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Association
“THE THOMPSON LEGEND”

Vol. 31

On The Side Of Law And Order

3RD QTR 2013

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\$30.00/YR

IN MEMORY OF BARRY BARMORE



TATA LEGEND 31 (3RD QTR 2013)

BARRY BARMORE

R.I.P.

You would recognize him in TATA photos as the guy in the red motorized cart. You would probably remember him as the happy guy who never met a stranger. He knew everybody and always had an upbeat story to tell.

Barry Barmore lived in Louisville most of his life. When he was young Barry, his brother and mother all had polio. Barry survived, coming out of the iron lung with only a moderate limp. He enlisted in the Marine Corps by act of Congress granting exception to prevailing physical standards. He completed full basic training at Parris Island. He said that is where he first fell in love with the Thompson. He served in combat in Viet Nam and left Southeast Asia as a decorated commissioned officer. Then he was asked to join an elite group of pilots who patrolled our southern boundary waters. "Drug dealers were offered the opportunity to turn back or land. They would be escorted to a landing field or they could land over water."

Barry worked for Louisville Gas and Electric Company for 32 years, and became a sworn police officer and later Chief of Police for the City of Barbourmeade, Kentucky. He was still walking and kicking ass until about 10 years ago when the Polio returned. The gradual progressive pain and weakness started low and progressed up the legs and then finally into the lower back muscles. It would have eventually killed him by paralysis of the breathing muscles. He went from braces to crutches to the cart, but still went to the range to shoot trap, pistol and rifle well. He served TATA as a range officer and statistician.

He drove to shows and matches because he didn't trust commercial pilots.

Last June he was diagnosed with an aggressive form of Leukemia and given less than two months to live. He made it 10 active months. Barry died 16 March 2013 due to the leukemia. He would thank everybody for the fun times.

-John Miller

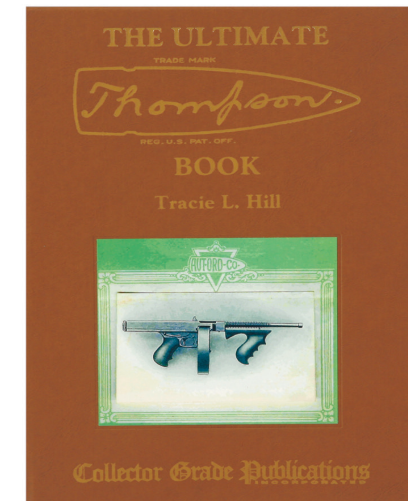
*The American
Thompson.*

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IRA ON THE MOVE,

No this is Bit a few of the people arriving at the All Thompson Show and Shoot. Well....maybe it does look like the guys from Michigan. Remember to sign up for the shoot. You can down load the infomation from the web page or simply write to Tracie at P.O. Box 8710, Newark, Ohio 43055 for details.



The American

Thompson.[®]

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AUTO ORDNANCE ADVERTISEMENTS

Shown here is a very interesting early advertisement for Auto-Ordnance. The add shows information on the Auto-Rifle and Submachine Gun, but is also selling the idea of the locking mechanism for other gun applications. This ad appeared in the Army Ordnance Magazine in 1921.

Thompson Self-Acting Breech Mechanisms for All Calibres

Thompson Autorifle---Calibre .30

Thompson Submachine Gun---Calibre .45

Automatic Arms will eventually replace hand-loaded weapons as surely as automobiles displaced slow-moving horse cabs. This will be accomplished by making their mechanism lighter, less complicated and surer acting. To this end the AUTO-ORDNANCE CORPORATION of NEW YORK is leading the way by the development of a self-acting breech mechanism for all calibres which in itself and without other accessories constitutes an automatic lock and release. Furthermore, this mechanism is automatically oiled. Why in the past has the powder engine (which is subjected to higher frictional resistances than any other type of engine) not been systematically oiled? If well oiled machinery will function better than half-oiled or dry mechanisms, does it not hold doubly true for an automatic gun?

