS

IN

**1** BASIC  
WEAPON

ONE ACTION  
ONE AMMUNITION  
ONE LOGISTICS PROBLEM  
ONE TRAINING PROGRAM

**1**



CARBINE-SUBMACHINE GUN

**2**



BASIC-INFANTRY RIFLE

**3**



SNIPING RIFLE

**4**



LIGHT MACHINE GUN

# THE ARMALITE AR-10

## LIGHTWEIGHT AUTOMATIC BASIC INFANTRY WEAPON

### SOME OUTSTANDING FEATURES

#### **STRAIGHT STOCK PRINCIPLE.**

THIS STRAIGHT STOCK HOLDS THE LINE OF RECOIL FORCE CLOSE TO THE CENTER OF RESISTANCE. THIS MAKES FOR EXTREME EASE OF CONTROL AND ELIMINATES THE TENDENCY FOR THE MUZZLE TO CLIMB WHEN FIRING FULL AUTOMATIC.

#### **NEW GAS OPERATING SYSTEM.**

THE AR-10 GAS OPERATING SYSTEM ELIMINATES THE OPERATING ROD, PISTON AND CYLINDER FOUND IN OTHER GAS OPERATED WEAPONS. THIS DOES AWAY WITH SEVERAL COSTLY AND COMPLICATED PARTS.

#### **FAST AND SIMPLE FIELD STRIPPING.**

ALMOST COMPLETE STRIP DOWN OF THE AR-10 IS ACCOMPLISHED IN JUST A FEW SECONDS. THE ONLY TOOL REQUIRED IS A CARTRIDGE.

#### **SIMPLICITY OF MANUFACTURE.**

MANUFACTURING SIMPLICITY HAS BEEN A MAJOR CONSIDERATION IN THE DESIGN OF THE AR-10. ALL COMPONENT PARTS OF THE WEAPON, WITH THE EXCEPTION OF THE BARREL CAN BE PRODUCED ON STANDARD MACHINERY AND MACHINE TOOLS. THOUSANDS OF SHOPS THROUGHOUT THE U.S.A. CAN PRODUCE THE ENTIRE WEAPON OR COMPONENTS THEREOF ON EXISTING EQUIPMENT.

#### **LIGHT WEIGHT MAGAZINE**

ARMALITE HAS DEVELOPED A TWENTY ROUND MAGAZINE FOR USE IN THE AR-10. MADE OF A NON-FERROUS ALLOY, THE MAGAZINE WEIGHS ONLY FOUR OUNCES. DUE TO THE SUBSTANTIAL WEIGHT REDUCTION OF THE MAGAZINE A RIFLEMAN CAN CARRY ONE HUNDRED ROUNDS OF AMMUNITION IN LOADED MAGAZINES (DISPOSABLE IF DESIRED) FOR THE SAME WEIGHT AS REQUIRED FOR ONE HUNDRED ROUNDS WITH ONE STEEL MAGAZINE AND THE NECESSARY STRIPPER CLIPS.

#### **MUZZLE BRAKE/FLASH HIDER.**

ANOTHER ARMALITE DEVELOPMENT INCORPORATED IN THE AR-10 IS A TRULY EFFECTIVE MUZZLE BRAKE. THIS BRAKE MAKES IT POSSIBLE TO FIRE THE WEAPON WITH LESS DISCOMFORT TO THE SHOOTER AND WITH BETTER CONTROL THAN ANY OTHER AUTOMATIC RIFLE USING THIS CARTRIDGE.

