



# *20<sup>th</sup> Century Military Knives: Design & Function*

*John H. Dowdle Jr. (COL USA RET)*

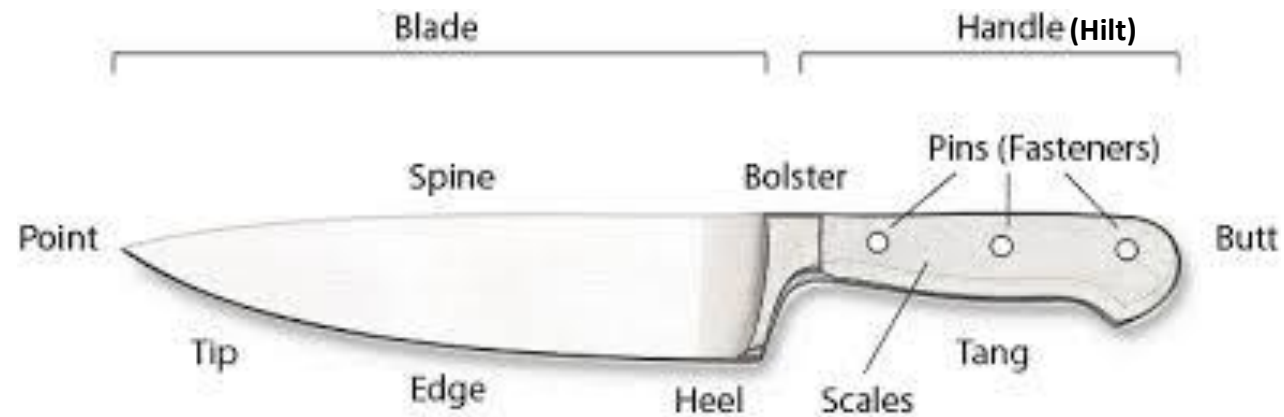
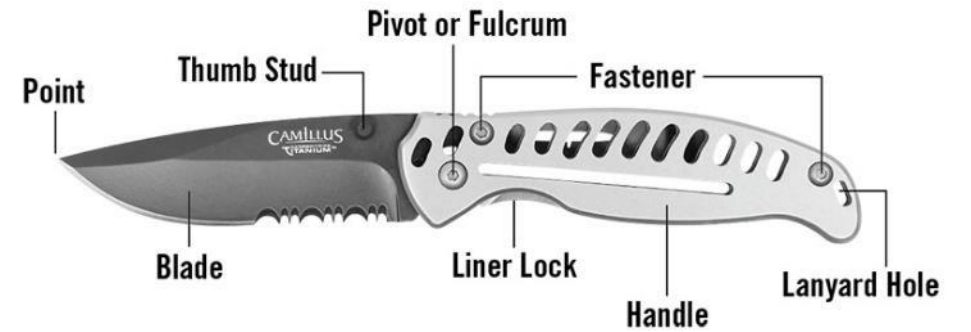
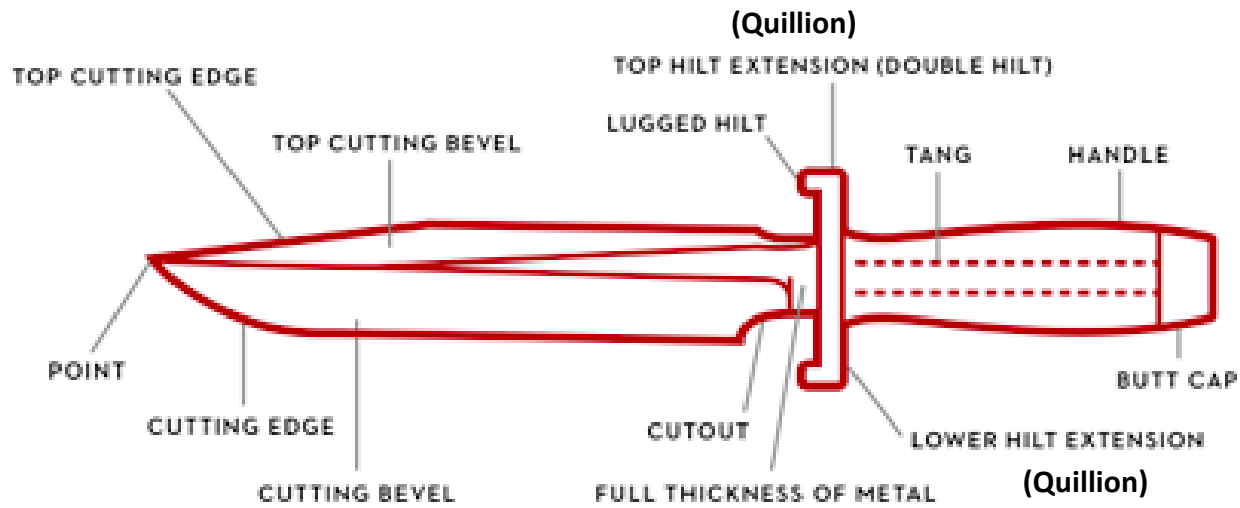
# Agenda

- Classic Knife Designs
- 20<sup>th</sup> Century Military Knife Designs
  - World War I
  - World War II
  - World War II-Korea
  - Korea and Vietnam
  - Desert Storm & Modern Day
  - Military/Survival Knives
- Underwater Combat/Explosive Ordnance Disposal (EOD) Underwater Knife Designs
- Other Modern Military/Survival Knife Designs
- Throwing Knives

