

This article is the English rough draft sent to be translated into German for the Waffen Digest 93. Due to the deadline, the article has not yet been written in a final draft in English, for which there would be quite a number of changes in sentence structure. When time permits I will rewrite the article in a proper format to be published in English, but this will not occur until I have finished my current book. I apologize for its "wordiness", but it was written without benefit of a computer and in a dead rush for publication. As the translator is a first rate writer himself I was not worried about its gramatical order in the German language. My apology for the rough reading.

Homer

Phrobis and the M9 Bayonet
by
Homer M. Brett

In 1984 Mickey Finn and his firm Phrobis developed a new style of combat and survival knife. It was then manufactured and marketed by the Buck Knife Company under the brand name, "Buckmaster" Model #184. Mr. Finn had a long history of developing new products for the U.S. Naval Special Warfare community, which includes the Navy SEALs (Sea, Air, Land commandos), and this new knife reflected some of their requirements and his own experiences. The Buckmaster was to become the father of an entire family of knives and bayonets built on the concept of a modular design of interchangeable parts, similar in theory to the Stoner weapons system.

The heirs of the original Buckmaster now include the Buck LT (Skeleton) Knife, the famous U.S. Army M9 MPBS (Multipurpose Bayonet System), the Navy SEAL Combat Utility Knife (CUK), the lightweight Modular Field Knife (MFK), as well as the experimental M9-A1 MPBS.

The Buckmaster knife was made totally from stainless steel for resistance to salt water and the elements. The bowie style blade had an extremely heavy set of sawteeth on its back edge for cutting through wood, aluminum and even sheet steel. On the front right side of the false edge is a specially designed scalloped edge for cutting rope and similar materials. The hilt is a watertight hollow handle bolted on to a short threaded blade tang. It was designed to hold an emergency compass in its screwcap as well as a variety of survival items including a signal flare. Experiments were even conducted to allow the insertion of a small bottled air supply to permit

sudden emergency ascents to the ocean's surface.

A unique feature of the knife is the pair of removable grappling anchor pins which screw into the ends of the crossguard. These enable the user to tie a rope to the pommel ring of the knife and throw it for grappling or for anchoring a rubber raft in an emergency. This odd looking system actually works quite well when properly used, but is uncomfortable if constantly left on the knife.

The Buckmaster scabbard, with the Buck logo on its lower face, was a one-piece molded unit made from black DuPont "Zytel." This material is virtually impervious to extremes of temperature and salt water, and combined with its stainless steel fittings is extremely rugged.

The scabbard is attached to the belt with a black webbing system which includes a quick release "Fastex" buckle. A web strap also runs down the back of the scabbard. The four slots in the face of the scabbard are to allow the attachment of two sizes of web pouches whose cross straps wrap around and fasten with Velcro.

The knife's basic design was experimented with in a variety of sizes, shapes and metals including titanium. Even after the final production model was selected and Buck was setting up its manufacture a constant evolutionary process continued. This resulted in new accessories and attachments to increase its versatility. As soon as the first knives were available, the U.S. Navy Special Warfare unit purchased a group and issued them to SEAL team members for testing and evaluation.

The unusual needs of the Army and Navy Special Warfare groups demanded a constantly evolving product even after full-scale commercial production began. Phrobis answered this need by developing a group of removable and non-removable "Bolt-On" wirecutting units which mount on the lower end of the scabbard and greatly increase its capabilities. Some of these hand-made prototypes used a long lever system, mounted on the side of the scabbard to increase cutting leverage. Some of the levers were also designed to serve as secondary utility tools, such as saws and screwdrivers.

While this was going on, the entire system being developed was shown to the various Army and Navy groups to get further input on how to adapt it to their purposes. This activity coincided in the fall of 1985 with the U.S. Army's continuing search for an improved multipurpose bayonet for the M-16 series of rifles and carbines. The Army had been dissatisfied since the late 1960's with the M7 bayonet, which was basically a World War II design. This was especially so in the face of the Soviet Union's fielding of their excellent series of scissors style AKM wire-cutting bayonets in the 1960's and 1970's.