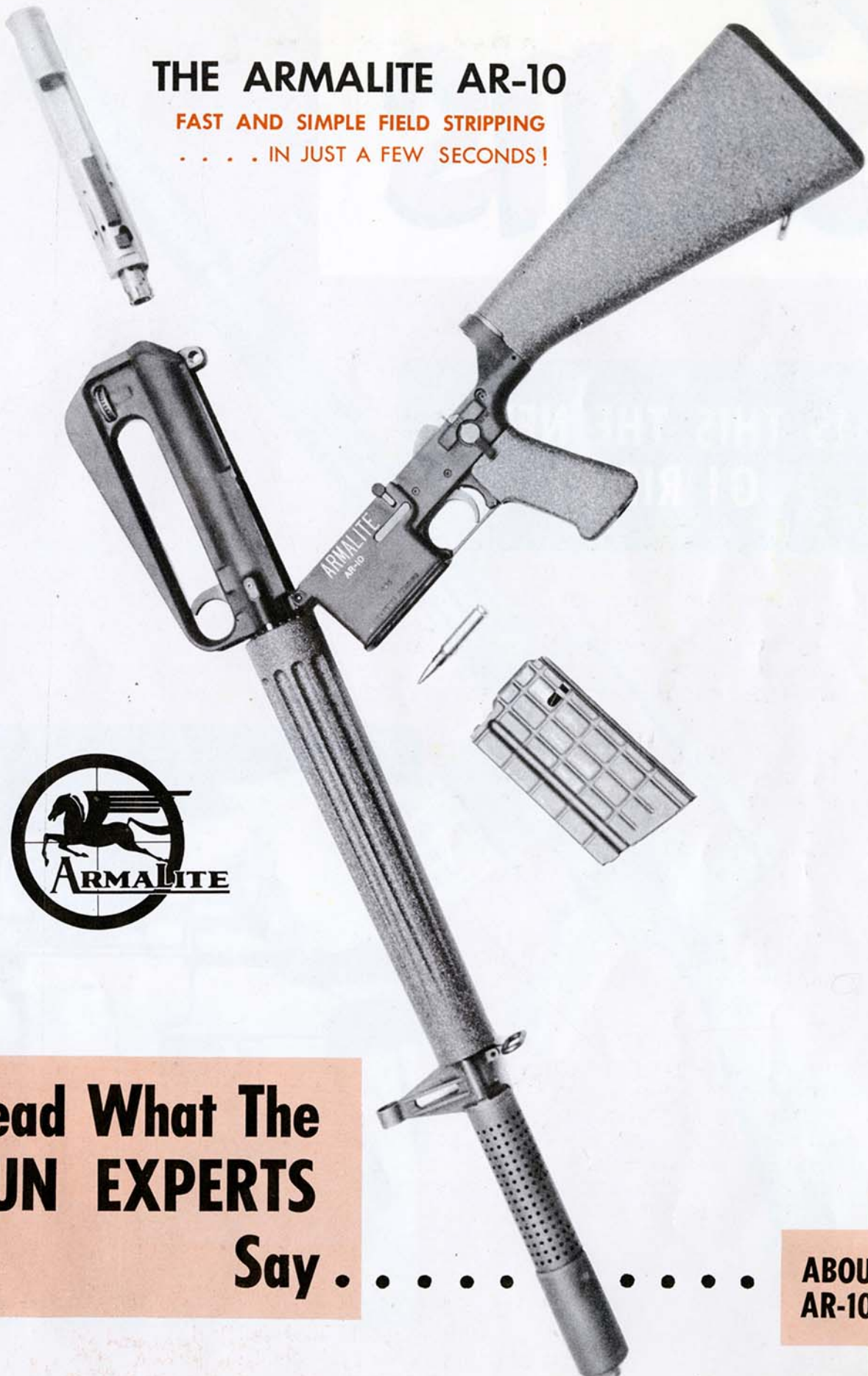
#### **NEW DESIGN CONCEPT.**

THE ARMALITE BASIC INFANTRY WEAPON COMBINES UNCONVENTIONAL DESIGN WITH THE USE OF LIGHT WEIGHT, NON-FERROUS, CORROSION RESISTANT METALS AND PLASTIC MATERIALS. THIS COMBINATION RESULTS IN A WEAPON SUPERIOR IN ALL RESPECTS TO OTHER WEAPONS IN THIS CATEGORY. THE AR-10 IS A MOBILE WEAPON, REQUIRING AN ABSOLUTE MINIMUM IN MAINTENANCE AND CARE, YET MAKES NO COMPROMISE IN EFFECTIVENESS, RUGGEDNESS, DEPENDABILITY, SIMPLICITY AND ECONOMY.

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# THE ARMALITE AR-10

FAST AND SIMPLE FIELD STRIPPING  
... IN JUST A FEW SECONDS!



