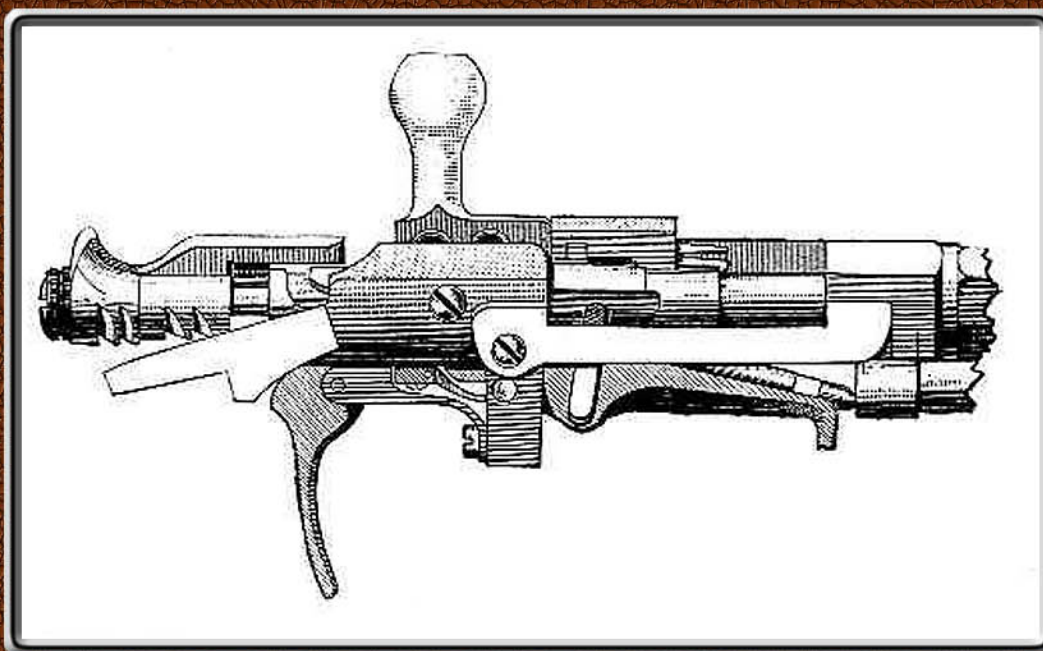


BIG BANG

The Mostly Illustrated RPG Guide
to Modern Weapons



Designed for use with all roleplaying
game systems.



BIG BANG

THE MOSTLY ILLUSTRATED RPG GUIDE TO FIREARMS VOLUME 4: EARLY MODERN MILITARY FIREARMS

Written by Dana Jorgensen

Action! System rules created by Mark Arsenault & Patrick Sweeney

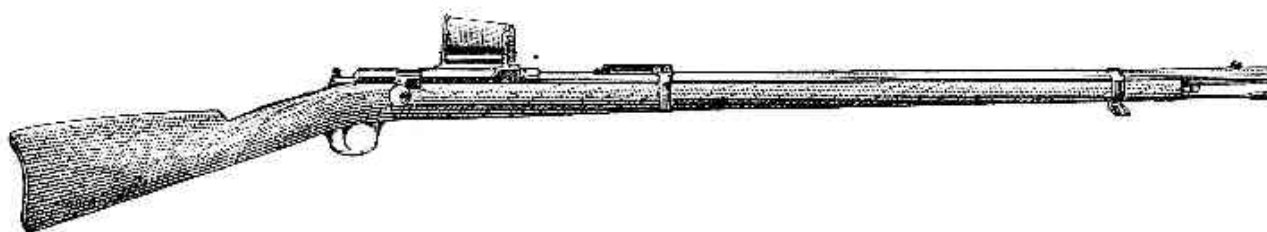
Action! System Core Rules written by Mark Arsenault, Patrick Sweeney & Ross Winn

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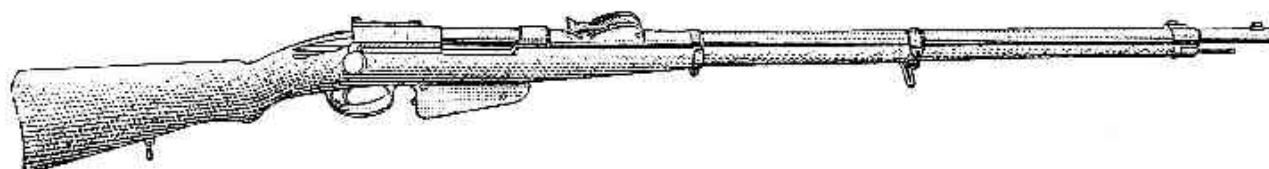
Includes only the Rules Section

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Franklin Rifle.

Detachable, over-breech box, gravity-fed magazine system. Magazine holds nine cartridges.



Mannlicher Rifle.

Fixed, under-breech, box, spring-fed quick charging magazine system. Magazine holds five cartridges.

WELCOME TO BIG BANG

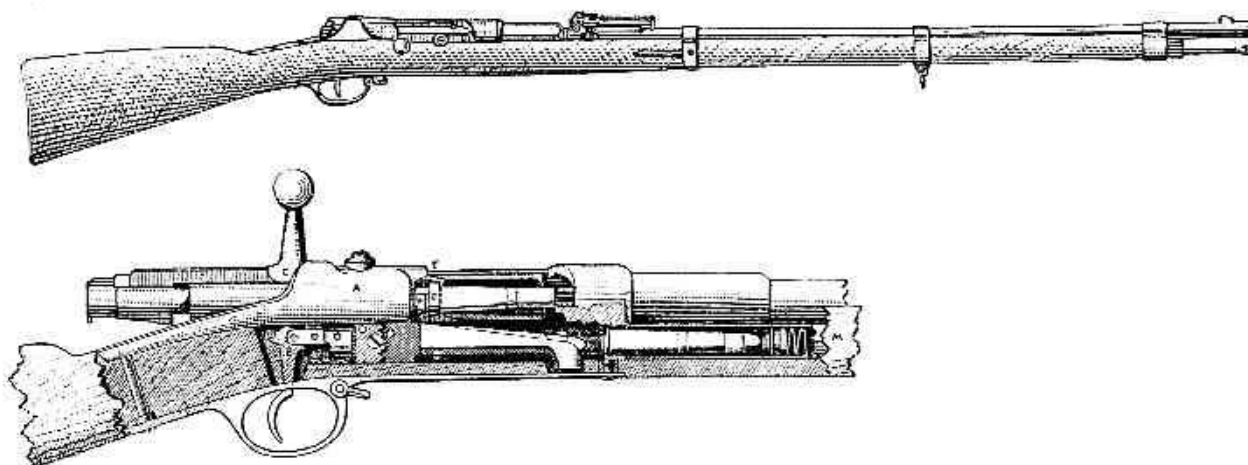
Well, here we are with another edition of Big Bang. Again, I was expecting a short little project, to just reproduce the article and write up maybe a dozen rifles. But that wasn't the case. The Krag-Jorgensen Rifle had 25 variants used in three nations. And most of the others had a good five or ten variants as well. I didn't even bother with Mannlicher, with 30 variants, or Mauser, with 100! Those two types alone could account for an entire full-size volume of Big Bang alone! We also had to skip a few rifles, because we couldn't find any information on them. The prime example is the Franklin Rifle, a bolt-action magazine rifle that used a 9-round square box magazine mounted over the breech. Once a spent cartridge was ejected, the next round would load by gravity feed, simply falling into the breech.

With this volume, we have again chosen a theme. We've based the volume around an article published in 1889, "The Small Arms of European Armies". With it, we take an interesting look back to the dawn of modern military firearms, back when magazines were first introduced, and bolt action

mechanisms were added to the relatively new concept of breech loading. Another interesting thing is the arguments for and against modern weapons. In 1889, they were the same arguments that surrounded the adoption of the M16 in the 1960's, 5.56mm ammo as a NATO standard at the end of the 70's, and the experimenting with limited burst weapons that has continued since the early 80's.

Before we knew it, we had around 50 weapons written up, covering just a few families of rifles. Not a bad start for those of you looking to run a game in the revolution-filled society of post-Napoleonic Europe.

As with the last volume, you'll notice some formatting changes, namely involving the cartridge guide charts; they've been revised to landscape format to better provide the information involved. You also get a hint of a few good things to come, too.



Mauser Rifle.

Fixed, under-barrel tubular, spring-fed, slow-charging magazine system.
Magazine holds eight cartridges.

The Small Arms of European Armies

By W. W. Kimball, U.S.N.

It is now more than a quarter of a century since the value of magazine rifles was proved in the War of the Rebellion; it is but now that European armies generally are arming with them; and it is even now that American military people are fairly content with an obsolete single-loader.

In acquiring the military trade, "in learning how to kill and how to die," it would seem that there is always absorbed into the mind an intangible something which heartily prejudices the craftsman against the use of improved tools, no matter how superior they may be shown to be.

The English bowmen made a gallant stand against the ignominy consequent upon the arrival of the brutal musket; the French bravely rejected the breech-loader in the Napoleonic wars; the Americans did nobly in refusing to use percussion-lock guns in Mexico, and in greatly preferring wonderfully bad muzzle-loaders to comparatively effective arms with which to kill each other during the Rebellion; but all these heroic attempts at stopping military progress fade into insignificance when one contemplates the glorious resistance to the utilizing of magazine mechanisms upon the rifle.

In seeking to account for these repeated anomalies one finds that the selections of arms are usually made by experienced soldiers, and that there are always excellent reasons given for preferring the less efficient weapons – reasons invariably based upon experiences of seemingly necessary conditions of service, which have been so indelibly impressed upon the memory that it becomes almost impossible to conceive that such conditions can either be avoided or the preparations for meeting them neglected.

When a man by doing nothing to evade the operation is, to all intents and purposes, being killed – when the soldier is following the "how to die" part of his trade by not running away from an action – he receives a most vivid impression of the circumstances and surroundings under and in which he must restrain his natural instinct to attempt to preserve his life; and if he be afterward asked for an opinion upon a new weapon, he will judge its serviceableness from a point of view determined by considering whether it would have been easy to manage while he was holding himself up to be killed, rather than by its inherent efficiency as a tool for killing other people, when used under conditions favorable for bringing out its power. This is all very natural when one considers how very much more difficult it is to let one's self be killed properly than to attempt to kill effectively; and consequently, how comparatively insignificant it is to the individual subject to military discipline whether he has the most effective weapon or not, provided he has a habit of confidence in it and is habituated to its use.

Military authorities the world over take this view of the question, as is apparent from the fact that in teaching the military trade so much time is spent in the exercises which, in some inscrutable way, are supposed to inculcate discipline that but little is left for training in the effective use of arms –

too little, if effectiveness can only be had, as with all other improved tools, at the expense of obtaining an intelligent idea of their capabilities and requirements.

Long after breech-loading rifles had come into general use a gallant old officer proved that they were inferior to muzzle-loaders for real service, under conditions he had experienced: "We were in a tight place, a very tight place, and not a single cartridge in the line. None to be had. But I managed to get a keg of powder and a keg of nails. Served 'em out, sir, and ordered the men to tear up their shirts for wads; and when those fellows charged we peppered them with nails, sir, with nails! What would you have done with breech-loaders, that must have brass cartridges made in a blessed factory, I'd like to know?"

There was no answer to that question. There is no answer to the objections made to improved arms, when based upon experiences of conditions arising from the use of obsolete ones.

Non-military people, when they fight, are usually intent upon killing their enemies, and, at the same time, are perfectly free to avoid being killed themselves; and consequently we should expect them to procure the best available weapons. That they do so is evidenced by the facts that within the last few years the ignorant and brutal Sioux have killed effectively with the latest improved magazine rifles, while the educated American soldiers have gallantly died with their highly affectioned and obsolete arms in their hands; and the highly disciplined French infantrymen, armed with their inefficient Gras guns, have bravely fallen under the fire of fine Lee rifles in the hands of stupid Chinese "Black Flags".

In order to have an approximately clear idea of the development of the magazine rifle it is necessary to define it, and then take a retrospective glance at the hard and painful road over which it has advanced to the favor it enjoys today.

A magazine arm, then, is one having a single firing chamber, into which, from an attached magazine, several cartridges are successively loaded, and from which, after firing, the empty cartridge-cases are successively extracted by the action of the breech mechanism. All magazine arms are "repeaters," because their fire can be repeated without recharging the magazines; so are revolvers; but these last are not magazine arms, because to repeat their fire, they must use a number of chambers equal to the number of times that the fire can be repeated without recharging.

It is difficult to conceive of a magazine gun designed to load at the muzzle, and, as a matter of fact, there is no record of a successful device of the kind, although there are numerous reports of attempts at producing "repeaters" that were not revolvers, by loading a number of charges in at the muzzle, one on top of the other.

The "greate brasse hande gonne" of Porta's "Natural Magick," and the "gun to discharge seven times, the

best of all devices that ever I saw, and very serviceable, and not a bauble; for it is much approved of and many thereof made," of dear, pottering, old Pepys, were guns of this class, and were expected to repeat their fire, shot after shot, beginning with the last charge rammed down, instead of going off all charges at once, as they naturally did, because like so many gun inventors of the present day, their designers possessed a beautiful faith in themselves, based upon an utter ignorance of the materials and forces they were working with.

Although the idea of and desire for breech-loading is almost as old as Friar Schwartz's much-quoted mortar pestle, it was never satisfactorily applied in small arms till metallic-cased ammunition came into use, because the making of the breech sufficiently gas-tight was so difficult before there were cartridge-cases to act as gas-checks. To be sure, several kinds of breech-loaders, designed to fire uncased ammunition, were used in the War of the Rebellion, and the Prussians conquered the Austrians in "66" with an arm of the same class, and one inexcusably awkward at that late date – the far-famed needle-gun; but good breech-loaders did not exist before gas-checking cartridge-cases, and since magazine arms are essentially breech-loaders, they had no earlier existence as such.

Just as there were endeavors at making single-fire breech-loaders to use paper-covered cartridges, so there were like attempts to produce magazine arms to take the same kind of ammunition – attempts wonderful in the ingenuity wasted upon them, and failing only for the lack of a proper gas-check.

After the metallic-cased cartridge was allowed to take its rightful place, the single-fire breech-loader was readily made effective, and the magazine rifle was quickly ready to follow; but it required half a century of time after its invention for the cartridge to get its merits generally acknowledged, and a quarter of a century more for the magazine rifle to get its usefulness recognized.

The metallic-cased, self-primed, gas-checking cartridge of today should properly be credited to Napoleon I, a man who, as shown by his favorite maxim "In battle fire is everything; the rest is of small account," wished his own side to do a deal of killing, and no more dying than need be, and therefore naturally desired his armies to have breech-loaders. He encouraged and aided an artillery officer named Pauly to experiment, till, in 1812, a cartridge was produced having nearly all the essential features of the modern one, and being objectionable for all the reasons that were brought against magazine arms in later years. Had Napoleon not found it necessary to retire to St. Helena, and withdraw from the trade of an arms-user, it is quite possible that he might have forced the cased cartridge to the fore, and with it breech-loaders and magazine guns; but under the conditions that actually existed Pauly learned that his cartridge was particularly bad because it enabled men to shoot rapidly – just as magazine rifles do; for if a soldier can fire fast, he can waste his ammunition quickly, and always will, because "'tis his nature to' – a nature that the utmost amount of drilling in all kinds of petty marchings to and fro cannot change so that he will become a cool hand and a straight shooter. And since ammunition is to be wasted, it is best to arrange for the

enforced slowness of this waste by compelling the soldier to use a deal of time in getting a slow-firing gun ready to shoot.

That is, practically, the argument against magazine guns; it was the argument against breech-loaders; it will be the argument against automatic arms worked by recoil when in the near future they come forward.

But the threadbare old assumption is not advanced with that confidence of assertion that accompanied it a few years ago. Meantime most of the armies of the world are arming with magazine weapons of one kind and another.

In order to understand the main points of difference in the arms now coming into use, it is necessary to classify them in at least a general way; and it is, perhaps, as clear a method as any to divide them into two general classes, *fixed* and *detachable*, and into four subclasses, *under-barrel tubular*, *butt-stock tubular*, *under-breech box*, and *over-breech box*, as regards the salient features of their magazine systems.

There are, of course, many magazine gun devices not properly covered by such a general classification, but it will answer every purpose for the non-technical reader, and will be readily grasped after a glance at the illustrations of four typical American military guns, the fixed under-barrel tubular "Remington-Keene", the fixed butt-stock tubular "Hotchkiss", the detachable under-breech box "Lee", and the detachable over-breech box "Franklin". The tubular is the earlier, the box the later development in form and in manner of carrying the cartridges placed in the magazine.

The fixed under-barrel tubular form has the apparent disadvantages of placing the center of gravity of the charged magazine outside the rest hand when the gun is being fired, of allowing a considerable longitudinal change of position of this center of gravity as the magazine is exhausted, of being slow and awkward to recharge, of requiring a change of direction of one hundred and eighty degrees in the movement of the cartridges as they pass back along the line of the tube, up to the level of the chamber, and forward into it, and of making the piece an awkward and ill-balanced affair at all times; and still this has been the favorite one among magazine-arms users, civil and military, for the last quarter of a century; it was the form adopted for her army by Switzerland twenty years ago; by France, Austria, Italy, Turkey, Norway, and many other countries, for the cavalry or the navy, within the present decade; it is the form adopted by Switzerland, Italy, France, and Germany for recent small-arm armaments of the line of the army; and, moreover, it is the form in use on the most popular and most widely known rifle in the world, the Winchester.

The non-shooting person who might wonder why the poorer form of magazine is so very much more popular than the better, should remember that "for guns, boats, and saddles, there are no reasons why," that in the use of those three articles people who use them most differ most in their preferences, upon which many words are wasted and many able arguments made to prove exactly opposite conclusions from identically the same premises.

The butt-stock tubular form places the weight of the charged magazine between the shoulder and rest hand in firing, and requires but little change in direction in the forward movement of the cartridges from the butt to the chamber; but

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it has been looked on with little favor, and has been used little since the days of the Spencer carbine during the Rebellion.

In the box magazines the cartridges lie against each other laterally, and are thus free from the dangerous shocks to which they are liable in the ordinary spring-fed tubulars, and against which they can only be guarded by mutilating the bullets, by squaring off what should be a round point, so that there is no point on the bullet of a cartridge in rear to impinge on the primer of the one next in front.

The movement of a cartridge from a box magazine to the breech is equal in distance only to its diameter instead of to its length; the center of gravity changes but little as the magazine is exhausted, and that little only in the vertical plane; the whole weight of the magazine, charged or empty, is, when firing, between the shoulder and rest hand, and it offers a convenient form when made detachable.

After a ten years' struggle for consideration the box form of magazine is beginning to win for itself favor which its apparent advantages merit; as is evidenced by its adoption in Austria upon the Mannlicher gun, and in England upon the Lee; by the favor with which it is regarded in Germany, Belgium, and Holland on several experimental guns, and by the inclination toward it on the Scholof gun in several Slavonic countries.

The sequence of events that have lead to the present impetus in adopting magazine arms in the over-manned and under-armed armies of Europe is more or less amusing to the looker-on from this side of the water. Innumerable boards, committees, and commissions have been sitting for years, in almost every capital in Europe, upon the magazine gun in general; and nothing in particular has been hatched because the miraculously perfect arm has always been demanded, while it has never by any chance been defined.

One gathered from official reports that the gun wanted was one to be made of a single piece of non-corroding, unbreakable material, capable of accomplishing all the results that, in human mechanics, depend upon complex mechanism, and having the faculty of delivering fire with the utmost rapidity for any length of time, without in any way depleting the supply of ammunition.

Some four or five years ago, the German Commission on Small Arms had been sitting in secret session for months and had determined upon nothing; while, curiously enough, all its doings were fully reported to the intelligence offices of all important countries, especially to that of France, when, one fine morning, the rumor was bruited abroad that enough marvelously novel and wonderfully deadly magazine rifles to arm a German army corps were nearly ready for issue. In military circles there was at once great interest expressed in the German gun; but details were, at first, not forthcoming. There was an air of mystery connected with the weapon that could not at first be penetrated.

It was known that Mauser, the inventor of the single-loading rifle of the German army had devised it; but what it was and how it operated the military public could not find out. With even more than the customary tantalizing vagueness with which they always treat technical subjects, newspaper reporters gave out the number of men that could be killed in

a minute by the fire of the new gun, and harrowed our feelings by picturing the slaughter grim and great of those misguided ones who should rashly face the new arms.

Gradually the fog of mystery cleared away, and the famous weapon stood revealed in cuts and illustrations. It was a fixed under-barrel tubular magazine rifle of the Remington-Keene type, with the same awkward, inefficient magazine system; the same position of bolt-handle which prevents continuous magazine fire from the shoulder; the same flip-flop carrier; the same old everything; in fact, it was a new arm of an of an already obsolescent type, and is even now spoken of by Germans as "the gun of transition" – transition to an effective arm one supposes.

The Mauser magazine rifle had, however, a value in its great moral effect. Germany possessed magazine rifles. France felt that she must possess them, and proceeded to provide herself.

About this time Professor Hebler made some investigations in the curiously neglected field of calibers for infantry weapons, and concluded that the favorite military diameter of bullets – 0.45 inch – was one-third larger than it should be. And shortly after the publications of the results of his work the famous French Lebel gun began to be heard of. It was even more mysterious and marvelous than the Mauser. It was a "jewel" of an arm; it was frightfully and fearfully deadly; it used a miraculous smokeless cartridge; a specimen of it was sought for by German officers at the utmost bodily and financial risk; the secret of it jealously guarded; the military mind was full of it – and at last it became known. Like the Mauser it is a most inefficient type of magazine rifle, having a fixed under-barrel tubular magazine, and an old-fashioned mechanism; but ballistically it is a superior arm, *i.e.*, it shoots well after the cartridge is gotten into the firing chamber, because the caliber is good – 8 mm. – because the bullet is fairly well proportioned, because the rifling is good, because the recoil is light, and above all, because the charge makes the bullet go fast. But all those shooting qualities have absolutely nothing to do with the merits of the breech mechanism and the magazine system, which are those of the Kropatschek rifle used in the French navy for ten years. A gun with a good barrel and cartridge would shoot well, even if it had the absurd Springfield breech-mechanism attached to it.

