

Melvin M. Johnson

And his Semi-Automatic rifle.

When representatives of the United Automatic Rifles Corp. (U.A.R.C.) selected the Boston, Mass., law firm of Johnson & North, it was not a random choice. The corporation was seeking legal counsel and financial backing' along with engineering assistance, for the development of a semi-automatic rifle concept. The law partners, Melvin M. Johnson, Sr., and Frank A. North, were among the most adept and best- connected members of the Massachusetts bar.

The other reason for U.A.R.C.'s choice of legal representatives was some- what more subtle. The youngest member of th!! firm's staff was Melvin Maynard Johnson;' Jr., called Maynard by his fam- ily, "Mel" by everyone else. He was the son of one of the partners and a Harvard Law School graduate. Married to tennis star Virginia Rice, he was a Marine Corps Reserve second lieutenant, and an inveterate student of firearms and gun mechanisms. It was from the 25-year-old junior staff member that U.A.R.C. hoped to get engineering advice. Though no one knew it, on that day in November, 1934, they couldn't have made a better decision.

The concept being developed by U.A.R.C. was based on the principles patented by Franklin K. Young, a Boston inventor, in the early 1900s. The patents covered a semi-automatic breech mechanism that was actuated by the firing pin. The goal was a system which would convert the M1903 Springfield into a semi-automatic rifle at low cost. It was expected that the military market for such a conversion unit would be world-wide.

Johnson was not able to fire the prototype rifle. There was a reported problem with the heat treatment of some of the modified parts, and the firing pin was faulty. Summaries of early tests

were made available, however, which claimed that the weapon would fire full-power cal. .30 ammunition successfully. Johnson was captivated by the mechanism and undertook the responsibility of raising funds to perfect the device. He raised several thousand dollars from Boston friends and associates, including a few hundred dollars from Melvin M. Johnson, Sr.

The funds Mel Johnson raised allowed a second model of the U.A.R.C. rifle to be made. Refinements and modifications suggested by Johnson and applied to this second model were so significant that; in September, 1935, a new contract was written between Johnson and U.A.R.C. which gave the armament manufacturer only a 12% interest in every rifle of the second design produced. The remainder of the ownership was vested in Johnson.

Neither the first nor the extensively modified second model of the *U.A.R.C.*- Young design performed well with full- power military ammunition. Johnson, meantime, learned that the original re- ports of the mechanism tests stated that "reduced loads were furnished by the inventor (Young)."

His disappointment with the apparent sham perpetrated by *U.A.R.C.* and the family responsibility added by the birth of his son, led Maynard Johnson to sever his relationship with the rifle manufacturer. In the late summer of 1935 he returned to his father's law firm, slightly chastened for having strayed from the fold. But Johnson was only through with *U.A.R.C.* He was not finished with designing guns. As time permitted he continued to piece together ideas for a short- recoil-operated semi-automatic rifle.

Then, in early 1936, everything fell into place. In a single weekend, a year's notions jelled, and by Monday morning Maynard Johnson had sketches of the basic mechanism. That same Mon-

day he contacted a machine shop on Boston's Atlantic Avenue to discuss prices. He calculated that \$500 would be enough to pay for the construction of a basic firing mechanism which would serve to prove his concept.

The parts were made, as much as possible, from scrap metal, mainly round bar stock. Johnson provided a Springfield rifle barrel, the complete trigger mechanism of a Browning semi-automatic shotgun and a steel knitting needle to be used as the firing pin. By Feb. 29, 1936, at a cost of a little less than \$300, the Johnson short-recoil firing mechanism was ready to be tested.

The device was taken to a rifle range near Boston that leap year Saturday and fixed in a bench vise. A mainspring was fitted into the mechanism, then a 30-ft. piece of clothesline fastened to the trigger to permit remote firing. A single round of ammunition was loaded in the breech, the bolt closed, a safe firing position taken with the clothesline in hand.

When the line was yanked, the weapon fired. The bolt unlocked, extracted the empty case, retracted to cock the hammer. It was a complete success. So elated was young Johnson that he fired the mechanism several dozen times. The crude device worked perfectly every time, proving the worth of his idea.

Johnson set about raising funds to perfect the crude firing mechanism into a shoulder rifle which could challenge the Garand, which had been adopted by the US. Army less than two months before Johnson tested his firing mechanism.

In August, 1936, the machine shop on Atlantic Avenue completed the first Johnson semi-automatic rifle. It was a heavy, somewhat clumsy firearm; Maynard Johnson christened her "Betsy."

This rifle was of .30 cal., fed from a detachable box magazine. The weight, in excess of other semi-automatic rifles of the time, was due to the thick-walled, handmade receiver. It was not possible to make a lighter receiver without forgings, nor was it possible to trim away the thickness without damaging the receiver during other machining operations. The magazine held four rounds of ammunition.