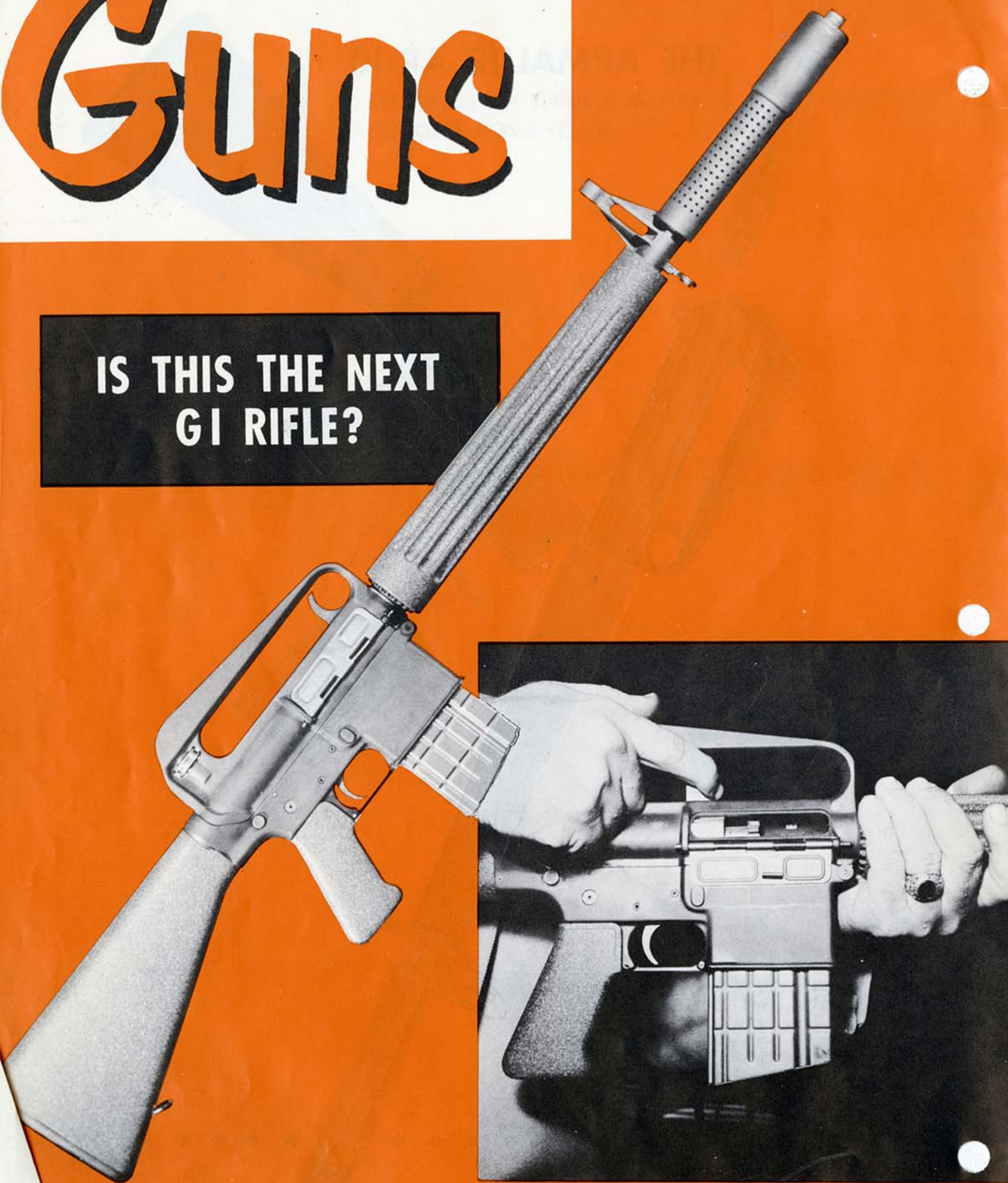
Read What The  
GUN EXPERTS

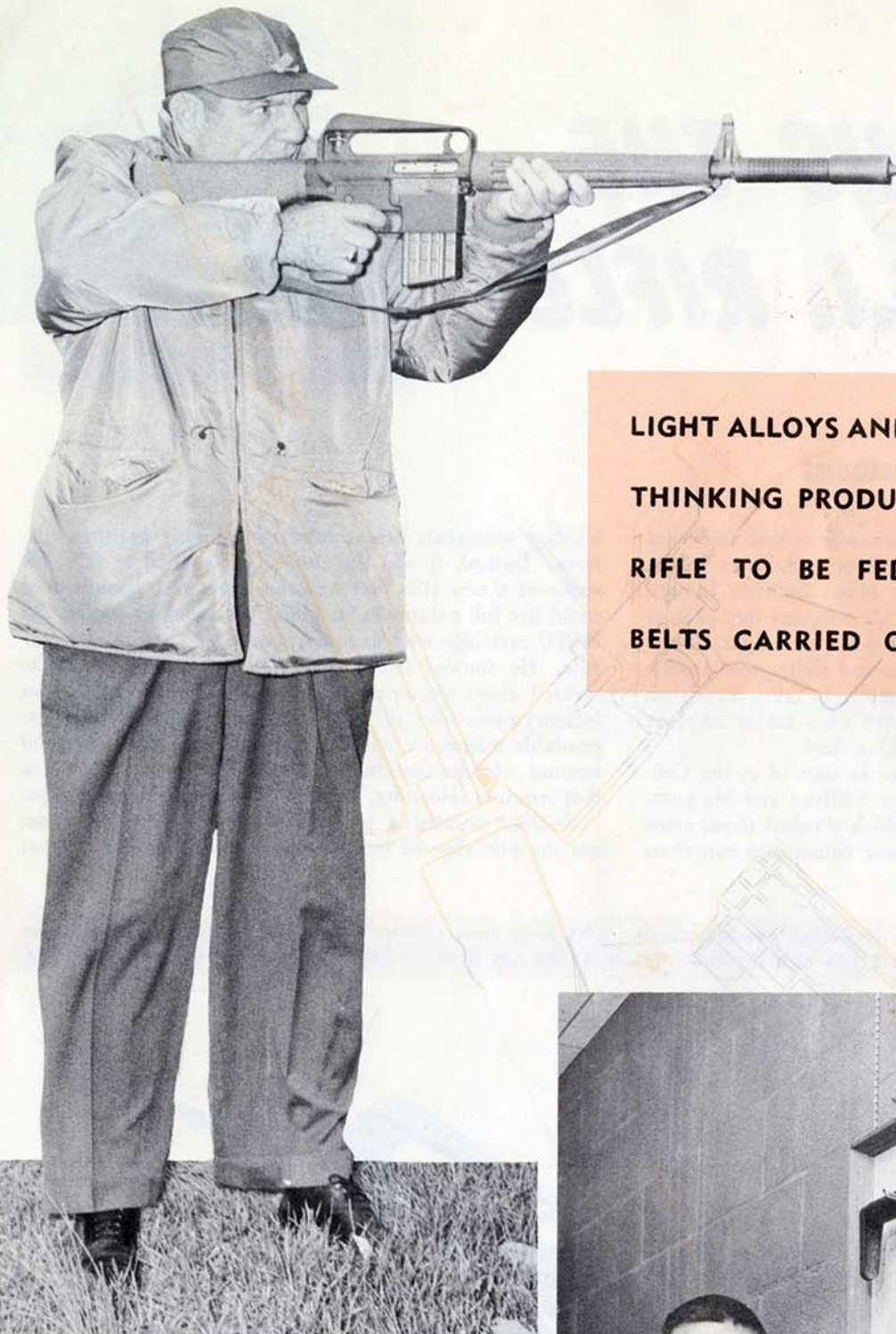
Say . . . . .

ABOUT  
AR-10


# Guns


IS THIS THE NEXT  
GI RIFLE?





**LIGHT ALLOYS AND CREATIVE CIVILIAN  
THINKING PRODUCE 6 $\frac{3}{4}$  POUND AUTO  
RIFLE TO BE FED FROM 500-ROUND  
BELTS CARRIED ON SHOOTER'S BACK**

 Firing a 6 $\frac{3}{4}$  pound rifle developed by new Armalite division of his company, Fairchild Aircraft president Richard Boutelle tests full-auto weapon in backyard of his home.

 Peg board displays development models of new plastic and aluminum rifles which are product of team research guided by Gene Stoner, Armalite's chief small-arms engineer (at left).



# IS THIS THE NEXT G.I. RIFLE?



Warren Runnals, gunsmith on Armalite staff test-fires the new AR-10 rifle.

By EUGENE JADERQUIST

FOR EIGHT YEARS, California hunters have been unnerved by the sudden appearance of George Sullivan in the field. There is nothing peculiar about Sullivan himself when he's out hunting. It is just his weapons that prompt a fast double-take. Most guns just don't have light, silvery barrels, bright red breech actions, and Kelly-green stocks. But Sullivan's guns are a little unusual in more ways than color. They are the advance guard of a major airplane company's entry into the gun-making field.

Top brass in the Pentagon were as startled as the California hunters when they first saw Sullivan and his guns. This time, it was not the color which shocked them, since Sullivan knew better than to show camouflage-conscious

military specialists bright colors and highly polished surfaces. Instead, it was the story Sullivan had to tell. He spoke of a new rifle that weighed about  $6\frac{3}{4}$  pounds, and could fire full automatic, handling the standard service .30 NATO cartridge with as much accuracy as the present M1 rifle. He showed them a 20-round magazine of waffle-creased sheet aluminum that weighed four ounces. An infantryman's load of 100 rounds in these pre-loaded expendable magazines would weigh no more than an equal amount of ammunition involving the regular BAR box that required reloading, plus the ammunition stripper clips.