In late 1985, the Army formally promulgated a Letter of Requirement (LR) for a new bayonet design which included its tasks and the design features thought desirable. A number of changes were made in the LR before it was finalized, the main one being the deletion of the requirement that the bayonet be capable of cutting electrically charged wire. Finally, the "priority order" of use was established and its order of precedence was: Bayonet, Combat Knife, Fieldcraft Knife, and Wirecutter.

The Army then sent out some fifty letters to U.S. and foreign firms requesting that they submit their designs and bids. The returned replies were carefully sifted through and six finalists were selected and invited to deliver their designs to the trials for field testing. These companies were Imperial Knife, Phrobis III, and S-Tron for the United States as well as Eickhorn from Germany, Marto from Spain, and Royal Ordnance from Great Britain.

Each of these companies submitted a unique design to meet the Army's requirements. After thorough tests were conducted, Phrobis III was selected as the winner with not one single test failure. The highest failure rate for one of the six designs was 74 percent.

The Phrobis XM9 Trials bayonet was based on the original Buckmaster knife and scabbard. Unfinished Buckmaster blade forgings became the bayonet's blade with all its features including the fuller and sawteeth being machined into it. The modular system was used with a removable crossguard (with two bottle opener slots in its face) and a round steel tang rod which screwed onto the blade's threaded tang. A molded green zytel grip with the grip grooves machined into it would then slide over the tang. A modified M7 bayonet latchplate was added with a hex head cap screw threading into the tang rod. All of this could be properly assembled with torque and allen wrenches.

The blade had only two markings on it at the ricasso. These were "XM9" for the model and below this was "29" which was the test number assigned to Phrobis. As required by the Army, the bayonet and scabbard had no other markings in order that the troops testing it would not be unduly influenced.

The XM9 scabbard was made in a Buckmaster scabbard mold with the Buck trademark masked out. Then a step was machined into the green toe for inletting the cutterplate which was held in place by two screws threaded from the back of the scabbard. A sharpening stone was embedded into the rear of the scabbard and a web belt mounting system was added by riveting on a Bianchi-marked holster belt clip. A Fastex quick release buckle was also added so that the soldier could remove the scabbard from his belt in "ten seconds or less" to use for wirecutting.

Also submitted to the testing board at the same time was a green Zytel XM9 Bolt-On wirecutter and scabbard assembly specially made for the trials. While it was definitely a superior system for cutting wire, the scabbard was rejected in favor of the simpler model with the "T" lug cutterplate system. The Army decided this as the bayonet and Bolt-On scabbard assembly together exceeded the weight limit requirements established for the new MPBS.

All of the XM9 bayonet's metal parts were stainless steel with the exception of the crossguard, the latchplate, and the tang rod, which were carbon steel. It also met the specifications by having a screwdriver on the cutterplate lower edge and came with a large Buckmaster style green scabbard pouch that could carry a 9mm Beretta pistol magazine.

After winning the trials Phrobis was then required to submit its First Article Test (FAT) bayonet samples for government inspection to show that it was ready to begin formal production. The FAT bayonets also underwent further

testing including chemical, biological and salt water resistance. Upon the Army's approval of the FAT tests, the contract was awarded and the go ahead was given for formal production. Phrobis had previously contracted with the Buck Knife Company to manufacture and assemble the Army contract bayonets, while Phrobis would conduct the formal product testing and inspection of each batch of bayonets to be delivered to the Army. Phrobis, itself, established higher M9 bayonet inspection requirements than did the Army. Each lot of 1,080 bayonets delivered had 80 pieces selected for final testing. It was decided that if any bayonet of the 80 failed even a single test of the eight required, then every bayonet of the entire 1,080 piece lot would be tested. No percentage for error was allowed, and this exceptional standard earned Phrobis a nomination for the Contractor of the Year award. Phrobis was also given the government Small Business Administration's Award for Excellence for 1990.

The eight Army testes applied to the M9 bayonets were: 1) cutting test (barbed wire and metal banding), 2) resilience test (bending), 3) impact test (wood block penetration), 4) twist test (torque), 5) withdrawal test, 6) sharpness test (cutting edge), 7) latching mechanism test, and 8) interchangeability test (parts).