By early 1937, sufficient funds had been raised to allow Johnson to have fabricated a light machine gun that he designed. This gun, called "Emma," was made in the same Boston machine shop where the firing device and Betsy had been developed.

Emma was a full-automatic-only weapon with a cyclic rate of 1,200 rounds of ammunition per minute. It used a single-row 20-round box magazine. The weapon weighed 13 lbs. and was innovative for its time, boasting a straight stock and high sights.

So investors could see how the mechanism worked, and to simplify manufacture, the top of the receiver was removable.

In the fall of 1937, a model-making contract was signed between Maynard Johnson and Marlin Firearms Co. of New Haven, Conn. Three test models of the rifle were to be made initially, in addition to work done on the light machine gun.

By March, 1938, the first Johnson rifle produced by Marlin was complete. The rifle, No. 1, weighed 9 lbs., and utilized a modified 20-round Browning Automatic Rifle box magazine. It was to be used for Ordnance Department tests, while the No.2 rifle was to be held for testing by the British. No. 3 rifle was available for further proving, and a fourth rifle was in the process of being completed as a reference for production engineering.

Despite the recent (January, 1936) adoption of John C. Garand's design as the V.S. Rifle, Cal. .30 M1, Maynard Johnson was determined to show, hopefully to sell, his semi-auto rifle to the military.

Johnson, of course, was entirely familiar with the Garand rifle. His connections with the Marine Reserve had brought him the opportunity, two years earlier, to examine Garand prototypes at Springfield Armory. As a shooter and small unit tactician- not as a competitive designer- he had some reservations about the new service rifle.

One of the major criticisms that Johnson had of the Garand concerned the "en bloc" clip which was not readily reloadable under combat conditions. Another problem of the Garand design was that of the full-length wood stock. Johnson believed that the wood acted as an insulator, keeping the heat generated by firing close to the barrel, causing the barrel to bend as it heated in rapid fire. Although the Springfield M1903 had a full-length wood stock, he noted, sustained rapid- fire rates such as achieved by the Garand were not possible with the bolt-action rifle. Hence the Springfield was less sensitive to barrel warpage. Furthermore, the Springfield had a thicker barrel than the Garand.

Finally, Johnson found the gas bleed-off mechanism to be vulnerable to damage. The gas cylinder, in the early Garand design, was mounted as a separate piece on the muzzle of the rifle. This piece was liable to be damaged during rough handling under field or combat conditions as well as being prone to fouling from unburned powder and burned powder residue.

Johnson, through friends in the Office of the Chief of Infantry, arranged for a demonstration of the No. I rifle at Ft. Benning,

Ga. The demonstration was held March 19-25, 1938. Johnson recalled the first Ft. Benning demonstration:

"Some general function firing and target accuracy tests were made and all went well at first. Then after several days it was decided to load up some modified B.A.R. magazines and cut loose with sustained rapid-fire. The situation looked pretty fair for Betsy.

"There were some ten 20-shot magazines available for Betsy. These were the B.A.R. type but with modified feed lips. A corporal and some men from a tank platoon were assigned to the test detail. While they waited at the firing point it seemed to them appropriate for efficiency to load up all the magazines. Confused by the feed lip shape they proceeded to force 20 cal. .30 cartridges into each magazine back end around.

"When we arrived Betsy'S magazines were a sorrowful sight. The magazine walls were bulged, the feed lips hopelessly bent.

"An attempt was made to correct some of the magazines and to fit up new ones. The results were not good. Finally we agreed that Betsy should go back for new magazines and return when ready for further firing."

Despite the setback with the magazines, the Infantry Board reported "the rifle appears to be a simple, rugged and powerful weapon. Many of the minor unfavorable things noted appear to be easy of correction. Likewise the causes of the malfunctions which occurred during the test do not appear difficult of correction. However, until the rifle can be subjected to intensive test firing, such as has been done with the US. Rifle, M1, no sound conclusions can be made concerning the ability of the rifle or its parts to stand up."

The Department of Experiment concluded:

"a. That in its present state of development, the Johnson semi-automatic rifle is definitely inferior to the U.S. Rifle, caliber .30, MI."

"b. That both of the weapons (rifle and light machine gun) have shown characteristics of sufficient value to the Infantry to warrant continuation of the demonstration at such time as the inventor, Mr. Melvin Johnson, can correct the causes of the malfunctions which caused him to request permission to suspend firing."

The Department of Experiment report was the first of many rebuffs, some not so pleasant, that Maynard Johnson would get from the Army over the next three years.

Following the abortive trials at Ft. Benning, Maynard Johnson embarked on a three-phase program. The first phase involved preparation of magazines that soldiers would not be likely to load backwards.

The revised magazines were single-column, instead of the staggered double-column type used in the test rifle. They were manufactured by Taft-Pierce, which also took over the production engineering job that an increasingly war-busy Marlin Firearms could not handle.

