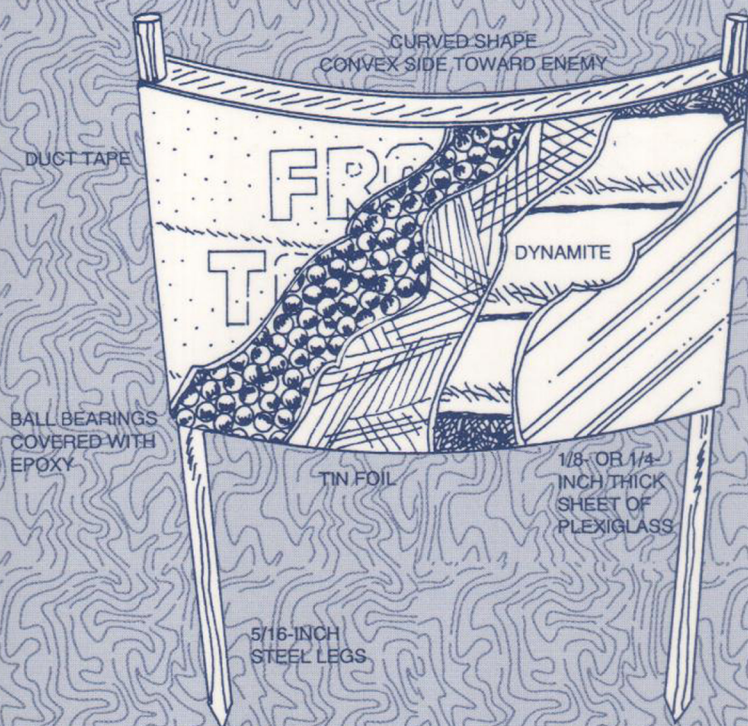
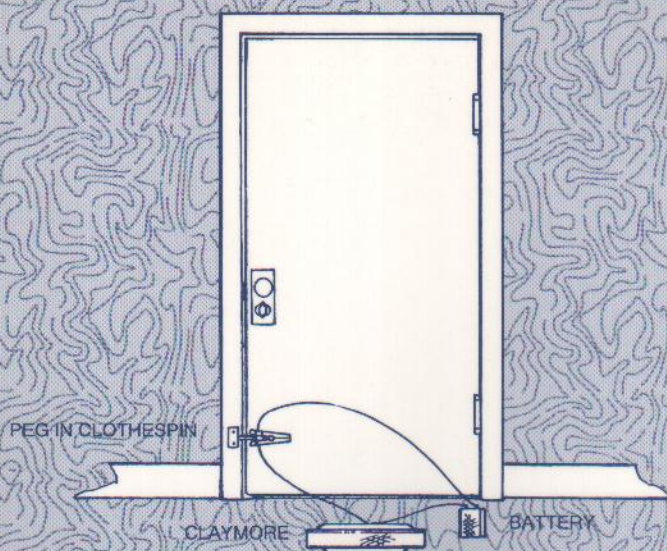


HOME-BUILT CLAYMORE MINES



A BLUEPRINT FOR SURVIVAL
by Ragnar Benson



In this book, Ragnar Benson does for the claymore mine what he did for C-4 high explosive. Once inaccessible to the general civilian population, the technology for home-manufacturing claymore-type directional mines is presented here in simple terms the layman can understand. In spite of the fact that claymore mines are very simple and common, until recently, there had been little to nothing available on their basic operating theories.

That all changed with Paladin Press' recent release of *Claymore Mines: Their History and Development*, which included a detailed analysis of commercial assembly and theory of operation. From it, the ever-crafty Uncle Ragnar discovered what he had suspected all along: homemade directional mines are practical if put together correctly. He also found that they are reasonably simple to assemble from basic over-the-counter supplies. In this book he shares his newfound knowledge with you, providing a step-by-step guide to making claymore mines in one's home shop.

Before you read on, however, a word of warning: those who know about the grim realities of modern military-grade explosives understand that claymore mines are *extremely dangerous*. They produce both a front and a back blast, either of which can be deadly. Therefore, it goes without saying that anyone who reads this book is advised to treat the material as being for information purposes only.

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Home-Built Claymore Mines:

A Blueprint for Survival

by Ragnar Benson

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Contents

1	<i>Introduction</i>
5	Chapter 1 <i>History of Claymores</i>
13	Chapter 2 <i>Components</i>
23	Chapter 3 <i>Assembling a Claymore Mine</i>
35	Chapter 4 <i>Deployments</i>
53	<i>Conclusion</i>

Warning

The procedures described in this manual and the resulting end products are *extremely dangerous*. Whenever dealing with high explosives, Special precautions must be followed in accordance with industry standards for experimentation and production of high explosives. Failure to strictly follow such industry standards may result in harm to life and limb.

Therefore, the author and publisher disclaim any liability from any damages or injuries of any type that a reader or user of information contained within this book may encounter from the use of said information. Use the material presented in this manual and any end product or by-product at your own risk.

This book is *for information purposes only*.

Introduction

As a means of defending one's goods and space, claymore directional-type mines have a great deal of charm. They operate much like giant shotguns, propelling projectiles at bad guys in a manner that discourages them from going places where they suspect claymores are present. Directional mines can be set as self-detonated booby traps and/or be command-detonated.

Generally, claymore mines are thought of as relatively small, light, inexpensive counters against unfriendly personnel. But heavier, more powerful claymores are gaining acceptance for use against vehicles and aircraft. The Swedish FFV-013, for instance, weighs 44 pounds and is advertised as being effective against helicopters at 150 meters!

Because claymore-type mines are so extremely effective and because they represent a quantum leap in technology for the hapless, ground-pounding soldier, paramilitary-type people have taken notice. What are normally considered to be civilians have made numerous attempts recently to home-manufacture directional mines for their own use.

This includes many paramilitary-type devices produced by insurgents in places as diverse as Vietnam, Nicaragua, Guatemala, Peru, and Northern California. Some of the devices these people have come up with weigh up to 50 pounds each and are layered with projectiles reminiscent of those said to have been used in early firearms, comprised of little more than a miscellaneous collection of old bolts, nuts, washers, nails, and metal chips. Effective range of most of these home-built devices, especially vis-a-vis their weight and expense, has not proven particularly good.

Attempts to home-produce good, effective, workable directional mines have been fraught with numerous problems. In most cases the makers did not understand the physical concepts by which claymores functioned. Claymores operate on some sophisticated physical principles of explosives that cannot be altered. Store-bought, off-the-shelf components can be used—and are, in fact, used—in commercially produced claymores. But one must use exactly the correct components in the exact quantities prescribed, or

the end result is poor. Claymore mines operate on principles that are close relatives to those of the Munroe shaped charges. Shaped charges are very exacting creatures that must be set up on close tolerances if they are to yield acceptable results.

Another problem, even for those who were willing to take care in the manufacturing process and treat the project as an intricate shaped-charge design, involved the fact that very few of them had any idea how claymores actually worked. In spite of the fact that claymore mines are very simple and very common, there is very little information on the basic operating theories out on the market.

Prestigious armament encyclopedias often completely ignore both the history and operating principles of claymores. Many peripheral references fail to even mention claymore mines, in spite of the fact that claymore technology has played a major role in the conduct of battle for the last 40 years. *Jane's* does not mention them at all in its volume on small arms, and *Brassey's* includes only a superficial reference.

However, Paladin Press in Boulder, Colorado, has recently published an excellent volume on the history and development of claymore mines, including a detailed analysis of their commercial assembly and theory of operation, entitled *Claymore Mines: Their History and Development*. Readers who wish to know more about the Munroe theory of shaped charges and its application to

directional mines should obtain a copy of this book.

Past problems notwithstanding, this new Paladin book proved that homemade directional mines are practical if put together correctly. From it we learned that they are also reasonably simple to assemble from existing over-the-counter supplies. What follows is a detailed, step-by-step guide to making claymores in one's home shop.

The only assumption made in this "how to" manual involves obtaining the explosives needed to energize these devices. This is not a text pertaining to proper use and handling of high explosives. It is assumed, therefore, that builders know how to purchase or make suitable explosives *and* safely handle them.

Homemade claymore mines are *extremely dangerous* devices. They produce both a front and back blast, either of which can be deadly. Those who do not know specifically how to deal with the grim realities of modern military-grade explosives are advised to regard this book as being *for informational purposes only*. Do not try to make these devices under any circumstances unless you have an excellent working knowledge of explosives and have acquired the appropriate legal permissions from local, state, and federal authorities.

1 *History of Claymores*

United States Marines serving in November of 1950 north of the Chosin Reservoir in North Korea were suddenly hit by an incredible wave of human attackers. Mao had committed more than 300,000 of his soldiers to prop up the tottering regime of Kim II Sung. As a result, hundreds of thousands of enemy soldiers overran American and Republic of Korea positions, often with impunity. Approximately 44,000 of the 55,000 casualties the United States incurred in Korea were attributed to these human-wave attacks.

As a result of the United Nations experience in Korea, armament experts throughout the world explored the possibility of perfecting a light, relatively cheap, easily deployed, directional-type mine that per-

formed much like a giant shotgun.