The first actual production consisted of some 1,200 bayonets all 100 percent up to inspection standards. However a visual oversight allowed a small blade stamping in the shape of a "V" (just after the "A" in USA) to escape notice on the ricasso. This marking was a Buck knife internal mark to indicate a blade forging (which they continued to use on all commercial production on the fuller side of the blade). However, use of this mark was a violation of the Army's Technical Data Package and had to be immediately deleted from further Army production.

Most such "Chevron" marked bayonets were already in Army hands and had been issued. However, 166 pieces were recovered at Phrobis and these were withdrawn from delivery. These "Chevrans" were then serial numbered from 001 to 166 and divided up, with Phrobis taking the even-numbered bayonets and buck the odd-numbered ones. Phrobis then assembled special wooden plaques with Colt Firearms Co. made M-16A1 Barrel ends on them for presentation to VIP's. President Ronald Reagan was presented with number 001 and some of the remaining ones were sold commercially. These plaques were the first Phrobis made and designed presentation M9 bayonets. Interestingly enough the "Chevron" bayonets that went to the Army were delivered to Ranger and Special Forces units, a fact discovered during Desert Shield.

It should be noted at this point that the M9 was tested and adopted only by the U.S. Army, and that it was purchased for issue to Rangers, Special Forces, Airborne, and combat infantry units. All other Army units continue to use the M7 bayonet as do the Marines, Navy, Air Force and Coast Guard. The cost of the bayonet dictated that it be issued only to units with a real need for it, and even today most people do not realize that the Army currently has two standard model bayonets for the M-16 rifle.

Production of the M9 continued apace with Buck knives also marketing a commercial version which had Buck's name and model number (188) on the reverse side of the ricasso from the Phrobis III markings.

The only notable changes during the production of the Army M9 bayonet contract were fairly minor. The scabbard screw hole behind the cutterplate for the longer of the two screws was modified in order to allow further tightening. This increased the pressure of the screw tip against the blade in the wire cutting mode, assuring a tight fit regardless of the amount of wear to the cutterplate or blade. The web leg tiedown loop on the tip of the scabbard's back strap was shortened so as not to interfere with the cutterplate's wire cutting notch, and the brass rivets in the Bianchi belt clip were switched to stainless steel for more strength. Additionally, "PAT. PEND." was added at the bottom of the blade markings a short time into production. All Army bayonets (as well as commercial models) have the Phrobis dolphin logo stamped on the face of the crossguard and on the scabbard below the sharpening stone. The commercial bayonet is most distinctive with it's extra set of blade markings on the ricasso with the blade fuller. Also, only the commercial models have the cutterplate with the round pin blade stop on the face. This improvement was offered at no extra cost on the contract bayonets just as formal production was begun but was rejected by the Army as unnecessary. This later turned out to be a mistake as there were problems in the military with hand injuries while using the bayonet in the wirecutting configuration.

In September 1989 the Army M9 MPBS contract was completed on time and with 100 percent acceptance. Quite a record for military procurement!

With only the Army contract on hand in early 1987, Phrobis continued its research and development programs to field both military and commercial edged weapons using the modular design. Phrobis developed a commercial modular knife kit with a variety of blades, hilts and accessories from which a large number of knives could be built or reassembled. The kit did not advance past its prototype stage, but was set aside for further commercial refinement. The Navy SEALs also wanted a sturdy new knife which would be impervious to constant hard use and sea water, their constant working environment. Phrobis then designed a two-third-scale combat knife based on the M9 bayonet with a prototype "T" lug wire cutter. This knife was designated the Escape and Evasion (E&E) model, but the navy preferred something simpler, so the wire cutting function was deleted. This new design was first produced with a lightweight blade for the SEALs and then, after further testing, the heavier M9-style blade with a single sided false edge was readopted. The new knife had a Zytel grip similar to the M9; with a guard, short round tang rod, pommel cap and long tang bolt, all of stainless steel. All of the new SEAL knives were produced without markings (sterile) for the Navy with a newly designed black Zytel scabbard.

The new scabbard was a three-piece unit with the scabbard body being attached to the belt clip by a large threaded screw, all made from Zytel. The throat of the scabbard had a molded locking slot which automatically locked the knifeguard in as it was inserted. There was no webbing and the only metal part was the stainless steel throat spring. The unusual belt clip was able to revolve 360 degrees so that the entire system could be carried on a chest harness in an inverted position.