The second phase was undertaken in April, 1938, when Johnson presented prototype rifle No. 2-complete with Taft-Pierce magazines-to the British War Office for its trial. The British tried the rifle at Enfield Lock in the spring of 1938 and, apparently, were impressed but not sufficiently to buy the design. If any, the problem of caliber was probably foremost. Johnson No.2 was in .30-'06, not .303.

Maynard Johnson's rifle was considered nice, but not necessary. His sales mission failed.

Now phase three began. Johnson once again turned his efforts toward the U.S. Army.

Johnson returned to Ft. Benning in late June, 1938, and successfully demonstrated his rifle and its Taft-Pierce magazines. Johnson rifles were tested by Ordnance officers at Aberdeen Proving Ground, Md., in late summer of 1938, and again, incorporating improvements suggested by the first Ordnance tests, in December, 1939.

The full details of the Ordnance test, including the conclusions reached, were furnished to the Chief of Infantry and the Chief of Cavalry with a request that they indicate whether or not they desired the procurements of some Johnson rifles for test in the hands of troops. Neither desired this to be done, nor did either express any desire to further test this rifle.

Having failed to interest the British and to unseat the M1, Johnson and his partner in the Johnson Automatics Trust, John Babcock Howard, now sought other outlets for the rifle. They approached the US. Navy as a possible source of sales, they got Department of State authorization to sell to overseas customers, and- possibly without intending to- started the "Johnson/ Garand Controversy."

In February, 1939, Johnson and Howard had used political contacts to get certain questions concerning the Johnson rifle into the record of hearings of a House subcommittee that was considering appropriations for the procurement of M 1 rifles for FY 1940. Now, Howard forwarded a copy of Johnson Automatics' analysis of the material presented, to the Army Chief of Ordnance, Maj. Gen. C.M. Wesson.

The 33-page document included quotations from the hearing transcript followed by comments on the testimony. Among the issues covered were Ordnance policy as to patented products, the delay and costs of Garand production, Garand and Johnson comparative firing and other data, the accuracy of the Johnson rifle, a comparison of recoil- and gas-operated rifles, the utilization of available Springfield and Enfield barrels on the Johnson and the savings afforded by this, the cost, availability and manufacturability of the Johnson rifle, and the gas cylinder mounting problems coupled with changes necessary for the Garand. The comments, fairly or unfairly, intentionally or unintentionally, made the Army Ordnance officers appear to be either liars or incompetents.

This document no doubt put Gen. Wesson and his Ordnance Office on the defensive. There is little doubt that Wesson, himself, was stung by the analysis. His reply sent to John Howard, dated June 20, 1939, stated:

" ... I have given full consideration to comments and statements and have noted certain of your allegations and conclusions, which I consider entirely unwarranted

"I cannot pass over without comment the statement in your letter of transmittal, that the analysis has '*not*' been released to the Sub-Committee of the House Appropriations Committee. The significance of this statement is not clear. I am loath to believe it is intended as an implied threat in the event that I do not conform to your various suggestions

"The Ordnance Department has at all times offered you complete cooperation. Its representatives have been courteous and considerate in their contacts with members of your firm. This policy will continue in the future."

It was with this background that Johnson and his associates approached the House of Representatives Sub-Committee of the Committee on Appropriations in late March, 1940. In part the Johnson tactic was to point out the problems with the Garand rifle, particularly those concerning the gas cylinder, and to attempt to link the alleged design deficiencies in the Garand with the Army's decision to replace the cal. .30 M1 ball ammunition with the cal. .30 M2 ball ammunition which used a lighter bullet.

Though the House sub-committee listened with great interest to the Johnson testimony, committee members became more concerned with the ammunition issue than with the differences between the Garand and Johnson rifles. Ironically, neither Johnson nor the Ordnance Department representatives were prepared for this eventuality, though it was the Army which bore most of the brunt of the questioning and had to justify the adoption of the M2 cartridge.

On April 3, 1940, Rep. Snyder of Pennsylvania presented his report on Military Establishment Appropriation Bill, FY 1941. He concluded that the committee was approving the request for funds for the continued manufacture of the Garand rifle "despite the criticisms it has heard. It is unwilling to take the responsibility of not doing so, even though it later may be found that we have gone ahead too rapidly."

The report was not the last word. On April 24, 1940, Sen. Morris Sheppard of Texas, chairman of the Senate Committee on Military Affairs, entered Senate Bill number 3983, of the 76th Congress 3rd Session:

"Be it enacted by the Senate and House of Representatives of the United States of America in Congress Assembled, that the Johnson semiautomatic rifle, caliber .30 is hereby adopted as a standard arm of the United States military and naval forces, to be

known as the United States semiautomatic rifle, M2, caliber .30."

The Johnson Semiautomatic Rifle hearings of the Committee on Military Affairs held few surprises.