Actually, the Boers used a similar concept in their war in 1901. Called "rift mines," they were little more than high explosives placed beneath bits and pieces of iron, steel, and rock. British guards used something similar at Gibraltar called "rock mines." As a result of detonating relatively large amounts of high explosives under rock, fragments from the devices were sometimes propelled with deadly effect. Results were uneven, however, and the device was not really portable.

The first physicist-type scientist to ponder the idea that explosives might be designed to throw projectile-like fragments from a flat explosive surface without employing a barrel was a German named Hubert Schardin. Dr. Schardin worked for the German *Luftwaffe* during World War II and then went on to achieve some notoriety as an explosives physicist in postwar Germany.

Schardin was joined by a mysterious Hungarian scientist named Misznay. Little—not even his first name—is known about Misznay, who disappeared behind the Iron Curtain in 1945, never to reappear.

Together briefly, Misznay and Schardin postulated that projectiles could be thrown accurately and predictably from the face of a flat explosive charge. Their theory is known today as the Misznay/Schardin effect. Schardin attempted to develop a directional-type mine called a "trench mine" at the end of World War II, to be used in the static

trench warfare German military brass envisioned. There are apparently no surviving examples.

Schardin also attempted to develop a warhead that threw fragments in a predictable pattern to be used to shoot down Allied B-17s flying at very high altitudes, where standard flak rounds were less efficient. American and British agents, in turn, attempted to steal this technology from the Germans for use in shooting down incoming V-2 rockets. It was the very beginnings of "Star Wars" technology, though no one used that terminology at the time.

In the United States after World War II, an American patriot, Norman A. MacLeod, worked at China Lake Naval Ordnance test station, China Lake, California, on precision-engineered, conventional explosives used to detonate nuclear devices. MacLeod took great exception to the fact that waves of Communist Chinese soldiers were running roughshod over our marines.

Driven by his genuine concern for the GI in the foxhole, his excellent ability with precision explosives, and his knowledge of historic and contemporary developments in the field of directional mines, MacLeod started to tinker with a small directional mine. (At the same time, Canadian munitions experts—similarly motivated by their experience in Korea—began work on a device they called the "Phoenix.")

Eventually MacLeod formed his own company called Explosives Research Corp. He

interested Picatinny Arsenal in New Jersey in developing a directional mine and was eventually issued a contract to do research.

How long MacLeod worked on the concept of claymore mines is lost in history, but in mid-1953, just as the Korean police action was drawing to a conclusion, he came out with an approximately 3-pound device that threw about 700 steel cubes. Because of the poor aerodynamic qualities of cubes, effective range was less than 100 feet. Penetration and target coverage were also minimal. MacLeod persisted in his use of cubes, attempting to better seal the explosives forces behind the fragments. Although it was still not a particularly effective weapon, the Marine Corps accepted it and designated it the M18 claymore.

Ironically, MacLeod named his mine after the legendary claymore sword. Historic members of the Scottish MacLeod clan had, in several wars and insurrections throughout the British Isles in the early 1700s, distinguished themselves in the use of the deadly two-handed claymore sword.

Norman MacLeod secured a contract to produce 10,000 postdevelopment model M18s, which were used for testing, training and, to a limited extent, in combat between 1953 and 1960.

In 1954, Picatinny Arsenal decided to upgrade and improve the M18. It sent out RFPs (requests for proposals) to numerous defense contractors, many of which were springing up around the United States in

response to the increased need for defense research with the onset of the Cold War.

Aerojet Corporation in Azusa, California, had a team of proven rocket-, explosives-, and munitions-development specialists who believed they could meet the requirements as set out by Picatinny. Four munitions physicists working for Aerojet at the time, John Bledsoe, Don Kennedy, Bill Kincheloe, and Guy Throner, ended up spending about a year perfecting the claymore. All four are alive today and recall that the package was, in their words, a "blivet." That was their word for being asked to stuff 10 pounds of material in a 3.5-pound box.

Among others, they were being asked to produce a device weighing no more than 3.5 pounds, having enough projectiles to ensure a 100-percent hit probability on a 1.3-square-foot target at 150 feet, and having 58 foot-pounds of energy (enough to kill or incapacitate personnel struck by pieces fired from it).

By early summer of 1956, the team had a good working prototype that met most military specs. Later they were awarded a contract for 1,000 manufacturer's prototypes which they used for testing and training. It was at this time, while working with regular GIs, that they finalized the peephole sight design. According to those responsible for the original design, apocryphal tales circulated among GIs suggesting that the words "THIS SIDE TOWARD ENEMY" were added to the front of the claymore at this time because

the device was fired backward into the users with disastrous results are untrue. The team was aware from the very outset of the project that this new device was confusing in its operation, and the claymore mine has always had "THIS SIDE TOWARD ENEMY" on its front side.

Today, nonexplosive components of the mine are manufactured and assembled by various contractors, selected on the basis of the lowest and best bid. Final assembly of the component parts, including the explosive propellant (C-4), takes place at Load Assembly Pack (LAP) facilities throughout the United States. The one in Shreveport, Louisiana, is about to close due to lack of business. Another, near Burlington, Iowa, will continue to load the few claymores used by the U.S. military and the few sold to foreign governments.

Contrary to what the popular media portrayed, human-wave attacks were used extremely infrequently in Vietnam. It may not have been entirely because of the development of directional mines, but most military experts agree that these devices played a major role in this tactic's becoming unproductive.

United Nations forces deployed claymores to defend their positions in Saudi Arabia during Desert Storm, but, due to the nature of that conflict, few, if any, were actually discharged in anger.

On a worldwide basis, claymore mines represent the only significant leap in basic

weapons technology for the lowly ground-pounder to come along in 300 years. Through the centuries, gradual improvements have been made in infantry items such as rifles, pistols, hand grenades, mortars, and uniforms. But all of these evolved gradually and generally represented improvements to existing systems. Claymores were all new in design and application.

Weapons manufacturers in South Korea, Israel, and Sweden began manufacturing claymore-type mines in various sizes and configurations. Some systems are closer to antiarmor devices than antipersonnel-type claymores. American manufacturers found that markets in which they formerly enjoyed a monopoly were now characterized by competition.

Domestically, individuals who wished to make use of commercial detonated devices to protect freedom, life, and property found the claymore concept to be ideal under many circumstances. However, numerous federal and state laws preclude the legal purchase and ownership of commercial claymore mines.

Reportedly, home manufacture of claymore mines has become quite a cottage industry in some places in the United States. Although field reports regarding their effectiveness are extremely sketchy, one can validly conclude that the performance of these devices is not particularly good.

Generally, claymores can be assembled from off-the-shelf components. But like all

Home-Built Claymore Mines

shaped charges, final assembly is very exacting. If one uses the wrong components, even though superficially they might seem able to do the job, end results will be mediocre to poor at best

2 Components

Fortunately, all of the critical components necessary to home-build claymore mines can, with varying degrees of diligence, be purchased off the shelf. This also includes the explosives necessary to power the device if one lives in a state where commercial dynamite can be traded legally. Although commercial use of explosives is becoming more and more restricted, it is still safe to say that knowledgeable explosives handlers can buy over the counter without undue hassles in more states than not.

Claymore mines were originally designed for use with 1.6 pounds of C-3-a predecessor to what is today the more common C-4. C-4 detonates at a velocity of 26,400 fps. It's the last few thousand feet of detonating

velocity that sets C-4 apart from other explosives. The claymore mine is one of the very few pieces of ordnance that was designed for use with C-4.

Home-produced C-4 is excellent for use with home-built claymores because its detonating velocity is close to 25,000 fps. Also, homemade C-4 is more pliable in its slurry state. It closely molds to the back side of the device in a most advantageous manner. This close "precision" pressing of explosive to fragments is vitally important, no matter which explosive is employed.

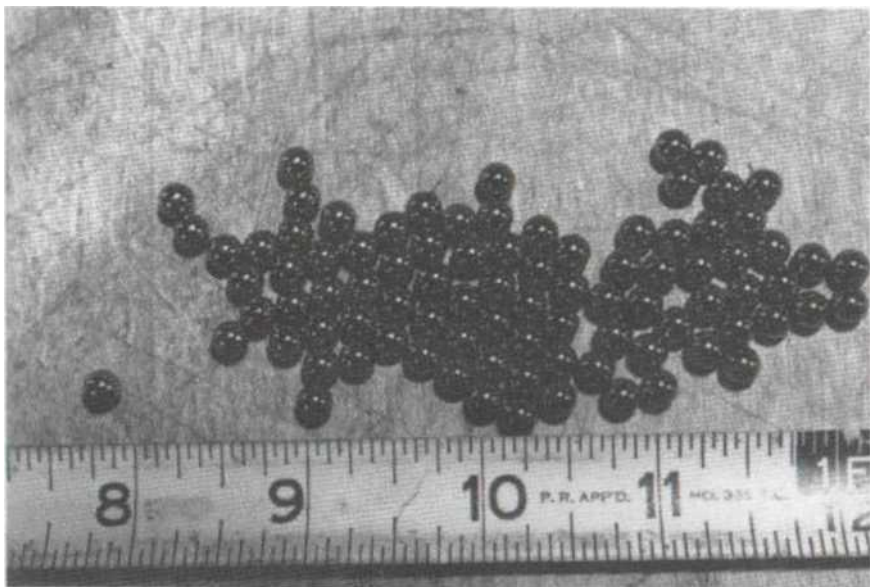
For the purposes of the devices constructed in this book, we assume the use of 80-percent commercial dynamite. Called "Hi-drive," 80-percent dynamite operates at between 21,000 and 22,000 feet per second. Common 60-percent dynamite detonates at 19,000 fps and is unsuitable for use in claymores. Even using Hi-drive, there is some loss of velocity and range.