But by Germany's move with the Mauser, France was forced to get some kind of a magazine arm, and get it at once; and she took the Lebel for some incomprehensible political reason, took it to her affections, and delights in it, apparently on the principle that to her 'tis "an ill favored thing, sir, but mine own." However this may be, she has made Lebel rifles by the hundred thousand, and has thus committed herself to the use of them.

Meanwhile Austrian committees, like those of other countries, had been experimenting with magazine arms; but, unlike those other countries, they had – *mirable dictu!* – really accomplished something. They decided to adopt the Mannlicher, a gun embodying many really common-sense ideas.

The magazine is of the fixed under-breech box type, in which, when charged, the cartridges lie laterally, one upon the other, and from which they are fed up by springs as the bolt, in its reciprocating motions of loading and extracting,

disposes of them. The charging is accomplished, not as is usual with fixed magazines, by tediously prodding in the cartridges, one by one, but by the use of a tin packet containing a charge of five cartridges, which fills it by a single motion of the hand, and which is ejected from it by the mechanism when the cartridges have been fired.

The Austrians have rid themselves of the absurd idea of the necessity of a "cut off" (*i.e.*, a device by which the charged magazine can be held in reserve while the arm is used as a single-loader), and always fire from the magazine, as they should if they decide that the fixed type is preferable to the detachable, a matter that will be lightly discussed hereafter.

In the matter of caliber Austria has fallen in line with the other small-bore countries, and adopted 0.315 inch, practically the same as that of England, France, and some other countries (the same that Germany is contemplating for the gun to supersede the Mauser, which will be of the Mannlicher type), and there is but little difference in the ballistics of her arms and those of the other countries mentioned.

England has lately adopted a small-bore – 0.303 inch caliber – modified Lee magazine rifle – a Lee with most of the strong points of the mechanism modified out – after making a long series of most amusing steps of development in order to reach the conclusion that this arm was suited to her needs. For some years she has been more than content with her famous 0.45 inch caliber single-loading Martini-Henry rifles and Boxer cartridges – guns almost as bad in principle of breech mechanism as our own Springfields, and cartridges even worse than the United States regulation ones – and in her late "wars with people who wear not the trousers," her soldiers have gallantly fired on an enemy when they knew full well what a horrible punishment they were to receive from the brutal recoil of their weapons, and have borne their torture with true English grit. An English officer informed the writer that the practice was a great aid to gallantry in battle in South Africa, for "when a fellow has been so brutally pounded by his own rifle half a hundred times, he don't so much mind having an assegai as big as a shovel stuck through him; it's rather a relief, don't you know."

But the idea of a small-bore magazine rifle was bound to find its way across the Channel from the Continent, and, aided by the hard work of the more advanced English military men, it slowly forged ahead to the position of adoption it now holds. The same objections to the type of arm were made in England that are now heard in the United States. The conservatives asserted that with a magazine rifle the man would fire away all his cartridges. It was explained that if the fire was made to tell, as it might, with the use of proper guns, it was not half a bad idea to fire away cartridges; that, indeed, some people thought cartridges should be fired from guns even if it soiled them with powder grime. Then it was objected that the small bullet would make only a little hole in a man, and that it was much more satisfactory to literally let daylight through one's enemy than puncture him in such a *dilettante* fashion. This is an article of good old Anglo-Saxon military faith that is hard to abandon when one has been bred in it. Today we like the idea of

putting big holes and ragged ones through our enemies, even as did that ingenious Englishman, Puckle, who, a couple of centuries ago, invented a machine cannon provided with two sets of chambers, "onne with rounde holes for shooteynge rounde bulletes against ye Chystiannes, and ye other with square holes for shooteynge square bulletes against ye Turkes."

The argument, which has not yet been felt in the United States, was efficiently made in England to prove that all one really needed to do in battle, in the way of hitting an enemy, was to deliver a blow of sufficient force to drop him in his tracks, and make him stop being disagreeable with his shooting, and that if one could hit him hard enough, it was just as well to do it with a fast-flying small bullet, as with a slow-going big one, while it was a much easier, surer, and simpler thing to do.

At last the Lee rifle, with its detachable magazine, was tried, and, being found wanting, was improved backward into the Lee-Burton, an arm with a Lee bolt and a fixed under-barrel tubular magazine. But this arm was too absurd even for the conservative men who recommended it, and finally the small-bore Lee was adopted. Then the conservatives had their innings. The magazine was detachable and might be lost. So it was chained to the gun, and the arm was thus prevented from having the chief merit of the system – facility for being made a true single-loader or a real magazine arm at will. The reason for chaining the gun and magazine together is excellent, but the idea is not thoroughly carried out; if it were, all the detachable parts should be chained together: The bayonet and cleaning rod by a couple of short chains, and the cartridges by a hundred very little ones to the gun; the gun by a stouter one to the man, and the man by a good strong one to his comrades.

The magazine of the Lee system is designed to carry the cartridges one above the other, so that the spring which pushes them up can be sure to serve them to the receiver without jamming; but the system was put aside in England because it was held that not enough cartridges could be stowed in that way without carrying the bottom of the magazine too low, and a curious wide affair was adopted, which holds three cartridges more, making them lie in quincunx order, and thus destroys all certainty of feed. In the magazine offered, the feed-up was so sure that by quickly reciprocating the bolt all five of the contained cartridges could be thrown out before the first had fallen to the ground; in the one adopted, the recoil from firing is needed to help the feed, and even then the only sure thing to be predicted about it is that the cartridges will jam and refuse to feed up sooner or later. The arm was designed to be used normally as a single loader, which, in an instant, by the application of a charged magazine, could be changed to a magazine arm. By the chaining on of the magazine the British authorities have changed it to a weapon on which the magazine must always be carried, and since this last is not arranged to recharge quickly, it must in action be carried charged and cut off, so that the single-loading feature can be used for the greater part of the firing. This makes a "cut-off" nuisance necessary. Apparently the British authorities wanted the bad features of a fixed magazine, and insisted upon having them.

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They have gotten them at the expense of nearly all the good points of the mechanism they have chosen, and have missed the best features of a fixed system.

Ballistically, the English Lee is good, and by accentuating the fact that the guns shoot well, and that the new cartridges are excellent, while carefully avoiding the question of why there is any magazine at all, the authorities can doubtless make the brave British soldier as proud of his curious weapon as the gallant French warrior of his old-fashioned arm, the Lebel.

Little Switzerland has led the world in military matters ever since she so greatly astonished it at Sempach by proving that the then despised infantry (which for centuries had been in the habit of being ridden down and leisurely spitted by the men-at-arms) was quite capable of coping with iron-clad cavalry, and even of pulling the armored knights out of their saddles and opening them as one would oysters. She leads in military matters, in that she is able to produce the most effective fighting units, as regards both the man and the material of which such a unit consists, each at the least expense in money and with the least loss of productive labor. She adopted magazine rifles twenty years ago, when other nations were quibbling about the waste of ammunition that would follow the use of single-fire breech-loaders, and she reduced the caliber of her guns while other countries were still fixed in their adhesion to big bullets. These things, coupled with the fact that within three days from the call to arms seventy thousand terribly straight-shooting and fully equipped Switzers were trooping over the mountains, lead Germany, flushed with the conquest of France, to conclude that the sovereignty of the German cantons, which she had imperiously demanded, was not so necessary after all. In fact, upon consideration it was found that the Empire did not want any Swiss cantons, and that Switzerland might keep them just as well not.

The Swiss Vetterli when it was adopted was a magnificent arm, and today it is very good for an arm of a fixed under-barrel magazine system, and answers its purpose of making people very unwilling to have it pointed at them while the new arm is being decided upon. This last will of course have a box magazine. Perhaps it will be the Rubin, a fine gun of the Mannlicher type, with a bolt closure like the Vetterli, with which the Swiss are familiar. Switzerland is too poor to change her arms often, and she is searching rapidly but surely for the best gun and cartridge for her purposes.

Italy has converted her single-fire Vetterlis (guns like the Swiss, but made without magazines) into magazine arms by fixing to them a box magazine – the Vitali – something like the Mannlicher, and like it charged from above with one motion by the use of a packet of cartridges.

The packet of the Vitali is cardboard, instead of the tin one of the Austrian weapons. This conversion is not altogether satisfactory, but it is inexpensive and will fairly well bridge over the period of transition to something better.

In Russia there is at present an apparent reaction against the magazine gun idea; but, if one may trust reports, a real search is being made for a better arm than has thus far been brought forward. It is said that Russia is demanding a

recoil-actuated, automatic rifle, which will require only a pull of the trigger to fire as long as there are cartridges in the magazine, and a smokeless high-power cartridge, before she rearms; and meantime, her soldiers are called upon to trust to their single-loading rifles – “to still have faith in their splendid Berdans” – and to depend upon the bayonet as the real weapon with which to settle an affair.

In a recent work on tactics General Dragomirov strongly favors the free use of the bayonet, and points out the necessity for training men to handle it properly. In his instructions for training the individual soldier or battalion, it is always the bayonet that must be considered as the best killing tool. “But special attention must be paid to prompt withdrawal of the bayonet immediately the blow is delivered,” he says in his “Individual Instruction.” The bayonet must be withdrawn quickly, so as to be able to stick it through the next enemy without loss of time. This would be very disagreeable for the enemy and very amusing for the Russians, when they arrived at a place where such diversion could be indulged in; but so very few could ever get there, if they advanced in the face of moderately good magazine-rifle fire, that what they might do seems hardly worth the consideration of anyone.

The Turks have found the Mauser large-bore magazine rifle sufficiently good for them, and have bought 300,000 – caliber 0.433 inch.

But the Turkish selection of arms does not count for much, because it is always so very much more a question of who makes the bargain for weapons than of what the guns are wanted for.

Spain and Portugal are both working toward a small-bore rifle with the box form of magazine, but no decision, if made, is as yet made public.

Norway and Sweden, after trying several large-bore tubular magazine guns, and putting the Krag-Petersen and Jarmann into service, are now falling into line with the other countries, and selecting an arm of the favorite type.

Belgium has adopted the Nagant, a gun of the Mannlicher type; and Denmark has chosen a small-bore rifle, but of what kind the writer is unable to say.*

*The rate of delivery of fire from the charged magazines of bolt-closure, right hand worked guns adapted to repeat without brining the piece down from the shoulder – such as the “Lee,” “Mannlicher,” and “Vetterli” – is practically one shot per second for all of them. The times of making ready the pieces to renew magazine fire differ widely, as is apparent from the differences in the devices.

Such fire, when gunpowder cartridges are used, is, of course, delivered through smoke, and its accuracy depends upon the nicety with which the firer can point at an object that he saw before the smoke cut off his view.

The great advantage of detachable or quick recharging systems lies in the possibility of quick renewal of magazine fire, not in quick delivery. An increase in speed of the Mannlicher over the Lee is claimed from the fact that the bolt is locked as it is pushed forward, and does not require, as does that of the Lee, a quarter turn to secure it.

With charged magazines at hand, the Lee has been fired sixty times a minute.

In proof firing – not brining the pieces to the shoulder – the writer usually fires one thousand rounds in twenty five minutes from one hundred guns, ten rounds from two magazines, from each piece.

Form this glance at the condition of the magazine-rifle question in Europe it is evident that nearly all the countries of that continent have arrived at the conclusion that they need small-bore magazine guns, and that the weight of preference is with the box form of magazine fixed to the piece. The small-caliber rifle is superior to the big-bore one, simply because it shoots straighter and hits harder. If a big heavy bullet could be made to go as fast as a small light one, it would, of course, hit harder; but this cannot practically be accomplished because there are two very stringently limiting conditions to be taken into account – the amount of recoil a man can stand and the weight of the gun he can conveniently carry about. If the Springfield rifles were provided with cartridges of such powder charges as to make the United States bullets go as fast as modern ones do, and if they were fired by men in line, then most certainly every man would be knocked flat on his back by the recoil of his own gun, and would certainly feel hesitancy about letting off his piece a second time; if the gun were made heavy enough to absorb so much of the recoil that the rest could be borne, then the man could hardly carry it at all. Now, the weight of a gun that can be conveniently handles by the average man is between eight and ten pounds, and the amount of recoil he is expected to stand up against varies from 2.40 mkg. in the English Martini-Henry to 0.97 mkg. in the Swiss Vetterli; and the problem is to make the bullet strike the hardest possible blow and fly in the least curved trajectory under such restrictions of the weight of the piece and work of recoil. The old idea that the energy of the bullet of the bullet leaving the muzzle was equal to the energy of the gun in recoiling has been found upon investigation to be very erroneous indeed; and that among other things the diameter and weight of the bullet must be considered. According to old rules, if the energy of the bullets were equal, the recoil from guns of the same weight would be equal, whether the bullet energies were derived from a fast-flying small one or a slow-going big one, the energy being, of course, the combination of weight and velocity.

In ballistics there are many qualities connected with the pressures of the powder gases and the times that a projectile is in the bore that cannot be satisfactorily measured at present, and some of these very qualities are functions of recoil; but enough is known of them to practically determine the advantage of a small caliber in reducing recoil. For example, the small bullet leaving the muzzle of the French Lebel gun strikes a blow one-third heavier than does the big one of the Springfield, while the recoil is more than one-third less.

When small-caliber guns were first advocated, it was supposed that their small bullets would not have sufficient "stopping effect" for horses even if they did for men; but experiments have shown that cavalry would fare no better under their fire than under that of the big bores. If the small bullet finds a bone or vital part the shock is in proportion to the weight of blow struck, which has been shown to more than equal that of the big one; if a flesh-wound is made, it is of course less serious.

With the flat trajectory of the small bullet the "danger space" is increased; i.e., a man may be hit when the distance

he is away is not so exactly known, a thing extremely difficult to know if he be running toward or away from the firer. The Mauser and Hebler cartridges may be compared to illustrate this point. If both guns were properly sighted and properly aimed at the belt-plate of a man supposed to be 600 meters away, the Mauser bullet would go over his head or fall short of him if he happened to be twenty-three meters nearer or twenty-three meters farther away than the supposed range. The Hebler bullet would strike him if he was within 49 meters of the supposed distance, nearer or farther.

A great many target-shooters do not like small bullets because pretty targets cannot be made with them; they are more easily affected by wind and slight differences in shooting conditions, and consequently do not strike so near together on the vertical target placed at an exactly measured and known distance.**

To the target-shooter it makes no difference whether or not his bullet would have struck the target had it been at a greater or less distance, because he always knows exactly how far away it is; to the soldier it makes all the difference in the world, because he rarely knows with any exactness the distance to his enemy.

An army officer expressed the conditions when he said, "Our gun will hit well enough when you know where your mark is and shoot right; but we want a small bore that will hit when you don't know where your mark is and shoot wrong."

It is not to be supposed that there were not many difficulties to be overcome before the small-caliber gun and cartridge could be made to work satisfactorily. The fast-flying bullet needed great speed of rotation, and lead was not hard enough to stand being pushed so fast and spun around so fast. It would not keep the rifling and would "lead" the bore when the twist was made as sharp as necessary, and so recourse was had to enclosing it in an envelope of harder material.

In England and France ferro-nickel and nickel are favored for this envelope because they are considered hard and tough enough for the purpose, and do not corrode easily. In Switzerland and Denmark copper is used, while in Austria and Germany steel is preferred.

Steel seems to best answer the purposes of giving the bullet a good hold on the rifling, and of keeping it in shape for extreme penetration, but it must be covered with an objectionable outside lubricant or it will rust badly. Copper is apt to fly off. Nickel gives good results, but is not so readily attached to the lead as the steel. The method of making these bullets with different jackets is much the same. The jacket is drawn to shape as is a cartridge-case, and tinned; the lead is then put in place and the whole raised to a heat high enough to solder the jacket and core together. The

** That the small bullet is capable of making a good showing on a vertical target is put beyond question by the fact that with steel-jacketed bullets in Lorenz ammunition a target of five hundred shots was made at four hundred meters range, which showed that eighty per cent of the bullets struck within a rectangle 1.60 inch x 2.15 inch.

The Small Arms of European Armies

compound bullet is then swaged and cut to size.***

The least satisfactory element in the modern cartridge, as it was in its predecessor, is the powder.

It is difficult to get a gunpowder that will give the required high velocity without making the pressure in the chamber too great. But Rubin, in Switzerland, got very fair results with compressed powder, and England and Austria use it in their cartridges.

France made up a supply of cartridges charged with Brugère powder – a compound of ammonium picrate and potassium nitrate – which were very satisfactory in giving high velocities with very little smoke or sound. But there is a strong assumption that the Brugère does not keep well, and that when deteriorated by time it gives dangerously high pressure. At any rate, France is now trying gun-cotton pellets in her search for a smokeless powder.

The German Duttchenhofer powder is semi-smokeless and is supposed to be a chemical compound carried in a vehicle of paper pellets. Whatever it is, it gives good velocities with controllable pressures, but whether it will keep well has not been satisfactorily proved.

With the small-caliber rifle came the active search for a chemical compound which would give higher velocities and less fouling of the bore (for the smaller the bore the more objectionable the fouling) than does any gunpowder mixture, and it is more than probable that a satisfactory smokeless and almost soundless chemical powder will soon be found, and that "the sharp crack of the rifle and the light puff of smoke" will soon be things of the past.

In regard to the question of whether a magazine should be fixed or detachable when the box form is used, there are as wide differences of opinion as upon all other matters pertaining to magazine arms.

With the Austrian Mannlicher the fire is always delivered from the magazine, when it is charged. This is greatly preferable to the old method of carrying the magazine charged and "cut off," until wanted for a critical moment, because it could not be quickly recharged – the method now in use upon the Lebel and the English Lee – but it is objectionable in that it does not help the man to think as a detachable magazine might. Men need all the assistance that can be had from the mechanisms of their guns to tell them, in the excitement of a fight, whether they are firing or only pulling trigger. It might be supposed that one would always know when his gun went off, but twenty-five thousand men at Gettysburg thought they were firing at the enemy when they were not at all, as shown by the twenty-five thousand guns picked up on the field, with from two to ten cartridges rammed into them. With the Mannlicher gun, there is nothing to prevent a man from pumping away on his bolt long after the magazine is emptied, and the tin packet case ejected; nor is there on the Lee as made in England; but it can be made so that when the last cartridge is fired the bolt is locked back, and a positive notice given that the magazine must be removed, either to attach another or to work the arm as a single-loader. Now, as nine-tenths of the firing done in battle will be empty fast enough from a single loader, it would seem that the gun wanted is a good single-loader which can, when necessary, be instantly changed to a magazine arm.

Of the guns mentioned in this paper the Kropatschek-Lebel is a magazine arm which is charged as such, and then changed to a single-loader by cutting off the magazine. The Mannlicher is a magazine arm, always used as such, when the magazine is charged, and the Lee and Franklin are single-loaders which can be changed to magazine arms by attaching the magazines.

The writer is strongly in favor of a detachable magazine system, so arranged that the gun cannot be used as a single-loader with a magazine on, because, when the magazine is detached the piece is as simple, as strong, and as light as any single-loader, and cannot be disabled by derangement of the magazine, as it can when this last part is an integral part of the gun; and because it aids in the "control of fire," which increases in importance with the attainable rapidities of delivery, by showing a change of form to the man using the arm, to his group leader, and to his company officer, to indicate whether the piece is being used as a single-loader or as a magazine gun.

The number of rounds that the magazine will contain should never exceed five, for a detachable system like the Lee or a quick recharging one like the Mannlicher, because that number, properly delivered at a critical moment, is sufficient to check an advance or to shake a defense as the case may be; because it is as great a number as can be delivered continuously between the pauses necessary to the control of fire; and because, when the comparatively small number of cartridges that can be borne upon a person is considered, it is as great a number as can be afforded for an unchecked expenditure.

For slow-charging fixed systems like the Kropatschek-Lebel, the greater the number that can be stowed in the magazine the better, since there is practically no method of recharging it, or of renewing magazine fire in a critical moment. The number of rounds carried in a detachable magazine should not exceed twenty per cent of the whole number borne on the person; with fixed quick-recharging systems all the cartridges should be put up in magazine charge packets; with fixed slow-charging systems the magazine must, of course, be carried charged and cut off, and the rest of the ammunition arranged for single-loading fire.

As regards form of magazine, there would seem to be no question but that the "box" is preferable. The place

*** A couple of years ago, in Austria, hardened lead unjacketed, steel-jacketed, nickel-jacketed, and copper-jacketed bullets were fired against a target composed of three and a half inches of beech-wood in front of a steel plate nine-tenths of an inch thick, the whole supported on beech-wood backing. The steel and nickel-jacketed bullets passed through the target with little deformation, and penetrated three inches into the backing. The hardened lead and copper-jacketed bullets were stopped by the steel plate. At two hundred and twenty yards the Lebel bullet penetrates fifteen inches of solid oak. The new German bullet has perforated (made a clean hole through) a steel plate 1.2 inches thick. These great penetrations are primarily useful in giving the bullets capability for passing through several men or animals when massed, as in a charge, and secondarily, in giving them greater "searching" power when used against light shelter-trench parapets, walls of wooden houses, sides of unarmored ships, and the like.

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upon the piece would seem to be the under-breech, like the Lee and Mannlicher. The over-breech location, like that of the Vitali and of the Franklin, is objected to as interfering with the field of view, and as throwing the piece out of balance, though, as matters of fact, the field is but little hidden, and the bolt handle on one side balances the magazine on the other.

This question of arms is a live one in Europe, where fighting may be expected at any time; but we, the very warlike and extremely unmilitary sovereign people of the United States, can afford to view it with indifference. We know that we have millions of fighting men ready to spring to arms at their country's call. The arms they would spring to may not be of the best, but the men are splendid.