Auto-Ordnance Corporation

302 Broadway

Cable "Autordeco"

New York City

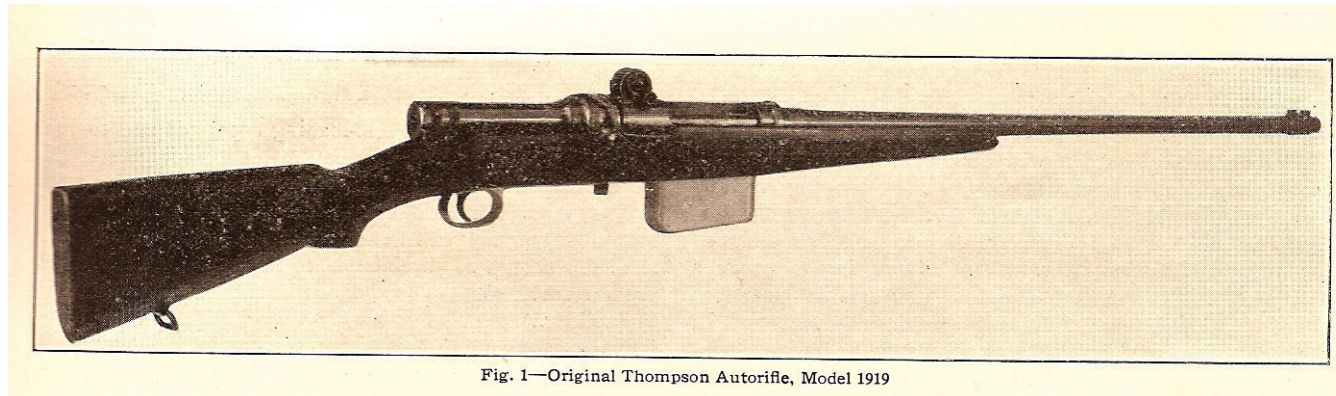


Fig. 1—Original Thompson Autorifle, Model 1919

The Thompson Autorifle

Caliber .30

By

H. E. HARTNEY

Member A. O. A.

THE development of a semi-automatic, self-loading military rifle, weighing less than ten pounds, capable of firing high-powered cartridges, has been the long perplexing problem of gun designers throughout the world. The primary problem has been the reduction in the weight of the rifle to within ten pounds, at the same time providing a sturdy automatic mechanism that could withstand the fifty thousand pounds per square inch pressure of a military cartridge.

In the past, self-functioning and automatic arms have been operated in three ways: (1) the blow-back of the gas against the head of the bolt; (2) a gas-operated piston which operates the bolt in turn; and (3) by the force of recoil. The objection to these systems has been generally; (1) the blow-back does not lock at the instant of firing, and consequently cannot fire high-powered cartridges; (2) gas operated, and (3) recoil systems add weight and complications—gears, arms, piston, etc., or move the barrel or the frame for the sole purpose of unlocking the bolt which performs no useful function after unlocking is accomplished. The latter method of unlocking is also a cause of inaccuracy in some designs, as these heavy weights are moving during the flight of the bullet in the bore or the period necessary to aim.

With the advent of the Thompson Autorifle and the Thompson Submachine Gun, another system of automatic breech closure is added to the above; namely, (4) the *self-acting lock* in which the bolt is in the form of a wedge or a screw and which *in itself without other accessories* constitutes at once an automatic lock and release. This is accomplished by the principle of adhesion, about which, outside of the experiments of General John T. Thompson and his associates during the last few years, little is known. A study of this new principle shows the advantages of the *self-acting lock* by reason of its extreme simplicity and consequent saving of weight, overcoming at the same time many of the basic engineering problems involved, as the weight thus saved can be placed where most needed.