By using dynamite, first-time claymore builders do not have to learn both proper claymore construction and proper C-4 mixing simultaneously. Unless one is very skilled, holding the project to one set of variables is advantageous.

For those who cannot purchase commercial 80-percent dynamite or who simply wish to learn to make and use C-4, purchasing the book *Homemade C-4: A Recipe for Survival* from Paladin Press may be appropriate.

Projectiles propelled from the face of a high explosive are properly referred to as

fragments (this in spite of the fact that there may be no actual fragmentation involved, as in the case of claymores). Claymore fragments must be 700 discrete 7/32-inch (10.5-grain) mild steel balls.



Fragment projectiles for a good claymore must be 7/32-inch steel spheres. They should be soft steel, not hardened bearings.

For optimum performance comparing favorably to commercial models, fragments cannot be larger or smaller than 7/32 inch. A number of sophisticated studies have shown that with larger fragments too few are yielded per device, limiting the hit probability. Smaller fragments do not retain residual energy sufficient to produce casu-

alties reliably. Some larger, heavier models of claymore-type mines are constructed with larger fragments as well as more explosives, but if the goal is an end product similar to the military M18A1, it will contain 700 7/32-inch steel spheres and about 1.6 pounds of high explosives, as close to military specs as possible.

Additionally, the spherical fragments must be mild steel, not hardened steel bearings, which hopelessly deform, dramatically sacrificing range and penetration. And they cannot be soft, lead shot-type fragments, which also deform to the point of uselessness.



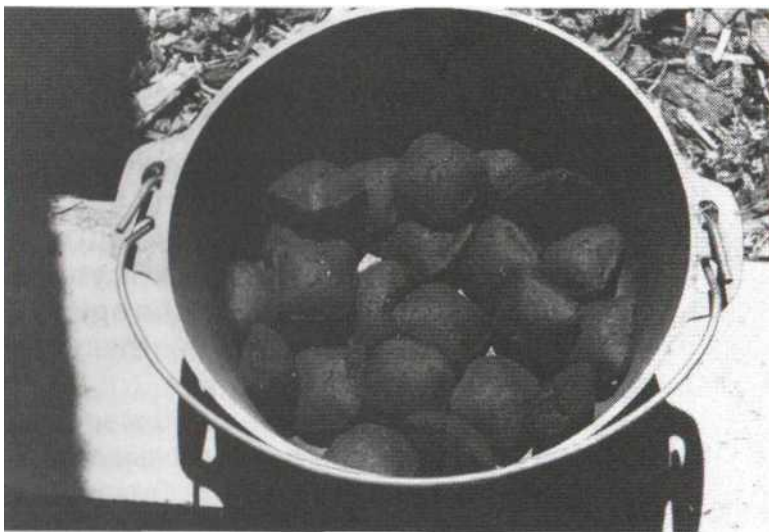
Unfortunately, unhardened steel bearings are difficult to locate. One virtually must use expensive hardened bearings.

Unfortunately, mild steel spherical fragments are extremely difficult to purchase over the counter in most places in the United States. At times builders can find them at foundries, where they are used to burnish mold imperfections from castings. These are called "gingle" balls, but one can spend a huge amount of time looking for them and still come up short.

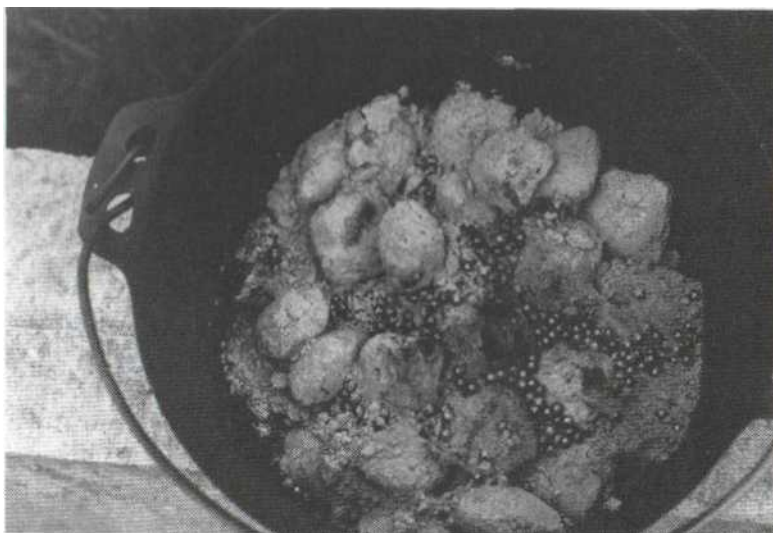
On the other hand, hardened steel ball bearing-type fragments are relatively easy to purchase. Their principal constraint involves their high cost—about 20 cents each. Under most circumstances it is best to bite the bullet, so to speak, purchasing stock hardened ball bearings from wherever is cheapest. One can and must home-anneal these fragments in order to soften them to acceptable levels. It is an expensive, yet practical solution to what can be a fairly pervasive problem.

Annealing is accomplished by placing about a gallon of charcoal briquettes in a small cast-iron pot, skillet, hibachi, or tight barbecue grill. Light the charcoal, allowing it to burn till the pile is well ignited and very hot. Pour at least 800 bearings (assuming a standard 3.5-pound device) on top of the hot, glowing coals.

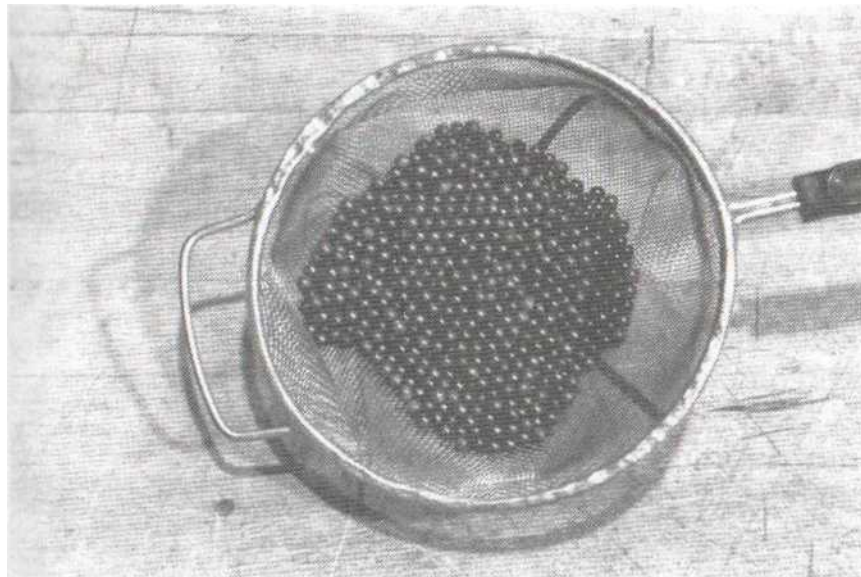
Leave them till the fire completely burns out and cools. Use a reverse vacuum, or hand bellows, to blow most of the powdery ash from the now dull grey spheres. Not all of the fragments will cook and completely soften, but the process is 95-percent for yielding good, usable, sufficiently soft fragments.



Hardened steel bearings can be annealed by heating over charcoal in a closed container.



After the coals are hot, dump in about 800 bearings, allowing the fire to burn out while heating the bearings cherry red.



Blow away the dead ash, then wash and thoroughly dry the annealed bearings.



An epoxy material called Devcon Plastic Steel is used to bond the fragments and enhance the explosive.

One other component home-builders must purchase is a supply of Devcon Plastic Steel Liquid (B). This is a modern successor to Devcon (S), a material originally used to produce claymores. Devcon (B) is an industrial-grade, steel-filled epoxy material used to level equipment, construct light-duty dies, and quickly construct fixtures.

Claymore builders use it as a filler or matrix poured over and between the 7/32-inch bearings which are tightly stacked over the explosive. This particular material has the added advantage of enhancing the explosive as well as properly channeling and directing the shaped-charge effect.

Devcon Plastic Steel Liquid (B) is sold by selected distributors throughout the United States in 1-, 4-, and 25-pound quantities. If one is careful, 1 pound is sufficient to construct two claymores on average. Cost per pound, in 1-pound quantities, is \$18.00.

Like mild steel fragments, Devcon Liquid (B) can be difficult to locate. As a last measure, try calling Devcon's toll-free number to ask about the nearest local distributors. The technical service number is 1-800-933-8266. Ask for Product Number 10210.

There are a few remaining supplies to be found, but in all cases they are much simpler and cheaper than Devcon Plastic Steel. However, this does not imply that their role in the device is diminished.

Each claymore will require a separate mold measuring 4 x 8 1/2 inches, made of either 1/8- or 1/4-inch Plexiglass. These

molds are used when aligning the fragments and again in ensuring proper placement of the explosives.

It is easier to form 1/8-inch Plexiglass into the correct shape, but the quarter-inch material is easier to work with during the actual component assembly. My guess is that the first-time assembler is best served by the 1/8-inch Plexiglass.