# Presentation Theme...

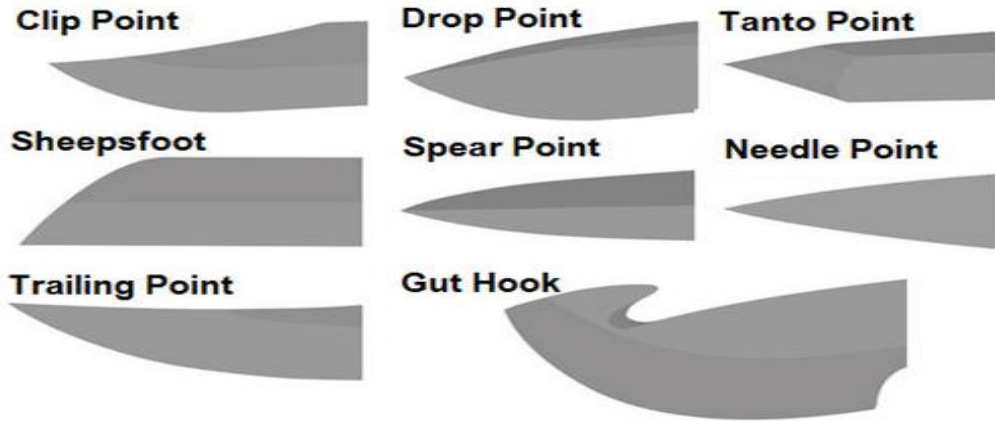
With swords, one is always looking between the best balance between “cut and thrust”. With a knife, one looks to the best balance between “utility and self defense”

# Knife 'Anatomy'



# Blade Shapes and Styles

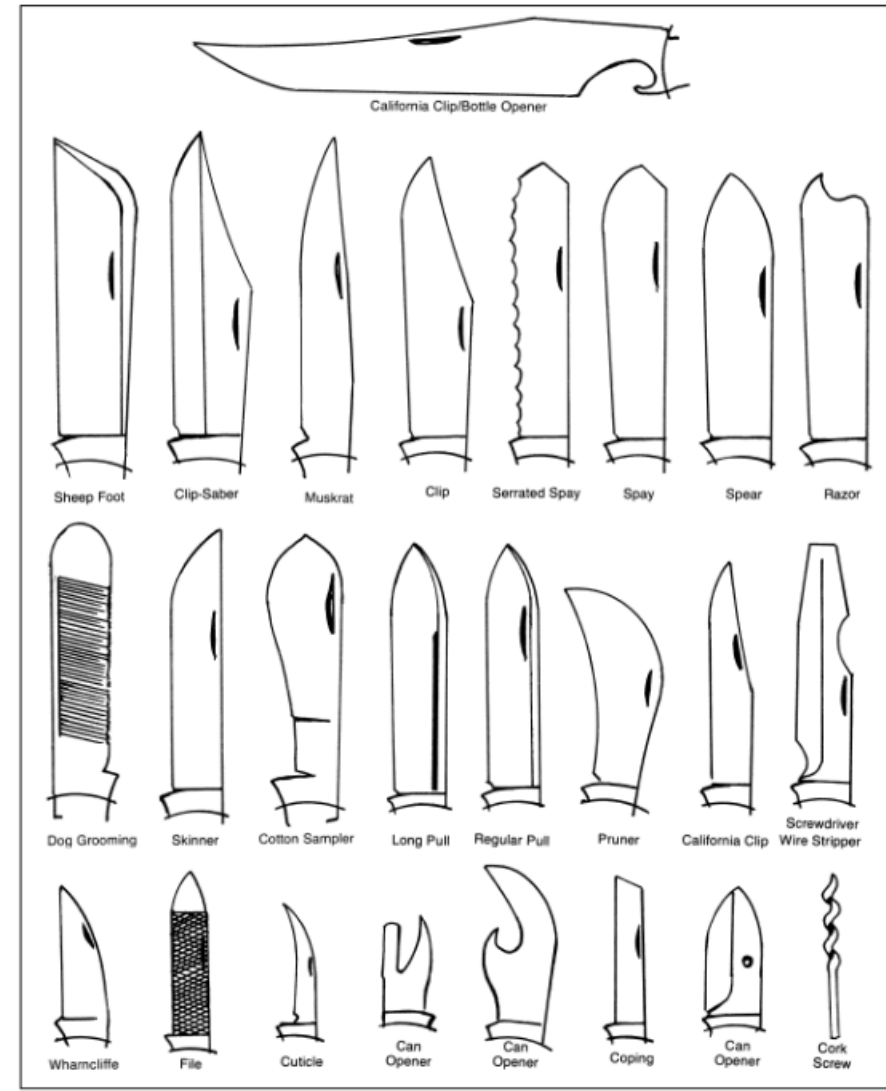
## Types of Knife Blade Points



## KNIFE BLADE SHAPES



## Blade Styles



## Sword

### Common Blade Cross-Sections



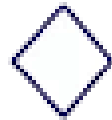
Diamond



Hollow Ground



Hexagonal



Thickened Diamond



Lenticular



Fuller



Double Fuller



Broad Fuller

### Knife Edge Types



V (Flat) Ground



Convex



Asymmetrical Semi Convex



Asymmetrical V (Flat)



Compound (Double) Bevel



Hollow Ground



Chisel



Chisel with Back Bevel



Chisel with Urasuki

# Classic Knife Designs

## Flint

- Earliest use of Knife Materials; Archaeologists have discovered sharp-edged tools as ancient as 2.6 million years old ago



## Obsidian

- Volcanic Glass
- Still used today in laser scalpels for modern brain surgery and other soft tissue surgeries
- Keeps a razor or “micro” edge better than steel in cutting soft tissue
- Example below is a “spear” point design



# Classic Knife Designs

## Sica/Sicae

- The sica was a short sword or large dagger of ancient Thracians, Dacians, and Illyrians, used in Ancient Rome too, originating in the Halstatt culture (modern day Austria region)
- Used as an Assassin's dagger by a splinter sect (siqariqim) of Jewish Zealots as their weapon of choice against both Romans AND Jewish sympathizers during the Jewish revolts in 1<sup>st</sup> century AD (sect died out at Masada)
- Inside edges are sharp, 1 variation the Thracian Falx
- Term Sicario (i.e., 'Hitman' in Mexico based on this term & name of recent movie)