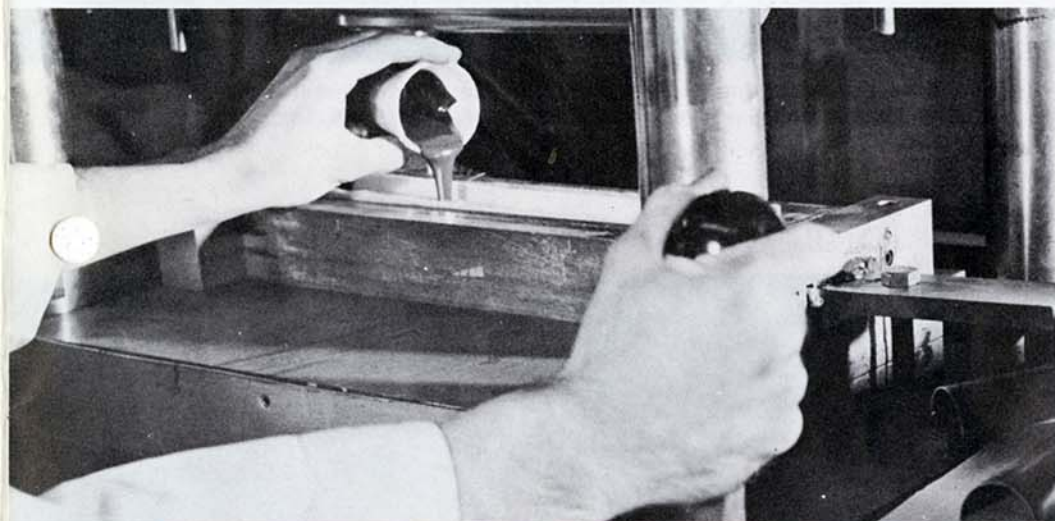
Sullivan painted a picture of infantry firepower that got the attention of the most conservative officers. What

New weapon uses innovations including predominantly light alloy and plastic construction. Breech, broken for field stripping, uses multi-lug bolt (at right) turned by small slot on sleeve which gas pipe blows back in firing.





Light rifles issued to other nations forces, such as Russian SKS-46's used by near-eastern nations, stresses need for light rifle designing like U.S.'s Armalite.



Pouring plastic mix from Dixie cup to mould front handguard is one of the most difficult steps in making AR-10 rifle which is engineered for easy production.

Stoner and plant superintendent Charles Dorchester (right) discuss drawings of AR-10 in Stoner's office where chief engineer's gun collection is displayed.



Sullivan presented was the idea of a shoulder rifle so light, so controllable in full-automatic fire, that each soldier could advance at a run firing up to 500 shots, *continuously*. Sullivan's rifle used standard detachable clip magazines, but the California lawyer-inventor intended to feed the gun from two 250-pound canisters strapped on the soldier's back, weighing in all hardly more than 20 pounds. Such a bullet shield would allow the attackers to advance behind a leaden umbrella during the most dangerous phase of the assault.

The Pentagon was interested. Mass issue of light, full-automatic rifles to the armies of even minor powers like Egypt had brought the Army at last to the long-delayed moment of decision. They were now ready to adopt a fully automatic shoulder rifle if somebody would show how ammunition supply for such weapons could be maintained. The double back-packs holding 500 rounds would be an answer. After all, if the mission is accomplished, no ammunition supply problem is too difficult.

Sullivan recently showed the Army his AR-10, the first aluminum and plastic gun to be considered seriously for adoption by the U.S. Army, and one of the first non-ferrous guns to be made anywhere. But of as much interest to the average gun enthusiast are the other weapons Sullivan has allowed to gather dust while he's been devoting all the possible time to AR-10. In the office at Fairchild Engine and Airplane Corporation's "Armalite" division in Los Angeles are half a dozen working shotguns and sporting rifles of super-lightweight alloy and plastics. Most of these have been tested and found satisfactory in the field. Development of the AR-10 has brought these experimental weapons near to production. And the manufacturing lessons learned on the AR-10 can be applied to sporting guns. AR-10 can now be produced economically in mass quantities, with no special production equipment other than that already being used for production of other aluminum and plastic products.

Sullivan had already licked the critical manufacturing problem, the use of light alloys. Working with engineers of Alcoa, Harvey, and other aluminum companies, he had developed the strongest aluminum alloy yet seen. The precise composition of the alloy is secret, but it is predominantly aluminum with small proportions of

silicon, manganese, magnesium, and other elements. The ultimate tensile strength of the alloy is 100,000 pounds per square inch, a figure that can be compared with the 150,000 pounds per square inch ultimate tensile strength of steel barrels. Armalite engineer Eugene Stoner, a former Marine and Army ordnance man, points out that the *yield* rather than the ultimate tensile strength of steel is more closely comparable to the aluminum figure. Aluminum's yield point and ultimate strengths do not vary as widely as steel's. The yield strength of steel barrels is 125,000 pounds per square inch.