Residual effect also indicates that the explosion has been enhanced by the steel-filled epoxy and tinfoil.

In either case, Plexiglass can be purchased easily and inexpensively at virtually any local glass shop. Even allowing for one practice piece that will be wasted, cost per

unit built should be around 50 cents.

Assembly will also require a single sheet of heavy-duty tinfoil to be placed between explosive and spherical fragments. This material keeps the explosive from corroding the fragments, especially if the device is stored for more than a month or two. In addition, tinfoil enters the explosive process, enhancing the detonation. In the case of homemade C4, one need not add powdered aluminum to the mix if tinfoil is used.

Eventually, quite a large quantity of duct tape will be needed for the assembly process. Sticky duct tape helps to line up the fragments and then to seal the back of the fragments when the liquid steel is applied.

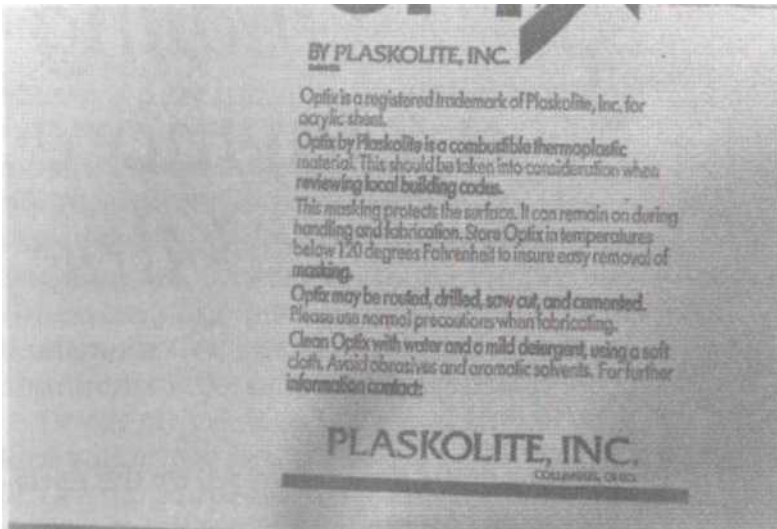
Two 10-inch-long pieces of 5/16-inch steel rod are used for legs. So far I have been able to scrounge this material from the trash pile. It generally seems appropriate to install longer legs than are used on commercial models, but this is a matter of personal preference.

Admittedly, this is not a particularly lengthy or exotic list of components. Yet it is a very exacting list from which one absolutely cannot deviate and still achieve acceptable results.

3 *Assembling a Claymore Mine*

Assuming one has scrounged up the materials needed for home construction of a claymore mine and is now willing to go forth carefully and cautiously with this admittedly dangerous portion of the project, one must proceed as follows.

Cut a 4 x 8 1/2-inch rectangular piece of 1/8- or 1/4-inch-thick Plexiglass. Make the cut carefully and cleanly so that the edges do not split or splinter. Do not remove the pressure-sensitive protective paper from the Plexiglass at this time. Eventually this piece of Plexiglass will become the working mold for the device, but in the interim, the paper tends to protect it!

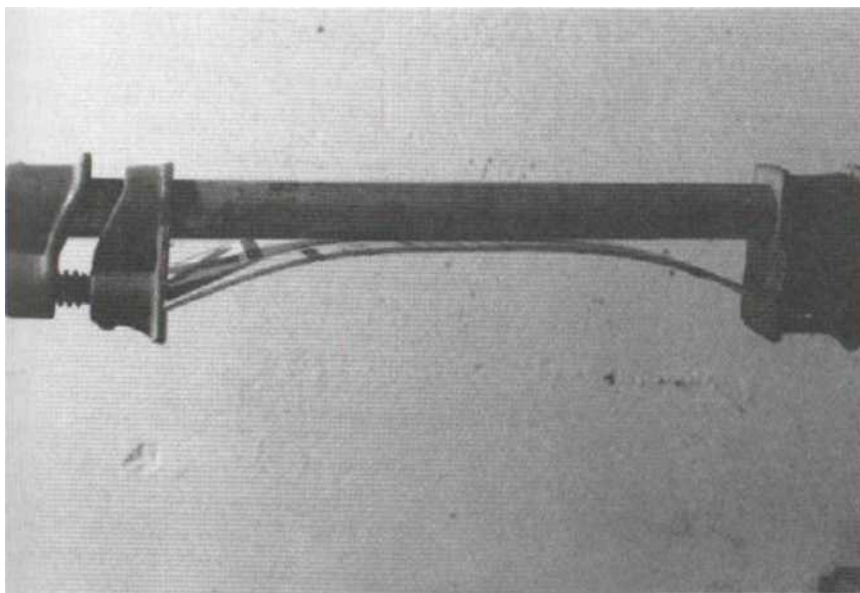


Cut a piece of 1/4- or 1/8-inch Plexiglass 4x8 1/2 inches.

Position the Plexiglass piece lengthwise in a furniture clamp. Adjust so the edges, top, and bottom are 1 inch from the center member of the clamp. Turn the clamp handle, compressing the Plexiglass so that it buckles evenly in the center until it just touches the center support of the clamp.

Using extreme care, gently apply heat from a propane torch, warming the plastic and causing it to form into a gentle cord. Allow the plastic to cool slowly in the clamp. Before removing it, be certain that it has assumed its now curved configuration permanently.

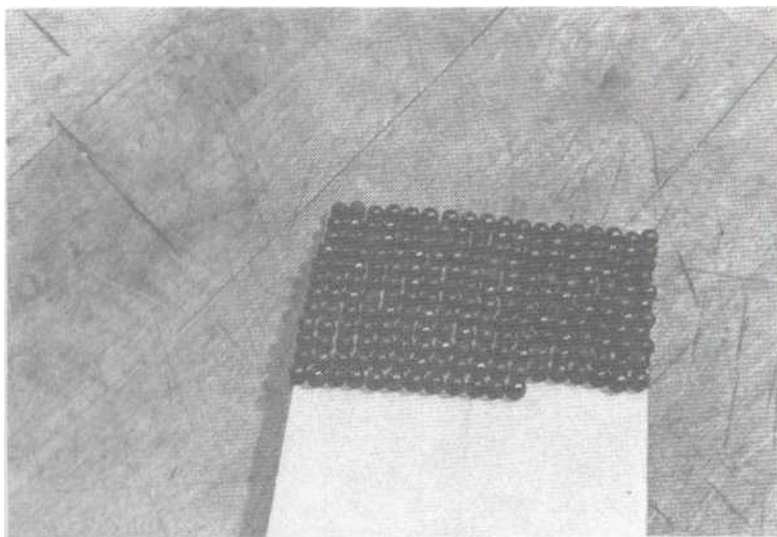
Remove from the clamp. Peel the pres-



Place the Plexiglass in a furniture clamp so that the edges are out 1 inch from the center bar. Squeeze till the plastic just buckles to the center. Heat very gently so the plastic retains its shape in a cord.

sure-sensitive protective paper from the outside (convex) portion of the plastic. This mold will now be used to align the 7/32-inch spherical fragments and to assist in the final packaging of the explosives.

Place four strips of double-stick cellophane tape on the face of the mold. Over this, place two 2-inch-wide strips of good-quality, relatively fresh duct tape, sticky side forward. The convex side of the mold should now be covered with exposed sticky duct tape. The tape holds the fragments as they



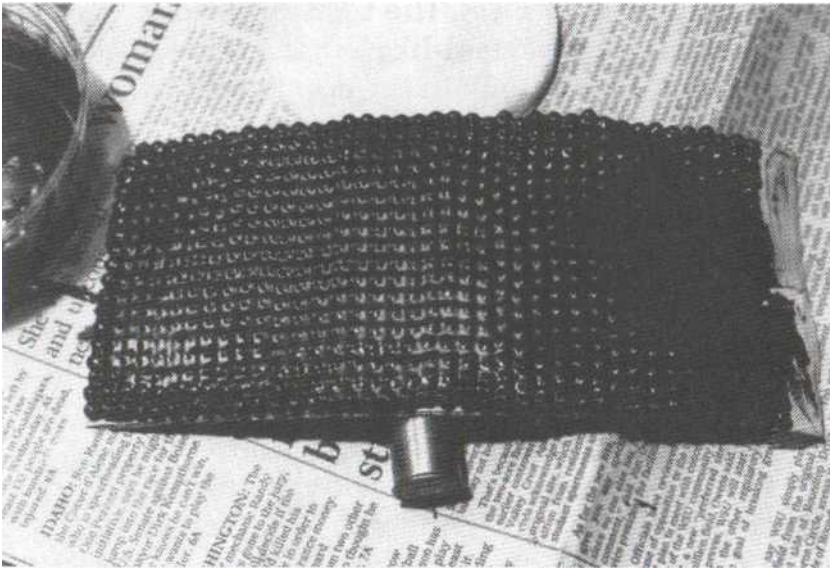
Place duct tape on the plastic mold sticky side up. Line up the annealed bearings on the tape. It will take 39 rows of 18 to cover a 4x8 1/2-inch claymore face.

are packed together and eventually bonded using epoxy material.