Sica dagger



## Janbiya/Shibriya

- **Janbiya**
  - Arab style knife, carried by Arabic cultures across North Africa, Spain, and the Middle East
  - Favored weapon of the Assassins during the Crusades
  - Modern Chilean Corvu designed off of Janbiya
- **Bedouin Shibriya**
  - In Jordan, desert tribesmen have used their *shibriya* daggers for centuries to cut vegetables, shear sheep, cut meat, and kill enemies
  - Jordan/Israel/Palestine center of modern shibriya knifemaking



Janbiya



Corvu



Bedouin Shibriya



# Classic Knife Designs

## Seax

- Old English word for knife, a small sword or knife typical of the Germanic people of the Migration Period and the early Middle Ages, especially the [Saxons](#), whose name derives from the weapon
- Example below is broken back seax, single edge blade pointing with sloping point; modern sheep's foot is similar design



## Messer/Falchion

### Messer

- Single-edged sword with a knife-like hilt construction
- Unique in having a 'nail' attached to hilt to protect knuckles
- Uniquely German work tool and weapon; not adopted by other areas of Europe
- Forerunner of the modern machete

### Falchion

- Military-style version with sword hilt; likely based on crusader era Saracen swords; clip point with pommel
- Used by English and French forces in Middle Ages



# Classic Knife Designs

## Poignard/Poniard

- Long, lightweight thrusting knife with a continuously tapering, acutely pointed blade and crossguard
- Light dagger that had a strong blade, usually squarish or triangular in section, and a reinforced point, beadlike in shape



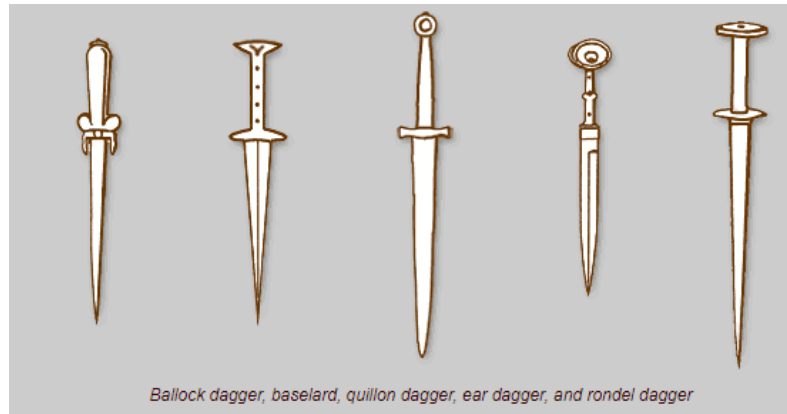
## Medieval Dagger/Bollock Dagger

### Medieval Dagger/Baselard/Rondel/Ear/Quillon

- Knife w/very sharp point and usually two sharp edges, typically designed or capable of being used as a thrusting or stabbing weapon
- Designed for close combat as well as ritual and ceremonial contexts. The distinctive shape and historic usage of the dagger make it iconic and symbolic

### Bollock/Ballock Dagger

- Type of dagger with a distinctively shaped hilt, with two oval swellings at the guard resembling male testes; *also called 'kidney' dagger by religious authorities*
- Popular in Scandinavia, Flanders, Wales, Scotland and England between the 13th and 18th centuries, in particularly the Tudor period
- Predecessor to the Scottish dirk



Ballock dagger, baselard, quillon dagger, ear dagger, and rondel dagger



Ballock Dagger

# Classic Knife Designs

## Dagger-Scottish Dirk

- Long, thrusting dagger, the symbolic traditional and ceremonial weapon of the Highland Cathairean (warrior); a highlander swore an oath on his dirk, not his sword
- Naval dirk was originally used as a boarding weapon and functional fighting dagger; Russian and Japanese officers adopted the naval dirk later in the 1800s



## Dagger-Sgian Auchlais/Sgian Dubh

### Sgian Auchlais

- A concealed knife, normally around the armpit or in a vest or jacket pocket
- Alternative name sometimes seen for this weapon is “mattucashlass.”

### Sgian Dubh

- May have evolved from the *sgian-achlais*, a dagger that could be concealed under the armpit
- Evolved into small, single-edged knife for everyday general use; part of a traditional Scottish dress



Auchlais

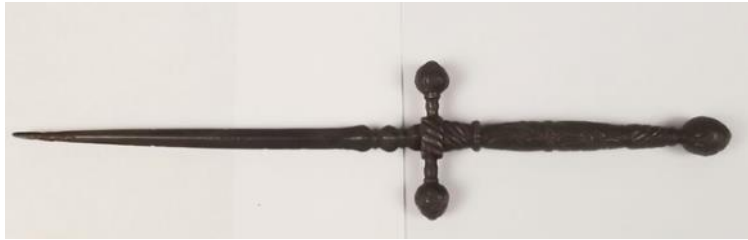


Sgian Dubh

# Classic Knife Designs

## Dagger-Stiletto

- Long slender blade and needle-like point for thrusting; narrow cross-section and acuminated tip reduce friction upon entry, allowing the blade to penetrate deeply
- Some consider the stiletto a form of dagger, but most stilettoes are specialized thrusting weapons not designed for cutting or slashing, even with edged examples
- Modern stilettoes are labeled as folders or spring action concealed knives (switchblades); illegal in many jurisdictions



## Bowie Knife

- A pattern of fixed-blade fighting knife attributed to blacksmith James Black in the early 19th century for Jim Bowie, who had become famous for his use of a large knife at a duel known as the Sandbar Fight.
- Generally large [sheath knife](#) with a [crossguard](#) and a [clip point](#)
- Seems to have been at least 'indirectly' influenced by a Messer or Falchion style blade design