For normal sporting use, aluminum for the barrel is adequate. In "cold barrel operation" such as might be expected in a sporter Sullivan uses barrels of aluminum. For the military full-automatic AR-10, a steel liner is inserted into the aluminum barrel. The full automatic rifle fires its 20-shot magazine in two seconds—600 rounds per minute—and barrel temperatures rise almost immediately to 600 degrees Centigrade.

The aluminum barrel is fabricated by extrusion, on machinery already developed for other uses. The steel liner can be made by conventional machinery. There are two advantages to this aluminum-steel construction. The first advantage is the cooling. Aluminum dissipates heat three times as fast as steel. Armalite engineers have aided this cooling process by grooving deep cooling fins into the steel-lined barrel, thus exposing more radiating surface to the air. The second advantage is that the steel liner can be made of harder steel than is possible with the all-steel barrel. This is because the rifling is rolled into the inner surface of the thin bore liner by swedging the barrel tube around a rifled mandrel. This prints the rifling marks from the mandrel into the steel of the barrel, at the same time compressing the steel and work-hardening it. The result is a glass-smooth bore surface, and steel of far greater strength than in drilled barrels. Such swedged rifling barrels have longer barrel life and greater strength. And there is a considerable weight saving in the aluminum barrel. The steel barrel of the old M1 weighed 2½ pounds; the AR-10 barrel, complete with steel liner, weighs only 1½ pounds.

Another advantage claimed by Armalite engineers is the damping of



Swaging machine forms aluminum barrel jacket over stainless steel liner in fast operation for low-cost construction of erosion-resistant AR-10 barrels.

AR-10 breech is protected from dust and dirt since spring cover closes ejection port and strong waffle-creased clip is shrouded by frame.



vibrations set up under full automatic fire. The all-steel barrel has a single frequency to which it will vibrate; the aluminum-steel barrel has two separate frequencies which tend to cancel each other, producing a stiffer and inherently more accurate barrel.

Aside from the barrel, the greatest new departure from ordinary firearms design on the AR-10 is its plastic stock. Plastic stocks have been tried before, but this is the first gun to use two forms of plastic construction. The outside of the stock is a plastic shell, reinforced with layers of Fiberglass cloth. Laminated Fiberglass cloth plastics are the strongest known, and do not chip or crack as easily as solid plastics without reinforcement. Inside this strong shell is a plastic foam, injected into the shell while liquid. As it dries it expands and hardens, forming a fine honeycomb of solid plastic to further reinforce the shell. The result is a stock that resists scratches and cuts far better than wood. It will withstand more pressure than wood without cracking, and is much lighter than wood. This plastic construction saves between one and two pounds of dead weight.

The toughest job for Sullivan's team developing the AR-10 was to design a new bolt assembly that would not infringe on existing patents and also, where possible, improve on existing designs. As finally submitted to Springfield Armory, the AR-10's bolt assembly is a unique design. In most gas-operated automatic rifles the gas trapped behind the fired bullet is fed through a gas port into a cylinder near the muzzle. In this cylinder is the piston, connected to an operating rod. When the gas pushes the piston, the piston drives the operating rod, which in turn unlocks the bolt, extracts and ejects the fired cartridge, and compresses a return spring which shoves the bolt and rod forward, chambering a fresh round and leaving the hammer cocked, ready to fire by trigger, semi-auto, or mechanical sear trip, full-auto.

In the AR-10 the gas is bled off from the bore and passes through a tiny pipe down the left side of the barrel and into the receiver. The bolt consists of two parts, a rear inertia sleeve which does the work of unlocking and locking by means of a cam track, and a multi-lug bolt head which has a stud riding in the cam track. In the locked position the multi-lug bolt head, somewhat resembling the bolt of the Johnson semi-auto recoil-operated rifle, is engaged with the locking end of the barrel. The shot is fired and the gas flows through the tiny pipe to the rear. The pipe fits inside a hole in the bolt carrier or inertia sleeve. The gas expands inside the hole and drives the carrier to the rear. The cam-track rotates the bolt head stud, unlocking the bolt from the barrel. By this time the bullet has left the bore and the gas pressure dropped to safe limits. The bolt sleeve, from inertia, pulls back on the bolt head, extracting the fired case and compressing the captive recoil spring in the Fiberglass and foam butt. As the sleeve clears the gas tube, any excess gas is vented into the action. But the pressure is slight. Presence of gas is shown by a slight smudge on the bolt and sleeve in that area.