After carefully washing and drying the newly annealed ball bearings—assuming one uses ball bearings—begin to place the steel shot carefully, row by row, on the face of the tape-covered mold. If the spheres are clean, sticky duct tape should hold them sufficiently so that perfect rows can be packed side by side across the mold. This is tedious, time-consuming work requiring a great deal of patience. A standard 3.5-pound claymore should require 39 rows of fragments contain-

ing 18 fragments per row for a total of 702. Thirty-nine rows of 18 will cover the face of the mold completely.

Carefully measure out and thoroughly mix one-half of the 1-pound container of Devcon Plastic Steel Liquid (B). As with any epoxy material, the process is designed to function best at temperatures around 75°F (25°C). Below 60°F it will not cure, and above 80°F it will cure too rapidly.



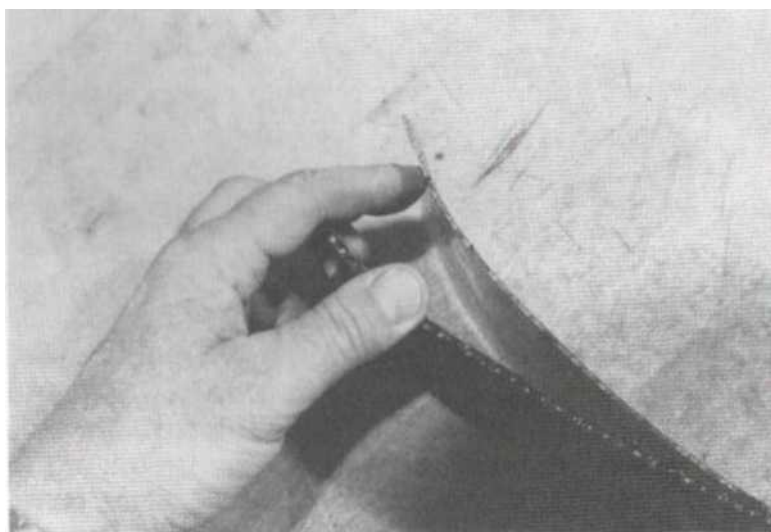
Mix up half the Devcon epoxy and evenly cover the 7/32-inch fragments with it.

After mixing the two components thoroughly, use a small spatula to carefully and evenly trowel a perfect layer of material

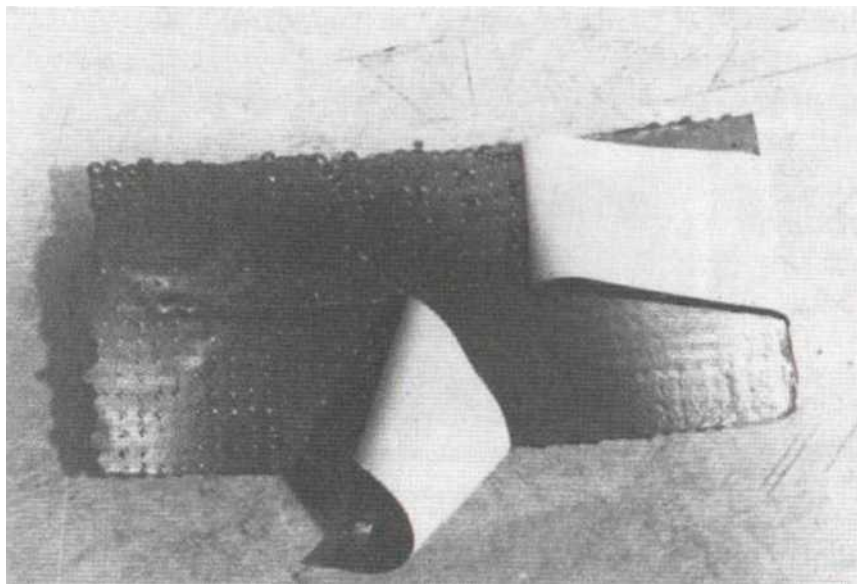
Home-Built Claymore Mines

over, in, and around the fragments. This must be done very meticulously. Cover all of the fragments to the same depth. Do not leave gaps or spaces, particularly at the edges. It may take two or more tries at this procedure before one becomes satisfactorily proficient. Air pockets below (next to the mold) will lead to poor, erratic performance on detonation.

Devcon Plastic Steel (B) will harden at 75°F in about four hours. Complete curing will occur in 24 hours, the result being a solid, rigid, almost steel-like mass. Leave a small amount of epoxy in the cup to test for hardness.



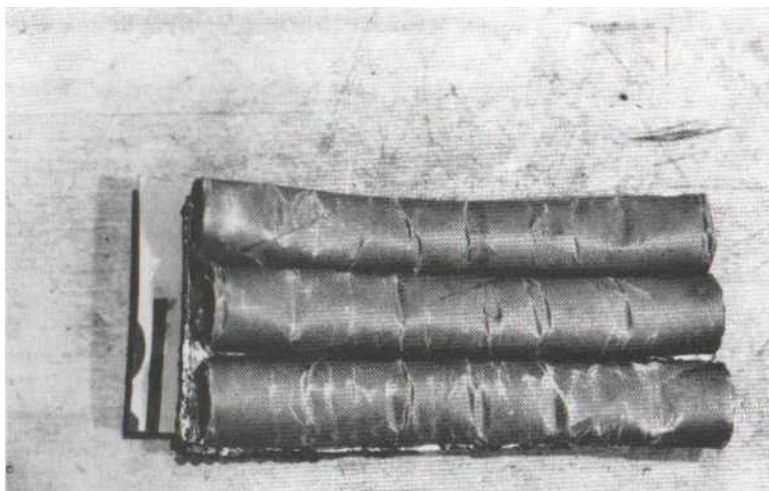
Allow the epoxy to cure for 24 hours. Peel away the plastic mold.



Peel away the duct tape used to align the bearings.

After full cure, carefully peel the plastic shell from the epoxied fragments. Gently pull away the duct tape, leaving the epoxied fragment mass clear of any tape or Plexiglass. Few, if any, air pockets should be evident on the back of the fragment mass.

Take the double-stick tape off the face of the mold, and peel the pressure-sensitive paper from the concave side. Set the mold shell aside for later use. Cut a piece of heavy-grade tinfoil exactly the size of the fragment mass. Carefully and completely press the foil in on the fragments. Be careful not to allow the foil to overlap the edges anywhere.

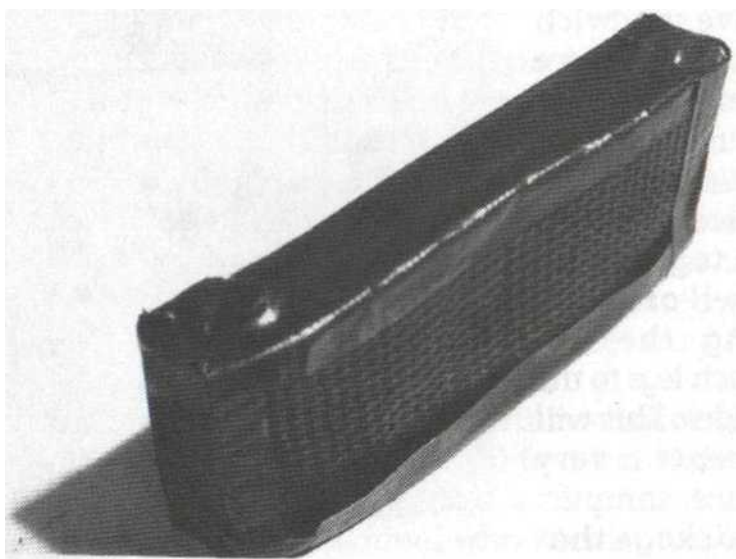


Place a sheet of heavy tinfoil over the back of the fragment mass. Curve three sticks of 80-percent commercial dynamite so that the curvature conforms exactly to the back of the fragment mass. The fit must be very close.



Commercial dynamite can be warmed a bit and molded around in roughly a semicircle.

Gently warm three standard half-pound sticks of 80-percent Hi-drive dynamite so that it can be rolled and formed into a small semicircle conforming exactly to the configuration of the fragment mass. If homemade C-4 is used, mix up 1.6 pounds in a plastic bag and carefully mold it in behind the fragments.



Place the plastic mold behind the fragment mass and explosive. Use duct tape to bind up the package.

Pinch the three slightly curved sticks of powder as close together as possible. Now, using the Plexiglass mold to stabilize the front of the device, pack the powder in while keeping the fragments from cracking or damag-

ing. After the explosives are molded to the fragments as perfectly as possible, transfer the plastic mold from the front to the rear of the device. It should create a tight sandwich with fragments in front, powder in the middle, and Plexiglass to the rear.

Using duct tape, tightly seal the explosive sandwich together. Place one layer of duct tape over the entire device, banding it together as well as securing the 10-inch legs to the sides. This will create a very nice, compact package that is extremely professional in appearance.



Tape two 5/16-inch steel legs to the package as supports. Write a warning on the front immediately to prevent an error from being made.

Using curvature and feel of the fragments as a guide, verify immediately which is the

front of the device. Write "FRONT" or "THIS SIDE TOWARD ENEMY" on the device now, so as to avoid tragic mistakes later.

Claymores can be detonated using caps and safety fuze, but most users will wish to deploy their mines in a booby-trap configuration wherein they are electrically detonated. However the device is fired, the detonating cap must be inserted into the powder in the middle of the 9-inch side of the explosive package.