# Classic Knife Designs

## Sword/Knife Canes

- Primarily refers to European canes in the 18th-19<sup>th</sup> century, similar devices have been used throughout history, notably the Roman *dolon*, the Japanese Shikomizue (blind swordsman Zato-ichi), and the Indian gupti
- In 18<sup>th</sup>-19<sup>th</sup> century, especially Victorian England, men routinely trained in swordsmanship who wished to go armed for self-defense as well as some women carried sword canes (Dr. Watson from the Sherlock Holmes mysteries)
  - Poignard Style
  - Dagger/Rapier Style
  - Also called “swordstick” or “knifestick”; a swordstick/knifestick collector is an “ambulist”
- Best customized sword canes today are made by Burger Canes of South Africa



# World War I

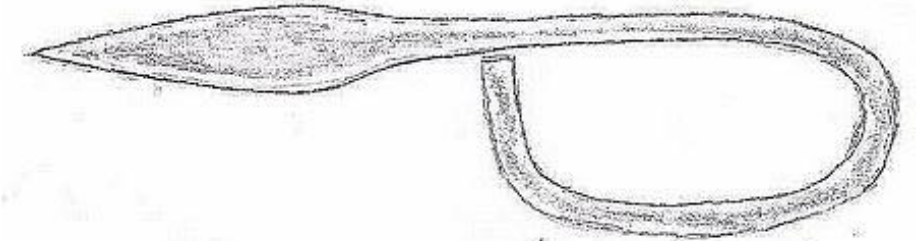
## German Trench Knife

- Most early trench knives were fabricated by hand by individual soldiers or blacksmiths for the purpose of silently killing sentries and other soldiers during trench raids
- A *Nahkampfmesser* was the standard issue German combat knife during the First World War; remained in service in modified form(s) through the end of the Second World War



## French Trench Knife

- French Nail was an early version of Trench Knife
- Wartime shortages led varying degrees of quality control per knife
- Later replaced 1916 by the *Couteau Poignard Mle 1916 dit Le Vengeur*



# World War I

## 1917 US Trench Knife (Poignard)

- M1917 featured a triangular [stiletto](#) or poniard style blade, a wooden [grip](#), metal knuckle guard, and a rounded pommel
- Useless as general all purpose knife



## 1918 Mark I Trench Knife (Dagger)

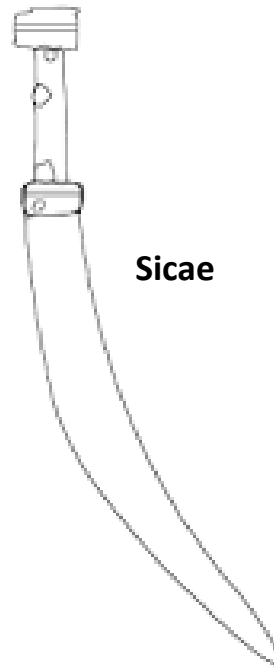
- Replaced the M1917
- The blade profile patterned after the French *Couteau Poignard Mle 1916 dit Le Vengeur*; most were completed too late to see service in the trenches of World War I
- Some Mark I knives was issued in 1942 and 1943 to airborne troops, Army Rangers, and Marine Raiders; many paratroopers cut the sides off where the blade would flat against their bodies during jumps



# World War I

## Gurkha Kukri

- Researchers trace the origins of the blade back to the domestic [sickle](#) and the prehistoric bent stick used for hunting and later in hand-to-hand combat on the Indian sub-continent
- Associated with the Gurkhas of Nepal and India
- A distinct recurve in the blade; designed primarily for chopping. It is used as both a tool and as a weapon in the Indian subcontinent
- Gurkhas brought the knife to western front battlefields in WWI





# Bill Scagel-Randall Made Knives

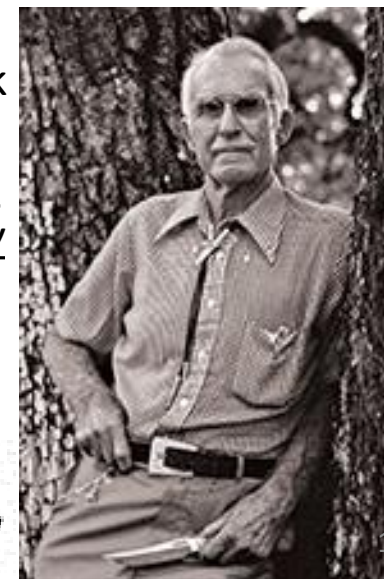
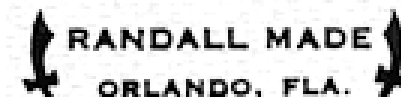
## Bill Scagel

- Born in Michigan, influenced many 20<sup>th</sup> century knife makers, including Bo Randall
- Made knives in the 1920s and 1930s for Abercrombie and Fitch and for Smithsonian Expeditions
- Knives were made completely by hand and without modern tools such as a grinder or buffer, so number of knives he made are low
- A half stag and half leather stacked washer assembly in his knife handles became his trademark style; it was this knife design that influenced Bo Randall
- Today a Scagel knife can run \$10-15K for an original



## Randall Made Knives

- In 1936 bought a knife in Michigan made by Scagel
- Decided to build his own knife
- Trademarked name in September 1939
- In WWII made the Model 1, Model 2, and Model 3 variation; other military/survival models for Korea, Vietnam, Desert Storm, post 9/11
- Small shop in Orlando, FL has made knives now for over 80 years; mainly carbon Swedish tool and stainless steel knives
- Bo died in 1989; son Gary took over with his 2 sons
- Current a 6-year waiting list to order from the Randall factory



# World War II

## Sykes-Fairbairn (FS) Knife

- Designed by W.E. Fairbairn and E.A. Sykes from experiences with Shanghai Municipal Police (SMP) pre-WW2
- Double-edged fighting resembling dagger or poniard, foil grip; also described as stiletto like thrusting weapon; diamond shape blade, 2-piece construction
- Knife issued to **British Commandoes & Special Operations Executive (SOE)**, OSS, US Rangers, Belgian/Dutch Commandoes, Canadian paras,...
- Original knife blade was 5.5 inches long, 1<sup>st</sup> pattern, 6.5 inches, modern pattern 7.5 inches long
- The “3<sup>rd</sup> pattern” is the most common design today
- Still issued to Royal Marines 3 Commando Brigade today