The knife was finally designated the Combat utility knife (CUK), and it was carried by SEAL teams from both the east and west coasts in Desert Storm. In the June 17, 1991 Newsweek, page 22, an article on "Secret Warriors"

includes a photograph of a SEAL wearing the CUK. The knife was also produced with a Phrobis-marked blade for general military and commercial sales. This version proved quite popular with the Marines and Navy personnel departing for the Gulf campaign from the west coast. The marked knives were produced mostly in black Zytel as well as a few in green.

Parallel with the development of the SEAL CUK, Phrobis also designed a light-weight version with the same scabbard, but with the only metal part of the knife being the blade. The guard, the one-piece tang rod-pommel, and the grip were all made from Zytel with the blade having a large Phrobis dolphin on it's face. This knife was designed for commercial and military sales and was designated the MFK (Modular Field knife). It was produced mostly in black Zytel, but a smaller number of green models were made as well. Unlike the CUK with it's black blade, the blade of the MFK has a gray bead-blasted finish with the dolphin etched on the blade. Both knife systems were made totally from stainless steel parts.

During these developments, Phrobis began a cooperative relationship with the firm of Marto from Toledo, Spain. As Phrobis and Buck Knives had parted ways with the end of the U.S. Army contract, Marto became instrumental in the production of metal parts for the CUK and M9-A1 bayonet as well as the last versions of the M9. It did not participate in the Army contract or the manufacturing of the MFK.

Parallel to the development of the CUK and MFK knives, Phrobis continued working on the M9 bayonet. The first logical change was to manufacture the crossguard and latchplate from stainless steel rather than carbon steel. This improvement was offered to the Army at no extra cost, but was turned down as there was concern about having two types of parts in the supply system. In late 1988, the final Phrobis evolution of the M9 crystallized with an entirely new scabbard system being developed directly from the CUK knife scabbard. This larger version of the CUK scabbard was molded with a number of modifications. It retained the same three-piece Zytel design, but the chemical compound was modified for the extra stresses of the bayonet. The scabbard tip had a molded step for the steel cutterplate and a zytel blade stop was incorporated into the scabbard face. This was done by machining a groove into the scabbard mold resulting in a raised angular stop on the scabbard body. The first test models were made in black Zytel, and then production ones were produced in both black and green. Like the CUK, the scabbard had no webbing and a slot in the throat locked the bayonet guard securely in. The improved M9 also had a sharpening stone in the back and a belt clip which could swivel a full 360 degrees. Upon completion of this design, the bayonet and scabbard were designated model M9-A1 MPBS.

It was hoped that the Marine Cops would purchase the improved M9-A1 and that the Army would consider completing its contract quantities with the improved system. The first M9-A1 "TRIALS" bayonets tested by the two services were entirely made from U.S. stainless steel parts. The blades were standard Army marked M9's with the tang rods and cutterplates also being from the Army production. New guards and latchplates were specially machined from high-grade stainless steel and the scabbards (black and green) were altered to take a secondary bayonet hold-in device.

This device was in the form of an elongated rubber loop which was

anchored to a cutout in the back of the scabbard. The user end had a pull tab on it and the loop was locked over the bayonet's muzzle-ring. It was designed to be especially useful to paratroops.

The bayonets were then completed by glass beading the scabbards and grips, giving them a dull, non-reflective finish. No front pouches were supplied with the M9-A1 bayonet and a new manual was written for it.

The M9-A1 TRIALS bayonets were then tested at the Army Infantry School at Fort Benning and by the Marines at Quantico and Camp Lejeune. Both the Army and Marine tests were quite favorable, but the Army declined to change bayonet models in mid procurement, despite the improvements. The Marines, however, contracted for a larger quantity of M9-A1 bayonets in order to place them in company and battalion sized units for further field testing. This was good news for Phrobis, but governmental funding cutbacks did not allow the Marine Corps to purchase the new order in Fiscal Year 1989.

With the Marines and Army holding off M9-A1 purchases, Phrobis continued to market it overseas. The secondary hold in device was eliminated from production as was the bead blasting of the scabbards and grips, returning to the natural green and black Zytel finishes of the M9. Phrobis also improved the blade stop by making it higher than the original design to eliminate any chance of blade skipping.

