

Catalog #2



In the words of the Belgian scholar of German adoption, Samuel Quiccheberg, ca. 1560 :

[A museum is] “a theatre of the broadest scope, containing authentic materials and precise reproductions of the whole of the universe” ... [in order to] “obtain rapidly, easily and safely a true and unique understanding of the world combined with an admirable wisdom”.

Lake Balls a.k.a. Fibre Balls

On loan from Peggy & Andrew Kirk

From Wikipedia, the free encyclopedia



Lake ball on the southern shore of Ögii Lake, Arhangay, Mongolia

A lake ball (also known as a surf ball, beach ball or spill ball) is a ball of debris found on ocean beaches and lakes large enough to have wave action. The rolling motion of the waves gathers debris in the water and eventually will form the materials into a ball. The materials vary from year to year and from location to location depending on the debris the motion gathers.

The earliest known reference to lake balls is Walden:

There also I have found, in considerable quantities, curious balls, composed apparently of fine grass or roots, of pipewort perhaps, from half an inch to four inches in diameter, and perfectly spherical. These wash back and forth in shallow water on a sandy bottom, and are sometimes cast on the shore. They are either solid grass, or have a little sand in the middle. At first you would say that they were formed by the action of the waves, like a pebble; yet the smallest are made of equally coarse materials, half an inch long, and they are produced only at one season of the year. Moreover, the waves, I suspect, do not so much construct as wear down a material which has already acquired consistency. They preserve their form when dry for an indefinite period.

— Henry David Thoreau, Walden, chapter 9

Aqua Fiber Balls

In 1979 Andrew Kirk and his dad (Walley) were snorkling in a nearby lake, when we came across dozens of these Fiber Balls on the lake bottom.

The first serious look at them was by a Phd. Botany Expert, from the provincial Museum of B.C. Dr. Szczawinski noted the Balls, of course, was not alive and seemed to consist of grass or roots or a mixture of things like that. One was taken to the B.C. Provincial Research Center and they were very interested in the Fibers Balls but could not come up with a theory.

Adding the mystery that if one handles the Fiber Balls one can get an acidic or caustic irritation from something in them.

In the 40 yrs I have had the Fiber Balls in my possession they have shrunk considerably and are very fragile. There were Fiber Balls over 1 foot in circumference, weighing over 15 lbs.

Not wanting to cause a Fiber Ball "gold rush" the Lake will not be named.

ANDREW KIRK
CORTES ISL.

Girvanella -- Wikipedia, <https://en.wikipedia.org/wiki/Girvanella>



Girvanella is a fossil thought to represent the calcified sheath of a filamentous cyanobacterium known from the Burgess Shale and other Cambrian fossil deposits. Girvanella was originally described as a foraminifera. It was later assigned to the now-obsolete family porostromata. -- Wikipedia

“Algal Balls”

The full-page image on the left was taken in the Marble Mountains of California. It shows a weathered surface of the Lower Cambrian Chambless Limestone, packed with so-called **oncoids**.

They represent a type of Stromatolites that formed while being lightly but constantly agitated by wave action in shallow sea water. These structures were created by Cyanobacteria, coating the outside of small rock or shell fragments with microbial films, which collected fine debris on their surface due to their stickiness. Without water movement, stromatolites tend to grow into the familiar large domes and pillars, known in the geological record from as long as 3.8 billion years ago. Stromatolites are still growing in certain environments to this day, as in famous Shark Bay of western Australia :



image by the Geological Survey of Western Australia (GSWA)