## Smatchet

- Designed also by Fairbairn; Short, heavy fighting knife/sword 16.5 inches (42 cm) in overall length (including grip)
- Spear point design; Fairbairn’s preferred weapon
- Ideal close-combat weapon for those not armed with a rifle or bayonet
- Used by OSS, SAS, and SOE and other “nefarious” Special Operations units in WW2



# World War II

## V42 Stiletto Knife

- Stiletto dagger issued to the First Special Service Force (FSSF), i.e., “The Devil’s Brigade”
- Designed by LTC Robert Frederick, CDR FSSF, based on FS knife design, made by Case Cutlery
- Differed from SF in that it had a thumb notch on the blade, and a “Skull crusher” pommel; also a hollow ground blade, better slicing edge...
- The FSSF 1<sup>st</sup> close combat instructor was CPT “Pat” O’Neil, who worked under Fairbairn in the SMP in the 1930s
- 70 V42s were issued to seamen from USS Omaha
- Chapter XXVIII (Chapter 28, Montana) of the Special Forces Association offers modern, serialized Case made V42s at \$495.00



## OSS/Marine Raider Knives

- Based on the FS knife, 1 piece construction instead of 2 piece, made by Camillus MFG.
- .25 inches longer than SF knife and thinner in the blade
- Marines could fit the sheath behind the standard issue M1911 pistol holster
- “It should never be thrown, as it was designed as a hand-held [weapon](#) to be used only in combat”: MG Peatross, USMC, WW2



# World War II

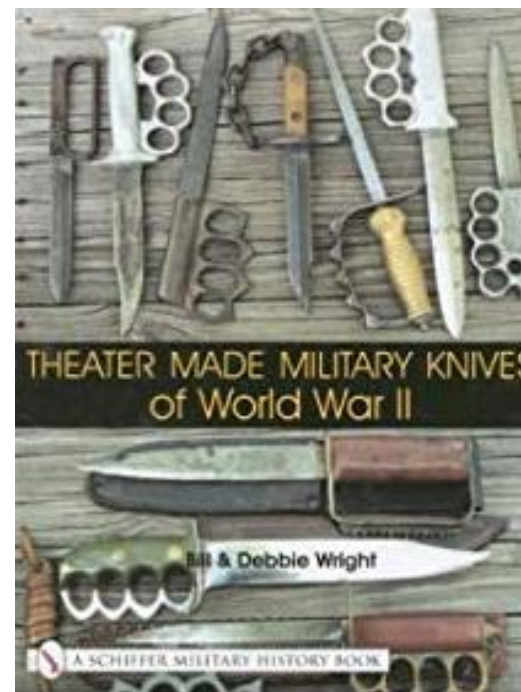
## M3 Fighting Knife

- Issued in 1943 and designed to issue to soldiers who did not have a bayonet, it became a standard close quarter knife for the US infantry combat weapon
- Replacement for the Mark 1 Trench Knife & later the FS knife carried by US forces
- Especially designed for such shock units as parachute troops and rangers
- Many US manufacturers



## Theater Made WW2 Knives

- Many WW2 knives were made for military members by friends, family members, etc., or small local productions in theater
- Best book: Theater Made Knives of WW2, by Bill and Debbie Wright



# World War II

## Randall Model 1 (All-Purpose Fighter)

- Base design in 1942 by LT Zacharias of the 351<sup>st</sup> Searchlight BN; very big Bowie style (11 inch blade)
- Zacharias wanted the design to be a fighter AND a general all purpose soldier's knife
- Randall came up with the Randall-Zacharias (RZ) model after experimentation; 6 made
- By early 1943 Randall upgraded the knife and called it the Model 1 All Purpose Fighter; MG James Gavin of 82<sup>nd</sup> ABN Division carried one
- Very little change in design since then; it can be ordered in 6, 7, or 8-inch blade; classic 'fencing' grip



## Randall Model 2 (Fighting Stiletto)

- Heavily Made Dagger or Dirk based on the FS
- Thought the FS was a 'puny' knife good only for assassination; created own distinct style of a spear point dagger...
- A number of soldiers from the 515th Parachute Regiment carried these knives in 1944; one was then John K. Singlaub (later MG Singlaub), who carried it his whole career
- Also in 6, 7, and 8-inch blades lengths; British Commando style grip



# World War II

## Applegate-Fairbairn

- Introduced at the end of WW2
- Wider blade and more durable than the FS
- Handle made of removable Lexan plastic, can place weight inside to change the balance point of the blade
- Applegate had Randall make a few prototypes, but it did not succeed with consumers
- Never “caught on” in immediate Post war environment
- Boker makes a modern replica with serrated and non-serrated versions



## John Ek

- Built specifically for soldiers, sailors, airmen, and Marines in WW2
- Started with 6 styles in 1941, called John Ek Command Knives
- To purchase an Ek Commando Knife, one had to send in proof of military service. The knives were numbered and a log was kept to tie the number to the owner
- Since made knives for Korea, Vietnam, Afghanistan, Iraq, and countless other locations



# WW2-Korea

## Randall Model 3/4 (Hunter Big Game & Skinner)

- Both ideal all-around, heavy-duty knives for outdoors. Normally single hilt, Randall made many exceptions with a double hilt for use by soldiers in WW2, Korea, and Vietnam
- Ordered by exception in WW2, and more often in Korea along with Model 1 and 2s....
- Models 3 & 4-5,6, or 7 inch blade; 'trailing' point blade