This principle was observed and patented by Commander John Blish of the U. S. Navy, and presented to a special Board of Naval Ordnance before the World War. Com-

mander Blish's basic claim, among others, in the words of the Board, was:

"That in any breech closure consisting of a breech plug housed in a suitable housing and having two pressure resisting surfaces, the forward surface disposed normally to the axis of the bore and the rear surface inclined thereto and bearing upon a suitable surface of the housing, the force of adhesion will immovably fix or clamp the breech block under heavy pressure, but at a comparatively small pressure, whose value depends upon the inclination of the two surfaces referred to, the force of adhesion ceases to act and the breech block is rendered free to move under the influence of the forces then existing.

"It is readily seen that this claim is a very broad one, and brings within its scope practically every known type of breech closure, whether it be of the wedge or screw type.

"On the subject of adhesion, the Board finds the literature scant. In every-day life this force manifests itself chiefly in the adherence of liquids to solids, especially when such liquids 'wet' the solids—for example, water and glass. It may be noted, however, that the efficiency of all glues and cements depend largely upon the force of adhesion. Occasionally it manifests itself in two solids, such as when two plates of polished glass adhere with sufficient force to render it difficult to separate them without breaking them.

"Adhesion is a molecular force which binds together the surface of molecules of two bodies at the common surface of contact. Everything goes to show that intimacy of contact conduces to the existence of adhesion. If two bodies are pressed together, the pressure increases the intimacy of contact, especially if the pressure be great, and thus indirectly causes the surfaces to adhere. If the pressure be gradually reduced, the contact becomes less perfect and a point is reached where the contact is not sufficiently perfect for the surface to adhere—adhesion ceases and the surfaces are free to move under the influence of such other forces as may exist at the time.

"So long as the surfaces do adhere they are locked together by the force of adhesion, and resist any sliding upon each other much as the force of cohesion resists the sliding of the molecules of a continuous body under the influence of a shearing force.

"Two remarkable facts were made manifest by these experiments, (1) the breech opened when the wedge angle was considerably below the angle of repose, when friction might have been expected to hold the block after the adhesion ceased; (2) with the larger wedge angles considerable pressure in the bore still compressed between the cartridge case and the wedge housing with considerable force. Under such circumstances one would expect abrasion of the contact surfaces when



Remington Shot Cartridges

This may be the oldest documented box of Remington Shot Ammo known. According to the book "The Ultimate Thompson Book", The first delivery of test ammo arrived in New York at Auto-Ordinance on August 8, 1921 to begin testing. After initial testing the ammo was found to be only used in combat or severe riot conditions. The box seems to have a receipt stamp on the end of the box that states "AO Corp Recd Jan 30, 1922." I may not be the first delivery of ammo, which would have been consumed in the tests, but it is really close.

WHAT'S NEW
BY
TRACIE HILL

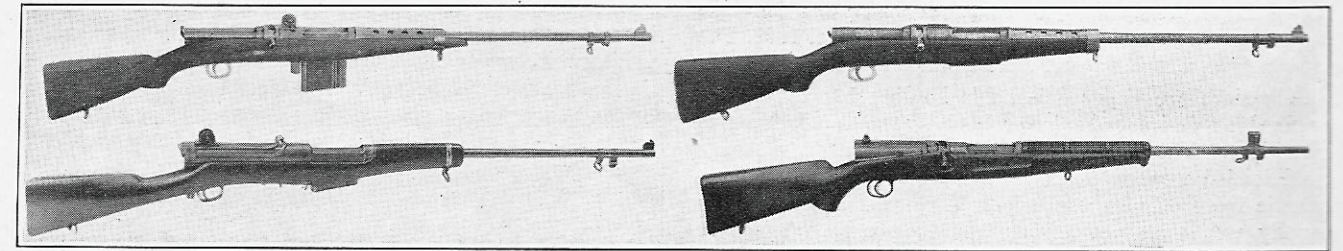
Pictured on next two pages are a couple of very rare items from the Remington Ammunition production for the Thompson Submachine Gun.