Perry Williams, vice president of Kelsey-Hayes Wheel Corp., stated that his firm could produce 200 or 300 rifles per hour "very comfortably," while William Sparks, president of Sparks Withington Co., a manufacturer of automotive horns, said, "we could get into production within six months at the rate of 1,000 rifles a day."

J.E. Owsley of High Standard wrote the committee: "With proper financing of a large enough order, we could be in production at the end of 120 days from signing a contract and in six months be producing 500 per day."

Lt. Col. B.G. Jones, a Marine assigned to the Ammunition Section of the Bureau of Ordnance, U.S. Navy, made the Marine Corps' definitive statement concerning the Johnson/ Garand controversy, as a spokesman for Admiral Furlong: "If the requirement for another semiautomatic weapon becomes apparent, in conformity with long-standing policy, the Navy will procure the standard weapon of the type from the Ordnance Department, United States Army."

The Army presented seven witnesses, among them Brig. Gen. R.C. Moore, Assistant Chief of Staff for Supplies. Gen. Moore, speaking for Army Chief of Staff Gen. George C. Marshall, summarized the Army's position, explaining that:

"Two types of rifles would multiply training problems, increase the costs, multiply problems of manufacture, replacement, and field maintenance." The letter concluded "the Garand (is) a very

satisfactory weapon, and the adoption of another type of semiautomatic rifle at this time could not be based on sound logic."

On June 11, 1940, Secretary of War Harry H. Woodring wrote to Sen. Morris Sheppard to express the views of the War Department. Supporting Gen. Marshall's opinion, the letter read:

"The total initial requirement for semiautomatic rifles for an army of 1 million men is only slightly over 240,000. At the present rate of production, and counting the present stock on hand, all the semiautomatic rifles required for an army of this size will be delivered in or before June, 1942. Present production schedules for the Garand rifle both in time and quantity can be materially accelerated if necessary, and the War Department is now making definite plans for this contingency. All designs and drawings for the necessary tools, jigs, fixtures, and gages for the manufacture of this type have been completed. The acceleration thus provided will meet fully prospective troop requirements.

Woodring concluded, "It is, therefore, recommended that S. 3983 be not favorably considered."

The Johnson/Garand controversy was at an end.

The Johnson-Garand rifle controversy, though settled for practical purposes by Gen. Marshall's statement of the Army's intentions, did not simply cease to exist. It smoldered until the spring of 1944. By then all the criticism of the Garand, save for its non-refillable eight-shot magazine, had been answered.

By then both rifles had seen use in combat, and both had acquitted themselves well. And by then Maynard Johnson had turned his energies to other wartime production.

The tabling of S.3983 of the Subcommittee on Military Affairs of the U.S. Senate dashed the remaining hopes husbanded by Maynard Johnson and his partner, John Howard, for U.S. military purchases of the Johnson semi-automatic rifle. Thus the pair turned their efforts toward sales to Allied buyers.

In the middle of July, 1940, Johnson was called to give a demonstration to a purchasing commission from the Netherlands. These commissioners had been on a buying trip when German soldiers overwhelmed their tiny homeland, and despite the occupation of Holland, they represented the Dutch government-in-exile where the affairs of overseas colonies were concerned.

The light gun shown was radically different from the first model. The receiver was the same as that used on the rifle. Likewise the barrel, forestock, bolt and carrier assembly, and many other parts were common to both rifle and machine gun. Designers at Taft-Pierce had included a selective-fire mechanism that permitted semi-automatic fire from a closed bolt and automatic fire from an open bolt. The barrel was of a quick-change type. The buttstock and trigger assembly of the rifle were replaced by a "hammer block" which would correspond to a lower receiver assembly in today's parlance. The hammer block held the hammer, trigger, selector and safety switches, and other internal fire control parts; and a nearly straight-line buttstock, made of wood, was fastened to it.

In place of the rifle's rotary magazine was a magazine support assembly, into which a gunner could insert a 20-round single column box magazine. The magazine had no feed lips to damage, a result no doubt of Johnson's experience at Fort Benning in 1938, but simply held the cartridges for feeding. Feed lips were machined into the gun's receiver. Like the rifle, Johnson light machine gun magazines could be refilled using single cartridges

or five-round chargers for the M1903 Springfield rifle, without removing the magazine from the gun.

Emma, as Johnson called his second prototype, had been fired prior to the demonstration for the Netherlands Purchasing Commission (NPC) while Johnson was on training duty at Wakefield, Mass., earlier in the month. Emma was ready to go.

The demonstration was not the formal sort of affair that such "demonstrations" usually are. Instead of shooting at neat paper targets, Johnson threw empty tin cans into the Atlantic Ocean, then shot at them with both rifle and light machine gun in much the same way a youngster shoots at tin cans. Members of the commission got into the act, too, and turned the shooting into an informal competition, each trying to outdo his comrades by hitting the most cans in the shortest time.