Model 3 Single Hilt



Model 4 Fighter



Martin Knives Version Model 4

## Mark 1 Navy Utility Knife

- 5-to-5.25-inch flat-ground blade survival-type knife with sheath, primary producer Camillus Cutlery
- Every sailor who worked "topside" was issued a fixed blade for cutting ropes/line
- Common to have plastic handles due to materials shortage in WW2
- Single hilt generally, as it was a 'working' blade
- Very common WW2 blade; other variations by made by Western Cutlery and Cattaraugus 225-Q
- The Mark 2 'Ka-Bar' gradually replaced it



# Korea-Vietnam

## Randall Model 14 (Attack)

- New handle materials like tenite and later micarta replaced more traditional handle materials
- Introduced finger grip hilt design
- Larger version of Model 15, also submitted to Marine Corp for testing in the 1950s; 7.5 inch blade with full tang
- Heavy duty, all purpose clip point Bowie design
- Very popular in Vietnam and beyond
- Model 14 and 15 first Randalls first to use tenite, then micarta handles for their knives



## Randall Model 15 (Airman)

- Mid 1950s; Originally designed as Marine Corp Combat/Survival prototype knife; too expensive for mass production and red tape
- Air Force also showed interest, and Randall named the Model “Airman”, but again buried under red tape; the USAF initial acquisition officer rotated out mid selection process
- 5.5 inch blade, otherwise similar to the Model 14 Attack model in design and shape
- Became extremely popular in Vietnam and beyond



***1950-1980s Army Special Forces (SF) maxim: A fully qualified Army SF soldier has 4 things:  
His Randall knife, Rolex watch, blue star sapphire ring, and divorce papers...***



# Korea-Vietnam

## Gerber Mark II

- Based off of FS; or the Scottish dirk, or, after Roman Mainz style gladius???? by retired Army CPT Bud Holtzman
- Handle similar to that of FS knife with more of a spear point design
- Also very popular in Vietnam
- Military PX stopped carrying them 1970s because they looked too “brutal”; Al Mar knives added sawteeth, called it a survival model and PX started selling them again...



## 5<sup>th</sup> SFG(A) SOG Bowie Knife

- Designed by Conrad Baker of the Counter-Insurgency Support Office (CISO) in 1963
- Made for use starting in 1964 for 5<sup>th</sup> SFG(A) & MACV SOG soldiers in Vietnam; local and regional production runs; designed for covert recon operations
- Made in Japan, quality varied: 1<sup>st</sup> runs were ‘sterile’ runs with no identifying marks on them



# Desert Storm/9-11 & Modern

## Chris Reeve Green Beret Knife

- South African born knifemaker, now lives in Idaho
- Design by noted knife expert Bill Harsey
- Serial numbered Green Beret knives are registered & issued ONLY to US Army Special Forces graduates; known as the “Yarbrough Knife”; mine is #0496; (7.5 inch blade)
- Comes in standard 7.5 inch and smaller 5.5 inches blade sizes; Stainless CPM S30V Steel, canvas micarta grip
- Extremely durable knife design; grip is non-slip even when wet; drop point design



## Chris Reeve Pacific/Neil Roberts

### Pacific

- Designed by 1<sup>st</sup> SFG(A) soldiers for units; similar dimensions to Neil Roberts knife

### Neil Roberts

- Named after 1<sup>st</sup> SEAL killed in Afghanistan (Tora Bora)
- BLADE SIZE: 6" TOTAL SIZE: 11" BLADE MATERIAL: Stainless CPM S30V Steel -with KG Gun-Kote



# Desert Storm/9-11 & Modern

## Chris Reeve Professional Soldier

- Small concealment knife based on Sgian Dubh with drop point design?
- Skeleton handle for laying flat against body, minimize imprint



## Randall Model 16 Fighter

- Randall Model 16 hilt design with a Model 1 7-inch grind blade
- Very popular knife with soldiers post 9-11; micarta handle with full tang



# Variations in Modern Military Design

## Randall Buxton Special (Non-catalog)

- Designed by Wayne Buxton, certified Randall knife dealer
- Modified Model 14 with 6.5 inch blade, skull crusher, clip point bowie style knife
- Shown with Border patrol grip



## Randall Model 24 Guardian (non-catalog)

- Concealment and back up boot knife inspired by Sgian Dubh
- Blade 4 inches long, 3 3/4" Micarta handle, 3/4" thick



# Variations in Modern Military Design

## Randall Combat Companion

- Designed for bodyguard companion with guns and concealment
- Lightweight military style knife with a 5 inch blade
- Reinforced spear point



## Randall Navy-Marine Corp Model 5

- Design to look like Navy-Marine Survival knife using Model 5 design



# Military/Survival Knives

## Air Force Survival Knife- Aircrew Survival Egress Knife (ASEK)

- 1958 Pattern by Ontario Knife Company, 5 inch blade; main design to escape an aircraft
- Designed for harsh conditions, to be used as a spear if necessary, point used to stab, a hand guard, durability, light weight, and holes for tying the knife to a stick to act as a spear
- Camillus produced 6 inch version from 1959-1961



## USMC Mark 2 Combat Survival Knife 'Ka-Bar'; US Navy Mark 2

- Production started in Nov 1942
- Based on Western States cutlery pre-WW2 hunting design 'L77'
- Many manufacturers, Camillus the largest, also Union, Utica, and Ontario to name a few...
- Earlier models impregnated leather handles rotted out wet/jungle environments
- Modern Ka Bar blades have 56-58 Rockwell hardness made of D2 steel



# Military/Survival Knives

## Randall Model 17 (Mercury)

- Designed by Gordon Cooper, Mercury 7 astronaut as survival knife for Mercury astronauts
- Carried by all Mercury 7 astronauts, Alan Shepard lost his knife when prying open the capsule hatch door in the ocean
- Handles could be unscrewed off to put in matches or small items
- Unusual style blade design, seems to be designed to be used as prybar for escaping space capsule as well as a survival tool
- Rarely asked for design today...