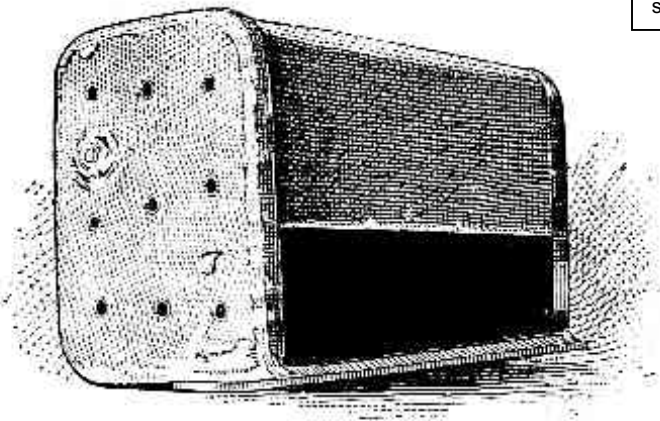
We have Springfield rifles for a few thousands of the millions, and have provided by the law of the land, in force in the year of grace 1889, that each man of all the rest shall have "a good musket or firelock, two spare flints, a sufficient bayonet,"**** and other warlike gear, except in the case of

officers, each of whom must have "a spontoon, and a sword or hanger," as he may elect.

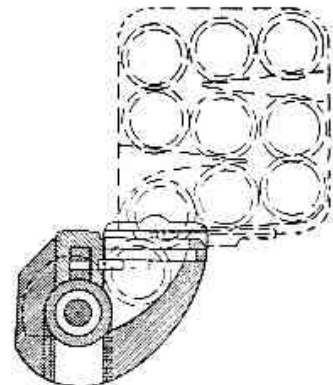
Our criterion of military excellence is very different from that of Europe. There it is the capability of men to get into position to shoot, and to shoot straight and quick; here it is the prettiness with which soldiers, under police escort, can march up the main street of a great town.

We consider it the part of wisdom to prepare for more peace, in time of peace; but should a foreign foe suddenly attack us, the pulse of the patriot would thrill at the spectacle presented by our armies springing to their arms and marching down Broadway – under the protection of the Broadway Squad – each man of the rank and file bravely bearing along his firelock, his two spare flints, and his sufficient bayonet, and every officer gallantly brandishing his hangar and flourishing his spontoon, while the cowering and cowardly enemy was pitching two-thousand-pounder shell among them from a safe position off Coney Island.

**** Vide Revised Statutes of the United States, sec. 1628 et sequitur.

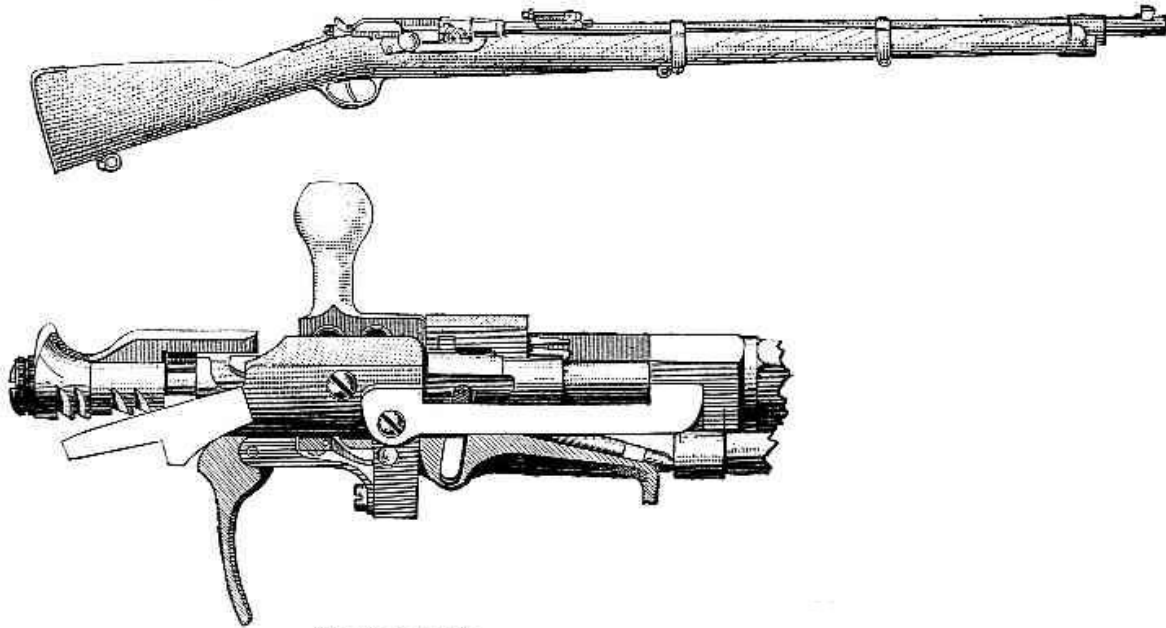


Magazine Detached.

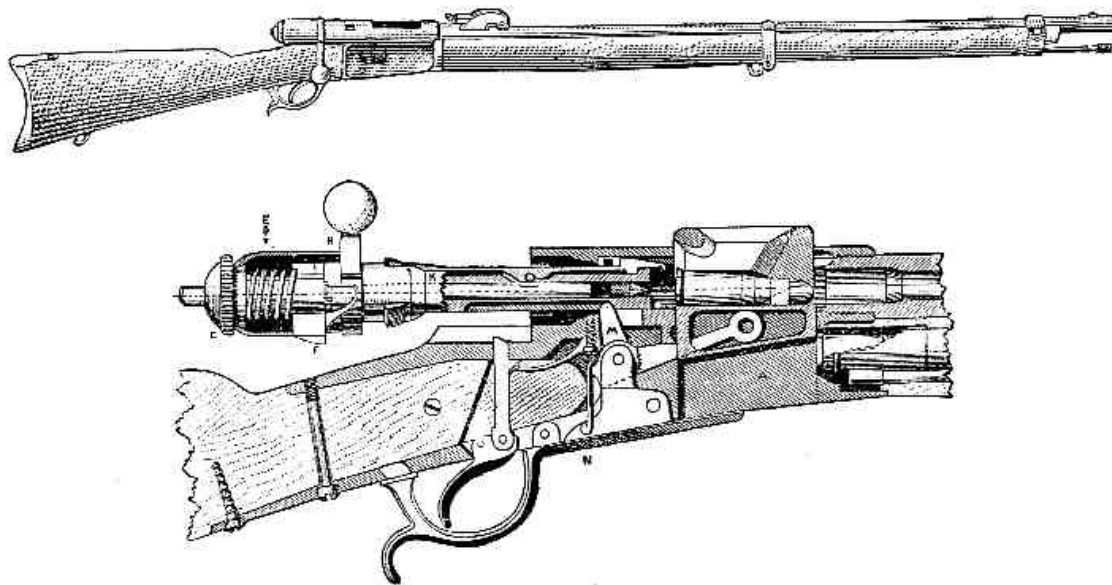


Sectional View of Magazine, Attached.

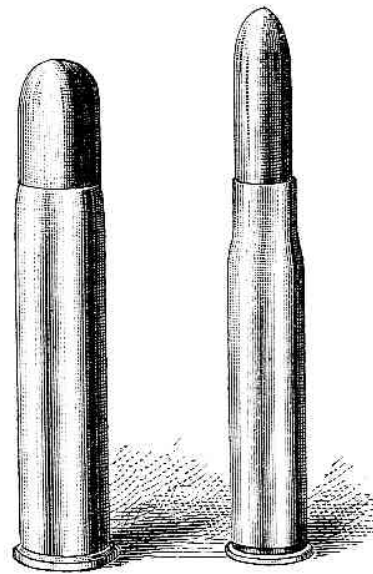
Cartridge Guide Chart



Kropatschek Rifle.
Fixed, under-barrel tubular, spring-fed, slow-charging magazine system.
Magazine holds seven cartridges.



Vetterli Rifle.
Fixed, under-barrel tubular, spring-fed, slow-charging magazine system. Magazine holds eleven cartridges.



U. S. Cartridge.

Modern Cartridge.

Cartridge Guide Chart

COMPLETE CARTRIDGE GUIDE CHART

Cartridge	Bullet Type	ABBR	Weapon Type	Bullet Wt (gm)	Vel. (m/s)	Pen	Total Disrupt.	Per Inch Disrupt.	Cartridge Weight	Energy (ft-Lbs)	Notes
Generic Cartridges											
.22 Long Rifle (5.7 x 17 mmR)	FMJ	.22 LR	P	2.59	330	14.2	0.41	0.03		104.1	
.22 Short Magnum	FMJ	.22 SM	P	2.1	606	26.1	1.11	0.04		285	
.25 ACP (6.3 x 15.5 mm)	FMJ	.25 ACP	P	3.25	246	11.9	0.36	0.03		73	
.30-40 Krag 1892	Lead	.30-40	R	14.26	610	36.4	14.67	0.4		2001	
.30-40 Krag 1896	FMJ	.30-40	R	14.26	670	40	17.7	0.44		2360	
.303 British Mark 1	FMJ	.303 BR	R	13.93	558	32.6	11.52	0.35		1600	.303 Mark 1, black powder propelled, lead bullet. Adopted 1889
.303 British Mark 2	FMJ	.303 BR	R	13.93	601	35.1	13.36	0.38		1856	.303 Mark 2, cordite propelled, FMJ bullet, adopted 1891
.303 British Mark 3-5	HP	.303 BR	R	13.93	601	10.7	46.8	4.38		1856	.303 Mark 3, cordite propelled, copper jacketed hollowpoint bullet, used 1897-1903.
.303 British Mark 6	FMJ	.303 BR	R	13.93	670	39.2	16.61	0.42		2306.5	.303 Mark 6, same as Mark 2 but thinner jacket, adopted 1904.
.303 British Mark 8Z	FMJ	.303 BR	R	11.34	777	45.4	18.18	0.4		2525	Long range bullet for Vickers Medium MG. 175 grain streamlined boattail jacketed bullet, with a nitro-cellulose propellant.
.32 ACP (7.62 x 17 mmR)	FMJ	.32 ACP	P	4.6	274	17	1.02	0.06		127	
.32 Magnum	FMJ	.32 Mag	P	5.8	334	21	1.9	0.09		238	
.357 Magnum (9 x 33 mmR)	FMJ	.357 Mag	P	8.1	439	30.2	5.76	0.19		576	
.380 Automatic (9 x 17 mm)	FMJ	.380 Auto or .380 ACP	P	5.8	303	22.2	2.2	0.1		196	
.38 Special (9 x 29 mmR)	FMJ	.38 Spec	P	7.1	286	21	2.42	0.12		214	
.38 Special Match	FMJ	.38SpM	P	9.6	210	15.4	1.76	0.11		156	
.40 S&W (10 x 21 mm)	FMJ	.40 SW	P	8.7	401	31	6.5	0.21		516	
.41 Action Express (10.42 x 18 mm)	FMJ	.41 AE	P	11	334	26.4	5.97	0.23		452	
.41 Swiss Peabody Rimfire (10.4 x 38 mm)	FMJ	.41 Swiss	R	20.2	470	37.2	21.74	0.58		1647	
.41 Vetterli-Vitali Rimfire (10.4 x 47 mm)	FMJ	.41 V-V	R	20	430	34	17.97	0.53		1361	
.44 Magnum	FMJ	.44 Mag	P	15.6	443	36.9	16.6	0.45		1129	
.45 ACP (11.43 x 23 mm)	FMJ	.45 ACP	P	13	296	25.7	6.68	0.26		420	
3 x 12 mm Kolibri	Lead	3x12	P	0.35	125	3	0.002	0.00067		2.2	Miniature Pistol round, produced 2 ft-lbs of energy. So rare, they sell at \$75 per round.
6.35 mm	FMJ	6.35	P	3.25	240	11.6	0.34	0.03		69	
6.5 x 5.2mm Carcano	FMJ	6.5 Car	R	10.43	730	36.1	10.46	0.29		2050.4	
7 x 27 mm Nambu	FMJ	7 Nam	P	3.63	381	6.3	1.2	0.19		196	
7.65 mm	FMJ	7.65	P	4.6	320	18.6	1.23	0.07		174	
8 x 18.7 mm Roth-Steyr	FMJ	RS 8mm	P	7.5	320	19.5	2.21	0.11		283.2	WW1 era ammunition. Only used in one type of gun.
8 x 50 mmR Lebel	FMJ	LebelR	R	12.96	630	39.3	15.56	0.4		1897	
8 x 58 mmR Danish Krag	Lead	8mm DK	R	12.83	600	36.5	13.29	0.36		1703.5	
8 x 58 mmR Danish Krag	FMJ	8mm DK	R	12.83	750	45.6	20.76	0.46		2661.7	Smokeless propellant and metal jacketed lead bullet, replaced older Danish Krag ammo.
8 x 60 mm R Guedes M73	Lead	Guedes	R	16	535	33.1	13.69	0.41		1689.5	
9 mm Parabellum (9 x 19mm)	FMJ	9mm P	P	7.5	379	25.9	3.93	0.15		397	

Cartridge Guide Chart

Cartridge	Bullet Type	ABBR	Weapon Type	Bullet Wt (gm)	Vel. (m/s)	Pen	Total Disrupt.	Per Inch Disrupt.	Cartridge Weight	Energy (ft-Lbs)	Notes
Generic Cartridges											
9 mm Largo (9 x 23 mm)	FMJ	9mmL	P	8	361	24.7	3.81	0.15		384	
9 mm Short	FMJ	9 Short	P	6.1	305	20.9	2.07	0.1		209	
10 mm Colt (10x25 mm)	FMJ	10mmC	P	11	406	30.8	8.16	0.26		688	
10.15 x 61 mmR Jarmann	Lead	Jarmann	R	12.84	415	32	17.3	0.54		1387	
10.15 x 61 mmR Jarmann	FMJ	Jarmann	R	12.84	495	38.2	24.67	0.65		1973.4	Smokeless powder & jacketed bullet, replaced older lead/black powder combo ammo.
11 x 59 mm R Gras	Lead	11x59 Gras	R	25.14	455	39.1	29.95	0.77		1919.6	
11.15 x 58 mm R Werndl Rifle 1877	Lead	Werndl77	R	24	307	26.1	12.8	0.49		833.4	
Specific Cartridges											
4.6 x 30 mm Heckler & Koch	FMJ	4.6 HK	P	1.7	725	25.3	0.86	0.03		329.5	Ammunition for the H&K PDW.
5 x 54 mm AIWS	Tumbler	AIWS	R	2.9	945	32.1	28.9	0.9	6.5	329.5	Composite cartridge round for AIWS, ancestor to army "green" ammo.
Colt Plaster Round	Plaster	CPR	P	0.25	549	3.35	0.025	0.007		29	Made of Plaster of Paris. .38 caliber.
DM-11 4.7 x 33 mm	FMJ	DM11	R	3.2	930	29.7	12.4	0.42		1021	Final form of the caseless ammunition used in the H&K G-11.
L191 5.7 x 28 mm Tracer	Tracer	L191	P	2	715	31	1.51	0.05	6	377	Tracer version of SS109, \$710 for a case of 1,000.
M/12 6.5 x 55 mm Mauser	FMJ	M/12	R	6	510	25.2	2.94	0.12		575	Practice / gallery version of the M/94.
M/94 6.5 x 55 mm Mauser	FMJ	M/94	R	10.1	742	36.6	10.5	0.29	25	2050	Roundnose bullet for tubular magazines. Case of 1400 costs \$147.
M/94-41 6.5 x 55 mm Mauser	FMJ	M/94-41	R	9	790	39	10.6	0.27		2071	Boattail version of the M/94.
Pretoria 9 mm	HP	Pret 9	P	6.5	400	7.9	18.9	2.4		382.4	Used in the Pretoria IFA. Hollowpoint.
Sb193 5.7 x 28 mm Subsonic	FMJ	Sb193	P	3.6	300	11.6	2.2	0.19		119.5	Subsonic version of SS-190, range of 50 meters. \$450 for a case of 1,000 rounds.
SS190 5.7 x 28 mm Ball	Tumbler	SS190	P	2	715	27.7	6.8	0.24		377	Ammo for P90 PDW and FiveseveN pistol. \$410 for a case of 1,000
T194 5.7 x 28 mm Practice	FMJ	T194	P	1.75	705	30.5	1.28	0.04		321	Practice version of SS190, \$290 for 1,000 rounds.
Soviet Ammunition											
7.62 mm Tokarev	FMJ	7.62 TT	P	5.5	510	29.5	3.75	0.13		528	
9 mm Makarov (9 x 18 mm)	FMJ	9mm M	P	6.15	321	22	2.31	0.11		234	
7N6 5.45 mm Bloc Ball	Tumbler	7N6	R	3.43	880	36.4	3.53	0.1		979.6	Russian 5.45 x 39 mm Ball. 7.5cm group, for AK-74, etc.
7T3 5.45 mm Tracer	Tracer	7T3	R	3.23	883	24.9	4.2	0.17		928.7	Russian 5.45 x 39 mm Tracer, 14 cm group.
M67 7.62 mm Bloc Ball	Tumbler	M67R	R	8	740	38.3	51.6	1.35		1615.6	Russian 7.62 x 39 mm Ball ammo, for AK-47 & similar.
M78 7.62 mm Bloc Silencer	FMJ	M78R-S	R	11.8	290	15	11.7	0.78		366	Soviet 7.62 x 39 mm cold-loaded ammunition.
M78 7.62 mm Bloc Tracer	Tracer	M78R-T	R	7.7	715	28.2	12.9	0.46		1451.8	
PAB-9 9 x 39 mm	SJESC	PAB-9	R	17.3	290	28.1	8	0.28		536.6	Russian subsonic armor piercing round. Semi-jacketed exposed steel core round.
SP-5 9 x 39 mm	AP	SP-5	R	16	290	17.7	22.1	1.25		496.3	Soviet Subsonic sniper round
SP-6 9 x 39 mm	SJESC	SP-6	R	16	290	28.1	7.4	0.26		496.3	Soviet Subsonic armor piercing round. SJESC

Cartridge Guide Chart

Cartridge	Bullet Type	ABBR	Weapon Type	Bullet Wt (gm)	Vel. (m/s)	Pen	Total Disrupt.	Per Inch Disrupt.	Cartridge Weight	Energy (ft-Lbs)	Notes
NATO & U.S. Ammunition											
.303 British Mark 7	FMJ	.303 BR	R	11.28	743	43.4	16.53	0.38		2295.6	.303 Mark 7, 174 grain bullet, adopted 1910, remained standard ball ammo for all Lee rifles until end of service life. Seven billion made by Britain during WW1 alone. In service until 1956, when the UK switched to the L1A1, an FN FAL clone.
M1 .30-06 (7.62 x 63 mm)	FMJ	M1 .30	R	11.28	693	40.1	14.18	0.35		1998	WW2 era .30-06 round, used in Garand and BAR when NATO formed in 1950.
M1 .30 Carbine (7.62 x 33 mm)	FMJ	M1 Car	R	7.1	570	33	6.04	0.18		851	WW2 era round for M1 Carbine, in use when NATO formed in 1950.
M2 .30-06 Ball (7.62 x 63 mm)	FMJ	M2 .30	R	9.85	734	42.5	13.9	0.33		1957	WW2 era round for M1 Garand and BAR
M2 .30-06 AP (7.62 x 63 mm)	AP	M2 .30 AP	R	10.89	726	71.5	15	0.21		2117	WW2 era round for M1 Garand and BAR
M2 .50 BMG Ball	FMJ	M2 .50	R	50	924	89.2	308.58	3.46		15,744	WW2 era BMG ammo.
M2 7.62mm NATO AP	AP	M2 7.62	R	10.8	868	85.4	21.3	0.25		3001	Older US 7.62 x 51mm AP round, meets NATO standards.
M17 .50 BMG Tracer	Tracer	M17	R	40.2	884	58	283.8	4.89		11,586	Older .50 BMG tracer
M20 .50 BMG Tracer	Tracer	M20	R	39.5	896	58.8	286.5	4.87		11,695	
M33 .50 BMG Ball	Tumbler	M33	R	44.6	897	77.4	1167.3	15.07		13,235	New NATO standard U.S. ammunition.
M61 7.62 x 51 mm NATO AP	AP	M61	R	9.8	868	85.4	19.3	0.23		2723.1	Older NATO standard U.S. ammunition.
M62 7.62 x 51 mm NATO Tracer	Tracer	M62	R	8.5	825	32.5	18.9	0.58		2133.6	
M80 7.62 mm NATO Ball	Tumbler	M80	R	9.65	868	45	85.7	1.91		2681.4	Standard NATO 7.62 x 51 mm round, U.S. designation.
M118 5.56 mm Long Range	FMJ	M118	R	11.4	786	45.5	18.44	0.41		2597	Standard long range NATO round, U.S. designation. +1 bonus to hit at long/extreme ranges.
M193 5.56 mm NATO Ball	Tumbler	M193	R	3.95	1005	38	25.2	0.66		1471.4	Used in older NATO standard weapons with a 1-in-12 rifle twist. Copper jacket.
M200 5.56 mm NATO Practice	None	M200	R								Full charge blank version NATO standard round for training purposes with MILES.
M882 9 mm NATO Ball	Tumbler	M882	P	7.45	377	23.1	17.4	0.75		389	Standard NATO 9 x 19 mm Parabellum NATO ammo.
M856 5.56 mm NATO Tracer	Tracer	M856	R	4.15	875	25.1	5.6	0.22		1149	Tracer version of M885. Orange tip.
M885 5.56 mm NATO Ball	Tumbler	M885	R	4	1005	38	25.5	0.67		1490	For NATO weapons with a 1-in-7 twist. Green tip.
M993 7.62 mm NATO AP	AP	M993	R	8.4	950	93.5	19.9	0.21		2796	Latest U.S. Armor-piercing round. Penetrates 20mm of steel armor.
M995 5.56 mm NATO AP	AP	M995	R	3.37	1013	72.8	4.8	0.07		1275	Latest US armor-piercing round. Black tip. Penetrates 12mm of steel armor.
M1018 20 mm HEAB	-	M1018	G	160							Airbursting grenade round for the XM-29 SABR.. estimated price: \$800 for 50.
M1906 .30-06 (7.62 x 63 mm)	FMJ	M1906	R	9.72	707	40.9	12.72	0.31		1792	Original U.S. .30-06 cartridge, used in M1 Garand when NATO formed in 1950.
SS109 5.56 mm NATO Ball	FMJ	SS109	R	4	930	35.2	21.8	0.62		1276	NATO European equivalent of the M885 round.