Later, Johnson recalled:

"One of the more spectacular and amusing events was the bursting of full beer cans, thrown in the air and struck by shots from the rifle. This caused a complete disintegration of the can with a corresponding cloud of beer spraying gently down to earth. Some of the beer fell upon the white shirts of the spectators, much to the amusement of all the others who were not similarly showered."

Apparently the demonstration before the NPC was a good deal more fun than demonstrations before Infantry and Ordnance boards had been. It was also a good deal more successful. Maynard Johnson returned to Wakefield to complete his active duty training, and the NPC adjourned to the offices of Automatic Armaments Co. to negotiate a contract.

The contract, signed in early September, 1940, placed an order with Messrs. Johnson and Howard of the Johnson Automatics Trust for 14,000 semi-automatic rifles and 500 light machine guns. The contract price was \$125 for each rifle and \$260 for each light machine gun, f.o.b. point of manufacture. In addition to the guns themselves, the contract called for provision of various spare parts and accessories and totaled just over \$1.88 million-but there was an unforeseen catch. The Dutch expected Maynard Johnson and his associates to make the weapons.

That was a catch. To begin with, Johnson had no interest in becoming a manufacturer. It was his intention, and that of the Johnson Automatics Trust, to promote the Johnson rifle design and sell manufacturing rights to others. Further, Johnson, except for the prototypes built virtually by hand at Taft-Pierce, had no rifles, and he had neither tooling nor plant facilities. He had a contract, though, and he was about to run headlong into one of the Army's objections to formal adoption of the Johnson rifle-the allocation of manufacturing resources.

By September, 1940, America's traditional gunmakers were working at capacity with war contracts, foreign or domestic. They could not undertake the manufacture of another, separate gun design. Other manufacturers, notably Kelsey-Hayes, which had given support to the feasibility of mass producing Johnson rifles before the Senate, now looked at the numbers and declared the project uneconomical in view of the quantities involved. The return on an order for only 14,000 rifles would not pay for the tooling and facilities. And there was the Dutch attitude.

"You," they said to Johnson, "invented and developed this weapon and know more about it than anyone else. We want you responsible for the integrity and reliability of the manufactured guns. When we receive the Johnson guns, they must be your guns and you must stand the full responsibility for every aspect of them." Like it or not, Maynard Johnson was in the gunmaking business.

Faced with this terrifying reality, both Johnson and Howard immediately went to work canvassing potential manufacturers. The pair split the task, Johnson contacting friends and schoolmates who were in manufacturing industry; Howard reviewing corporate histories to find a company with the technical capability and a need for the business. Between them, Johnson and Howard found the firm they needed.

Universal Winding Co. was a textile machinery manufacturing company located in a suburb of Providence, R.I., known as Cranston. Universal Winding fit the needs of the Johnson Automatics Trust as though it had been organized for the purpose. Johnson knew the chairman of the board of Universal Winding, Robert Leeson, Sr. Universal Winding's president, Robert Leeson, Jr., was a Harvard alumnus. It had been hard hit by the depression and was actively seeking war materiel contracts.

An agreement was rapidly and amicably reached whereby Universal Winding would create a subsidiary company, Cranston Arms Co., to produce the major components of both rifles and machine guns- receivers, bolts, bolt carriers, etc. Pins, springs, rivets, and other small parts were purchased from common suppliers of those items. Stocks were made by the American Paper Tube Co. in Woonsocket, R.I., while Lyman Gun Sight Co. made rear sights for the light machine guns.

Even though established gunmaking firms had turned thumbs down on manufacture of Johnson rifles, Johnson and Howard still hoped to buy barrels from the trade to avoid the need for acquiring the specialized tooling and trained personnel needed for a barrel-making operation. It was not to be, and the Johnson Automatics Trust wound up forming its own subsidiary, Johnson Automatics Manufacturing Co. (JAMCO), as both an assembly operation and as a source for barrels.

Universal Winding quickly leased JAMCO enough space in its plant to install a barrelmaking operation, plus a tool room, assembly department, offices and engineering space, and an experimental lab with a 100-yd. indoor test range. Getting the barrelmaking machinery was more difficult. The Army had already laid claim to it, and for a time, it seemed that the Johnson-Garand controversy would resurface.

It did not, though in December, 1940, the War Department saw fit to publish answers to five specific allegations of interference with, or neglect of, Johnson's efforts on the part of the Ordnance Department. No. 3 concerned barrelmaking equipment.

"Preferential treatment," read the allegation, "with respect to the delivery of some of the machine tools needed for the manufacture of the Johnson rifle has not been given."

"Correct," said the War Department, in answer to the only allegation that was not absolutely untrue. "Needs of the U.S. Government necessarily are given first priority."

Meanwhile, Johnson, frustrated but not discouraged, solved the problem of barrel-making machinery himself. He simply ordered it. A loophole existed (and Johnson was more than enough lawyer to have found it) in the Uniform Sales Act whereby title to goods could be transferred from buyer to seller at any time, whether those goods were ready for delivery or not.