Keep in mind that this is a shaped charge subject to some very stringent constraints. Detonation must generate a wave-like motion across the face of the explosive, so that maximum velocity of fragments can be obtained. Explosives physicists can explain this phenomenon mathematically, but this much detail is unnecessary for home-builders.

Keep in mind that a military claymore is reportedly dangerous 300 feet behind the device on detonation! These claymores are not toys. The individual who decides to actually construct one has a very dangerous device on hand.

My recommendation is not to build a complete armed claymore with explosives packed into the device except under circumstances of extreme duress.

4 Deployments

Properly installed claymore mines are incredibly effective. Commercial versions of these mines are by themselves so deadly that they have changed the face of war. Human-wave attacks, *as* used for the last time by the Chinese in Korea, are no longer feasible, due in large part to the ability of modern foot-sloggers to easily carry two or more directional mines each.

Placed out in front of a foxhole at night, claymores take such a tremendous toll on attackers that the game is truly not worth the candle. Claymores are especially difficult for an attacker to deal with since they do not disclose the user's position when detonated.

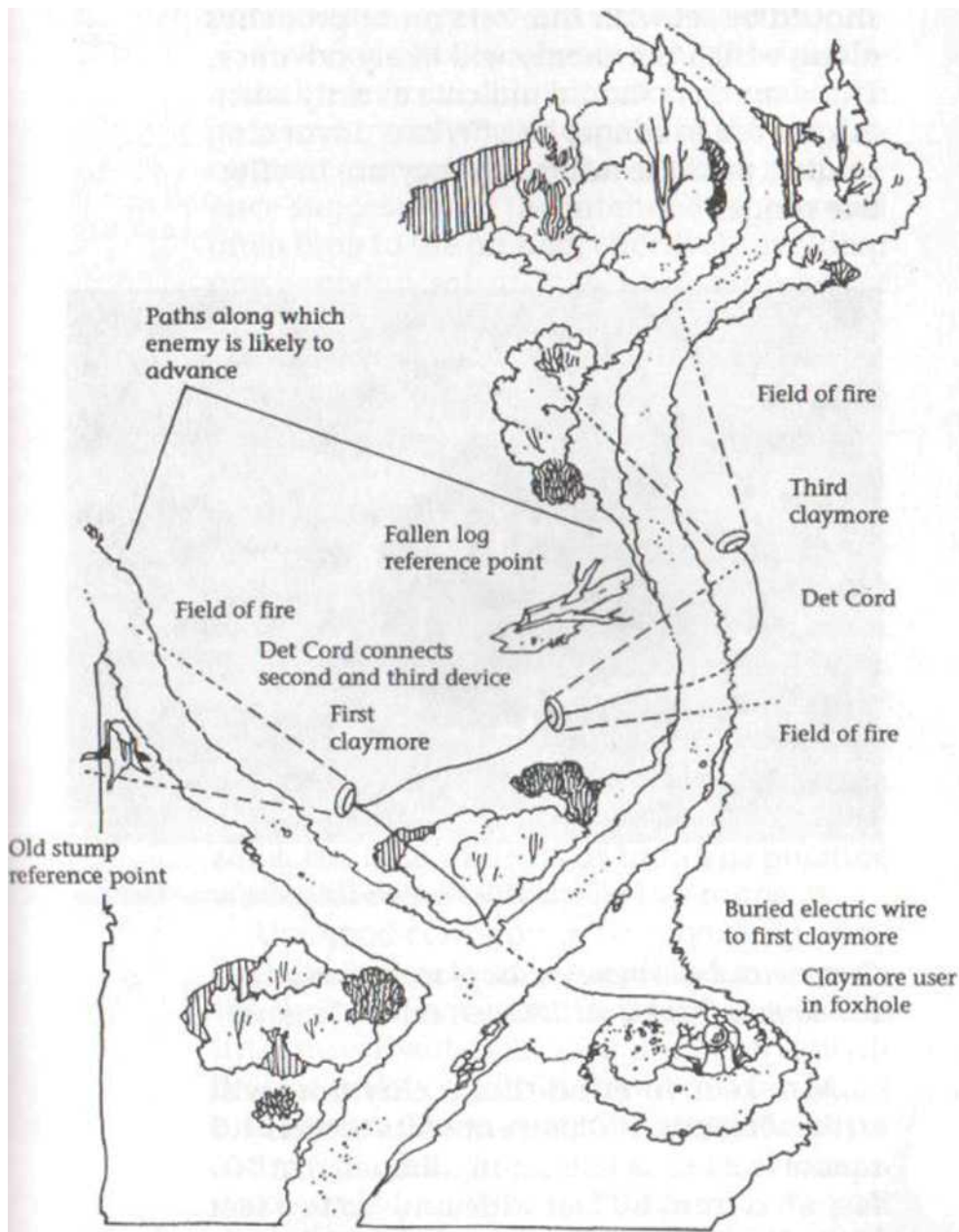
It is sobering to realize that the home-built devices described previously will meet

or exceed commercial military specs. Other than some slight disadvantages relative to weatherability and testing of circuits, the claymores one can make are every bit the equals of those that have already altered the way wars are conducted. Homemade claymores will, I am certain, alter the way the individual defends his retreat.

However, users must deploy their claymores properly to achieve maximum effect. As previously mentioned, this must include commercial detonation using electrical dynamite caps. Safety fuze and caps which are lighted with a match are woefully inadequate; reaction time is simply too long.

When deploying claymores, users must keep in mind that while these devices are surprisingly effective at what seems like relatively long ranges, combat veterans who returned from Vietnam and elsewhere report that most command-detonated devices are discharged at ranges that are too great to be fully effective. Users in an ambush situation should wait till the quarry is within 60 to 80 feet—a range at which hit probability is 100 percent.

Almost 40 years' U.S. military experience with commercial claymores suggests that first-time and novice ambushers quickly grow nervous and impatient, electing instead to detonate before the device can reach the target effectively. Some psychological phenomenon precludes all but the most combat-experienced soldier from exercising the necessary restraint.



Paths along which enemy is likely to advance.

Home-Built Claymore Mines

Claymores that are command-detonated should be set with markers on approaches along which the enemy will likely advance. These markers should indicate exactly when targets are in range, i.e., "When advancing soldiers pass the fallen log they are in effective range."



Commercial claymores must place stakes on a 1.3-square-foot target 100 percent of the time.

Also keep in mind that a claymore will strike virtually 100 percent of its targets 1.3 square feet in size (a human silhouette) at 100 feet on a front 60 feet wide and up to 6 feet high. The target will be covered by 10.5-grain spherical fragments that have sufficient ener-

gy to produce a casualty (figured at 58 foot-pounds of energy per strike to be effective).

Two claymores probably cannot be mechanically detonated simultaneously, and three or more certainly never can. If the devices detonate in a raggedy, uneven fashion, experience suggests that the intended targets will often drop to the ground, effectively avoiding any secondary salvos. It does not take much of a ground depression, rock, or tree trunk to protect from claymore fragments.

As a measure against this tactic, carefully hide the mine in amongst tall, thin grass, brush, leaves, or pine needles. It is also effective to place the device high on a pole or tree, pointing into the target area. Be sure it is high enough so that discovery is unlikely and it has *an* open field of fire. Take great care to camouflage and hide electrical detonation wires, as well as the device itself. If possible, set the device so that intruders can walk into its field of fire from either direction and so that, once the target is in the kill zone, the field of fire is *as* broad as possible while still being within effective range.

Use good common sense regarding camouflage, brush, and grass placed in front of the device. Twigs even the size of a woman's little finger will deflect fragments erratically. Use only very thin layers of dry grass and leaves. Green duct tape mottled irregularly with a magic marker is less obvious in rural settings. Silver duct tape may be just the ticket for claymores intended for use in the city, where they may be wired or taped



Place your claymore out in a proper location aimed at the correct target.

Home-built claymore deployed and ready for testing.



to telephone poles, signs, or whatever.

No matter where they are placed, recognize that back blast will be a consideration. Users who detonate while too close behind or from an unprotected place may be severely rattled or worse. Back blast from a modest 3.5-pound unit can easily chop down a 12-inch tree.



Worker finishes wiring claymore set to fire at two silhouette targets at 100 and 150 feet.

Simultaneous detonation of three or more devices can be handled simply and easily by connecting them with standard primer cord rather than series or parallel electrical connections. Assuming one has primer cord, this method saves sometimes

scarce detonating caps. Most commercial primer cord is either red or white. Either one will show up dramatically under the wrong circumstances. Spray with black paint or otherwise camouflage as appropriate. Paint coverage will not be total, but the mottled effect works well.



Two man-sized targets are set up for the test, 100 feet and 150 feet from the device.

Under many circumstances claymores are best detonated as booby traps. When an intruder hits a wire, the device fires without additional human intervention. In this instance, waiting until the target comes sufficiently close is not an issue. It also tends to discourage intruders, and the blast acts as an alarm for others in the area. On the down side, wild animals, stray pets, and

even friends and neighbors may run amuck of this trap.