Damage by Cartridge

Caliber	Abbr	CyberThriller	D20	FUDGE	Action!	D20 W/V	Firearms D20	Game 5	Game 6	Game 7	Game 8	Game 9
Generic Cartridges												
.22 Long Rifle (5.7 x 17 mmR)	.22 LR	2+1D3	2d4	2	2d6							
.22 Short Magnum	.22 SM	3+1D3	2d6	3	3d6+2							
.25 ACP (6.3 x 15.5 mm)	.25 ACP	2+1D3	2d4	2	1d6+2							
.30-40 Krag 1892	.30-40	21+1D3	2d8	4	4d6+2							
.30-40 Krag 1896	.30-40	23+1D3	2d8	4	5d6							
.303 British Mark 1	.303 BR	18+1D3	2d8	4	4d6							
.303 British Mark 2	.303 BR	20+1D3	2d8	4	4d6+2							
.303 British Mark 3-5	.303 BR	220+1D3	2d8+1	4	4d6+4							
.303 British Mark 6	.303 BR	22+1D3	2d8	4	5d6							
.303 British Mark 8Z	.303 BR	25+1D3	2d10	5	6d6							
.32 ACP (7.62 x 17 mmR)	.32 ACP	4+1D3	2d4	2	2d6+2							
.32 Magnum	.32 Mag	5+1D3	2d4	3	2d6+2							
.357 Magnum (9 x 33 mmR)	.357 Mag	10+1D3	2d6	4	4d6							
.380 Automatic (9 x 17 mm)	.380 Auto or .380 ACP	5+1D3	2d6	3	3d6							
.38 Special (9 x 29 mmR)	.38 Spec	6+1D3	2d6	3	2d6+2							
.38 Special Match	.38SpM	6+1D3	2d6	2	2d6							
.40 S&W (10 x 21 mm)	.40 SW	11+1D3	2d6	4	4d6							
.41 Action Express (10.42 x 18 mm)	.41 AE	12+1D3	2d6	3	3d6+2							
.41 Swiss Peabody Rimfire (10.4 x 38 mm)	.41 Swiss	30+1D3	2d8	4	5d6							
.41 Vetterli-Vitali Rimfire (10.4 x 47 mm)	.41 V-V	27+1D3	2d8	4	4d6+2							
.44 Magnum	.44 Mag	23+1D3	2d8	4	4d6+2							
.45 ACP (11.43 x 23 mm)	.45 ACP	13+1D3	2d6	3	3d6+2							
3 x 12 mm Kolibri	3x12	1D3	2d3	1	1d6							
6.35 mm	6.35	2+1D3	2d4	2	1d6+2							
6.5 x 5 2mm Carcano	6.5 Car	15+1D3	2d8	4	4d6+2							
7 x 27 mm Nambu	7 Nam	10+1D3	2d3	1	1d6							
7.65 mm	7.65	4+1D3	2d4	2	2d6+2							
8 x 18.7 mm Roth-Steyr	RS 8mm	6+1d3	2d4	2	2d6+2							
8 x 50 mmR Lebel	LebelR	20+1D3	2d8	4	5d6							
8 x 58 mmR Danish Krag	8mm DK	19+1D3	2d8	4	4d6+2							
8 x 58 mmR Danish Krag	8mm DK	23+1D3	2d10	5	6d6							
8 x 60 mm R Guedes M73	Guedes	21+1D3	2d8	4	4d6+2							

Cartridge Guide Chart

Caliber	Abbr	CyberThriller	D20	FUDGE	Action!	D20 W/V	Firearms D20	Game 5	Game 6	Game 7	Game 8	Game 9
Generic Cartridges												
9 mm Parabellum (9 x 19mm)	9mm P	8+1D3	2d6	3	3d6+2							
9 mm Largo (9 x 23 mm)	9mmL	8+1D3	2d6	3	3d6							
9 mm Short	9 Short	5+1D3	2d4	3	2d6+2							
10 mm Colt (10x25 mm)	10mmC	14+1D3	2d6	4	4d6							
10.15 x 61 mmR Jarmann	Jarmann	28+1D3	2d8	4	4d6							
10.15 x 61 mmR Jarmann	Jarmann	33+1D3	2d8	4	5d6							
11 x 59 mm R Gras	11x59 Gras	39+1D3	2d8	4	5d6							
11.15 x 58 mm R Werndl Rifle 1877	Werndl77	25+1D3	2d6	3	3d6+2							
Specific Cartridges												
4.6 x 30 mm Heckler & Koch	4.6 HK	2 + 1D3	2d6	3	3d6+2							
5 x 54 mm AIWS	AIWS	45+1D3	2d8	4	4d6+2							
Colt Plaster Round	CPR	1+1D3	2d3	1	1d6							
DM-11 4.7 x 33 mm	DM11	21+1D3	2d8	3	4d6+2							
L191 5.7 x 28 mm Tracer	L191	3+1D3	2d6	4	4d6							
M/12 6.5 x 55 mm Mauser	M/12	6+1D3	2d6	3	3d6+2							
M/94 6.5 x 55 mm Mauser	M/94-94	15+1D3	2d8	4	4d6+2							
M/94-41 6.5 x 55 mm Mauser	M/94-41	14+1D3	2d8	4	5d6							
Pretoria 9 mm	Pret 9	121+1D3	2d6	3	3d6+4							
Sb193 5.7 x 28 mm Subsonic	Sb193	10+1D3	2d4	2	1d6+2							
SS190 5.7 x 28 mm Ball	SS190	13+1D3	2d6	3	4d6							
T194 5.7 x 28 mm Practice	T194	3+1D3	2d6	3	4d6							
Soviet Ammunition												
7.62 mm Tokarev	7.62 TT	7+1D3	2d6	3	4d6							
9 mm Makarov (9 x 18 mm) 0.35	9mm M	6+1D3	2d6	3	3d6							
7N6 5.45 mm Bloc Ball	7N6	25+1D3	2d8	4	4d6+2							
7T3 5.45 mm Tracer	7T3	23+1D3	2d8	3	4d6+2							
M67 7.62 mm Bloc Ball	M67R	68+1D3	2d10	4	5d6+2							
M78 7.62 mm Bloc Silencer	M78R-S	39+1D3	2d4	2	2d6+2							
M78 7.62 mm Bloc Tracer	M78R-T	23+1D3	2d10	3	5d6+2							
PAB-9 9 x 39 mm	PAB-9	15+1D3	2d4+/-1	3+/-2	2d6+5							
SP-5 9 x 39 mm	SP-5	63+1D3	2d4	2	2d6+2							
SP-6 9 x 39 mm	SP-6	14+1D3	2d4 +/-1	3 +/-2	2d6+5							
NATO & U.S. Ammunition												
.303 British Mark 7	.303 BR	20+1D3	2d10	5	5d6+2							

Cartridge Guide Chart

M1 .30-06 (7.62 x 63 mm)	M1	18+1D3	2d8	5	5d6							
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Damage by Cartridge

Caliber	Abbr	CyberThriller	D20	FUDGE	Action!	D20 W/V	Firearms D20	Game 5	Game 6	Game 7	Game 8	Game 9
NATO & U.S. Ammunition												
M1 .30 Carbine (7.62 x 33 mm)	M1 Car	10+1D3	2d8	4	4d6+2							
M2 .30-06 Ball (7.62 x 63 mm)	M2 .30	17+1D3	2d10	5	5d6+2							
M2 .30-06 AP (7.62 x 63 mm)	M2 .30 AP	11+1D3	2d10-1	8	5d6+2							
M2 .50 BMG Ball	M2 .50	174+1D3	2d12	9	9d6							
M2 7.62mm NATO AP	M2	13+1D3	2d10-1	9	6d6+2							
M17 .50 BMG Tracer	M17	245+1D3	2d12	6	9d6							
M20 .50 BMG Tracer	M20	244+1D3	2d12	6	9d6							
M33 .50 BMG Ball	M33	754+1D3	2d12	8	9d6							
M61 7.62 x 51 mm NATO AP	M61	12+1D3	2d10-1	9	6d6+2							
M62 7.62 x 51 mm NATO Tracer	M62	30+1D3	2d10	4	6d6							
M80 7.62 mm NATO Ball	M80	96+1D3	2d10	5	6d6+2							
M118 5.56 mm Long Range	M118	21+1D3	2d10	5	6d6							
M193 5.56 mm NATO Ball	M193	34+1D3	2d10	4	5d6+2							
M196 5.56mm NATO Tracer	M196	13+1D3	2d8	3	5d6							
M200 5.56 mm NATO Practice	M200	0	0	0	0							
M856 5.56 mm NATO Tracer	M856	12+1D3	2d8	3	4d6+2							
M882 9 mm NATO Ball	M882	38+1D3	2d6	3	3d6+2							
M885 5.56 mm NATO Ball	M885	34+1D3	2d10	4	5d6+2							
M993 7.62 mm NATO AP	M993	11+1D3	2d10-1	10	7d6							
M995 5.56 mm NATO AP	M995	4+1D3	2d10-1	8	5d6+2							
M1018 20 mm HEAB	M1018	5D6s	5d6, 5'r.	5, 5'r	5d6							
M1906 .30-06 (7.62 x 63 mm)	M1906	16+1D3	2d8	5	5d6							
SS109 5.56 mm NATO Ball	SS109	32+1D3	2d8	4	5d6							

HOTCHKISS RIFLE

The Hotchkiss Rifle was one of the early transition weapons leading into the era of modern firearms. With patents on various components dating back as far as 1860, and the first of the Hotchkiss Magazine Rifle designs were assembled in 1875. The design was licensed by the Winchester Repeating Arms Company, and limited production of the early prototypes occurred between 1876 and 1878. Winchester began manufacturing this line of rifles in earnest in 1878, once the US Navy began purchasing the rifles, as the Hotchkiss Rifle Model 1878. The design was modified, resulting in the Hotchkiss Rifle Model 1879, which was manufactured for the US Navy between 1879 and 1881. Winchester finished the Hotchkiss line with the 1883 introduction of the Hotchkiss Magazine Carbine Model 1883, and the Hotchkiss magazine carbine was introduced in 1883. The primary user of these Winchester manufactured rifles was the United States Navy. In the meantime, Hotchkiss' own manufacturing company began manufacturing the rifle for foreign sales, developing the Hotchkiss Magazine Rifle Model 1882.

The Hotchkiss rifles utilized a fixed, tubular, spring-fed magazine system that was created by drilling a hole through the length of the butt-stock of the rifle, from a starting point just below the rifle's breech and extending all the way out of the rear. The magazine's piston and print were then placed and the end of the buttstock capped by a metal plate that sealed the end of the magazine. This type of magazine was actually first introduced on the earlier Spencer Rifles of wild west frontier fame. The Hotchkiss Rifles Model 1878 and Model 1879 both had five round magazines, while the Model 1883 carbine possessed a six round magazine.

These bolt action rifles also possessed a magazine cutoff on the right side with the magazine handle. This allows the shooter to isolate the magazine and prevent it from feeding into the breech, allowing the rifle to be used as a single shot weapon that must be manually reloaded with each firing.

The rifled barrel is fitted with a blade foresight and a ramp and leaf rear sight. Beneath the barrel is a steel cleaning rod, fitted in a slot in the stock. The rifle stock is secured to the barrel by two steel bands. The forward band is fitted with a sling loop, as is the trigger guard.

This line of rifles possessed two major failing features. The first is the fixed tubular magazine. By their very nature, tubular magazines are inefficient due to the end-to-end nature in which the rounds are stored and the intolerably slow rate at which a shooter can recharge the magazine. The second failure is one mandated by the U.S. government; the .45-70 Government cartridge. These rounds were greatly underpowered compared to contemporary European rounds of the time, and possessed terrible ballistic qualities making them quite inaccurate.

During the second half of the nineteenth century, Benjamin Berkley Hotchkiss was one of a number of significant designers to greatly influence the future of small arms design. However, unlike most weapon designers, his focus was not entirely small arms. Hotchkiss actually got his start in 1856 by designing a new field gun, the design of which was purchased by the Mexican army as a field artillery piece. In 1860, he offered the US government improved designs for the rifling belt and percussion fusing for artillery projectile, and during the Civil War, Hotchkiss munitions were used to such great extent that they were second only to Parrott munitions. He followed that accomplishment by designing the first metallic cartridge used by the French in 1867. Of course, 1875 saw the invention of his magazine arms. His last great achievement was in 1882, when he formed the firm of Hotchkiss and Company to manufacture his arms. Hotchkiss & Co. would become the first serious multinational corporation, establishing the policy of

manufacturing the weapons in the nations buying them. In this way, factories were built in Germany, Austria, Italy, England and Russia. Hotchkiss died on February 14, 1885, having earned the reputation of being the world's first artillery engineer. His business partners kept the company going under the name Hotchkiss Ordinance Company well into the twentieth century. The company would continue on, delving into the development of machine guns, support weapons, ammunition, and even military vehicles, ranging from World War I tanks to post-WW2 jeeps.

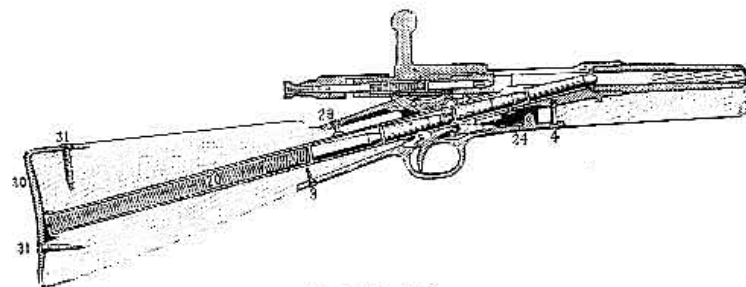
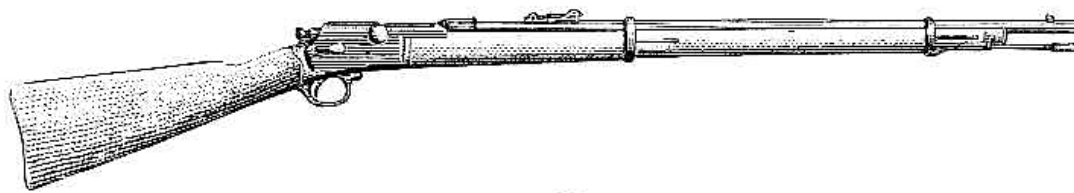
Weapon	Hotchkiss Rifle Model 1878				
Manufacturer	Winchester		Year	1878	
Nation	Italy, United States				
Caliber	.45-70 Government		Mags	5	
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	396 m/s		Energy		
Weight	Empty	4.14 kg	ROF	SS	45
	Loaded			MB	-
Length	1234 mm			Burst	-
Range	Effective	200 m			
	Max.			Auto	-
				Cyclic	-
Notes					

Weapon	Hotchkiss Rifle Model 1879					
Manufacturer	Winchester		Year	1879-1881		
Nation	United States					
Caliber	.45-70 Government		Mags	5		
Accuracy	Group			MOA		
	Kill			Pen		
Velocity	396 m/s		Energy			
Weight	Empty	4.14 kg	ROF	SS	45	
	Loaded			MB	-	
Length	1234 mm			Burst	-	
Range	Effective	200 m		Auto	-	
	Max.			Cyclic	-	
Notes						

Weapon	Hotchkiss Magazine Carbine Model 1883				
Manufacturer	Winchester		Year	1878	
Nation	United States				
Caliber	.45-70 Government		Mags	6	
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	396 m/s		Energy		
Weight	Empty	4.06 kg	ROF	SS	45
	Loaded			MB	-
Length	1314 mm			Burst	-
Range	Effective	200 m		Auto	-
	Max.			Cyclic	-
Notes	Manufactured in a different caliber for each foreign government buying it.				

Weapon	Hotchkiss Magazine Rifle Model 1882				
Manufacturer	Hotchkiss and Company		Year	1878	
Nation	United States				
Caliber	.45-70 Government		Mags	6	
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	396 m/s		Energy		
Weight	Empty	4.06 kg	ROF	SS	45
	Loaded			MB	-
Length	1314 mm			Burst	-
Range	Effective	200 m		Auto	-
	Max.			Cyclic	-
Notes					

HOTCHKISS RIFLE



Hotchkiss Rifle.

Fixed, butt-stock, tubular, spring-fed, slow-charging magazine system. Magazine holds six cartridges.



HOTCHKISS RIFLE

Cyberthriller

[illegible]

D20 System

[illegible]

FUDGE

Weapon	Shots	Rate of Fire	Range	Accy	Dmg	Cost	Notes
Hotchkiss M1878	5	SS	Poor	Fair	6	\$65	
Hotchkiss M1879	5	SS	Poor	Fair	6	\$65	
Hotchkiss M1882	6	SS	Poor	Fair	6	\$65	
Hotchkiss M1883	6	SS	Poor	Mediocre	6	\$65	
Special Rules							

Action!

Weapon	Dmg	Type	Acc	Rmod	STR Min	Max Rng	RoF	Amm	Wt	Cost	Notes
Hotchkiss M1878	6d6+2	P/L	0	-2	3	200	1	5	4.2	\$65	
Hotchkiss M1879	6d6+2	P/L	0	-2	3	200	1	5	4.2	\$65	
Hotchkiss M1882	6d6+2	P/L	0	-2	3	200	1	6	4.25	\$65	
Hotchkiss M1883	6d6+2	P/L	-1	-2	3	200	1	6	3.8	\$65	
Special Rules:											

JARMANN RIFLE

The Jarmann Rifle was one of the earliest modern rifles military rifles adopted for military service. The rifle was adopted for use by both the Norwegian army and navy, and some 1,500 were sold to Sweden. The Norwegian army version was fitted to mount a cruciform bayonet and the navy version was fitted for a knife bayonet. Interestingly, the rifle was fitted with an auxiliary long range sight on the left side of the full length stock.

The design was never truly successful. Early on, the Norwegian military was using pointed ammunition, which made accidental discharges in the magazine a commonplace occurrence which could easily destroy the rifle and kill the soldier. In 1887, the Norwegian government introduced its first smokeless powder cartridge with jacketed bullets, which forced the rifle to be modified, primarily with the sights being recalibrated for the new, higher velocity ammunition.

The Jarmann was Norway's second most heavily manufactured rifle, second to the Krag-Jorgensen. Of the over 30,000 Norwegian Jarmann rifles manufactured, it is nearly impossible to locate one in working condition. Once the Krag-Jorgensen rifles began entering service in 1894, some 5,000 Jarmanns were converted into harpoon guns. German soldiers burned some 10,000 of the rifle, which were at the time considered too obsolete to put into service, but too modern to leave stockpiled. There are rumors that 20,000 were sold to an undisclosed nation in South America, but the transport ship sank in the Atlantic with all guns aboard. More likely, the surviving military issue Jarmanns were probably quietly destroyed by the Norwegian Army itself. The few working Jarmann Rifles left fetch astonishing amounts on the market, pricing between \$5,500 and \$7,000 when available.

Weapon	Jarmann Gevaer M1884					
Manufacturer	Kongsberg		Year	1884-1887		
Nation	Norway					
Caliber	10.15 x 61mmR Jarmann		Mags	8		
Accuracy	Group			MOA		
	Kill		Pen			
Velocity	415 m/s		Energy			
Weight	Empty	4.43 kg		ROF	SS	20
	Loaded			MB	-	
Length	1345 mm			Burst	-	
Range	Effective	500 m		Auto	-	
	Max.			Cyclic	-	
Notes						

Weapon	Jarmann Gevaer M1884/87					
Manufacturer	Kongsberg			Year	1887-1894	
Nation	Norway			Mags	8	
Caliber	10.15 x 61mmR Jarmann					
Accuracy	Group				MOA	
	Kill				Pen	
Velocity	495 m/s			Energy		
Weight	Empty	4.43 kg	ROF	SS	20	
	Loaded			MB	-	
Length	1345 mm			Burst	-	
Range	Effective	500 m		Auto	-	
	Max.			Cyclic	-	
Notes						



JARMANN RIFLE

Cyberthriller

[illegible]

D20 System

[illegible]

FUDGE

[illegible]

Action!

[illegible]

KRAG-JORGENSEN RIFLE

As the 1880's progressed, the militaries of Europe began advancing their weapon technologies, slowly working toward the goal of eliminating the old, slow muzzle-loading rifles they had been using for more than a century. Most of the nations of Europe adopted magazine-loading repeater rifles of one type or another. These weapons are not the same thing as a semi-automatic rifle, since the action still needs to be manually cycled in order to reload the weapon chamber for firing. This technology is even still popular today, appearing in the bulk of civilian hunting long arms on the market, as well as a number of sniper rifles.

For Denmark, the choice of modern arms in the 1880's was the Krag-Jorgensen Gevaer M1889. Norway also adopted the rifle in 1894. This rifle, after a number of alterations, was also adopted by the United States in 1893.

The rifle makes use of a turnbolt action with a single locking lug towards the front of the unit. The locking system is much maligned, as it is fragile by today's standards and would easily break if used with today's propellants. However, with the low velocity ammunition that was used with the gun originally, this simple locking mechanism is more than sufficient.

The innovation of the Krag-Jorgensen was the magazine. The weapon loads laterally, through a hinged trapdoor under the bolt. With the trapdoor open, loose rounds are fed into the weapon, and closing the trapdoor seats the magazine follower and a spring pushes the rounds across the magazine, under the bolt and up the left side of the action. The original Danish version of the rifle had a vertically hinged trapdoor, which opened forward. The rifle had to be tilted to the left and down in order to prevent the rounds from spilling out of the magazine while loading. The American and Norwegian versions used a trapdoor with a bottom hinge, allowing the door to function as a small loading platform when folded down. The Norwegian rifles were further modified with a unique pistol grip and wooden handguard that was shorter than on other Krag-Jorgensen Rifles.