The first is this "Bullet Standard" for the "45 Thomp. Sub/Mach. Gun" high velocity bullet. A bullet standard was created to become the pattern for the molds that created the finished form and shape of bullets for ammo. These standards were then used to measure samples from production against the compare if the production bullets were being made correctly.

The Remington High Velocity ammo did not sell very well and had some very early teething problems in the early R&D stages. More information is available in the "Ultimate Thompson Book" page 147.

Only one or two standards would ever be made, particularly for such a small production item like this high velocity ammo. The standard above is pictured with a bullet from the Production runs.



Thompson Autorifles

Fig. 2—Upper left: Thompson Autorifle, Model 1920. This rifle accomplished the unique record of firing for the first time the 5,000-round Springfield Endurance Test in 1920 without breakage or repair. Fig. 4—Lower left: The Thompson Combination Automatic and Semi-Automatic Machine Rifle, Model 1921, weight 11 lbs. The mechanism of this rifle is designed for quick conversion into a tripod mount with heavier barrel for the heavy machine gun type.

Fig. 3—Upper right: Colt Autorifle, Model 1921, designed by Colt's Patent Fire Arms Mfg. Company of Hartford, based on Thompson Autorifle, Model 1920.

Fig. 5—Lower right: The Thompson Autorifle "P," Model 1921, basically designed from Model 1920. Built by the Auto-Ordnance Corporation of New York.

movement took place, but no such abrasion was discernable.

"The rifle mechanism was especially interesting for several reasons, viz, (1) the wedge angle was considerably less than the angle of friction; (2) sufficient pressure remained in the bore when the wedge opened for the empty cartridge case to be blown to the rear, carrying the bolt (containing the firing pin and firing spring) before it with sufficient velocity to cock the firing pin when the bolt brought up against the rear buffer, and causing the empty cartridge case to rebound and to be ejected to the front. This movement of the bolt to the rear was against the force of compression of a spring designed to reload the piece.

"From what has been said it is evident that in practically every breech mechanism in existence the force of adhesion must come into play, that there is no tendency for the mechanisms to open under heavy pressure, and that the so-called safety locks or latches serve only to restrain the tendency of these mechanisms to open after the adhesion has ceased.

"Commander Blish's system of breech closure lends itself naturally for use in automatic or semi-automatic small arms, machine guns, and guns using fixed ammunition."

Perhaps the clearest example of Commander Blish's principle is the case of firing reduced or saluting charges in guns of large caliber, where it has been often observed that the screw breech block at times automatically opened or tended to open; whilst firing full charges this phenomenon very seldom occurs. The principle of opening at the low and holding on the high pressures is thus shown in breech mechanisms of the screw type even in cannon. Bearing in mind that the screw is the mechanical equivalent of the wedge, Commander Blish's embryonic mechanisms allowed the variation of the angle of inclination of the surfaces of a wedge and he deduced that the smaller the inclination, the smaller the pressure at which the adhesion ceases, but he did not attempt to formulate the relation existing between these quantities. He also discovered that the cessation of adhesion under diminishing pressures apparently was very abrupt and it was logical to infer that under increasing pressure the force of adhesion is called into existence in an equally abrupt manner.

The first piece of mechanism that successfully demonstrated the Blish principle was the Thompson Submachine Gun, now generally known and on the market, which was described in the issue of ARMY ORDNANCE for November-December, 1920. In this form the simple wedge was successfully used as a self-acting lock. The next development of the principle has been the Thompson Autorifle, in which the screw form of bolt was utilized as the self-acting lock. The Autorifle has been basically considered as an engine—in fact as a double acting gas engine in which the bullet and the bolt have motions of translation in opposite directions and are moving pistons. Considering the importance of proper lubrication in automobiles or other gas engines, the lubrication of the automatic gun or powder engine with its correspondingly high pressure and frictional

resistance has been considered even more essential. This results in the automatic oiling feature of the Autorifle wherein the added complication and weight to the simple light breech mechanism could be incorporated without exceeding the limit of ten pounds. Basically, proper automatic oiling of any mechanism was considered as naturally prolonging the life of the machine.