## Randall Model 18 (Attack/Survival)

- Designed by CPT George Ingraham, Army MEDAVAC pilot in 1964
- Added "Sawteeth" for cutting through Huey helicopter skin; 5.5 or 7.5 inch blade designs; 440C stainless steel standard, unless special order
- Hollow, waterproof tube for matches, wrap parachord, etc., spear point
- Many post Vietnam Survival knife designs influenced by this model; see Chris Reeve 1-piece designs
- To "Sawteeth" or not to "Sawteeth", that is the question...?



# Military/Survival Knives

## Chris Reeve Hollow Handle 1-piece Survival Knives

- Influenced by Randall Model 18 Design
- Used A2 tool steel, aircraft aluminum for pommel/buttcap
- Chris Reeve stopped making them in the mid-1990s, but the design has influenced many other modern survival knives





# Combat/EOD Diver Knives

## Navy Hardhat Diver Knife

- 1929 Classic Design, with Maple handle and 7 inch Stainless steel blade
- NOTE: Many diver's knives are made in stainless steel to help prevent corrosion, especially around salt water
- A few were made non-magnetic
- Great all around knife, still current today



## Randall Model 16 Diver's Knife

- Introduced in 1958, initial design by author James Jones (The Thin Red Line, From Here to Eternity), who wanted a sturdy underwater knife for his new passion of skin (scuba) diving
- Single hilt 7 inch spear point design, micarta handle
- Stainless steel only, unless specially ordered otherwise



# Combat/EOD Diver Knives

## SOG SEAL/UDT Vietnam Prototype

- Original prototype is one of the rarest Special Forces knives ever in existence
- 39 knives originally made for the Naval Advisory Detachment for missions in Vietnam in 1964; only 1-2 originals were known to have survived the war
- Spear point design
- SOG makes a modern replica of the knife



## Mission Knife SEAL Titanium

- Designed for modern SEAL teams
- Titanium is non-magnetic; also can withstand EXTREME cold weather better than many steels, as it does not become brittle; very corrosion resistant
- Downside to titanium is its edge holding capability, it is not as good as steel
- Serrated edges near blade 'cutout'



# Other Modern Military/Survival Knives

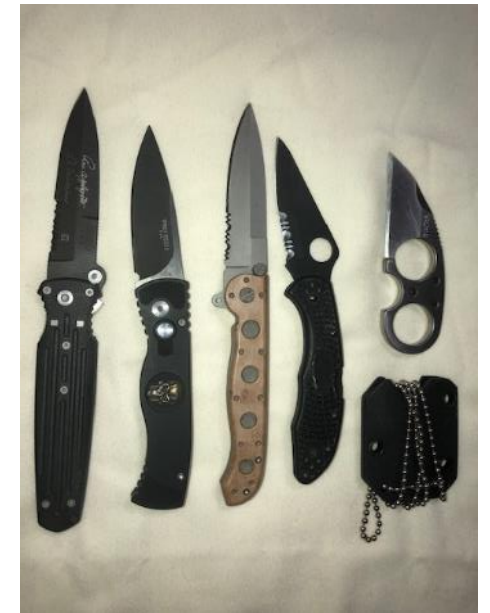
## Survival “The Hunted” Knife

- Idea by Tom Brown, professional tracker, and Dave Beck, knifemaker
- Used in the 2003 movie “The Hunted”; movie based on actual ‘hunt’ mission by Tom Brown
- Made by TOPs (today) and Red Scorpion 6 (Raven WSK model) knife companies
- Red Scorpion 6 did not have best ‘rep’ for customer service (claimed to be a knife maker when actually importing the knives from China); but the knife is very solid and liked by customers



## Modern Tactical ‘Folders’ & ‘Neckers’

- Becoming more preferred in many instances, especially as backup, undercover, and concealment purposes
- Comes in different modern steels, designs from stiletto/dagger to bowie/tanto designs, etc.



# Throwing Knives

- John's Opinion: Throw your knife at an opponent only as last resort to distract them and runaaaaaaaaaway: Otherwise, **WHY** throw your knife at someone, when the probability of hitting a moving target *effectively* is very low even with a throwing knife design.....?
- But if you must throw your knife for some reason:
  - Use a throwing style knife
  - Practice a LOT!!!!
  - Carry many throwing knives on you
  - Assume you will miss most of time or be ineffective
  - Throw it and then RUNAWAY, RUNAWAY!!!!!!!!!!!!!!!!!!!!!!



# Final Thoughts...

The knife is still an indispensable everyday tool and when needed, a weapon, even in today's modern society; its unmatched utility and usefulness to humans has changed very little since we started 'knapping' flint millions of years ago....

Gibbs' Rule #9: **Never go anywhere without a knife**...(Leroy Jethro Gibbs, TV series NCIS)