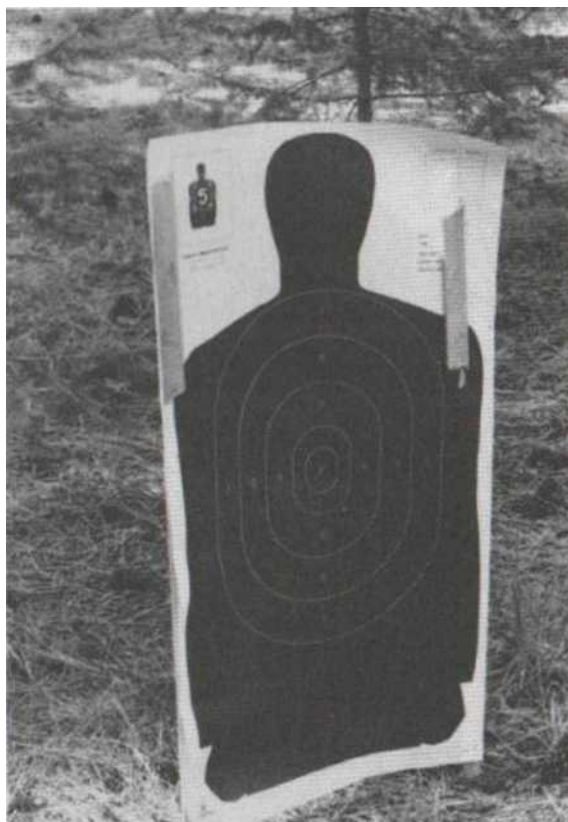


Various views of silhouette target set out 100 feet ahead of claymore. The 1.3-square-foot target had 11 strikes.

Professional intruders learn to exercise great caution watching for trip wires. Both the trip wires and the mine must be installed very cleverly and camouflaged

to be effective. All of these static installations must be maintained on a daily basis. Batteries run down, pegs pull from the ground, camouflage weeds and grass are blown away, and countless other mishaps can drive a wedge into the operation. Maintenance is always a fairly hairy experience for the person who must perform it. It would be very easy to fall into one's own trap.

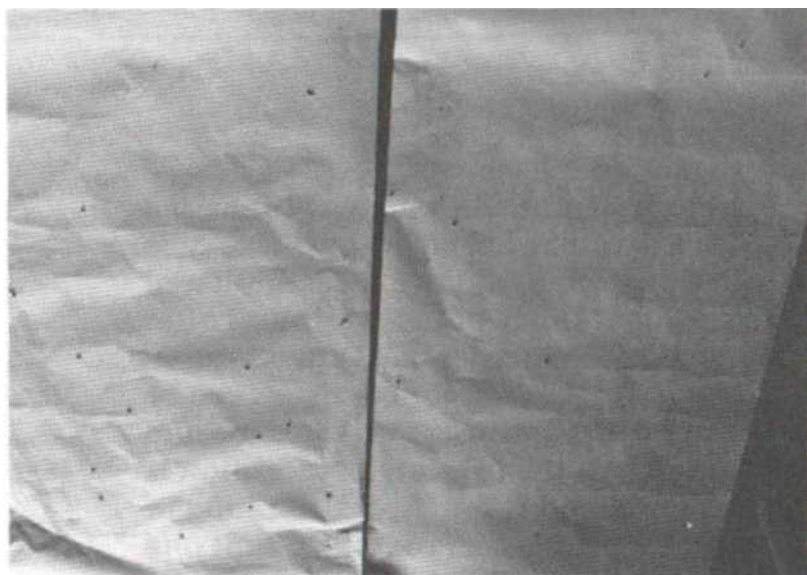
Silhouette set out 150 feet "suffered" from four good strikes, any one of which would have discouraged an intruder.



Those anticipating using trip wires may wish to keep a generous supply of spring-loaded clothespins and 35-pound monofilament fishline on hand. A hot wire connecting a battery to a circuit can be held open or separated by a peg placed in the pincher of a spring-loaded clothespin. When an intruder hits the line connected to the peg, this will pull the peg out, allowing the clothespin to snap together and completing the circuit. Study the diagram on page 47 if this seems unclear.

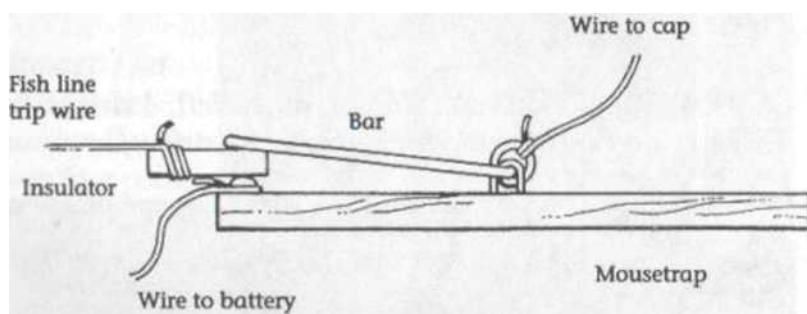
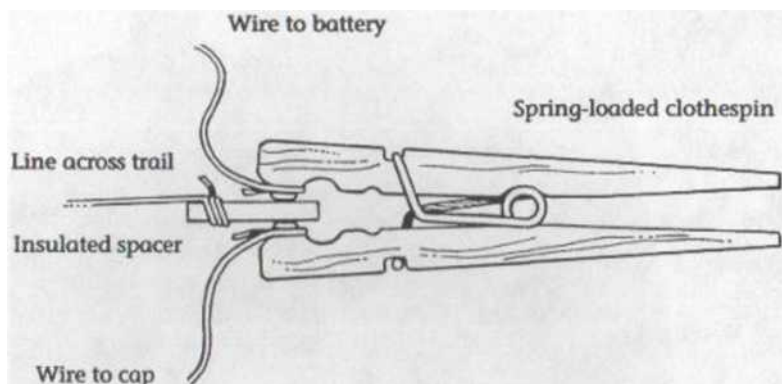


*Comparison of 150-foot target (left, 4 strikes)
and a 100- foot target (right, 11 strikes).*



*View of silhouette targets from rear graphically
demonstrates fragment strikes.*

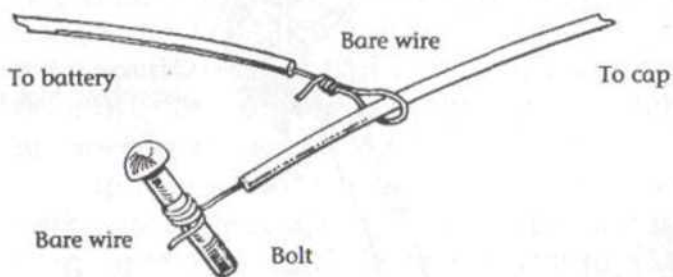
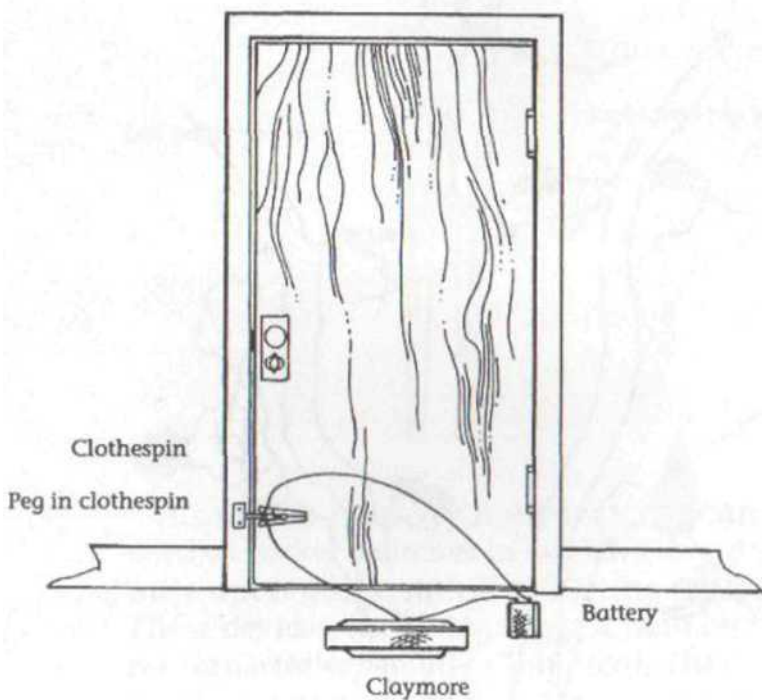
Home-Built Claymore Mines



The same clothespin with wire connected to each jaw can be held open by an ice cube which slowly melts, allowing detonation at a fixed target thirty or more minutes after the user has departed for parts unknown.