According to Richard Boutelle, president of Fairchild Engine and Airplane Corporation and prime mover in the Armalite project, the AR-10 becomes slightly sluggish after 500 to a 1000 rounds have been fired without cleaning. This is characteristic of gas operating weapons, more or less. The M1 rifle is not immune to the need for cleaning, and the BAR and Bren guns, both piston-gas operated weapons, have provisions to adjust for fouling sluggishness.

Because of the nozzle and sleeve Armalite design it will tend to have a self-scraping action, and should bear up well under Proving Ground tests. On two scores at least, the AR-10 will foil the experts. Made largely of non-corrodible aluminum and titanium alloys, with a minimum of steel parts, the soft gray-colored AR-10's will not rust. In the rain, when we fired them, they received a liberal baptism. Any other guns would have been stripped to the last nut and bolt to be cleaned after firing, but the aluminum and stainless surfaces of the AR-10's gradually warmed to room temperature, the water evaporated, and they were dry.

In dust and mud tests, too, the AR-10 should come through well. Three openings exist in the rifle's design: the muzzle (which is usually protected by tape in testing), the ejection port (which is covered securely by a hinged trap like the German MP 43), and the magazine well, which is filled by the staggered row 20-shot clip. Our own rainy day "proving ground test" gave good indication of the AR-10's resistance to weather and rusting.

Indeed, in these operating parts of the gun is the only use of rustable ferrous metals. Parts of the trigger group including the hammer, and the locking lugs and bolt assembly, are steel. In some cases this is for strength; in one instance it is simply to provide the necessary weight in a phenomenally light mechanism. A definite mass is required in the moving bolt assembly to provide enough energy to load and cock, in recoiling after unlocking, and the carrier sleeve is of steel. All steel parts are non-corrosive treated.

The basic parts of the gun are a barrel of aluminum, finned for rapid cooling, lined with high-test steel for automatic fire; a stock of foam-filled, fiberglass-reinforced plastic which is stronger than any wood stock and far more resistant to cutting, chipping and weathering; and an action operating on classic principles but embodying a new method of transferring the pressure of the gas to the bolt mechanism. But these are only part of the story.

Because of the major reduction in weight, Armalite's engineers have tackled the recoil and kick problem in two ways. The recoil of the AR-10 is about the same as that of the Garand. However, military men have long been aware of the need for anti-flash protectors on military infantry weapons. Armalite has combined an anti-flash device and a muzzle brake in one piece, looking like a perforated tin can. It is an essential part of the weapon. With the muzzle brake, the kick of the AR-10 firing the standard 7.62 mm (.308 caliber) NATO cartridge, is much less than the M1 firing the old Army .30 caliber ammunition.

The other problem of recoil is one inherent in any shoulder rifle that fires fully automatic. It is a well-known fact that, if the gun is gripped tightly by the shooter, the muzzle tends to rise in a slow but inexorable fashion, in an arc whose center is the center of weight of the weapon. Much of the reason for this is the stock shape of most rifles. The line from muzzle to end of bolt mechanism is straight, the stock then angling down to the shoulders from sight level. Thus the recoil force splits into two directions at the point where the stock begins to angle down to the shoulder. The major force travels down the stock into the shoulder; the smaller force is absorbed by the upward movement of the muzzle. Armalite engineers defeated this rising-muzzle problem by using straight-line construction. From the top of the barrel all the way back to the shooter's shoulder, the line of the gun is a straight line. All the impact goes straight back to the shooter's shoulder. None is absorbed by movement of the gun. The AR-10 has no muzzle rise, firing on full-auto.

A straight-line stock is the reason for the elevated sights of the AR-10. You can't design a military gun which requires the shooter to bend his head down to shoulder level to sight along the barrel; you can't have muzzle rise in a gun that means the difference between life and death to the soldier in the field. So the sights were raised to meet the eye. An aluminum sight carrier was installed on top of the bolt mechanism three inches above the bolt. The front sight was raised to correspond in height with the rear sight. This construction has also created a convenient handle by which to carry the gun. Any M1-trained soldier will tell you just about how much this handle can mean. And Armalite swears that you can use the handle all you want without disturbing the sight. The AR-10 can be sighted to well within the accuracy limits of the Army's specification for basic infantry weapons.

The sights themselves allow elevation adjustment only. Windage adjustment is controlled by an Allen wrench, and this is not supposed to be issued to the soldier as field equipment. Windage, reasons Armalite, won't change but elevation will. Once the soldier has his gun zeroed in for windage he should leave it there.