Those experienced in the actual use of automatic guns are almost unanimously agreed that the oiling of cartridge cases insures more certainty of action. In fact cartridge case oiling was prevalent in the field during the World War. This practice was accomplished crudely with an oil can before loading. The reason for this is obvious when it is realized that extraction, which is the heart of the automatic problem requires varying forces. The extraction pull necessary for cartridges has a wide variance due to the adhesion of the case to the chamber and also due to the fact that in some gas and recoil automatic guns the instant of applying or timing the pull is not always the same for each shot, especially where the rate of fire can be regulated in such guns. Experiments show conclusively that oiling decreases the variation in the force required for extraction and consequently makes it more uniform. With the more cumbersome unlocking apparatus of some gas and recoil systems, an accurate timing of the extraction is almost impossible. This results generally in uncertainty of action. After exhaustive tests the timing of extraction has been covered in the Autorifle by its special design and construction.

The Autorifle is loaded in exactly the same manner as the Service Rifle. In doing so, however, the cartridge cases are automatically oiled. This changes the back pressure on the bolt from that known to be exerted by dry cartridges. Hence, after exhaustive tests, its use in the Service Rifle has been discouraged by certain experts. However, in guns specially designed and with mechanisms timed particularly for such pressures as in the Thompson mechanisms, this point is safely taken care of and large factors of safety are secured. As the bullet is neither oiled nor greased, the ballistic qualities of the bullet remain unaltered. The mechanism, however, gives a considerable reduction in recoil with corresponding advantages in accuracy of firing.

In appearance and general form, the Thompson Autorifle is a replica as far as possible of the present U. S. Service Rifle. In fact, out of a total of 95 component parts for the U. S. Model 1903, thirty of the total 86 parts of the Autorifle are the same as in the Service piece. The design allows the Autorifle to be completely dismantled and assembled rapidly. Dismantling for replacement of moving parts is accomplished without the use of tools and is simple. Comparing the gun mechanism proper consist-

ing of all parts necessary for free functioning the Autorifle has 44 parts contrasted to 42 for the U. S. Model 1903. The total weight of the Autorifle is 9 pounds and 10 ounces.

Magazines are either detachable holding 10 or 20 shots or fixed as desired, the latter holding the regulation five cartridges. The Autorifle can be conveniently used as a hand loaded weapon when desired, reserving the semi-automatic feature for emergencies. The mechanism functions equally well with powder charges 40 per cent below or above normal pressures of 50,000 pounds without adjustment of any kind.

Turning from the mechanical aspects of the military semi-automatic problem to the tactical considerations of the case, the advantages of semi-automatic fire in battle are not fully conceded by all military experts. Rapidity of fire, however, has been one of the most important considerations affecting the design of Small Arms since time immemorial. The invention of the breech loading principle by Hall in 1664, the percussion principle attributed to the Englishman Forsyth, along with the pin fire cartridge by the Frenchman Houllier in 1847, and the adoption of magazine Small Arms by the German Army in 1865, all paved the way of improvement by increasing the possibility of rapidity of fire.

Since the battle of Lexington, probably no tradition of our army is cherished so dearly as the proverbial marksmanship of the American soldier. This tradition has been fostered by the most careful training methods to such an extent that it is seldom, if ever, an American Rifle Team is defeated in international competition. The degree of proficiency obtained by American Army training methods with the enlarged forces involved in the war, was certainly successful in that the American soldier, as a rule, was superior in marksmanship to his allied comrades in arms, and equal to at least the best trained enemy

forces. With the advances made during the last century in the application of the principle of replacing man power by machine power, the advent of automatic fire in replacing hand-loaded fire cannot be far distant, just as the fast moving taxicab replaced the slow moving horse vehicle. If, in order to hold a position that is opposed by isolated units of automatic fire, it is necessary to thickly concentrate marksmen using hand-loaded weapons for the purpose of maintaining fire superiority, many believe our World War experience has shown us that the price is paid in blood.