Like other rifles of the era, there were a vast number of variants produced while the weapons were in service. The Danish government produced nine versions of the weapon, the Norwegian government produced another nine versions, and the United States used seven different versions.

Danish Krag-Jorgensen Rifles

Krag-Jorgensen Gevaer M1889: This is the original rifle. The rifle stands out thanks to the long handguard covering much of the barrel, the forward-opening vertical-hinged magazine trapdoor, and the rear sight which was incremented out to 2000 meters.

Krag-Jorgensen Gevaer m/89-08: In 1908, the Gevaer M1889 rifles were fitted with a new safety mechanism. Along with manufacturing new rifles in this configuration, the bulk of existing weapons in service were modified to this configuration.

Krag-Jorgensen Gevaer m/89-10: In 1910, another modification was made, mainly to fit all the rifles in service with a new sight, incremented out to 2100 meters.

Krag-Jorgensen Rytterkarabin M1889: This is a cavalry carbine, a lighter, shorter version of the rifle. It is easily distinguished not only by length and weight, but also by its use of tangent sights rather than the leaf sights on the gevaer. It is also odd thanks to the placement of the sling swivels along the left side of the weapon, rather than the bottom. Since it was adopted in 1912, the weapon is also known as the Rytterkarabin m/89-12.

Engineer Carbine Model 1889: Manufactured for the combat engineer units, this weapon is almost identical to the cavalry carbine. The sling swivels are fitted along the bottom of the weapon, and a bayonet bar is fitted.

Rytterkarabin m/89-23: The existing cavalry carbines were fitted with a bayonet bar suitable for using the bayonet adopted by the Danish military in 1915.

Weapon	Krag-Jorgensen Gevaer Model 1889					
Manufacturer	Danish State Arsenal		Year	1889-1908		
Nation	Denmark					
Caliber	8 x 58mmR Danish Krag		Mags	5		
Accuracy	Group			MOA		
	Kill			Pen		
Velocity	600 m/s		Energy			
Weight	Empty	4.58 kg	ROF	SS	21	
	Loaded			MB	-	
Length	1328 mm			Burst	-	
Range	Effective	600 m		Auto	-	
	Max.	2100m		Cyclic	-	

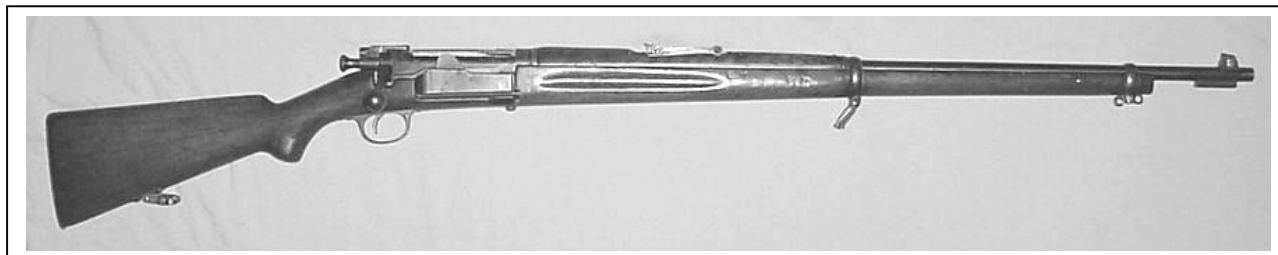
Weapon	Krag-Jorgensen Gevaer m/89-08, m/89-10				
Manufacturer	Danish State Arsenal		Year	1908-1930	
Nation	Denmark				
Caliber	8 x 58mmR Danish Krag				
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	750 m/s		Energy		
Weight	Empty	4.58 kg	ROF	SS	21
	Loaded			MB	-
Length	1328 mm			Burst	-
Range	Effective	600 m		Auto	-
	Max.	2100m		Cyclic	-

Weapon	Krag-Jorgensen Rytterkarabin M1889, Engineer Carbine M1889, Rytterkarabin M/89-23, Artillery Carbine M/89-24				
	Danish State Arsenal		Year	1912-1924	
Manufacturer	Denmark				
Nation	8 x 58mmR Danish Krag		Mags	5	
Caliber	Group			MOA	
	Kill			Pen	
Accuracy					
Velocity	620 m/s		Energy		
Weight	Empty	4.04 kg	ROF	SS	21
	Loaded			MB	-
Length	1100 mm			Burst	-
Range	Effective	500 m		Auto	-
	Max.	2100m		Cvclic	-

Weapon	Krag-Jorgensen Infantry Carbine, M/89-24				
Manufacturer	Danish State Arsenal		Year	1908-1930	
Nation	Denmark				
Caliber	8 x 58mmR Danish Krag				
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	620 m/s		Energy		
Weight	Empty	3.97 kg	ROF	SS	21
	Loaded	1.16 kg		MB	-
Length	1105 mm			Burst	-
Range	Effective	500 m		Auto	-
	Max.	2100m		Cyclic	-

Weapon	Krag-Jorgensen Sniping Rifle, Model 1928				
Manufacturer	Danish State Arsenal		Year	1928-1930	
Nation	Denmark				
Caliber	8 x 58mmR Danish Krag				
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	750 m/s		Energy		
Weight	Empty	5.36 kg	ROF	SS	21
	Loaded			MB	-
Length	1170 mm			Burst	-
Range	Effective	800 m		Auto	-
	Max.	2100m		Cyclic	-

KRAG-JORGENSEN RIFLE



Infantry Carbine m/89-24: Initially, these weapons were manufactured by converting existing m/89-10 rifles, using a shorter barrel, a steel barrel jacket with bayonet bar, and the handguard removed, while grasping grooves were cut into the stock just forward of the magazine trapdoor. Initially, the new barrels produced for these rifles were of an increasing twist rifling, but were later replaced by a constant twist rifling.

Weapon	Krag-Jorgensen Gevaer M/1894,				
Manufacturer	Kongsberg, Steyr, FN		Year	1894-1911	
Nation	Norway				
Caliber	6.5x55mm Swedish Mauser		Mags	5	
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	730 m/s		Energy		
Weight	Empty	4.05 kg	ROF	SS	21
	Loaded			MB	-
Length	1260 mm			Burst	-
Range	Effective	600 m		Auto	-
	Max.	2100m		Cyclic	-

Artillery Carbine m/89-24: This weapon, made for artillery crews, was identical to the Rytterkarabin m/89-23, except that the bolt handle was modified to turn downward toward the stock.

Sniping Rifle Model 1928: This Danish rifle was actually based on the Norwegian Model 1894 Krag-Jorgensen Rifle. The rifle is half-stocked, fitted with a heavy free-floating barrel, a micrometer rear sight, a short handguard, hooded foresight, and the turned down bolt handle of the artillery carbine.

Weapon		Krag-Jorgensen Cavalry Carbine M/1895, Mountain Artillery & Pioneer Carbine M/1897			
Manufacturer	Kongsberg		Year	1895-1911	
Nation	Norway				
Caliber	6.5x55mm Swedish Mauser		Mags	5	
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	640 m/s		Energy		
Weight	Empty	3.4 kg	ROF	SS	21
	Loaded			MB	-
Length	1015 mm			Burst	-
Range	Effective	500 m		Auto	-
	Max.	2100m		Cyclic	-

Norwegian Krag-Jorgensen Rifles

Krag-Jorgensen Gevaer M/1894: This was the original Norwegian version of the Krag-Jorgensen rifle. It is differentiated from the Krag-Jorgensen Gevaer M1889 by a wide number of features. Foremost, it uses the bottom-hinged trapdoor of the American version. It also uses a pistol grip and a handguard that only covers the barrel from the receiver to the rear barrel band. The rifle used a tangent rear sight and is fitted with a bayonet bar. The rifle was fitted with a rotary dial for the magazine cut-off, which allowed the magazine to be sealed and isolated, effectively converting the rifle into a single-shot weapon.

Cavalry Carbine M/1895: This short version of the rifle entered service a year after the full size rifle. Along with its shorter length, it is most distinguished by its half-stock, which gave the carbine the look of a sporting rifle of the period. No provisions for a bayonet.

Mountain Artillery and Pioneer Carbine M/1897: This was identical to the M/1895, aside from the rearmost sling swivel being moved forward 10 cm from the butt. No bayonet bar.

Engineer Carbine M/1904: The M/1895 Cavalry Carbine fitted with a full stock and full length hand guard over the barrel. No bayonet bar.

Artillery Carbine M/1907: The M/1904 Engineer Carbine, but with the sling swivels placed differently.

Karabin M/1912: With a ridiculous number of different carbines in service, the Norwegian government decided to eliminate them all and replace them with a single universal shoulder arm for all their non-infantry troops.

Karabin M/1912/16: It took four years to realize there was a serious problem with the Karabine M/1912; the use of a bayonet could cause the forward end of the stock to crack, split, and splinter. A wide strengthening band was fitted on all existing and newly manufactured Karabins at this time.

Sniping Rifle M1894: This was a sniper rifle built from the M/1894 Gevaer. It used a heavy barrel, and a high standard finish, complete with a checkered pistol grip and target quality iron sights.

Weapon			Engineer Carbine M/1904, Artillery Carbine M/1907		
Manufacturer	Kongsberg		Year	1908-1930	
Nation	Norway				
Caliber	6.5x55mm Swedish Mauser		Mags	5	
Accuracy	Group			MOA	
	Kill		Pen		
Velocity	640 m/s		Energy ROF		
Weight	Empty	3.81 kg		SS	21
	Loaded		MB	-	
Length	1015 mm			Burst	-
Range	Effective	500 m		Auto	-
	Max.	2100m		Cyclic	-

Weapon	Krag-Jorgensen Short Rifle M/1912				
Manufacturer	Kongsberg		Year	1912-1930	
Nation	Norway				
Caliber	6.5x55mm Swedish		Mags	5	
	Mauser				
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	710 m/s		Energy		
Weight	Empty	4.02 kg	ROF	SS	21
	Loaded			MB	-
Length	1106 mm			Burst	-
Range	Effective	500 m		Auto	-
	Max	2100m		Cyclic	-

KRAG-JORGENSEN RIFLE

Sniping Rifle M/1923: The Norwegian military started using the M23 spitzer-bullet cartridge, requiring improvements to their sniper rifle. The major improvements were new sights; an aperture rear sight and a hooded front sight.

Sniping Rifle M/1925: The sights on the M/1923 were insufficient, and the rear sight was replaced with a micrometer-adjustable aperture rear sight.

Sniping Rifle M/1930: This was the final new version of the Krag-Jorgensen produced by Norway. The rifle had a half stock and free-floating heavy barrel, giving it the appearance of a sporting rifle of the time. Otherwise, it was virtually identical to the other sniper rifles, aside from the lack of a bayonet bar mounted under the barrel.

U.S. Krag-Jorgensen Rifles

U.S. Rifle, M1892: This bolt action rifle had a full length stock and a half length handguard over the barrel. It was fitted with a cleaning rod, piling swivel, and bayonet bar. It was also the first Krag-Jorgensen rifle to be fitted with the downward-opening, bottom-hinged magazine trapdoor, which greatly eased loading. The search for this rifle actually began in 1877. During the intervening 15 years, the United States fielded dozens of models of rifles, in quantities numbers from a few dozen to a few hundred. With the need to field replacement parts and ammunition for these dozens of different types of weapons, this marked the most inefficient logistical period the US Army has suffered through. The M1892 replaced the Springfield .45-70 "Trapdoor" Rifle M1868.

U.S. Rifle, Model 1896: This was an improved rifle, importing features from the European versions. The cleaning rod was broken down to a three piece unit that fit in a compartment hollowed into the butt, and a magazine cutoff was added, along with new sights. Along with new rifles, many of the M1892 rifles were converted to the M1896 configuration.

M1896 Cavalry Carbine: A shortened version of the rifle, but fitted with a saddle ring and rail on the stock. This model had a two piece cleaning rod and oil can in the butt stock.

M1898 Rifle: This rifle had new sights, graduated to 2000 yards in order to compensate for new high velocity ammunition. These new sights were later changed to another new set, incremented out to 2300 yards.

M1898 Cavalry Carbine: The M1896 carbines were fitted with the same sights as the M1898 rifles.

M1899 Cavalry Carbine: Newly manufactured rifles with a longer fore end, and later fitted with a new handguard to better protect the rear sights.

Philippine Constabulary Short Rifle: This was a conversion or remanufacture of existing Krag-Jorgensen rifles in the U.S. arsenals. The goal was to provide a suitable short rifle for use by police in the new Philippine territories, which were torn by insurrectionism during the Moro War against Muslim rebels on the islands.

Weapon	Krag-Jorgensen Sniping Rifle M/1923				
Manufacturer	Kongsberg		Year	1923-1925	
Nation	Norway		Mags	5	
Caliber	6.5x55mm Swedish Mauser				
Accuracy	Group		MOA		
	Kill		Pen		
Velocity	710 m/s		Energy		
Weight	Empty	4.11 kg	ROF	SS	21
	Loaded			MB	-
Length	1117 mm			Burst	-
Range	Effective	800 m		Auto	-
	Max.	2100m		Cyclic	-

Weapon	Krag-Jorgensen Sniping Rifle M/1925				
Manufacturer	Kongsberg		Year	1925-1930	
Nation	Norway		Mags	5	
Caliber	6.5x55mm Swedish Mauser				
Accuracy	Group		MOA		
	Kill		Pen		
Velocity	800 m/s		Energy		
Weight	Empty	4.48 kg	ROF	SS	21
	Loaded			MB	-
Length	1262 mm			Burst	-
Range	Effective	800 m		Auto	-
	Max.	2100m		Cyclic	-

Weapon	Krag-Jorgensen Sniping Rifle M/1930				
Manufacturer	Kongsberg		Year	1930	
Nation	Norway		Mags		
Caliber	6.5x55mm Swedish Mauser			5	
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	800 m/s		Energy		
Weight	Empty	5.2 kg	ROF	SS	21
	Loaded			MB	-
Length	1219 mm			Burst	-
Range	Effective	900 m		Auto	-
	Max.	2100m		Cyclic	-

Weapon	U.S. Rifle, Model 1892				
Manufacturer	Springfield Armory		Year	1894-1896	
Nation	United States				
Caliber	.30-40 Krag				
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	610 m/s		Energy		
Weight	Empty	4.25 kg	ROF	SS	21
	Loaded			MB	-
Length	1248 mm			Burst	-
Range	Effective	600 m		Auto	-
	Max.	1800m		Cyclic	-



Close up of the Krag-Jorgensen receiver, complete with magazine trapdoor.

KRAG-JORGENSEN RIFLE

Weapon	U.S. Rifle, Model 1896				
Manufacturer	Springfield		Year	1896-1898	
Nation	United States				
Caliber	.30-40 Krag		Mags	5	
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	610 m/s		Energy		
Weight	Empty	5.2 kg	ROF	SS	21
	Loaded			MB	-
Length	1219 mm		Burst	-	
Range	Effective	600 m	Auto	-	
	Max.	1800m	Cyclic	-	

Weapon	M1896 Cavalry Carbine				
Manufacturer	Springfield		Year	1896-1898	
Nation	United States				
Caliber	.30-40 Krag		Mags	5	
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	533 m/s		Energy		
Weight	Empty	3.51 kg	ROF	SS	21
	Loaded			MB	-
Length	1045 mm		Burst	-	
Range	Effective	400 m	Auto	-	
	Max.	1800m	Cyclic	-	

Weapon	U.S. Rifle, Model 1898				
Manufacturer	Springfield		Year	1898-1903	
Nation	United States				
Caliber	.30-40 Krag		Mags	5	
Accuracy	Group		MOA		
	Kill			Pen	
Velocity	670 m/s		Energy		
Weight	Empty	4.08 kg	ROF	SS	21
	Loaded			MB	-
Length	1248 mm		Burst	-	
Range	Effective	600 m	Auto	-	
	Max.	2300m	Cyclic	-	

Weapon		Philippine Constabulary Short Rifle				
Manufacturer	Springfield	Year		1903-1913		
Nation	United States					
Caliber	.30-40 Krag	Mags		5		
Accuracy	Group					
	Kill			MOA		
				Pen		
Velocity	533 m/s		Energy			
Weight	Empty	3.64 kg				
	Loaded		SS	21		
			MB	-		
Length	1045 mm		Burst		-	
Range	Effective	500 m	Auto		-	
	Max.	2300m	Cyclic		-	

Weapon	M1899 Cavalry Carbine				
Manufacturer	Springfield		Year	1899-1903	
Nation	United States				
Caliber	.30-40 Krag		Mags	5	
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	600 m/s		Energy		
Weight	Empty	3.57 kg	ROF	SS	21
	Loaded			MB	-
Length	1045 mm		Burst	-	
Range	Effective	400 m	Auto	-	
	Max.	2300m	Cyclic	-	

Weapon	M1898 Cavalry Carbine				
Manufacturer	Springfield		Year	1898-1899	
Nation	United States				
Caliber	.30-40 Krag		Mags	5	
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	600 m/s		Energy		
Weight	Empty	3.52 kg	ROF	SS	21
	Loaded			MB	-
Length	1045 mm			Burst	-
Range	Effective	400 m		Auto	-
	Max.	2300m		Cyclic	-

KRAG-JORGENSEN RIFLE

Weapon	Type	ACC	Con	Av	Caliber	DM	Ammo	Rate of Fire	Rel	Effect. Range (meters)	Weight Empty (kg)	Weight Loaded (kg)	Cost
Danish Krag-Jorgensen Gevaser M/1889	RIF	0	N	M	8mm DK	0	5	1 [SS]	RE	600	4.58		\$70
Danish Krag-Jorgensen Gevaer m/89-08	RIF	0	N	M	8mm DK	0	5	1 [SS]	RE	600	4.58		\$70
Danish Krag-Jorgensen Gevaer m/89-10	RIF	0	N	M	8mm DK	0	5	1 [SS]	RE	600	4.58		\$70
Danish Krag-Jorgensen Rytterkarabin M/1889	RIF	-1	N	M	8mm DK	-2	5	1 [SS]	RE	500	4.04		\$70
Danish Krag-Jorgensen Engineer Carbine M1889	RIF	-1	N	M	8mm DK	-2	5	1 [SS]	RE	500	4.04		\$70
Danish Krag-Jorgensen Rytterkarabin M/89-23	RIF	-1	N	M	8mm DK	-2	5	1 [SS]	RE	500	4.04		\$70
Danish Krag-Jorgensen Artillery Carbine m/89-24	RIF	-1	N	M	8mm DK	-2	5	1 [SS]	RE	500	4.04		\$70
Danish Krag-Jorgensen Infantry Carbine m/89-24	RIF	-1	N	M	8mm DK	-2	5	1 [SS]	RE	500	3.97		\$70
Danish Krag-Jorgensen Sniping Rifle Model 1928	RIF	+1	N	M	8mm DK	0	5	1 [SS]	RE	800	5.36		\$70
Norwegian Krag-Jorgensen Gevaer M/1894	RIF	0	N	M	M/94-94	0	5	1 [SS]	RE	600	4.05		\$70
Norwegian Krag-Jorgensen Cavalry Carbine M/1895	RIF	-1	N	M	M/94-94	-2	5	1 [SS]	RE	500	3.4		\$70
Norwegian Krag-Jorgensen Mountain Artillery & Pioneer Carbine M/1897	RIF	-1	N	M	M/94-94	-2	5	1 [SS]	RE	500	3.4		\$70
Norwegian Engineer Carbine M/1904	RIF	-1	N	M	M/94-94	-2	5	1 [SS]	RE	500	3.81		\$70
Norwegian Artillery Carbine M/1907	RIF	-1	N	M	M/94-94	-2	5	1 [SS]	RE	500	3.81		\$70
Norwegian Krag-Jorgensen Short Rifle M/1912	RIF	0	N	M	M/94-94	-1	5	1 [SS]	RE	500	4.02		\$70
Norwegian Krag-Jorgensen Sniping Rifle M/1923	RIF	+1	N	M	M/94-94	0	5	1 [SS]	RE	800	4.11		\$70
Norwegian Krag-Jorgensen Sniping Rifle M/1925	RIF	+2	N	M	M/94-94	0	5	1 [SS]	RE	800	4.48		\$70
Norwegian Krag-Jorgensen Sniping Rifle M/1930	RIF	+3	N	M	M/94-94	0	5	1 [SS]	RE	900	5.2		\$70
U.S. Rifle, Model 1892	RIF	0	N	M	.30-40	0	5	1 [SS]	RE	600	4.25		\$70
U.S. Rifle, Model 1896	RIF	0	N	M	.30-40	0	5	1 [SS]	RE	600	5.2		\$70
M1896 Cavalry Carbine	RIF	-1	N	M	.30-40	-2	5	1 [SS]	RE	400	3.51		\$70
U.S. Rifle, Model 1898	RIF	0	N	M	.30-40	0	5	1 [SS]	RE	600	4.08		\$70
M1898 Cavalry Carbine	RIF	-1	N	M	.30-40	-2	5	1 [SS]	RE	400	3.52		\$70
M1899 Cavalry Carbine	RIF	-1	N	M	.30-40	-2	5	1 [SS]	RE	400	3.57		\$70
Philippine Constabulary Short Rifle	RIF	0	N	M	.30-40	0	5	1 [SS]	RE	500	3.64		\$70
Special Rules													