Johnson ordered a set of tools not then even in production, and therefore not covered by the Uniform Sales Act, paid cash for them (even though the payment virtually stripped JAMCO of its operating capital), then waited for the machinery to be built and delivered.

While waiting for the barrelmaking machines, Johnson and Howard went "executive raiding" to staff their supervisory and design teams. Among those hired away by the promise of a salary increase were Carl Ekdahl of Marlin, who would run Johnson's barrelmaking operation; John Touhy, who signed on as the plant manager for JAMCO; and Chan Gardiner, Horace St. Amant, and Robert McKee, all engineers and designers from Taft-Pierce.

In late September, 1940, Johnson went to Ottawa to demonstrate his rifle and machine gun to the Canadians. The demonstrations were held at the Canadian Army's Connaught Range and- except that they revealed a few limitations and defects in both weapons- were a waste of time. The Canadians, as members of the British Commonwealth, were committed to British standard issue small arms. There was small possibility of a sale to the Canadians:

At the end of the two-week test in Canada, Johnson returned to learn that the Marines had scheduled a test program, to be held at the Marine Corps base in San Diego, Calif., beginning in November, 1940. Johnson Automatics was invited to participate in the test, which would include the M 1 rifle, the M 1903 Springfield, and an experimental semi-automatic rifle entered by Winchester Repeating Arms Co.

The tests put Johnson at something of a disadvantage. The rifles against which his would compete were brand new, of the latest design, including the now-familiar gas piston arrangement in the case of the MIs, or fresh from depot-level rebuild in the case of the M1903 rifles. Johnson's rifles were from the group of prototypes built by Taft-Pierce in 1939. They had been used to fire more than 20,000 rounds of ammunition in demonstrations for the Dutch and Canadians, in tests at Aberdeen Proving Ground and Fort Belvoir, and on the range at Wakefield and Camp Perry.

Worse than the considerable use to which they had been put was the fact that 18 months of testing and demonstrations had shown the need for some 15 minor changes in the design, all necessary to improve the reliability and functioning of the rifle. Because there was no U.S. interest in the Johnson rifle, these changes had been planned into the production-line guns, which were to be known as M1941s, but none had been made to the Taft-Pierce prototypes. For the Marine Corps tests, Johnson's rifles got a good cleaning and new barrels, and that was all.

The official Marine Corps test of semi-automatic rifles which, was the only time that the Johnson and M1 rifles were put to a shoulder-to-shoulder comparison) was conducted under the direction of a test board of six Marine officers and lasted four weeks. Forty enlisted Marines, each of whom had at least six months service and had qualified as a Sharpshooter or Expert, were assembled as operating and firing personnel. They were given one week's training in the operation and handling of the rifles. Then on Nov. 18, 1940, the test got underway.

The Marine program was divided into 37 phases described under the headings of: accuracy, functioning and miscellaneous tests, field firing under fair to ideal conditions, field firing under adverse conditions (abuse tests), and an endurance and fatigue test. All tests were devised to simulate conditions encountered in a combat situation and, in this respect, differed considerably from tests run by the Ordnance Department. There was enough difference that an Army observer is reported to have remarked that the tests were unrealistic, that no one had ever encountered such a thing.

"Sir," his Marine counterpart is said to have replied, "no phase of this test does not represent combat conditions to which some member of the Marine Corps test board has been or may be exposed."

The results of the Marine Corps' tests have, like the Johnson-Garand controversy, been well documented and thoroughly reported. They do not bear complete reporting here. Some of the results, however, are of interest.

In accuracy tests that included courses of slow- and rapid-fire for score as well as field firing exercises in which hits per unit time were counted, the M1 rifle was the winner; the Johnson a near second. The 1903 rifle consistently produced the greatest number of hits per rounds fired, and the fewest rounds fired.

Time to train personnel in the care and maintenance of the semi-automatic rifles was judged to be about five hours, regardless of which rifle was considered. The training time was less for the M1903.

"The rifles functioned perfectly satisfactorily with all types of service ammunition: M1 ball, M2 ball, tracer, armor piercing, blank cartridges, and Palma Match, except that none of the semi-automatics would function as self-loaders with blank cartridges." So much for the brouhaha in Congress over the adoption of M2 ball ammunition, and the reasons for the change.

In tests of function following exposure to muddy, dusty, sandy, or rainy conditions, the Johnson was rated as superior to the M1, the rating given because the Johnson was more easily adapted to manual operation of the mechanism.

In a 12,000 round endurance test, the M1 was clearly superior to the Johnson, yielding a total of 370 malfunctions in the course of testing two rifles against 773 malfunctions for the two Johnsons. The rate of parts failure in the M1s was nearly three times less frequent than in the Johnson rifles, with averages of 12.25 parts changed in the M1s against 36 in the Johnson rifles. Oddly, the Marines took into account the fact that the Johnson rifles

were not new for some of their tests, but did not do so when assessing durability.