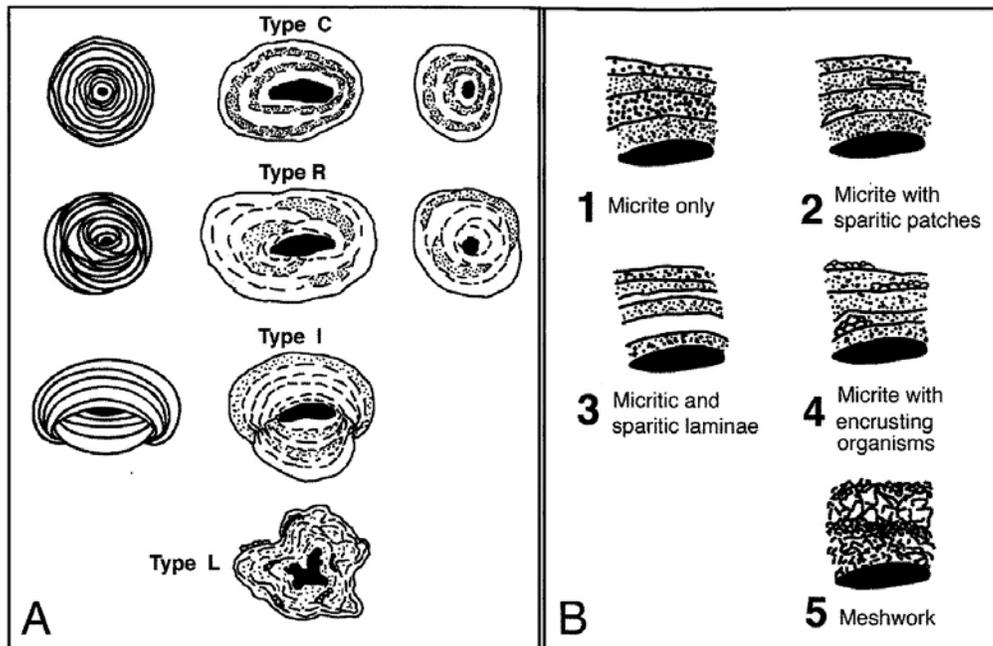


Fig. 4.15. Descriptive subdivision of laminated oncoids in regard to growth patterns and the composition of the laminae.

A - Basic geometric types of oncoids found in recent shallow-marine settings and related to varying degrees of agitation and movement of the grains (modified from Logan et al. 1964): Type C (characterized by Concentrically stacked spheroid layers, SS-C); Type R (oncoids consisting of Randomly arranged hemispheroidal layers); and Type I (biconvex lenticular oncoids exhibiting Inverted hemispheres, SS-I). Irregular random growth also can produce Lobate growth forms (Type L). Type I describes a particular case characterized by the interruption of oncoid growth, partial destruction and renewed growth after reworking and transport.

B - Five types of laminae are commonly composed of: 1 - Laminated fabric consisting predominantly of micritic laminae (Pl. 12/7), 2 - Micritic laminae exhibiting tiny sparry spots whose distribution accentuates the laminar structure of the oncoid (Pl. 11/3), 3 - Couplets of micritic and sparry laminae (Pl. 12/3), 4 - Micritic laminae including or alternating with layers of recognizable encrusting microfossils (Pl. 119/3), 5 - Laminae exhibiting an open meshwork with spar-filled voids (e.g. Pl. 12/4, Pl. 118/3). Nucleus (black), micrite (stippled), sparry calcite (white).

Giant Pine Cone

on loan from Gina & Jurek Trzesicki

Big Cone Pine

The Coulter pine or big cone pine, *Pinus coulteri*, is a native of the coastal mountains of Southern California and northern Baja California (Mexico). Isolated groves are found as far north as the San Francisco Bay Area in Mt. Diablo State Park and Black Diamond Mines Regional Preserve. The species is named after Thomas Coulter, an Irish botanist and physician.

The Coulter pine produces the heaviest cone of any pine tree. Although it has a limited range in the wild, it is a popular ornamental tree.



Western Hemlock

By comparison, the cones of the familiar local hemlock tree are dainty :



Tsuga heterophylla, the western hemlock, is a species of hemlock native to the west coast of North America, with its northwestern limit on the Kenai Peninsula, Alaska, and its southeastern limit in northern Sonoma County, California.

Petrified Wood

Cut and polished slab of "agatized" wood, Miocene age, 15.5 million years old.
Ginkgo Petrified Forest State Park, Washington, USA.

On loan from Barry & Carry Saxifrage.