KRAG-JORGENSEN RIFLE

Weapon	Damage	Critical	Damage Type	Range Increment	Rate of Fire	Mag	Size	Weight	Purchase DC	Restriction
Danish Krag-Jorgensen Gevaser M/1889	2d8	20	Ballistic	200	SS	5	Lrg	10 lb	8	
Danish Krag-Jorgensen Gevaer m/89-08	2d10	20	Ballistic	200	SS	5	Lrg	10 lb	8	
Danish Krag-Jorgensen Gevaer m/89-10	2d10	20	Ballistic	200	SS	5	Lrg	10 lb	8	
Danish Krag-Jorgensen Rytterkarabin M1889	2d8	20	Ballistic	165	SS	5	Lrg	9 lb	8	
Danish Krag-Jorgensen Engineer Carbine M1889	2d8	20	Ballistic	165	SS	5	Lrg	9 lb	8	
Danish Krag-Jorgensen Rytterkarabin m/89-23	2d8	20	Ballistic	165	SS	5	Lrg	9 lb	8	
Danish Krag-Jorgensen Artillery Carbine m/89-24	2d8	20	Ballistic	165	SS	5	Lrg	9 lb	8	
Danish Krag-Jorgensen Infantry Carbine m/89-24	2d8	20	Ballistic	165	SS	5	Lrg	8.75 lb	8	
Danish Krag-Jorgensen Sniping Rifle Model 1928	2d10	20	Ballistic	265	SS	5	Lrg	12 lb	8	
Norwegian Krag-Jorgensen Gevaer M/1894	2d8	20	Ballistic	200	SS	5	Lrg	9 lb	8	
Norwegian Krag-Jorgensen Cavalry Carbine M/1895	2d8	20	Ballistic	165	SS	5	Lrg	7.5 lb	8	
Norwegian Krag-Jorgensen Mountain Artillery & Pioneer Carbine M/1897	2d8	20	Ballistic	165	SS	5	Lrg	7.5 lb	8	
Norwegian Engineer Carbine M/1904	2d8	20	Ballistic	165	SS	5	Lrg	8.5 lb	8	
Norwegian Artillery Carbine M/1907	2d8	20	Ballistic	165	SS	5	Lrg	8.5 lb	8	
Norwegian Krag-Jorgensen Short Rifle M/1912	2d8	20	Ballistic	165	SS	5	Lrg	9 lb	8	
Norwegian Krag-Jorgensen Sniping Rifle M/1923	2d8	20	Ballistic	265	SS	5	Lrg	9 lb	8	
Norwegian Krag-Jorgensen Sniping Rifle M/1925	2d8	20	Ballistic	265	SS	5	Lrg	10 lb	8	
Norwegian Krag-Jorgensen Sniping Rifle M/1930	2d8	20	Ballistic	300	SS	5	Lrg	11.5 lb	8	
U.S. Rifle, Model 1892	2d8	20	Ballistic	200	SS	5	Lrg	9.5 lb	8	
U.S. Rifle, Model 1896	2d8	20	Ballistic	200	SS	5	Lrg	11.5 lb	8	
M1896 Cavalry Carbine	2d8	20	Ballistic	135	SS	5	Lrg	8 lb	8	
U.S. Rifle, Model 1898	2d8	20	Ballistic	200	SS	5	Lrg	9 lb	8	
M1898 Cavalry Carbine	2d8	20	Ballistic	135	SS	5	Lrg	8 lb	8	
M1899 Cavalry Carbine	2d8	20	Ballistic	135	SS	5	Lrg	8 lb	8	
Philippine Constabulary Short Rifle	2d8	20	Ballistic	165	SS	5	Lrg	8 lb	8	
Special Rules										

KRAG-JORGENSEN RIFLE

FUDGE							
Weapon	Shots	Rate of Fire	Range	Accy	Dmg	Cost	Notes
Danish Krag-Jorgensen Gevaser M/1889	5	SS	Fair	Fair	4	\$70	
Danish Krag-Jorgensen Gevaer m/89-08	5	SS	Fair	Fair	5	\$70	
Danish Krag-Jorgensen Gevaer m/89-10	5	SS	Fair	Fair	5	\$70	
Danish Krag-Jorgensen Rytterkarabin M1889	5	SS	Mediocre	Fair	4	\$70	
Danish Krag-Jorgensen Engineer Carbine M1889	5	SS	Mediocre	Fair	4	\$70	
Danish Krag-Jorgensen Rytterkarabin m/89-23	5	SS	Mediocre	Fair	4	\$70	
Danish Krag-Jorgensen Artillery Carbine m/89-24	5	SS	Mediocre	Fair	4	\$70	
Danish Krag-Jorgensen Infantry Carbine m/89-24	5	SS	Mediocre	Fair	4	\$70	
Danish Krag-Jorgensen Sniping Rifle Model 1928	5	SS	Good	Good	5	\$70	
Norwegian Krag-Jorgensen Gevaer M/1894	5	SS	Fair	Fair	4	\$70	
Norwegian Krag-Jorgensen Cavalry Carbine M/1895	5	SS	Mediocre	Fair	4	\$70	
Norwegian Krag-Jorgensen Mountain Artillery & Pioneer Carbine M/1897	5	SS	Mediocre	Fair	4	\$70	
Norwegian Engineer Carbine M/1904	5	SS	Mediocre	Fair	4	\$70	
Norwegian Artillery Carbine M/1907	5	SS	Mediocre	Fair	4	\$70	
Norwegian Krag-Jorgensen Short Rifle M/1912	5	SS	Mediocre	Fair	4	\$70	
Norwegian Krag-Jorgensen Sniping Rifle M/1923	5	SS	Good	Good	4	\$70	
Norwegian Krag-Jorgensen Sniping Rifle M/1925	5	SS	Good	Good	4	\$70	
Norwegian Krag-Jorgensen Sniping Rifle M/1930	5	SS	Good	Good	4	\$70	
U.S. Rifle, Model 1892	5	SS	Fair	Fair	4	\$70	
U.S. Rifle, Model 1896	5	SS	Fair	Fair	4	\$70	
M1896 Cavalry Carbine	5	SS	Mediocre	Fair	4	\$70	
U.S. Rifle, Model 1898	5	SS	Fair	Fair	4	\$70	
M1898 Cavalry Carbine	5	SS	Mediocre	Fair	4	\$70	
M1899 Cavalry Carbine	5	SS	Mediocre	Fair	4	\$70	
Philippine Constabulary Short Rifle	5	SS	Mediocre	Fair	4	\$70	
Special Rules							

KRAG-JORGENSEN RIFLE

Action!											
Weapon	Dmg	Type	Acc	Rmod	STR Min	Max Rng	RoF	Amm	Wt	Cost	Notes
Danish Krag-Jorgensen Gevaser M/1889	4d6+2	P/L	0	0	3	4.58	1	5	4.58	\$70	
Danish Krag-Jorgensen Gevaer m/89-08	6d6	P/L	0	0	3	4.58	1	5	4.58	\$70	
Danish Krag-Jorgensen Gevaer m/89-10	6d6	P/L	0	0	3	4.58	1	5	4.58	\$70	
Danish Krag-Jorgensen Rytterkarabin M1889	4d6+2	P/L	0	-1	3	4.04	1	5	4.04	\$70	
Danish Krag-Jorgensen Engineer Carbine M1889	4d6+2	P/L	0	-1	3	4.04	1	5	4.04	\$70	
Danish Krag-Jorgensen Rytterkarabin m/89-23	4d6+2	P/L	0	-1	3	4.04	1	5	4.04	\$70	
Danish Krag-Jorgensen Artillery Carbine m/89-24	4d6+2	P/L	0	-1	3	4.04	1	5	4.04	\$70	
Danish Krag-Jorgensen Infantry Carbine m/89-24	4d6+2	P/L	0	-1	3	3.97	1	5	3.97	\$70	
Danish Krag-Jorgensen Sniping Rifle Model 1928	6d6	P/L	+1	+1	3	5.36	1	5	5.36	\$70	
Norwegian Krag-Jorgensen Gevaer M/1894	4d6+2	P/L	0	0	3	4.05	1	5	4.05	\$70	
Norwegian Krag-Jorgensen Cavalry Carbine M/1895	4d6+2	P/L	0	-1	3	3.4	1	5	3.4	\$70	
Norwegian Krag-Jorgensen Mountain Artillery & Pioneer Carbine M/1897	4d6+2	P/L	0	-1	3	3.4	1	5	3.4	\$70	
Norwegian Engineer Carbine M/1904	4d6+2	P/L	0	-1	3	3.81	1	5	3.81	\$70	
Norwegian Artillery Carbine M/1907	4d6+2	P/L	0	-1	3	3.81	1	5	3.81	\$70	
Norwegian Krag-Jorgensen Short Rifle M/1912	4d6+2	P/L	0	-1	3	4.02	1	5	4.02	\$70	
Norwegian Krag-Jorgensen Sniping Rifle M/1923	4d6+2	P/L	+1	+1	3	4.11	1	5	4.11	\$70	
Norwegian Krag-Jorgensen Sniping Rifle M/1925	4d6+2	P/L	+1	+1	3	4.48	1	5	4.48	\$70	
Norwegian Krag-Jorgensen Sniping Rifle M/1930	4d6+2	P/L	+1	+1	3	5.2	1	5	5.2	\$70	
U.S. Rifle, Model 1892	4d6+2	P/L	0	0	3	4.25	1	5	4.25	\$70	
U.S. Rifle, Model 1896	5d6	P/L	0	0	3	5.2	1	5	5.2	\$70	
M1896 Cavalry Carbine	5d6	P/L	0	-1	3	3.51	1	5	3.51	\$70	
U.S. Rifle, Model 1898	5d6	P/L	0	0	3	4.08	1	5	4.08	\$70	
M1898 Cavalry Carbine	5d6	P/L	0	-1	3	3.52	1	5	3.52	\$70	
M1899 Cavalry Carbine	5d6	P/L	0	-1	3	3.57	1	5	3.57	\$70	
Philippine Constabulary Short Rifle	5d6	P/L	0	-1	3	3.64	1	5	3.64	\$70	
Special Rules:											

KROPATSCHEK RIFLE

The Kropatschek rifle is best known as one of the early attempts to improve on the Lebel design without resorting to massive modifications. Introduced in 1878, the rifle was in active service long before the Lebel. The Kropatschek Mle 1878 Marine Rifle was the first of the line, a bolt action rifle with a full stock, no handguard, and a 7-round tubular magazine under the barrel. It fired the 11 x 59mm rimfire Gras cartridge.

The French would later remanufacture the rifles in 1884 and transfer them to the army as the Mle 1884 Infantry Rifle. This remanufacture provided a longer magazine that held one more round of ammunition. The design was altered again for newly made rifles of French manufacture, creating the Mle 1885 Infantry Rifle. This rifle differed mainly in its two-piece full length stock, which was separated by a full depth receiver.

After this, the military of Austria-Hungary adopted a carbine form of the rifle, the M1881 Gendarmerie Carbine, which was virtually identical to the Mle 1878, aside from the shorter size, lighter weight, and use of the 11.15 x 58mm rimfire Werndl cartridge.

Only with the adoption of the rifle by Portugal did the rifle become an improved version of the Lebel. Adopted in 1886, the rifle came in three versions. They improved on the Lebel bolt and elevator with a lighter, somewhat more complicated mechanism. All fired the 8 x 60mm rimfire Guedes cartridge. Externally, the M1886 Infantry Rifle was almost identical to the old Mle 1878 Marine Rifle fielded by the French. Portugal also adopted the M1886 Fiscal Guard Carbine, a shorter version of the rifle fitted for a bayonet. The M1886 Fiscal Guard Carbine is also known as the M1886/88 Rifle. Last was the M1886 Cavalry Carbine, an even shorter version of the rifle, with a full stock extending to the muzzle and fitted for a bayonet. In 1889, many Kropatschek rifles were fitted with a handguard, creating the M1886/89 Infantry Rifle, which was issued to colonial troops.

The Guedes cartridge used in the Portuguese Kropatschek rifles was one of the most adversely affected ammunition types in regards to barrel length. In reducing the barrel length by 10 inches, the bullet lost over 100 meters per second in muzzle velocity, making the Cavalry Carbine far less effective than the Infantry Rifles.

Weapon		Mle 1878 Marine Rifle	
Manufacturer	Steyr	Year	1878-1885
Nation	France, made in Austria-Hungary		
Caliber	11 x 59 R Gras	Mags	7
Accuracy	Group		MOA
	Kill		Pen
Velocity	455 m/s	Energy	
Weight	Empty	4.5 kg	ROF
	Loaded		SS
			MB
Length	1244 mm	Burst	-
Range	Effective	500 m	Auto
	Max.		Cyclic

Weapon		Mle 1884 Infantry Rifle	
Manufacturer	MAC Châtellerault	Year	1884-1894
Nation	France		
Caliber	11 x 59 R Gras	Mags	8
Accuracy	Group		MOA
	Kill		Pen
Velocity	455 m/s	Energy	
Weight	Empty	4.26 kg	ROF
	Loaded		SS
			MB
Length	1244 mm	Burst	-
Range	Effective	500 m	Auto
	Max.		Cyclic

Weapon		Mle 1885 Infantry Rifle	
Manufacturer	MAS	Year	1885-1894
Nation	France		
Caliber	11 x 59 R Gras	Mags	8
Accuracy	Group		MOA
	Kill		Pen
Velocity	455 m/s	Energy	
Weight	Empty	4.2 kg	ROF
	Loaded		SS
			MB
Length	1244 mm	Burst	-
Range	Effective	500 m	Auto
	Max.		Cyclic

Weapon		M1881 Gendarmerie Carbine	
Manufacturer	Steyr	Year	1881-?
Nation	Austria-Hungary		
Caliber	11.15 x 58mmR Werndl	Mags	5
Accuracy	Group		MOA
	Kill		Pen
Velocity	307 m/s	Energy	
Weight	Empty	3.8 kg	ROF
	Loaded		SS
			MB
Length	1040 mm	Burst	-
Range	Effective	500 m	Auto
	Max.		Cyclic

Weapon		M1886 Infantry Rifle, M1886/89 Colonial Infantry Rifle	
Manufacturer	Steyr	Year	1886-1900
Nation	Portugal, made in Austria-Hungary		
Caliber	8 x 60R Guedes M73	Mags	8
Accuracy	Group		MOA
	Kill		Pen
Velocity	535 m/s	Energy	
Weight	Empty	4.57 kg	ROF
	Loaded		SS
			MB
Length	1244 mm	Burst	-
Range	Effective	500 m	Auto
	Max.		Cyclic

KROPATSECH RIFLE



Portuguese M1886 Kropatsech



Portuguese M1886/89 Kropatsech

Weapon	M1886 Fiscal Guard Carbine				
Manufacturer	Steyr		Year	1886-1900	
Nation	Portugal, made in Austria-Hungary				
Caliber	8 x 60R Guedes M73				
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	475 m/s		Energy		
Weight	Empty	4.25 kg	ROF	SS	20
	Loaded			MB	-
Length	1165 mm			Burst	-
Range	Effective	500 m		Auto	-
	Max.			Cyclic	-

Weapon	M1886 Cavalry Carbine				
Manufacturer	Steyr		Year	1886-1900	
Nation	Portugal, made in Austria-Hungary				
Caliber	8 x 60R Guedes M73		Mags	5	
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	425 m/s		Energy		
Weight	Empty	4.0 kg	ROF	SS	20
	Loaded			MB	-
Length	1025 mm			Burst	-
Range	Effective	400 m		Auto	-
	Max.			Cyclic	-

KROPATSCHEK RIFLE

Cyberthriller

Weapon	Type	ACC	Con	Av	Caliber	DM	Ammo	Rate of Fire	Rel	Effect. Range (meters)	Weight Empty (kg)	Weight Loaded (kg)	Cost
French Mle 1878 Marine Rifle	RIF	0	N	M	11x59 Gras	0	7	1	ST	500	4.5		\$70
French Mle 1884 Infantry Rifle	RIF	0	N	M	11x59 Gras	0	8	1	ST	500	4.26		\$70
French Mle 1885 Infantry Rifle	RIF	0	N	M	11x59 Gras	0	8	1	ST	500	4.2		\$70
Austrian M1881 Gendarmerie Carbine	RIF	0	N	M	Werndl77	0	5	1	ST	500	3.8		\$70
Portuguese M1886 Infantry Rifle, M1886/89 Colonial Rifle	RIF	0	N	M	Guedes	0	8	1	ST	500	4.57		\$70
Portuguese M1886 Fiscal Guard Carbine	RIF	-1	N	M	Guedes	-2	6	1	ST	500	4.25		\$70
Portuguese M1886 Cavalry Carbine	RIF	-2	N	M	Guedes	-4	5	1	ST	500	4		\$70
Special Rules													

D20 System

[illegible]

FUDGE

Weapon	Shots	Rate of Fire	Range	Accy	Dmg	Cost	Notes
French Mle 1878 Marine Rifle	7	SS	Mediocre	Mediocre	4	\$70	
French Mle 1884 Infantry Rifle	8	SS	Mediocre	Mediocre	4	\$70	
French Mle 1885 Infantry Rifle	8	SS	Mediocre	Mediocre	4	\$70	
Austrian M1881 Gendarmerie Carbine	5	SS	Mediocre	Mediocre	3	\$70	
Portuguese M1886 Infantry Rifle, M1886/89 Colonial Rifle	8	SS	Mediocre	Mediocre	4	\$70	
Portuguese M1886 Fiscal Guard Carbine	6	SS	Mediocre	Mediocre	4	\$70	
Portuguese M1886 Cavalry Carbine	5	SS	Mediocre	Mediocre	3	\$70	
Special Rules							

Action!

[illegible]

LEBEL RIFLE

In 1886, the French military replaced its worn stockpiles of Mle 1875 Gras rifles, a model of breech-loading, single-shot rifle adopted after the end of the Franco-Prussian War of 1870-71. For a short while, the Lebel put the French ahead of the rest of the world in rifle technology, though the rifle was actually inferior to many of the rifles in service at that time. The Lebel, or Fusil d'Infanterie Modele 1886, was the first rifle to introduce both a small caliber jacketed bullet and a smokeless propellant. The rifle itself was such an odd combination of firearm concepts that one could almost call it mismatched. In fact, within a few short years, the technical advancements in firearms made by France's neighbors lead to the reassessment of this rifle as backwards or regressive in design philosophy.

The rifle uses an under barrel tubular magazine of a design dating back to the 1870's, and the bolt was from the M1875 Gras, with modification similar to those made on the M1878 Kropatschek rifle. The end result of this was a long, heavy, awkward rifle. While many think poorly of this rifle, they survived the battlefields of Europe for a very long time; in 1935, most were cut down to a carbine-sized rifle, and they remained in service until the end of World War II. However, as a front line combat weapon, the days of the Lebel and all other tubular magazine weapons in service with the French military were numbered by the advent of the Berthier carbine. The Berthier used a fixed internal box magazine which was loaded from a charger clip, far faster to reload than a Lebel, and immune from the dangers of a bullet tip jamming into a primer a detonating the entire magazine.

After five years in service, a number of deficiencies were realized in the design that needed to be corrected. The entire machining process for the receiver was revised to compensate for weakness caused by a lack of torsional rigidity, a venting hole was drilled through the bolt head to allow gas to vent from ruptured cartridges, a serious problem with the early smokeless propellants, the rear sight was modified and a stacking hook was fitted to the muzzle cap. The rifle would then remain in its Mle 1886/93 configuration for more than 40 years of military service.

1935 saw the last major design change in the Lebel. In order to make the rifle more handy or manageable, the rifles were shortened. This process involved cutting down the barrel and forestock, fitting another barrel band in the middle, and replacing the rear sight with a modified version of the sight on the Mousqueton Mle 16. This model also required a new magazine, which reduced its capacity to a mere three rounds of ammunition. This version was in service briefly as a

Weapon				
Lebel Mle 1886 Infantry Rifle				
Manufacturer	MAC Chatellerault		Year	1886-1893
Nation	France			
Caliber	8 x 50mmR Lebel		Mags	8
Accuracy	Group		MOA	
	Kill		Pen	
Velocity	630 m/s		Energy	
Weight	Empty	4.18 kg	ROF	SS
	Loaded			MB
Length	1307 mm		Burst	-
Range	Effective	600 m	Auto	-
	Max.	2000 m	Cyclic	-
Notes				

Weapon				
Lebel Mle 1886/93 Infantry Rifle				
Manufacturer	MAC Chatellerault		Year	1893-1902
Nation	France			
Caliber	8 x 50mmR Lebel		Mags	8
Accuracy	Group		MOA	
	Kill		Pen	
Velocity	630 m/s		Energy	
Weight	Empty	4.18 kg	ROF	SS
	Loaded			MB
Length	1307 mm		Burst	-
Range	Effective	600 m	Auto	-
	Max.	2000 m	Cyclic	-
Notes				

Weapon				
Lebel Mle 1886 Infantry Rifle				
Manufacturer	MAC Chatellerault		Year	1935-1936
Nation	France			
Caliber	8 x 50mmR Lebel		Mags	3
Accuracy	Group		MOA	
	Kill		Pen	
Velocity	605 m/s		Energy	
Weight	Empty	3.77 kg	ROF	SS
	Loaded			MB
Length	958 mm		Burst	-
Range	Effective	400 m	Auto	-
	Max.	2000 m	Cyclic	-
Notes				

motorized infantryman's rifle, while production of the MAS Mle 1936 got underway.



LEBEL RIFLE

Cyberthriller

[illegible]

D20 System

[illegible]

FUDGE

[illegible]

Action!

[illegible]

LEE-METFORD RIFLE

After the wars the British fought in the latter half of the nineteenth century, the British finally recognized a need to replace the Martini-Henry single-shot breech-loading rifles they had been using for nearly fifteen years. This includes the disastrous Anglo-Zulu War of 1879. British soldiers complained about the abuse they took from these overpowered rifles, and one officer can be quoted as saying, "when a fellow has been so brutally pounded by his own rifle half a hundred times, he don't so much mind having an assegai as big as a shovel stuck through him; it's rather a relief, don't you know."