In all the tests, except for those counting rounds fired per unit time, the M1903 Springfield was judged best—the most accurate, the simplest to train on and to maintain, the least affected by dirt and fouling, the easiest to clean, far and away the most durable. After that, the board reported, "the comparative standings of the ... rifles competing in these tests is as follows: ... Garand, Johnson, and Winchester."

The Marine Corps tests completed, Johnson returned to New England and to affairs connected with getting his rifle into production for the Dutch. There were corporate as well as technical matters that needed his attention.

In the corporate department the Johnson Automatics Trust was dissolved. In its place Johnson and Howard formed Johnson Automatics, Inc., with JAMCO as a subsidiary. Johnson Automatics was created on Dec. 23, 1940, and incorporated as a Delaware corporation with offices in New York City and at 84 State St., Boston.

Unlike the trust it replaced, Johnson Automatics' purpose was stated, "to be engaged directly and through subsidiary and affiliated companies in the development, manufacture, and sale of firearms, particularly the so-called Johnson Semi-Automatic Rifle and Johnson Light Machine Guns, as well as parts and accessories for all such weapons." The new firm also proposed to engage in the manufacture and sale of other products if and when it became profitable to do so.

At the end of the business day on Feb. 28, 1941, the Johnson Automatics Trust ceased to exist. Its business and assets were transferred to Johnson Automatics, Inc., for a royalty of 1 % of the selling price of all Johnson weapons. Developmental costs

were written off and future developmental costs were to be paid by attaching a fee to the cost of each gun made.

The Johnson family and Edward E. Rice (Johnson's father-in-law) were majority shareholders in the new corporation with a total of 33.88% of voting power. The Howard family held 16.08% of stock outstanding. In all, 440,000 shares of stock were issued at \$5 per share. Maynard Johnson, as president, and John Howard, as treasurer, were paid annual salaries of \$12,120 each, their salaries as employees of the Johnson Trust having been \$8,580 per annum.

The changeover was not without its rocky moments, however. In October, 1940, the United Automatic Rifles Corporation filed suit in the U.S. District Court for the District of Massachusetts claiming that Johnson, Howard, et al. had infringed the rights of UARC. The claim was based on Johnson's employment in 1934 as a consultant to UARC for the development of a rifle under the Young patent. UARC maintained that because of that employment, they had an interest in any subsequent patents and/or design and were entitled to either ownership of the Johnson rifle patents or a royalty on weapons produced.

The suit was mostly aggravating and the actual case was dismissed "by agreement" in December, 1943, without payment to UARC. But it did, temporarily at least, jeopardize the issuance of stock in Johnson Automatics. Hearing of the suit, the Securities and Exchange Commission undertook to review the standing of Johnson Automatics, Inc., and withheld permission for the sale of stock until the review was completed. Their conclusion was that the risk to investors was minimal and the sale of stock was duly authorized.

On the technical side, things were beginning to hum. Cranston Arms was assembling its tooling for receivers and other compo-

nents. The barrelmaking machinery was beginning to arrive and be installed in JAM CO's facility. And the assembly area was taking shape. In addition, the NPC was pressuring the Dutch government for a larger order for Johnson's guns and had inquired into the production of other rifles and automatic weapons, already in Dutch service, by Johnson Automatics.

In the design shop, Horace St. Amant and his staff already had drawings for the M-95 Dutch Mannlicher rifles and a Dutch version of the Madsen light machine gun and were busy converting the dimensions from metric to English units. Eventually, the Dutch government would order 6000 Mannlicher rifles and 1250 machine guns of various types from Johnson Automatics.

Meantime, on April 19, 1941, the first Johnson Automatic Rifle Model 1941 came off the assembly line.

It was a major victory for Johnson and the people who were part of Johnson Automatics. Contrary to the 18-24 month estimates of time to produce made by Ordnance experts, Johnson rifles started off the production line only five months after the start of tooling.

But production start-up, too, had its problems. To watch the first rifle, the entire workforce of both JAMCO and Cranston Arms was on hand. The rifle was shown around, cocktails and snacks served, and then all proceeded to the test range to witness proof and function firing. The rifle stood proof, but would not function as a semi-automatic. In fact, Johnson could not even get the Bolt open after firing that first round.

In due course, the rifle was disassembled and its parts were compared against the blueprints. It was then found that Univer-

sal Winding had omitted one critical cut, made to a camming surface. A quick machining job cured the first rifle, which thereafter functioned flawlessly, and the remaining parts were as quickly run back through the line to insure that the surfaces were correct.

From April, 1941, until December, 1943, Johnson Automatics, Inc., produced 30,000 M1941 Johnson rifles. The first shipments to the Netherlands East Indies were made in September, 1941, and those first rifles were issued, upon receipt, to troops of the Netherlands East Indies Armed Forces. There can be little doubt, therefore, that when the Japanese invaded Java and Sumatra in late February and March, 1942, Johnson rifles were in the hands of the troops who opposed their advance.