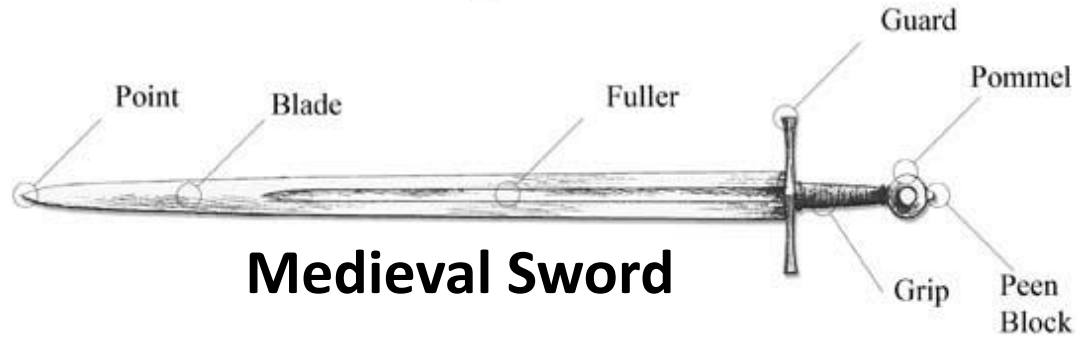


# Questions?

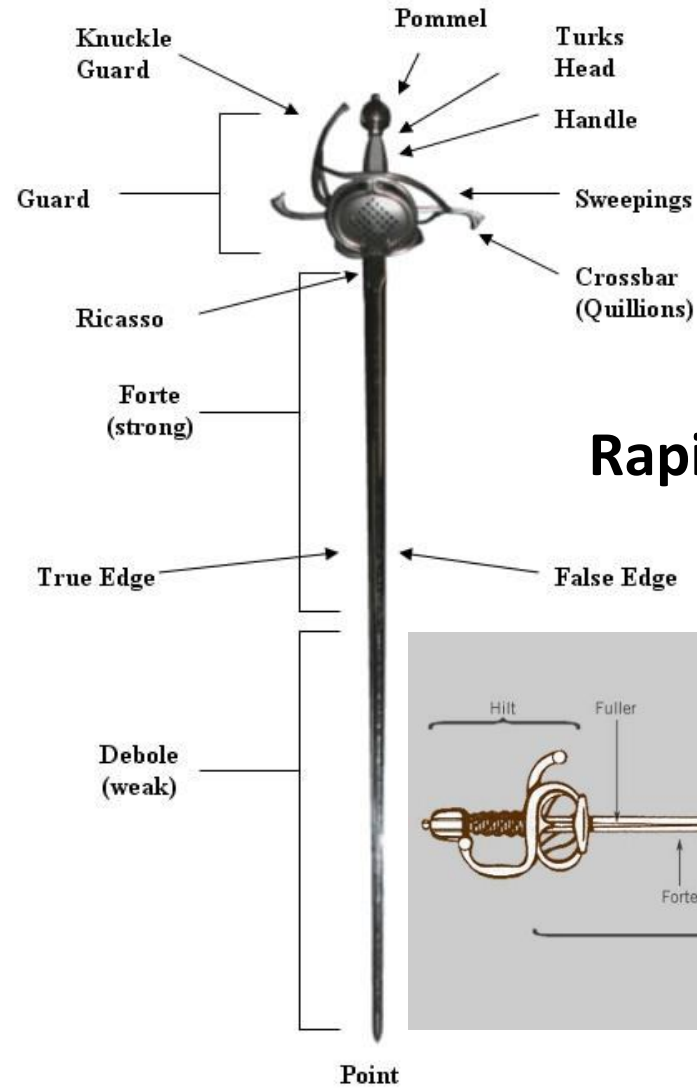
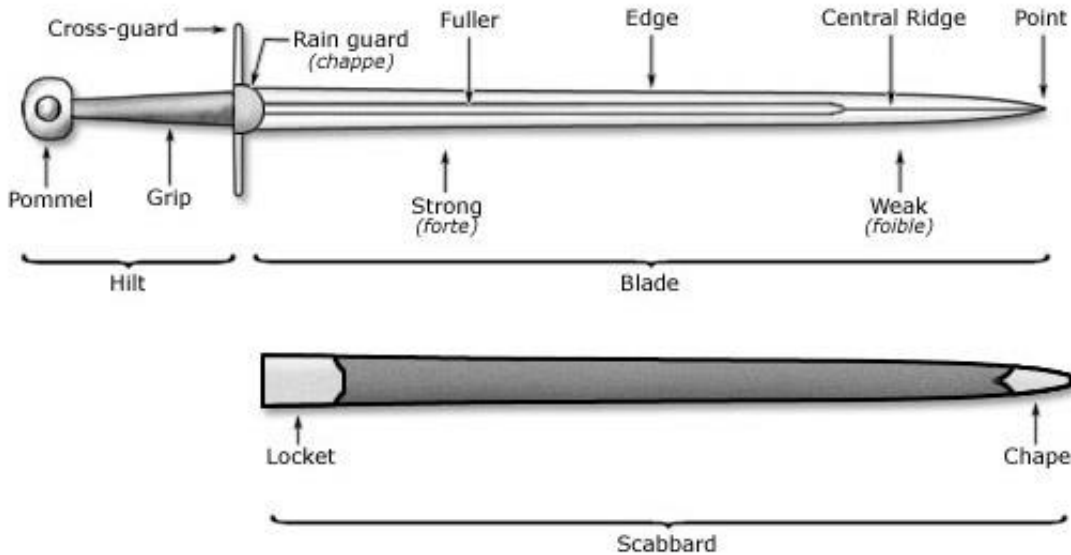


# Sword Anatomy

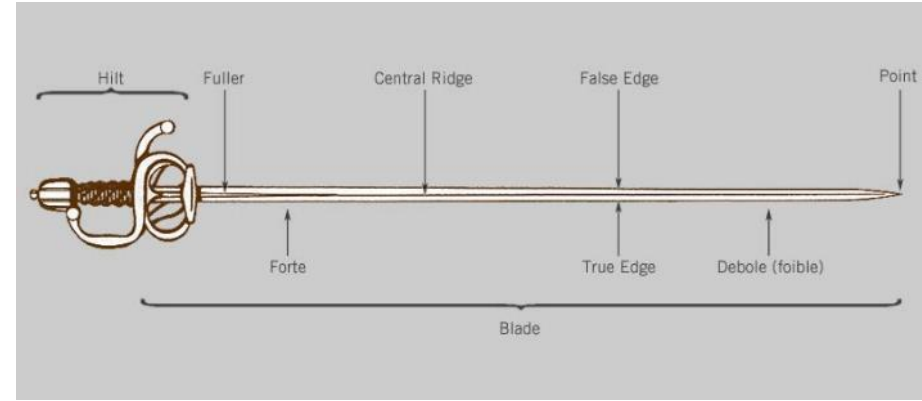
Anatomy of a Sword



Medieval Sword



Rapier



# Katana Diagram