At this point the company was caught up in world events beyond its control. In December 1989, "Operation Just Cause" took place in Panama drawing the services' attention away from procurement. Even before the official "Lessons Learned" reports had been published and delivered to the troops, Saddam Hussein invaded Kuwait in August of 1990.

Desert Shield immediately absorbed all of the U.S. military's attention and funding. Spending became totally directed toward Saddam's perceived threats and items such as chemical and biological defense equipment, new desert uniforms and all types of specialized desert warfare items. The Army and Marine Corps had sufficient quantities of bayonets on hand already, and even the increased commercial sales to personnel going over to the Gulf were not sufficient to ease Phrobis' economic slack.

Phrobis had sufficient access to metal parts as Marto was now producing all the metal parts for the M9, M9-A1 and the CUK. However, only one small "war-footing" contract was received, and this from a military supplier who specialized in direct sales to military personnel. This contract was for M9 bayonets with desert sand colored Zytel fittings, as many troops were not issued the M9 and wanted to purchase one out of their own funds before leaving the U.S. These M9s were contracted for and delivered with M9-A1 marked blades and black webbing as that was the only timely way to complete the contract.

The lack of contracts during the build-up severely hurt the company and the short period of combat in February produced no great need for replacement bayonets. However, in mid-February a small group of U.S. military personnel in Saudi Arabia contracted for a very special M9-A1 bayonet, which was Phrobis' last major contract. The bayonet was a commemorative for Desert Storm with desert tan fittings and a laser engraved blade. On the tip of the blade is the Saudi Arabian crest and in the center in English "Operation

Desert Storm." Below this in Arabic are the words "The Liberation of Kuwait." On the reverse, fullered side, of the blade are engraved the English letter abbreviations for the coalition countries whose forces participated in the campaign.

This contract completed Phrobis' history except for a small group of green M9 bayonets made to commemorate "Operation Just Cause." This campaign, to capture General Manuel Noriega, saw the first use of the M9 in combat.

In April of 1991 Phrobis ceased operations and the Buck Knife Company purchased its patents and remaining equipment. Thus ended the company which designed, developed and put into production a unique series of edged weapons for the United States military.

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PHROBIS and the M9 MPBS---Photo Captions---Waffen Digest '93

A) The lead photo is the Phrobis U.S. Army "Chevron" bayonet mounted on the Phrobis M9 presentation plaque.

- 1) The BuckMaster scabbard with both web pouches, the BuckMaster knife, and the Buck "Skeleton" knife.
- 2) One of the Naval Special Warfare prototype Phrobis wire cutting scabbards hand built for the BuckMaster knife.
- 3) The Phrobis U.S. Army XM9 trials bayonet with the trials XM9 "Bolt-On" scabbard.
- 4) The Phrobis U.S. Army XM9 trials bayonet which won the trials.
- 5) The production model of the Phrobis U.S. Army M9 bayonet (marked "Pat. Pend.").
- 6) The Phrobis M9 bayonet disassembled into its component parts.
- 7) The Phrobis CUK (Combat Utility Knife) designed for the U.S. Navy SEALs.
- 8) The production model Phrobis M9A1 scabbard, next to it the Combat Utility Knife scabbard for comparison, note the M9A1's muzzle ring loop.
- 9) The Phrobis U.S. military prototype M9A1 bayonet, tested by both the U.S. Marines and the U.S. Army.
- 10) The production model of the Phrobis M9A1.
- 11) A comparison of the side views of the M9 (on the left), and the M9A1 (on the right).
- 12) The Phrobis M9A1 commemorative bayonet for Desert Storm. The hilt and scabbard are sand colored Zytel.
- 13) Blade markings---the XM9, the M9 "Chevron", and the production Army M9.
- 14) Blade markings---the Buck commercial markings on the Phrobis M9, the SIG marked M9. the Buck commercial M9 markings after the demise of Phrobis.
- 15) Blade markings---M9A1 Phrobis (Marto), the reverse markings on the same bayonet.
- 16) Blade markings---M9 (Phrobis) Marto, the reverse markings on the same bayonet.

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