The weight saving in the Armalite AR-10 construction is the difference between night and day. While the AR-10's are going through the hoops at Springfield Armory and Aberdeen proving ground, we put a couple over the jumps in a brief comparison test, using a fine German FG-42 paratrooper's 8 mm machine rifle as a control. The weather was miserable, and all guns got excellent rain tests. Exhaustive firing was not possible with either of three Armalite guns—a stand ard autoloading sporting rifle resembling the test T-47 in external appearance, and the two AR-10 machine rifles.

An assortment of .308 Winchester ammunition was used, including short-bullet 110-grain soft-points which frequently jam in an ordinary autoloader. But in the AR-10's which were designed solely for the long-bullet 7.62 NATO military cartridge, the short .308's functioned well. Two failures-

to feed were experienced, due directly to the short bullet. No failures to feed have occurred in firing the longer bullets.

Objectionable kick was nonexistent in these truly lightweight automatic rifles. The highly efficient tin-can muzzle brake and flash suppressor fitted to one AR-10 kept things to a comfortable bounce in full auto, with none of the uncontrollable climb associated with some weapons when gripped too tightly. In semi-auto fire, the kick—in spite of the fact that the gun weighs hardly more than an M1-carbine—is far less than any other gun of comparable caliber. Measured energy of recoil is a scientific figure, but “kick” is something else—nobody knows what. My impression was that the .308 AR-10 kicked less than a Model 70 Winchester bolt action rifle using the same cartridge.

As unusual as the new rifles themselves is the fact that neither of the two men behind the guns consider themselves as “gun experts.” The rifle’s designer, George Sullivan, is by profession an attorney for the Lockheed Aircraft Corporation. Armalite backer Richard S. Boutelle, president of Fairchild, knows guns from his hobby only. But he knows guns pretty well. He has hunted from the tropics to the Arctic, and has dozens of rifles and pistols at his Hagerstown, Maryland, home. Once a friend of his wife’s remarked, “You should buy Dick a gun cabinet.” She replied, “We keep house in one.”

Sullivan has acquired a good technical grounding in the business from practical experimenting. He has worked on light alloy guns for the past ten years, and fired

the first aluminum-barrel weapon in 1948. Boutelle financed the special Armalite division of his corporation on October 1, 1954. The odds against them have been tremendous. Not only were they trying to build something that had never progressed beyond the dreaming stage before, but they were competing against the giants of America’s small arms industry for the richest plum of all, the Army’s basic infantry weapons contract. Compared to the heavier Springfield-Armory-designed T-44, and to the Belgian FN T-48 which weighs almost double the poundage of the AR-10, Armalite’s 6.85-pound rifle is the first light rifle to be developed since the inception in 1946 of the Army’s light rifle program. If it checks out well at Aberdeen Proving Ground, the Army’s weapons test center in Maryland, it should stand some chance for adoption.

The new gun is a product of teamwork and brain picking. Sullivan and his fellow engineers—Charles Dorchester, gun-crank and plastics expert, and ordnanceman Eugene Stoner, a gun hobbyist with some original ideas in arms design—are the first to admit that many features of the new gun are derived from the experience of both military and sporting gun manufacturers in the United States. They have frankly used the designs of existing bolt mechanism as springboards for their own development. But by building on the advanced construction of preceding inventors, these men of Armalite have created the first really new gun in years of conventional arms production.

The field testing that has been done in Los Angeles, at Armalite, has been sketchy at best. Armalite knows, for example, that

the AR-10 can hold its own in accuracy with the M1, but it does not claim anything further. AR-10 was developed as a military weapon, a lead sprayer, not as a precision instrument. They told me very frankly that they did not try to compete with the target rifles developed in steel.

“The light weight is the great thing in itself,” George Sullivan said to me. “I’ve carried all kinds of rifles and shotguns on hunting trips,” was his comment, “and a big, 9-pound rifle begins to weigh 27 pounds before the end of the day. With these guns,” and he pointed to the cabinet of plastic-aluminum guns, “the end-of-the-day weight is a lot less. You don’t even notice a two-and-a-half-pound saving in the morning, but by evening you’re ready to credit that small saving with the difference between heavy and light load.”

Whether or not the Army buys the AR-10 for the next basic infantry weapon, and it must make up its mind between the T-44, the FN and the AR-10, there is no doubt that the light gun is going to be with us for the future. To date only target rifles have not been threatened by the thinking and development behind Armalite’s light rifle. All the steel shotguns, deer guns, varmint guns, plinking guns can be replaced by plastic-aluminum items. *Can be.*

Whether they are or not depends on the very astute Sullivan-Boutelle combination. They have the gun, they have the know-how. This adventure of an aircraft company into the firearms field may very well be the most important gun story you’ll read this year.

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