Ginkgo Petrified Forest State Park/Wanapum Recreational Area is a geologic preserve and public recreation area covering 7,124-acre (2,883 ha) on the western shoreline of the Columbia River's Wanapum Reservoir at Vantage, Washington. Petrified wood was discovered in the region in the early 1930s, which led to creation of the state park as a national historic preserve. Over 50 species are found petrified at the site, including ginkgo, sweetgum, redwood, Douglas fir, walnut, spruce, elm, maple, horse chestnut, cottonwood, magnolia, madrone, sassafras, yew, and witch hazel.



This cut and polished slice of a Ginkgo Tree is on display at the Burke Museum in Seattle, Washington.

One Trilobite, Many Fossils



Like modern Crabs and Shrimp today, Trilobites had to shed their exoskeletons periodically in order to grow, a process called ecdysis or moulting. The same is true of all members of the Superphylum Ecdysozoa, which includes the arthropods, onychophorans (velvet worms like *Peripatus*), nematodes (round worms), and others. Every time a Trilobite shed its skin, it left behind an exuvia, an empty shell. Step by step the individual grew, easily leaving 20 exuviae behind, before it reached maturity and eventually died.

The growth-series on display here is of the common Middle Cambrian Trilobite *Elrathia kingii* from Utah. The exuviae (also called moults) are characterized by the absence of the lateral cheeks (librigenae) of the head (cephalon). The largest specimen on top of the series is a complete exoskeleton and represents an actual corpse.

Theoretically, all these fossils could have been left behind by one single individual, though in practical terms, this is highly improbable, given the unlikeliness of fossil preservation.

“Klein Bottle”



Cliff Stoll, of ***Acme Klein Bottles***. Company owner and chief glass-blower, holding the very bottle on display in the cabinet.

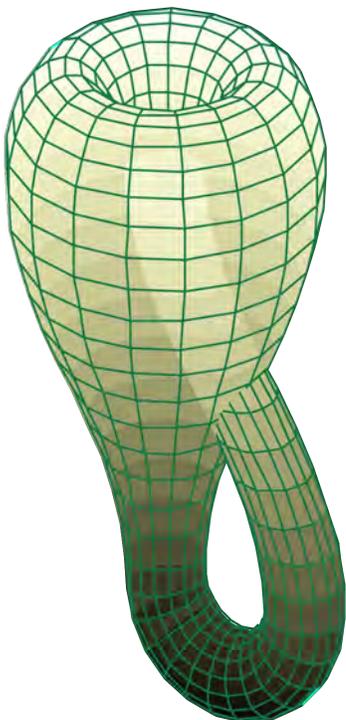


The surface in question was studied by Felix Klein in 1882.

The name "bottle" seems to come from a translator's error who mistook the German "*Kleinsche Fläche*" (Klein surface) for "*Kleinsche Flasche*" (Klein bottle), and called this surface in English "Klein bottle".

Other names: Klein surface, Klein torus, non-orientable torus.

Felix Klein (1849-1925): German mathematician.



In 1882, [Felix Klein](#) imagined sewing two Möbius Loops together to create a single sided bottle with no boundary. Its inside is its outside. It contains itself.

Take a rectangle and join one pair of opposite sides -- you'll now have a cylinder. Now join the other pair of sides with a half-twist. That last step isn't possible in our universe, sad to say. A true Klein Bottle requires 4-dimensions because the surface has to pass through itself without a hole.

It's closed and non-orientable, so a symbol on its surface can be slid around on it and reappear backwards at the same place. You can't do this trick on a sphere, doughnut, or pet ferret -- they're orientable.

text by Cliff Stoll

Armillary Sphere

September 19, 2009 by Abby Cessna

Despite the fact that the term “armillary sphere” sounds like a high-tech weapon or something from a science fiction movie, it is neither. An armillary sphere is an old tool that is supposed to represent the heavens. They were models of what scientists thought the heavens looked like and how they were supposed to have moved. The armillary sphere is also known as the spherical astrolabe, the armilla, or the armil. The armillary sphere is related to the astrolabe, which was a navigation tool used for determining the position of the Sun and stars and used by sailors for navigating.