At the critical moment that occurs in every battle, other things being equal the side which brings the preponderance of lead to bear will be victorious. If, by the adoption of a semi-automatic shoulder rifle it is made possible for the soldier to deliver at a critical moment forty aimed shots per minute against the soldier who with his hand-loaded weapon fires twenty, the result can be surmised.

However, in the past, the semi-automatic shoulder rifle weighing under ten pounds in weight and firing the high-powered military cartridge has not only proven unreliable in its certainty of action, but totally unable to endure the many rigors required of it. If the *Self-Acting Lock* is an answer to the many problems involved, the prestige of the American Gun Engineer will move one step higher where in the past it has been raised pre-eminent throughout each decade by such names as Hall, Maynard, Henry, Sharp, Rider, Lewis and Browning.

[NOTE.—Colonel Hartney, author of the above article, has recently resigned from the Army Air Service to accept the position of Managing Director, Aero Club of America. During the World War he was Commander of the First Pursuit Group, American Expeditionary Forces. For his gallant and effective work with this organization he was awarded the Distinguished Service Cross, the Croix de Guerre, the Italian Silver Medal for Valor, and was made a member of the Legion d'Honneur.—Ed.]

The New Larsen All-Metal Attack Plane

Under the above title, the *American Army and Navy Journal*, on November 5, 1921, printed an article by the author of our preceding article, which read in part as follows:

Eminent naval strategists and tacticians admitted last summer after the bombing tests were over that they would be forced to give the airplane more consideration hereafter in all naval and war preparation. Already another phase of aviation warfare is before the public and may give the Army tactician just as rude a shock as it did the Navy, for it threatens to upset calculations and war plans on land radically. Attack aviation is that portion of military air forces that aims at ground troops and ground harassment generally. It developed during the last few months of the war, but owing to the limitations of production was used very little on either side. Ludendorff was one of its strongest advocates, but its possibilities were appreciated and an approximation thereto was attempted by our own American troops, particularly those of the first Pursuit Group. Those fliers who from low altitude bring fire power to play on enemy forces either coincident with or irrespective of the infantry waves of attack, who act more or less independently of the ground troops for purposes purely offensive were classified during the last few days of the war as attack aviators and their work was deadly.

To be successful an attack plane must be armored, it must have great speed, it must be able to operate from a base far in the rear, it must have a good climb, but, above all, it should have overwhelming power of fire. To deprive

it of its armor would be certain destruction, for it must fly at extremely low altitude, not more than 400 feet; to rob it of speed or range of action would be a handicap and to take away its fire effectiveness by having only a few machine guns aboard would be to deprive it of its very function—fire power delivery. Pursuit planes of the World War would not suffice, much less would the makeshifts built up around old DH4s or Martin bombers. Something entirely new had to be brought out, and it appears that a private citizen, Mr. John M. Larsen, will be credited with the solution of a problem that for some time to the airman has seemed without solution. Certainly his product demonstrates beyond question that he is an aeronautical engineer with a keen insight into aerial tactics, for the whole layout seems calculated to fall in line with the acknowledged requirements of such a plane.

For the benefit of those readers who have not been fortunate enough to inspect this new machine it will suffice to state that this plane is all-metal in construction, is equipped with a Liberty 400-horsepower motor, has great range of action, speed and climb far beyond that of any machine its size existing on the front during the war, and the startling thing about it is that it has thirty Thompson Submachine Guns aboard and one man can operate them and control their fire with perfect ease.

Each Thompson Submachine Gun fires at the rate of 1,500 shots a minute or a fire rate of 45,000 shots a minute for the plane. These figures have never heretofore even been approached.



JL-12 All-Metal Armored Attack Monoplane

Liberty 400 H. P. Motor
Speed—140 Miles per Hour

Armament—30 Machine Guns
Climb—1,000 feet in 46 Seconds
10,000 feet in 11 Minutes

JOHN M. LARSEN

347 Madison Ave.

New York, N. Y.