The selection process lead to the adoption of the Lee-Metford Rifle in 1888. The rifle married the turnbolt action and under-breech box magazine designed by James Lee with the rifled barrel design of William Metford. Metford's barrel design that was meant to combat the fouling caused by the use of black powder propellants still in common use at the time. The Lee-Metford is often considered the most modern and advanced black powder weapon created. With the advent of successful smokeless propellant cartridges, which the Metford rifling could not cope with, the Enfield barrel and rifling system was substituted, and the Lee-Metford/Enfield line has marched on as a successful line of military and commercial rifles for over 110 years. The adoption of the Lee-Metford overlapped with the service life of the last of the Martini-Henry rifles, of which a new version had been adopted only a year earlier. The newest two models of Martini rifles were quickly withdrawn when the Lee-Metford was introduced, in order to reduce the logistics of being forced to supply four types of ammunition for the Martini-Henry rifles and carbines, a new .402 cartridge for the new Martini-Enfield, and the .303 for the Lee-Metford. The harsh Martini-Henrys quickly cycled out of British service and into the hands of various colonial armies and militias.

The first rifle of the line was the Rifle, Magazine, Lee-Metford, Mark 1, introduced in 1888. This rifle, complete with a dust cover, used a box magazine that holds eight .303 British cartridges in a single column. While this magazine was designed to be detachable, the British government feared that troops would lose the magazines if they were removed for reloading, so the magazine was chained in place on the rifle. Apparently, no one had yet thought of the idea of supplying a soldier with multiple preloaded detachable magazines. The rifle used a square block front sight with a vertical slot. The rear sight was a square notch, with the bottom of the notch fixed to 300 yards, and the graduated upward to 1,900 yards. Mounted on the side of the stock is an auxiliary "Extreme Range" sights, which are graduated from 1,800 to 3,500 yards. In 1891, the rifle's designation was changed to "Rifle, Magazine, Lee-Metford, Mark 1*."

Three years after the weapon was first introduced, the rifle was adjusted, and its design sealed to manage future manufacturing as well as conversion of existing rifles already in service. A safety was removed, the handguard modified, the stacking swivel strengthened, and a brass disk for regimental numbering affixed to the weapon. Internally, a number of parts were altered to improve reliability. The bolt mainspring was swapped for a thicker, shorter spring, and the magazines had their three coil springs replaced with a set of four springs. The sights were replaced with a front blade sight and the rear sights regauged to 1600 yards to account for the new high velocity ammunition the British had started using. The auxiliary sight was also regauged from 1600 to 2900 yards. This rifle was the Rifle, Magazine, Lee-Metford, Mark 1*.

1892 also saw the introduction of the Rifle, Magazine, Lee-Metford Mark 2. The major change in this rifle is the magazine, which went from a single column magazine holding eight rounds to a double column magazine holding ten rounds, again with a new spring configuration. The rifle was also fitted with a lighter barrel

Weapon	Rifle, Magazine, Lee-Metford, Mark 1				
Manufacturer	BSA, Enfield		Year	1888-1892	
Nation	Great Britain				
Caliber	.303 British				
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	670 m/s		Energy		
Weight	Empty	4.37 kg	ROF	SS	20
	Loaded			MB	-
Length	1257 mm			Burst	-
Range	Effective	600 m			
	Max.	3500 m			

Weapon	Rifle, Magazine, Lee-Metford, Mark 1*				
Manufacturer	BSA, Enfield		Year	1892-1895	
Nation	Great Britain				
Caliber	.303 British		Mags	8	
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	670 m/s		Energy		
Weight	Empty	4.37 kg	ROF	SS	20
	Loaded			MB	-
Length	1257 mm			Burst	-
Range	Effective	600 m		Auto	-
	Max.	2000 m		Cyclic	-

Weapon	Rifle, Magazine, Lee-Metford, Mark 2				
Manufacturer	BSA, Enfield		Year	1892-1895	
Nation	Great Britain				
Caliber	.303 British		Mags	10	
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	670 m/s		Energy		
Weight	Empty	4.25 kg	ROF	SS	20
	Loaded			MB	-
Length	1257 mm			Burst	-
Range	Effective	600 m		Auto	-
	Max.	2000 m		Cyclic	-

Weapon	Rifle, Magazine, Lee-Metford, Mark 2*				
Manufacturer	BSA, Enfield		Year	1895-1907	
Nation	Great Britain				
Caliber	.303 British		Mags	10	
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	670 m/s		Energy		
Weight	Empty	4.25 kg	ROF	SS	20
	Loaded			MB	-
Length	1257 mm			Burst	-
Range	Effective	600 m		Auto	-
	Max.	3500 m		Cyclic	-

Weapon	Rifle, Charger-Loading, Magazine, Lee-Metford, Mark 2				
Manufacturer	BSA, Enfield		Year	1907-1913	
Nation	Great Britain		Mags	6	
Caliber	.303 British				
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	628 m/s		Energy		
Weight	Empty	4.37 kg	ROF	SS	20
	Loaded			MB	-
Length	1257 mm			Burst	-
Range	Effective	600 m		Auto	-
	Max	2000 m		Cyclic	-

LEE-METFORD RIFLE

and some modified components for the bolt and magazine cutoff. In 1902, many of these rifles were fitted with new barrels with the Enfield rifling. Again, there were flaws, leading to the Rifle, Magazine, Lee-Metford Mark 2* of 1895. The bolt and cocking piece were lengthened, and safety catch added to the cocking mechanism. In 1903, many of the rifles were fitted with new Enfield rifled barrels.

The final version of the Lee-Metford was the Rifle, Charger-Loading, Magazine, Lee-Metford Mark 2, introduced in 1907. This was a conversion of the 12-year-old Mark 2's. The conversion is accomplished with a bridge charger guide running across the bolt, and a new 6-round single column magazine designed for the charger strip. The rifle also has a new blade sight in the front with a fixed protector and a new rear sight graduated for the new smokeless propelled ammunition.

Along with the rifles, there was also the Carbine, Magazine, Lee-Metford Mark 1 of 1894. It was based on the Mark 2

Weapon	Carbine, Magazine, Lee-Metford, Mark 1				
Manufacturer	BSA, Enfield		Year	1894-1913	
Nation	Great Britain		Mags	6	
Caliber	.303 British				
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	610 m/s		Energy		
Weight	Empty	3.37 kg	ROF	SS	20
	Loaded			MB	-
Length	1014 mm			Burst	-
Range	Effective	500 m		Auto	-
	Max.	2000 m		Cyclic	-

rifle, but was shorter and lighter, with sights graduated for its performance. The carbine also used a shorter six round box magazine. The carbine was issued only to cavalry units.



Rifle, Magazine, Lee-Metford Mark 2

LEE-METFORD RIFLE

Cyberthriller

[illegible]

D20 System

[illegible]

FUDGE

[illegible]

Action!

[illegible]

REMINGTON-KEENE RIFLE

Designed by James Keene, this weapon introduced a new bolt action design. This weapon is a magazine fed repeater that feeds from a fixed tubular magazine beneath the barrel, coupled with a new, more reliable lever action. A bolt guide was locked to the front of the receiver and the bolt lever is manipulated by turning the handle downward. Though loading port is on the underside of the stock, just forward of the trigger guard, the elevator mechanism inside the gun was capable of allowing the rifle to load and fire while the weapon is held upside down, a feat other lever-action rifles were not capable of at the time. This rifle was fitted with a 24.5 inch long barrel and a 9-round tubular magazine.

The rifle was adopted by the US Army and US Navy in small quantities on an experimental basis, with some 5,000 rifles manufactured between 1877 and 1880. The military quickly replaced the Remington-Keene and began experimenting with the new Remington-Lee Rifle instead.

Also, up to 800 of these rifles were purchased by the US Department of the Interior as a weapon for the task of arming Indian police during 1880-1881. This version of the rifle was modified to a carbine format, using a 20 inch barrel, which shortened the weapon enough to require that the magazine capacity be reduced to 6 rounds. This carbine was manufactured until 1883.

While these rifle were inexpensive when manufactured, costing around \$50, they are highly valued collector's items, with a used but working example fetching \$3,000. A few in new, unfired condition have appeared on the collector's market recently, fetching around \$6,000 each.

The carbine version of the rifle was also sold commercially as the Remington-Keene Frontier Model.

Weapon	Remington-Keene Rifle Model 1877				
Manufacturer	Remington		Year	1877-1880	
Nation	United States				
Caliber	.45-70		Mags	8	
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	388 m/s		Energy		
Weight	Empty	4.09 kg	ROF	SS	20
	Loaded	4.39 kg		MB	-
Length	1232 mm			Burst	-
Range	Effective	180 m		Auto	-
	Max.			Cyclic	-
Notes					

Weapon	Remington-Keene Rifle Model 1880				
Manufacturer	Remington		Year	1880-1883	
Nation	United States				
Caliber	.45-70		Mags	6	
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	388 m/s		Energy		
Weight	Empty	3.63 kg	ROF	SS	20
	Loaded	3.83 kg		MB	-
Length				Burst	-
Range	Effective	150 m		Auto	-
	Max.			Cyclic	-
Notes	Carbine Version.				



REMINGTON-KEENE RIFLE

Cyberthriller

[illegible]

D20 System

[illegible]

FUDGE

[illegible]

Action!

[illegible]

VETTERLI RIFLE

The Vetterli Rifle was designed by Frederick Vetterli, the manager of the Neuhausen factory of Schweizerische Industrie-Gesellschaft Waffen (now modern arms manufacturer SIG) in Switzerland. The Swiss military quickly adopted the rifle and continued to use the rifle well into the 1890's. Until the rifle was adopted, the Swiss had been using their old Milbank-Amsler Rifled Muskets, single-shot muzzle-loaders that had been converted to fire rimfire ammunition. When adopted in 1868, the Vetterli was the first repeating rifle adopted for military service in Europe and it was the most advanced rifle in military service at the time. Since the small nation of Switzerland has always been strapped for cash for its military budget, the Vetterli rifles underwent many upgrades over the years.

The original was the Model 1867 Vetterli Rifle, which combined a manually actuated bolt action with a fixed tubular under-barrel magazine. The action was derived from the Terry action and the German Dreyse Needlefire Rifle, developed in England in 1850, and the magazine system was derived from the Henry Rifle. There were other innovations, such as a forked striker allowing for each cartridge to be struck on opposite sides, enhancing the likelihood the round will ignite. The rifle had an exposed hammer, which was cocked by thumb or by actuating the bolt. When fully loaded, it held 15 rounds of ammunition; 13 in the magazine, 1 in the elevator mechanism, and 1 chambered. The weapon fired the 10.4 x 47mmR Vetterli-Vitali cartridge, which fired a 308 grain weight bullet. The cartridge is also often referred to as the .41 Swiss Rimfire. This round made the Vetterli the first small bore military rifle to enter service.

The rifle was accepted for military service on February 27, 1868. However, before the rifle went into mass production, Vetterli made improvements by replacing the exposed external hammer with an enclosed spring cocking bolt. This became the first repeating military rifle with a self-cocking mechanism, an important step toward the automatic weapons that would begin appearing more than a decade later. This improved rifle, the Model 1868 Vetterli Rifle was manufactured with the cleaning rod stored on the left side of the rifle. It was discovered that this placement resulted in a damaged cleaning rod after rough handling.

In August 1868, the design was revised again, moving the cleaning rod to a slot in the stock just below the tubular magazine. This redesign also reduced the magazine capacity by one round. The once again redesigned rifle was redesignated as the Model 1869 Vetterli Rifle. The Model 1869 Vetterli Rifle was the first of the Vetterlis to enter mass production, and 150,000 were produced as either Model 1869 or Model 1869/71 Rifles.

The Model 1869/71, a.k.a. Model 1871, underwent a number of improvements. First, the dust cover for the loading gate was removed as an unnecessary extra feature. The elevator system that moved the cartridges from the magazine to the breech was improved, eliminating the need for the leaf spring that had previously assisted the elevator mechanism, and the receiver was simplified, removing the magazine cut-off that had appeared on the left side of the receiver on earlier rifles. The last change was important in a different way. The rear sight was re-graduated, replacing the old Swiss measurement system of Schritte (paces) with meters.

The rifle then remained unchanged until the adoption of the Model 1878. This was a simplified rifle designed mainly to reduce production costs. The Model 1879 has only one barrel band and the fore stock is smooth, rather than checkered. One improvement was made in the provision of mounting hardware to allow a sword bayonet to be fitted to the rifle, rather than the socket bayonet of the previous versions. Additionally, it rifle's magazine was extended, allowing for a Vetterli Rifle that holds 13 rounds in its magazine again for the first time in

Vetterli Rifle Model 1867				
Weapon Manufacturer	SiG		Year	1867
Nation	Switzerland			
Caliber	10.4 x 47 mmR		Mags	13
Accuracy	Group		MOA	
	Kill		Pen	
Velocity	470 m/s		Energy	
Weight	Empty	4.71 kg	ROF	SS 21
	Loaded			MB -
Length	1321 mm		Burst	-
Range	Effective	400 m	Auto	-
	Max.	2000 m	Cyclic	-
Notes				

Vetterli Rifle Model 1868				
Weapon Manufacturer	SiG		Year	1868
Nation	Switzerland			
Caliber	10.4 x 47 mmR		Mags	13
Accuracy	Group		MOA	
	Kill		Pen	
Velocity	472 m/s		Energy	
Weight	Empty	4.66 kg	ROF	SS 21
	Loaded			MB -
Length	1321 mm		Burst	-
Range	Effective	400 m	Auto	-
	Max.	2000 m	Cyclic	-
Notes				

Vetterli Rifle Model 1869				
Weapon Manufacturer	SiG		Year	1869-1879
Nation	Switzerland			
Caliber	10.4 x 47 mmR		Mags	12
Accuracy	Group		MOA	
	Kill		Pen	
Velocity	472 m/s		Energy	
Weight	Empty	4.62 kg	ROF	SS 21
	Loaded			MB -
Length	1301 mm		Burst	-
Range	Effective	400 m	Auto	-
	Max.	2000 m	Cyclic	-
Notes				

Vetterli Rifle Model 1869/71				
Weapon Manufacturer	SiG		Year	1871-1879
Nation	Switzerland			
Caliber	10.4 x 47 mmR		Mags	12
Accuracy	Group		MOA	
	Kill		Pen	
Velocity	472 m/s		Energy	
Weight	Empty	4.72 kg	ROF	SS 21
	Loaded			MB -
Length	1301 mm		Burst	-
Range	Effective	400 m	Auto	-
	Max.	2000 m	Cyclic	-
Notes				

Vetterli Rifle Model 1878				
Weapon Manufacturer	SiG		Year	1878-1881
Nation	Switzerland			
Caliber	10.4 x 47 mmR		Mags	13
Accuracy	Group		MOA	
	Kill		Pen	
Velocity	472 m/s		Energy	
Weight	Empty	4.6 kg	ROF	SS 21
	Loaded			MB -
Length	1326 mm		Burst	-
Range	Effective	400 m	Auto	-
	Max.	2000 m	Cyclic	-
Notes				

VETTERLI RIFLE

Weapon	Vetterli Rifle Model 1881				
Manufacturer	SiG		Year	1881-1889	
Nation	Switzerland				
Caliber	10.4 x 47 mmR				
Accuracy	Group Kill		Mags	12	
			MOA		
			Pen		
Velocity	472 m/s		Energy ROF		
Weight	Empty	4.6 kg		SS	21
	Loaded		MB	-	
Length	1326 mm			Burst	-
Range	Effective	400 m		Auto	-
	Max.	2000 m		Cyclic	-
Notes					

Weapon	Vetterli Model 1870 Cadet Rifle				
Manufacturer	SiG		Year	1881-1889	
Nation	Switzerland				
Caliber	10.4 x 47 mmR		Mags	0	
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	429 m/s		Energy		
Weight	Empty	3.25 kg		ROF	SS
	Loaded			MB	-
Length	1149 mm			Burst	-
Range	Effective	400 m		Auto	-
	Max.	2000 m		Cyclic	-
Notes	Single-shot weapon				

Weapon	Vetterli Repeating Carbine				
Manufacturer	SiG		Year	1869-1871	
Nation	Switzerland				
Caliber	10.4 x 47 mmR		Mags	6	
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	406 m/s		Energy		
Weight	Empty	3.9 kg	ROF	SS	21
	Loaded			MB	-
Length	945 mm			Burst	-
Range	Effective	300 m		Auto	-
	Max.	2000 m		Cyclic	-
Notes					

Weapon	Vetterli Model 1870 Police Carbine				
Manufacturer	SiG		Year	1870	
Nation	Switzerland				
Caliber	10.4 x 47 mmR		Mags	7	
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	466 m/s		Energy ROF		
Weight	Empty	4.07 kg		SS	21
	Loaded		MB	-	
Length	1143 mm			Burst	-
Range	Effective	300 m		Auto	-
	Max.	2000 m		Cyclic	-
Notes					

Weapon	Vetterli Model 1871 Carbine				
Manufacturer	SiG		Year	1871-1874	
Nation	Switzerland				
Caliber	10.4 x 47 mmR		Mags	6	
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	406 m/s		Energy		
Weight	Empty	3.25 kg	ROF	SS	21
	Loaded			MB	-
Length	932 mm			Burst	-
Range	Effective	300 m		Auto	-
	Max.	2000 m		Cyclic	-
Notes					

nearly ten years. It also switched to a short-leafed Schmidt quadrant sight. Some 55,000 Model 1878 rifles were produced.

The final version of the rifle was the Model 1881 Vetterli Rifle, again subjected to cost-cutting modifications. The major change was the switch to iron for many of the components that had previously been manufactured from steel. Otherwise, the rifle was virtually identical to the Model 1879, aside from the extended leaf on the quadrant sight, as well as improved metal finishing.

Lastly, there was the Vetterli Model 1870 Cadet Rifle. This weapon was a shortened single-loader variant designed to be used by the adolescents attending military academies. Manufactured from 1870 to 1873, this is the version of the Vetterli closest to the variant deployed by the Italians.

The Vetterli Rifle was also adopted by the Italian military in 1870, as the first step in military standardization in the era of post-unification (by the late 1860's, the various principalities of the Italian peninsula were united as one country). The Italian Vetterli Rifles followed a different route of development, which is detailed under the Vitali Rifle.

Along with the Vetterli Rifles, SiG also manufactured a variety of carbines and Stutzers based on the Rifles.

The first was the Vetterli Repeating Carbine, which was manufactured by simply cutting down Model 1869 rifles. A rifle-style noscap was fitted, allowing for new front sights to be affixed to the cap. A fully loaded Vetterli Repeating Carbine held six rounds in the magazine, one in the elevator, and one in the chamber. It is believed that this weapon was meant for distribution to the Swiss Border Guard, though no records exist of them ever being issued. Collectors need to be wary of buying a Vetterli Repeating Carbine, as a thriving market exists for creating fakes. These fakes too are made from cut-down Model 1869/71 rifles, but tend to have barrel-mounted front sights, the wrong rear sight, and an incorrect number or positioning of barrel bands.

Next came the Model 1870 Police Carbine. This model was more of a short rifle, rather than a carbine, with its length lying between that of the other carbines and the rifles. Like the Vetterli Repeating Rifles, there are records of sales, but no records of deployment. The weapon was sold to various Swiss police forces.

This was quickly followed by the Model 1871 Carbine, the first true carbine built from the ground up, rather than being an alteration of existing rifle designs. The initial 500 manufactured had a rotating ejector dust cover, straight-edged fore end, and a spatula type bolt handle. When manufacturing was moved to another factory, the weapon design received a number of alterations, including a more traditional ball bolt handle, a new front end, and a tangent sight to replace the leaf sights. In 1874, a new Schmidt type rear sight was adopted, and as carbines were sent for repairs, the old leaf and tangent sights were replaced.

In 1878, the Swiss military adopted a new carbine for its dragoons, adopting the Model 1878 Carbine. This carbine was based directly on the Model 1878 Rifle, simply using a different barrel and fore stock design, as well as retaining the pivoting loading gate used on other carbines. Over a span of six years, a mere 1720 of these carbines were manufactured.

There was one final Vetterli carbine, the Model 1878 Border Guard Carbine. Unlike the Model 1878 Carbines, where were built from Model 1878 Vetterli Rifles, the Border Guard carbines were purpose built from scratch. These carbines matched features with the Model 1878 rifles, right down to the addition of a barrel lug to fit it with a sword bayonet.

VETTERLI RIFLE

The Stutzers are sharpshooter or sniper rifles. The first stutzer was the Vetterli Stutzer Model 1871, though the first units were manufactured as early as 1869. The weapon was based on the Model 1869/71 with further modifications. These rifles were shorter, with a single barrel band, and fitted with a double trigger and special heavy buttplates. Initially, the double trigger group was a Thury dual trigger set, but in 1875, the design switched to a dual trigger set designed by Rudolph Schmidt. Unfortunately, though the barrel is shortened on the stutzer, the weapons retained the Model 1869 rear sights, which introduced a significant margin of error in the point of impact when using the given graduations on the rear sight. 16,000 Model 1871 Stutzers were produced.

There was a four year break in the manufacture of Vetterli Stutzers. When the Model 1878 rifle entered productions, a new stutzer was also produced, the Vetterli Model 1878 Stutzer. From 1878 to 1881, 400 of these new rifles were produced, essentially little more than 1878 rifles with better barrels and the Schmidt dual trigger assembly. After production concluded, the rear sights on all these stutzers were replaced with the same sights as the Model 1881 rifle. According to Swiss military records, it is not clear if these 400 stutzer rifles were ever issued to any Swiss troops.

A final stutzer based on the Vetterli was produced as the Model 1881 Vetterli Stutzer. Externally, it resembled the Model 1881 rifle, but internally, the components were vastly different. Some 7500 Model 1881 Stutzers were manufactured.

While the Vetterli rifle is considered by many to be the very first modern rifle to enter military service, the weapon never played an important role in any major conflict. The closest the Swiss Vetterlis came to combat happened with three incidents.

First, after Germany won the Franco-Prussian War, Switzerland was force to deploy some 70,000 troops to regain control of Swiss lands. Within three days, the Germans backed down without a shot fired and returned the lands to Swiss control.