The armillary sphere was invented hundreds of years ago. The identity of who created the sphere has been debated. Some credit its invention to a Greek named Eratosthenos. Others have said that the Chinese or other Greek scholars invented it. Regardless of its inventor, the armillary sphere is one of the oldest astronomical instruments in the world. In addition to its being used in the Greek world, the armillary sphere was also used throughout Asia and the Islamic Empire.

These devices were used as teaching tools and models. The models were used to show the difference between the Ptolemaic and Copernican theories of the Solar System. In the Copernican theory, the Sun is the center of our Solar System, while the Earth is the center of the Solar System according to the Ptolemaic theory. When armillary spheres were first invented, the Ptolemaic theory was still the accepted view. It was soon after armillary spheres were invented that Copernicus set forth his theory of the Sun as the center of the Solar System, although it was not widely accepted until centuries later.

The armillary sphere looks like a sphere circled by a ring and set upon a base. Armillary spheres were made with different numbers of circles arranged at various angles. Spheres with both four and nine circles have been known to exist – as well as ones with different numbers. These rings would then be adjusted in order to trace the path of the stars.



Sand Clock



An hourglass (or sandglass, sand timer, sand clock or egg timer) is a device used to measure the passage of time. It comprises two glass bulbs connected vertically by a narrow neck that allows a regulated trickle of material (historically sand) from the upper bulb to the lower one. Factors affecting the time it measured include sand quantity, sand coarseness, bulb size, and neck width. Hourglasses may be reused indefinitely by inverting the bulbs once the upper bulb is empty. Depictions of hourglasses in art survive in large numbers from antiquity to the present day, as a symbol for the passage of time. These were especially common sculpted as epitaphs on tombstones or other monuments, also in the form of the winged hourglass, a literal depiction of the well-known Latin epitaph *tempus fugit* ("time flies").



Navy Half-hour Glass

Carrier Snail



Xenophora is a genus of medium-sized to large sea snails, commonly called Carrier Snails. The name *Xenophora* (not to be confused with “xenophobia”, as your computer’s spell-check might suggest !) comes from two ancient Greek words, and means “bearing foreigners” - so-called because in most species the snail cements pieces of rock or shells to its own shell at regular intervals as the shell grows.



Xenophora conchyliophora (Born, 1780) American Carriersnail, a living specimen, not only carrying foreign shells, but being perfectly camouflaged by a dense growth of algae.
Photographed by Anne DuPont at Lake Worth Lagoon near Peanut Island, Palm Beach Inlet, Florida.



Jim Stewart in the Zymoglyphic Museum, holding one of his favorite *Xenophora* shells.
Portland, Oregon

Compare the *Xenophora* in this image with one of the two specimens on display in Curiosity Cabinet #2 : it seems Glass Sponges do like snail shells as a solid substrate to settle on.



Nigerian Head Carvings

The carvings are from the Jos area in Northern Nigeria and were made for tourists. I think the wood is mahogany or aroko wood. My parents acquired them on vacation on the Jos Plateau which is cooler than southern Nigeria where we used to live. The time frame is late 1960's. My parents names were Dr. and Mrs. Kenneth Dick.

Laurel Bohart.



Cannibal Tools from Fiji (club and fork)

on loan from Gina & Jurek Trzesicki

Tools of the Trade

Fiji has more styles of native weapons than anywhere else in the Pacific. This is a testament to the fact that Fiji was beset by a long history of warfare and rampant ceremonial cannibalism. There are approximately thirty distinct and diverse types of Fijian war clubs.



Ula Fijian War Club

Ula were for throwing at an enemy and often a Fijian warrior would have several either tucked into his belt or close to hand. It is for this reason they are the most common type of Fijian war club on the market. Ula come in many different forms.



Fijian cannibal forks fetch £30,000 at auction

A macabre auction lot at Martel Maides' January 10, 2015 sale, a set of wooden Fijian cannibal forks, have sold for almost £30,000.

The pronged tools were used when feasting on the bodies of rival warriors, and date from the 19th century, from a time when tribesmen devoured their enemies after killing them in battle.

The bodies would be brought to the victor's village and served to the chiefs. Sections of the human flesh would be fed to the leaders by attendants, speared on the four sharp spokes of these forks, sacred objects brought out on special occasions and ritual feasts.