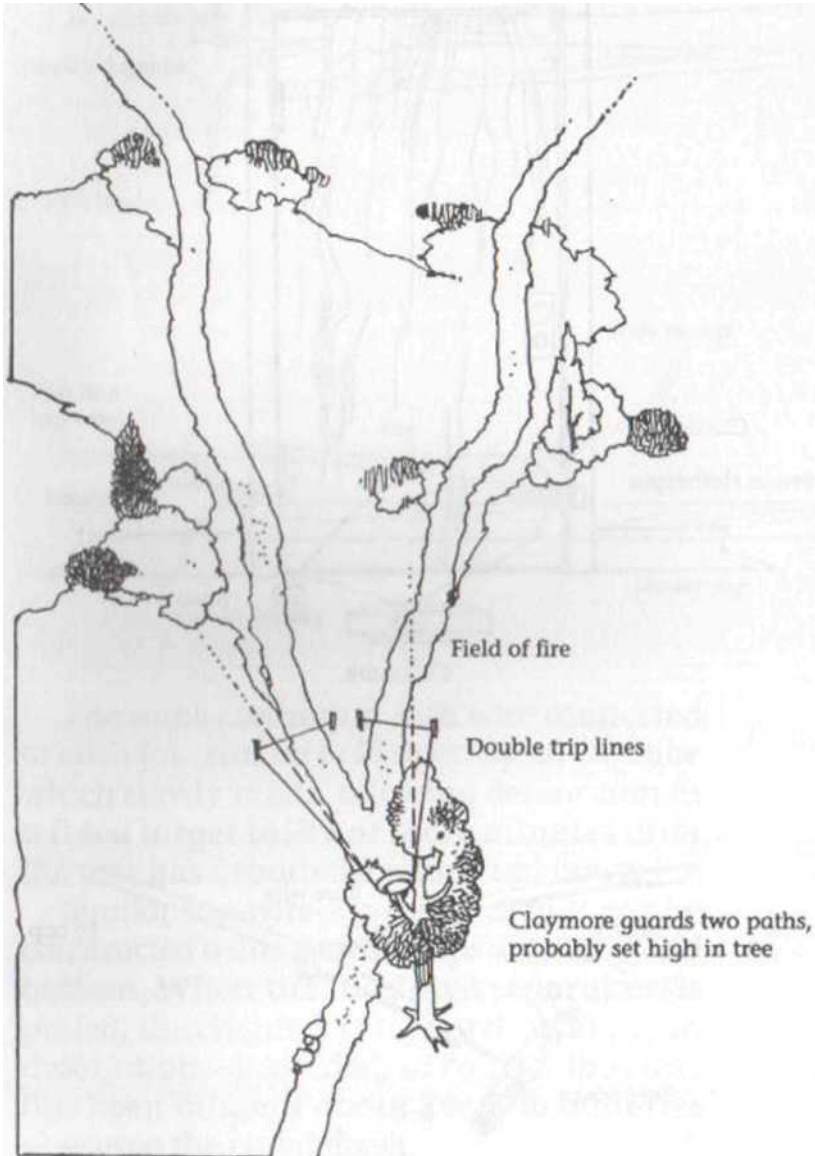
Similar trip-wire-separated circuits can be constructed using mouse traps wired top and bottom. When the insulated separation is pulled, the circuit is completed, resulting in detonation—provided, of course, that one has been diligent about keeping batteries powering the circuit fresh.

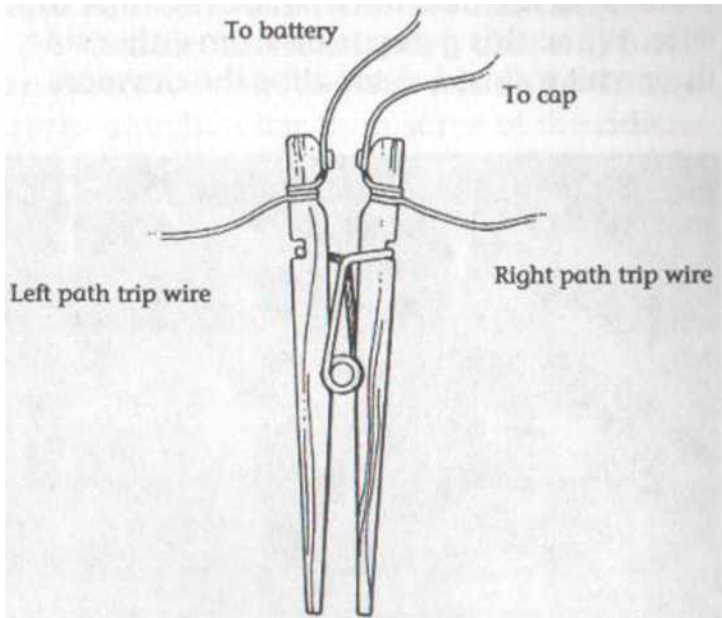
A mousetrap or clothespin can be fastened to a door so that as an intruder opens it the separator is pulled, allowing the circuit to close.



Any pull will close the circuit.

Even open, uninsulated wires can be laid out so that when moved they complete a circuit, detonating a claymore.





Common mercury light switches can be used as rocker switches in vehicles that detonate upon going uphill or hitting a bump. These devices, including triggers built on this pattern, are especially diabolical. They can be placed in seconds from the outside with no sign of anyone having been there. Be mindful that in an urban situation there are literally dozens of switches controlling electrical current that, when thrown, can be used to detonate a claymore. These might include doorbells, light switches, garage door openers, and even telephones, which, on ringing, close a circuit.

A spring-activated clothespin can be used with two trip wires, covering two paths converging at a point where one claymore is set up. In this case, both jaws of the spring-loaded

clothespin are held back by the fish-line trip wire. When this getup is hit from either side, the circuit is dosed, detonating the claymore.

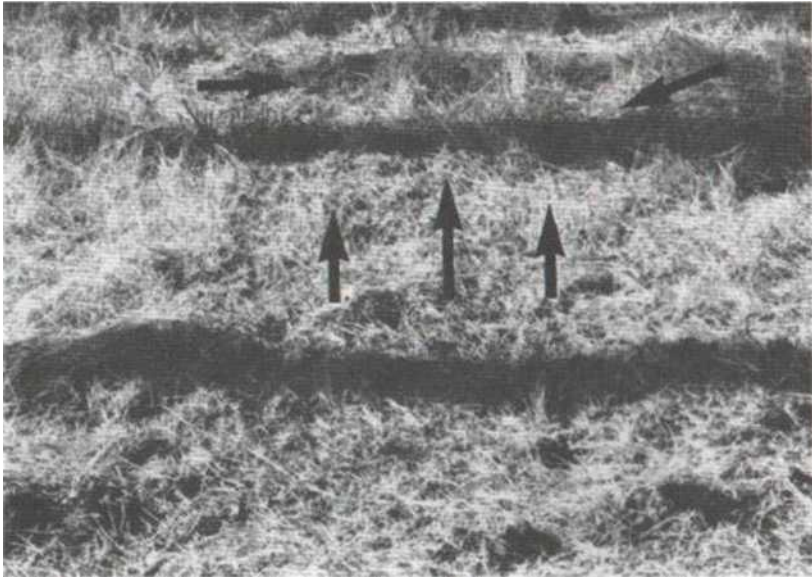


Upon initial firing, it is obvious that a shaped-charge effect has been achieved.

Obviously, solutions to the problems of rigging one's triggers are limited only by ingenuity, imagination, and the availability of a few relatively insignificant supplies. Most claymores will probably be command-detonated by the guy in an ambush sitting breathlessly with wires in hand. For private citizens, claymores are simply too expensive to deploy in large quantity or indiscriminately around the

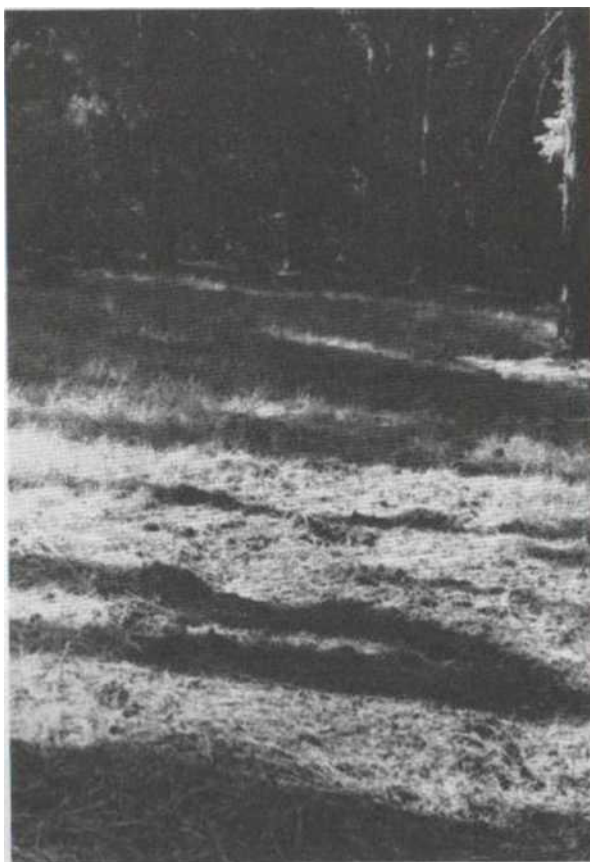
area with only trip wires around them.

At least in this instance a user will have an effective device with which to do the work—much better than some of the ridiculous, irregular, unpredictable affairs made from black powder and nails.



Ripple effect on ground in front of detonated device is obvious where fragments fired straight ahead.

Views of grass and weeds immediately ahead of blast zone show path cut by fragments.



Conclusion

Six months ago this book was not possible. Although not particularly difficult or convoluted, the formula for a good claymore was known to five people at most.

We have Paladin Press to thank for publishing its carefully researched book on the history and development of claymore mines. Information contained therein now makes it possible for home-builders to produce absolutely excellent claymores.

My hope is that no one will ever have to build one of these devices. Of those who do and who know little to nothing about explosives, significant numbers will become casualties.

My recommendation is to play it safe, treating this material as being *for informational purposes only*.