When the United States declared war on Japan, all shipments of war materiel were temporarily suspended. By the time the suspension was 'lifted, the Netherlands East Indies were in Japanese hands and Johnson Automatics had no one to ship Johnson rifles to. Re-enter the U.S. Marine Corps.

Based on their findings from the November, 1940, tests, the Marines had not, by Pearl Harbor day, ordered any meaningful quantity of M 1 rifles. They had plenty of Springfields and were getting more every day-reconditioned at the Marine Corps Depot in Philadelphia after being received from Army units that were drawing Garands. Then the Marines remembered the Johnsons.

The Marines assumed ownership of the M1941 Johnson rifles awaiting shipment in San Diego and of those still under construction. They also took over the supply of M1941 Johnson light machine guns. When the Marine Raider Battalions and the Marine Parachute Battalion went' ashore on the islands sur-

rounding Guadalcanal in August, 1942, they were equipped with Johnsons.

The Johnsons were eventually replaced by M1s-a reaffirmation of the Army's "one rifle" notion-and BARs, but as late as October, 1943, the 2nd Marine Raider Battalion, led by Col. Victor A. Krulak, used them in a diversionary raid on Choiseul Island. Of the light machine gun, Krulak said, "It was more an auto rifle than a machine gun; more a machine gun than a BAR."

In the European theater, the Army equipped the Canadian-American First Special Service Force-known since the making of the movie as "The Devil's Brigade"-with Johnson rifles and light machine guns. Used in the Aleutians and in the grueling fight to breach the German Gustav Line in the spring of 1944, Maynard Johnson's guns acquitted themselves well.

Use by the Devil's Brigade marked the end of the Johnson rifle's U.S. military career, but not the end of its usefulness. In the late '40s, the infant nation of Israel chose M1944 Johnson light machine guns as the pattern for its first domestically produced military arm-the "Dror."

The Dror, from the Hebrew word for "Fire," was made in two versions. The first was essentially an M1944 Johnson (which was, itself, an M1941 with a tubular steel buttstock instead of the wooden assembly) chambered for the .303 British cartridge. The second model was fed from a vertical magazine instead of the horizontal one used on the earlier guns, and chambered the 7.92x57 mm former German service round.

An interesting variant of the M1941 rifle is the version made for the government of Chile in 7 mm Mauser. This small lot was fitted with barrels made in Mexico under contract to Johnson Automatics.

Johnson Automatics finished up World War II out of the rifle-making business, but, along with High Standard, as one of the leading makers of replacement barrels for military arms. A Johnson Automatics- owned company, Amoskeag Metal Products, Inc., made anti-aircraft shells.

Nearly all of the Johnson rifles and light machine guns made have been accounted for. Between 1951 and 1960, Interarmco (now Interarms) in Alexandria, Va., purchased approximately 21,500 M1941 semi- auto rifles from the Dutch government, to which they had been returned at the end of World War II. Most of these rifles were sold through Interarms' retail sales outlet in those years, Ye Olde Hunter, for \$59.95. An additional quantity of Johnsons, assembled from spare parts sold by the Dutch, were offered as custom sporters by Winfield Arms Co. in Los Angeles, Calif. Sold in .30-'06, .270 Win., and 7 mm Mauser, and restocked to add a cheekpiece and Monte Carlo comb, these rifles went for \$159.95 in the mid-'50s. The overall price range for Winfield-Johnsons was \$68.50 to \$250, depending on added extras. In 1957, for example, Winfield would add a Weaver 4X scope for \$64.50, complete with mounts and rings. The final lot of Johnsons to be reimported into the U.S. was the group of guns sold to Chile, the Mexican- barreled 7 mms, sold by Service Armament Co., of Englewood, N.J.

As for the light machine guns, a few turned up in catalogs printed by Hy Hunter, again in the '50s. These guns were all DEWATS- Deactivated War Trophies- sold without requirement for registration in those days. Interarms reports acquiring some 1350 M1941H guns, all of which they scrapped.

If ever a military rifle should be given a prized place in a collection, any version of Maynard Johnson's automatic certainly deserves that spot. The Johnson, used by the U.S. Marine Corps, then by the Army's Devil's Brigade, created a furor in its in-

fancy. It was never officially type classified, but it became, by virtue of the service it rendered, the U.S. Rifle, Cal. .30, M2.

Editor's Note

The accompanying article, the second of two parts, has been condensed from the forthcoming book about Melvin M. Johnson by Robert L. Lamoreaux and Melvin M. Johnson, III. The work will chronicle the life and times of one of the 20th century's more fascinating and unlikely personalities, a lawyer and Marine officer who became a gun designer and manufacturer almost by chance at an epochal period in American history.