In 1904, the Japanese military attaché to the Japanese embassy in Stockholm worked with Finnish resistance to smuggle arms for the rebellion against Russian rulership. 15,000 Vetterlis were procured and sent by ship. The resistance failed to make the meeting offshore, the cargo ship ran aground, and was scuttled with its cargo for fear of being discovered. A small number of the rifles did make it to the Finnish resistance, but the remainder was recovered from the sunken ship by Russian divers.

The Finnish resistance obtained a small number of additional Vetterlis. During the Russian Revolution of 1918, the Finns did manage to recapture many of the Vetterlis they had lost when the ship had sunk. Unfortunately, they had no ammunition for the Vetterlis, so the rifles ended up in storage, where they remained in inventory until the 1950's.

The Italians adopted the Vetterli Rifle as a single-loader in 1870. These rifles eventually were modified to accept the Vitali magazine system, and at the turn of the century, many of these 11mm rifles were converted to use the 6.5 Carcano cartridges. Some of these converted rifles saw combat during World War I.

Overall, even though they are now approaching 150 years of age, the Vetterli Rifles are still highly competent firearms, a considerable feat given their age. When cartridges are assembled from modern materials, such as jacketed bullets and modern powders, as well as taking the time to zero the sights and add a telescopic sight, these rifles are easily capable of providing useful accuracy at ranges that would do a modern sniper rifle proud. And best of all, it was a military weapon, meaning most of them survived to this day on the surplus arms market, so a reliable functioning example of virtually any of these weapons can be purchased for under \$1000. The ammo, however, is virtually nonexistent, leading most owners to seriously consider converting the rifle to a centerfire system.

Weapon		Vetterli Model 1878 Carbine	
Manufacturer	SiG	Year	1879-1885
Nation	Switzerland		
Caliber	10.4 x 47 mmR	Mags	6
Accuracy	Group		MOA
	Kill		Pen
Velocity	406 m/s	Energy	
Weight	Empty	3.3 kg	ROF
	Loaded		SS MB 21
Length	928 mm	Burst	-
Range	Effective	300 m	Auto
	Max.	2000 m	Cyclic
Notes			

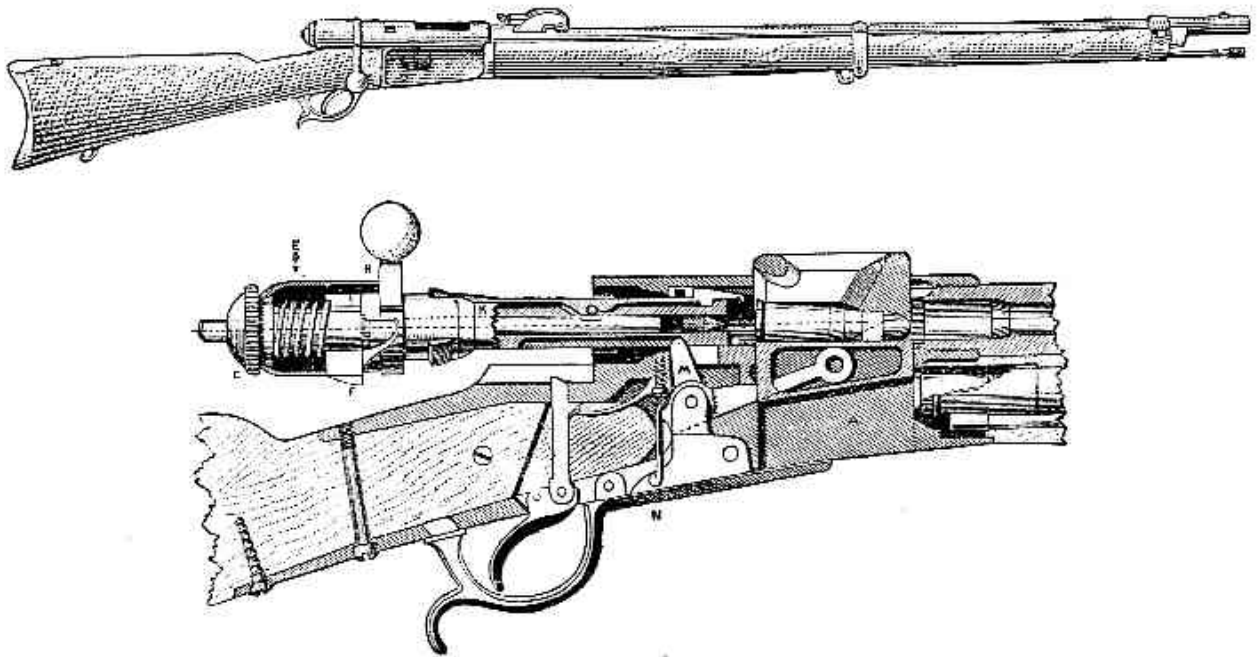
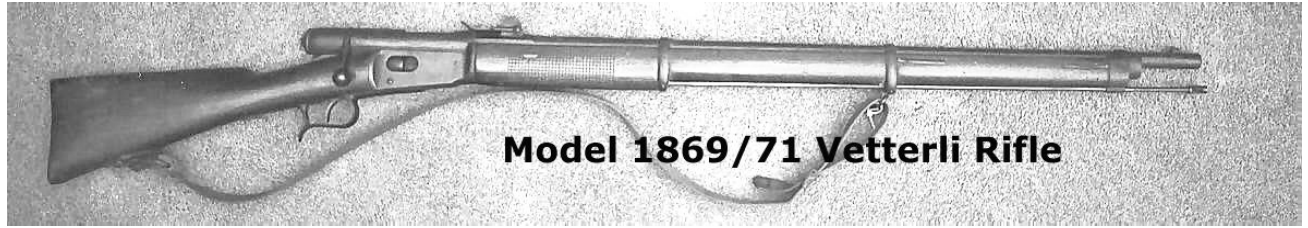
Weapon		Model 1878 Border Guard Carbine	
Manufacturer	SiG	Year	1880-1881
Nation	Switzerland		
Caliber	10.4 x 47 mmR	Mags	5
Accuracy	Group		MOA
	Kill		Pen
Velocity	406 m/s	Energy	
Weight	Empty	3.35 kg	ROF
	Loaded		SS MB 21
Length	945 mm	Burst	-
Range	Effective	300 m	Auto
	Max.	2000 m	Cyclic
Notes			

Weapon		Vetterli Model 1871 Stutzer	
Manufacturer	SiG	Year	1880-1881
Nation	Switzerland		
Caliber	10.4 x 47 mmR	Mags	10
Accuracy	Group		MOA
	Kill		Pen
Velocity	454 m/s	Energy	
Weight	Empty	4.64 kg	ROF
	Loaded		SS MB 21
Length	1260 mm	Burst	-
Range	Effective	700 m	Auto
	Max.	2000 m	Cyclic
Notes			

Weapon		Vetterli Model 1878 Stutzer	
Manufacturer	SiG	Year	1880-1881
Nation	Switzerland		
Caliber	10.4 x 47 mmR	Mags	12
Accuracy	Group		MOA
	Kill		Pen
Velocity	470 m/s	Energy	
Weight	Empty	4.49 kg	ROF
	Loaded		SS MB 21
Length	1326 mm	Burst	-
Range	Effective	700 m	Auto
	Max.	2000 m	Cyclic
Notes			

Weapon		Vetterli Model 1881 Stutzer	
Manufacturer	SiG	Year	1880-1881
Nation	Switzerland		
Caliber	10.4 x 47 mmR	Mags	12
Accuracy	Group		MOA
	Kill		Pen
Velocity	470 m/s	Energy	
Weight	Empty	4.63 kg	ROF
	Loaded		SS MB 21
Length	1321 mm	Burst	-
Range	Effective	700 m	Auto
	Max.	2000 m	Cyclic
Notes			

VETTERLI RIFLE



Vetterli Rifle.

Fixed, under-barrel tubular, spring-fed, slow-charging magazine system. Magazine holds eleven cartridges.

VETTERLI RIFLE

Cyberthriller

[illegible]

D20 System

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VETTERLI RIFLE

FUDGE

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Action!

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VETTERLI-VITALI RIFLE

In 1849, while the United States was dealing with the California Gold Rush, Europe was in the throes of revolution that spread rapidly across the continent. The French Revolution of 1789 had started it all, with revolutionary movements slowly growing in nations all over Europe. In 1848, it culminated in a revolution that started in Italy and rapidly spread to Germany, the Austrian Empire, France, and beyond. These revolutionary movements struggled, faltered, succeeded and again failed, until Count Camillo di Cavour was elected as Prime Minister of the Kingdom of Sardinia in 1852. By 1861, he had united most of northern Italy, while Giuseppe Garibaldi violently united southern Italy. In 1861, Garibaldi fulfilled his dream of a unified Italy by giving control of southern Italy to the Kingdom of Sardinia. The only holdout at this point was Rome, which was under French control at the request of the Pope. Rome finally submitted to Italy in 1870. Rome became the capital of a united Italy a year later.

Once the unification of Italy occurred, the nation sought to unify its various government services, particularly the military. Part of the unification process involved selection specific weapons to be issued to all the troops as replacement for the many different arms used by the regional forces the nation inherited from its city-state heritage. The primary small arm selected was the Swiss Vetterli Rifle. However, the Italian government had a far larger army to rearm than the Swiss, and not a lot of money to do so. So the Italians chose to adopt a modified version of the Vetterli Model 1870 Cadet Rifle, a single-shot, breech-loader with no magazine system.

The result was the M1870 Italian Vetterli. It was an elegant single-shot rifle, equipped with a safety of sorts on the right side of the bolt, a loading port dust cover, a trigger guard spur, iron nosecap, an a unique set of sights. The safety system stick out of the left side of the stock, where a lockplate would be located for an earlier percussion cap weapon. This was combined with the trigger spur, located inside the trigger guard behind the trigger. These safety systems were eventually replaced with an alternative safety system in the Type Two rifles of the production series. The rifle, rather than using the 10.4 x 38mm Swiss Rimfire cartridge, the Italian Vetterlis used a 10.4 x 47mm Vetterli-Vitali cartridge that evolved from the Swiss Rimfire.

The rifle was also manufactured as the M1870 Moschetto per Truppe Speciali (M1870 Short Rifle) and the M1870 Mochetti (M1870 Carbine). The short rifle was manufactured by simply cutting down the 860mm barrel down to 610mm, as well as modifying the fore stock. The carbine possessed a barrel reduce to 450mm in length, with a half stock butt stock.

In 1882, the Italians began arming with the M1882 Naval Rifle, a first attempt at a magazine arm. Rather than going with the proven Swiss Vetterli design, they chose to utilize their own magazine system. The end result was an 8 round fixed tubular magazine mounted in the fore end, making the rifle quite bulky. The magazine was loaded by opening the bolt and feeding rounds through the action, rather than using a separate loading port. However, like the original Swiss Model 1868 Vetterli Rifles, the Naval Rifle mounted the cleaning rod in a slot on the left side of the stock.

In 1887, the Italian government sought to adopt magazine rifles for all their troops, however the expense to rearm was too great. Rather than replace all the seventeen year old Vetterli rifles in service, they instead adapted them to a magazine system. The system chosen was the Vitali box magazine system. By cutting out and reinforcing the receiver floor, the magazine could easily be inserted. The receiver was further altered with bolt support rails to keep the bolt inline to prevent jamming, and a magazine cutoff ring. The rifles, short rifles, and carbines were all converted in this fashion, and were redesignated as the M1870/87 models of each. The Vitali box magazine was apparently a

Weapon	M1870 Italian Vetterli Rifle					
Manufacturer	Beretta		Year	1870-1887		
Nation	Italy					
Caliber	.41 Vetterli-Vitali		Mags	1		
Accuracy	Group			MOA		
	Kill			Pen		
Velocity	430 m/s		Energy			
Weight	Empty	4.12 kg	ROF	SS	20	
	Loaded			MB	-	
Length	1345 mm			Burst	-	
Range	Effective	400 m		Auto	-	
	Max.	2000 m		Cyclic	-	
Notes						

Weapon	M1870 Moschetto per Truppe Speciali				
Manufacturer	Beretta		Year	1870-1887	
Nation	Italy				
Caliber	.41 Vetterli-Vitali		Mags	1	
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	430 m/s		Energy		
Weight	Empty	4.02 kg	ROF	SS	20
	Loaded			MB	-
Length	1095 mm			Burst	-
Range	Effective	400 m		Auto	-
	Max.	2000 m		Cyclic	-
Notes					

Weapon	M1870 Mochetti Cavalry Carbine					
Manufacturer	Beretta		Year	1870-1887		
Nation	Italy					
Caliber	.41 Vetterli-Vitali		Mags	1		
Accuracy	Group			MOA		
	Kill			Pen		
Velocity	375 m/s		Energy			
Weight	Empty	3.53 kg	ROF	SS	20	
	Loaded			MB	-	
Length	929 mm			Burst	-	
Range	Effective	400 m	Auto - Cyclic -			
	Max.	2000 m				
Notes						

Weapon	M1882 Naval Rifle				
Manufacturer	Terni		Year	1882	
Nation	Italy				
Caliber	.41 Vetterli-Vitali		Mags	1	
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	400 m/s		Energy		
Weight	Empty	4.05 kg	ROF	SS	20
	Loaded			MB	-
Length	1210 mm			Burst	-
Range	Effective	400 m		Auto	-
	Max.	2000 m		Cyclic	-
Notes					

Weapon	M1870/87 Vetterli-Vitali Infantry Rifle					
Manufacturer	Terni		Year	1887-1890		
Nation	Italy					
Caliber	.41 Vetterli-Vitali		Mags	4		
Accuracy	Group			MOA		
	Kill			Pen		
Velocity	430 m/s		Energy			
Weight	Empty	4.22 kg	ROF	SS	20	
	Loaded			MB	-	
Length	1345 mm			Burst	-	
Range	Effective	400 m		Auto	-	
	Max.	2000 m		Cyclic	-	
Notes						

VETTERLI-VITALI RIFLE



fixed box magazine system, as I have found no indication otherwise in documents on the Italian Vetterli-Vitali or the Danish Beumont-Vitali.

These M1870/87 Vetterli-Vitali rifles served the Italian government for another 28 years before Italy converted them to the M1870/87/15 Infantry Rifles. The rifles were converted to a Mannlicher type magazine capable of being speedily loaded by a charger clip, and rebarrelled to the standard 6.5mm Carcano cartridge the Italians had adopted by that time. These modified rifles were only marginally safe, but the conversion was expedited due to the wildfire spread of World War I.

Weapon	M1870/87 Vetterli-Vitali Short Rifle				
Manufacturer	Terni		Year	1887-1890	
Nation	Italy		Mags		
Caliber	.41 Vetterli-Vitali			4	
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	430 m/s		Energy		
Weight	Empty	4.12 kg	ROF	SS	20
	Loaded			MB	-
Length	1095 mm			Burst	-
Range	Effective	400 m		Auto	-
	Max.	2000 m		Cyclic	-
Notes					

Weapon	M1870/87 Vetterli-Vitali Cavalry Carbine				
Manufacturer	Terni		Year	1887-1890	
Nation	Italy				
Caliber	.41 Vetterli-Vitali		Mags	4	
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	375 m/s		Energy		
Weight	Empty	3.63 kg	ROF	SS	20
	Loaded			MB	-
Length	929 mm			Burst	-
Range	Effective	400 m		Auto	-
	Max.	2000 m		Cyclic	-
Notes					

Weapon	M1870/87/15 Vetterli-Vitali Infantry Rifle				
Manufacturer	Terni		Year	1915-1916	
Nation	Italy				
Caliber	6.5mm Carcano		Mags	6	
Accuracy	Group			MOA	
	Kill			Pen	
Velocity	730 m/s		Energy		
Weight	Empty	4.62 kg	ROF	SS	20
	Loaded			MB	-
Length	1345 mm			Burst	-
Range	Effective	400 m		Auto	-
	Max.	2000 m		Cyclic	-
Notes					

VETTERLI-VITALI RIFLE

Cyberthriller

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FUDGE Notices

ABOUT FUDGE

Fudge is a role-playing game written by Steffan O'Sullivan, with extensive input from the Usenet community of rec.games.design. The basic rules of Fudge are available on the internet at <http://www.fudgerpg.com> and in book form from Grey Ghost Games, P.O. Box 838, Randolph, MA 02368. They may be used with any gaming genre. While an individual work derived from Fudge may specify certain attributes and skills, many more are possible with Fudge. Every Game Master using Fudge is encouraged to add or ignore any character traits. Anyone who wishes to distribute such material for free may do so; merely include this ABOUT FUDGE notice and disclaimer (complete with Fudge copyright notice). If you wish to charge a fee for such material, other than as an article in a magazine or other periodical, you must first obtain a royalty-free license from the author of Fudge, Steffan O'Sullivan, P.O. Box 465, Plymouth, NH 03264.

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ALTERNATE REALITIES PUBLICATIONS CATALOG

Big Bang: The Mostly Illustrated RPG Guide to Modern Weapons

Big Bang is the ultimate RPG guide to firearms. Providing factual data on the weapons presented, Big Bang provides statistics for a number of royalty-free, licensed game systems. Free conversion rules are available for other game systems. Big Bang is published in a datasheet format for the ultimate organizational convenience. Available as a semi-regular PDF publication online (available now) or as an annual CD-ROM product in stores (newest annual edition available each October).

CyberThriller

Welcome to the new mecca of Cyberpunk. CyberThriller is an excellent new game presenting three timelines; the modern era of Now, then steps into the future of 2025, and makes its third stop in 2050. Come visit this forboding world filled with corporate scandal, intrigue, terrorism, revolution, and more. Available Summer 2003.

Modern Supernatural

For thousands of years, they have walked amongst us. They are a step ahead of us, people with unique talents and gifts that make the devoted quake in their boots. For centuries, those gifted people have been hunted by the devout, labeled as witches. In this modern era, the hunters have become a truly organized force to contend with, feared by the witches and the law alike. Are you one of the hunters or the hunted? Available Winter 2004.

Neo-City Sourcebook

Originally designed as a fan-contributed online sourcebook for the now-dead Cyberpunk 2020 game system, this entire book has been refashioned to fit into Cyberthriller as it's premiere site for cyberpunk subterfuge. Includes an appendix providing Cyberpunk 2020 data for use with that game system. Available Summer 2003.

Neo-City Adventures

What good is a city without some adventure to make it interesting? This portfolio of adventures all take place in Neo-City. Includes bonus material expanding the Neo-City Sourcebook. Available Winter 2004.

Brush Wars

Welcome to the military. The age of epic warfare and grand battles has come to an end. These days all conflicts seem to be "low intensity", a struggle between small opposing forces on a scale that was once considered a mere ambush or skirmish. These days five or ten men can handle the job done 30 years ago by an entire platoon or 60 years ago by an entire company of troops. Release date TBA.

Black Book of Terrorism

We now live in a world where acts of terrorism happen daily, on scales both large and small. This book provides both historical and technical reference, as well as thoughts and theories on both terror and countering it. Available Fall 2003.

MAD Graftiti

Welcome to the world of special operations police units. Originally, there was SWAT, the original police special ops unit formed back in the 1960's, trained in the tactics of storming a building and dealing with heavily armed criminals. With the new millenium came ESWAT, a new police special ops unit designed to face new threats and

cross-trained with the military to handle terrorism and weapons of mass destruction, as well as the usual SWAT duties. Now comes the latest evolution in police special ops, MAD, the Miscreant Apprehension Division, the cops trained to deal with the worst threat of all, rogue cyborgs and robots. Release date TBA.

Edge Road

Edge Road is the Guide to the Cutting Edge. An irregularly published series for Modern, Technothriller and Cyberpunk genre games, this book follows technological trends, scientific discovery, and gadgets & gimmicks, presenting them in a manner that makes them useful to the game. As with Big Bang, Edge Road will be a multi-system guide to all things technological. Available Fall 2003.

Boomtown

Welcome to the land of concrete canyons and gang warfare. Take a trip to a cyberpunk Los Angeles and see what the city may look like after the Big One. Release date TBA.

PCM - The Philadelphia-Camden Metroplex

Welcome to my hometown area. Nothing beats the feel of a book written by the locals. Come take a look at the city that has quietly become the center of the biochemistry industry and working hard to become a core for internet technology industries. Release date TBA.

Rabid Helix

What happens when genetic engineering goes astray? The residents of Neo-City will find out and no one, be they residents of the corporate tower fortresses above or the slums of the Free Zone below, is safe. Available Fall 2003.

A Year of Living Dangerously

The challenge is a tough one. Your task is to protect the life of a top rated SimWire star during the filming of his next film. Unfortunately, the star also like activism and seeks to expose conspiratorial problems in the world with more tenacity than an investigative reporter. His next flick revolves around fending off attempts to assassinate him and exposing which one of his too numerous enemies is behind the plot. Can you survive a year of guarding this twit in order to get the big payoff at the end? Release date TBA.

SubOrbita

We live in an ever-expanding world that is rapidly approaching a point where it will grow well beyond the borders imposed by its own gravity. Take a look into human exploration of space, as it is now, and as it hopefully will be in a future where space travel is almost as easy as getting into the family car. Release date TBA.

SubAqua

Even as we expand into the airless vacuum of space, so shall we expand into the airless environments of the ocean depths that can kill us as easily as space. Explore the technologies of life beneath the ocean waves. Release date TBA.

A.A. 100

Welcome to the year 100 A.A. That's 100 After Armageddon. The world as we knew it vanished in the hazy clouds of various weapons of mass destruction. However, the world struggles on and the human species survives, one way or another... Take a journey into the fourth timeline developed for CyberThriller

BIG BANG

The Mostly Illustrated RPG Guide to Modern Weapons

Big Bang is an open-ended series of reference books designed for avid players of roleplaying games, especially in the modern and near future genres. Each volume presents factual data and information on a number of weapons, including details of the weapon's history, along with statistics allowing immediate use in a number game systems. The factual, real world data can be used to easily adapt the presented weapons to a wide range of game systems.

This series is not designed as a stand-alone game. It requires the use of core rules from another game system.

**Requires the use of the Action! System™ Core Rules,
published by Gold Rush Games™**

**Requires the use of the d20 Modern™ Roleplaying Game,
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