The chieftains were not permitted to touch their food for religious reasons, thus necessitating the use of these forks. The utensils represented the power of the tribal chief, and the eating of an enemy was considered to inflict the greatest humiliation.

Some victims were kept alive as they were eaten, as pieces of their bodies were sliced off and cooked in front of them. Skulls were used as drinking bowls.

Cannibalism was practiced in Fiji for centuries, but declined in the late 19th century as Christianity was introduced under British colonial rule. The influence of Christianity was not always successful – the Reverend Thomas Baker was murdered, cooked and consumed while attempting to preach to the heathens in 1867.

The seven grisly eating implements were valued at £1,600 as a set, but the keen appetites of bidders at the auction led to them being sold off individually, fetching a combined total of £29,440.

These were sold at Martel Maides alongside several sets of silver cutlery, less likely to have ever pronged a human eyeball.

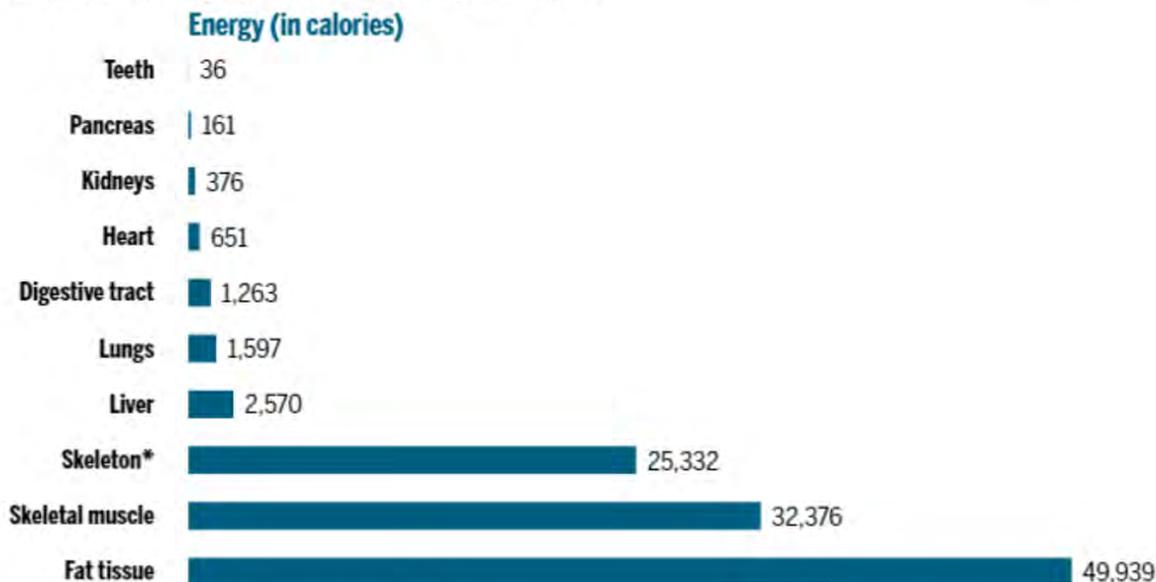
Why don't we eat each other for dinner? Too few calories, says new cannibalism study.

By Michael Price, Apr. 6, 2017

Humans may be the most dangerous game, but they're hardly the most nutritious. A new, slightly morbid study based on the calorie counts of average humans suggests that human-eating was mostly ritualistic, not dietary, in nature among hominins including *Homo erectus*, *H. antecessor*, Neanderthals, and early modern humans. To find out just how many calories an average body packs, one researcher used a pair of studies from 1945 and 1956 that analyzed the chemical compositions of four adult males whose bodies were donated to science. On average, an adult male human contains 125,822 calories of fat and protein, enough to meet the 1-day dietary requirements of more than 60 people. (The single most energy-rich part of the body? Fat, with a whopping 49,399 calories per human. The least? Teeth, at 36 calories.) The numbers represent a lower limit, as Neanderthals and other extinct hominins likely had more muscle mass than modern humans. Still, when compared with other animals widely available to ancient humans like mammoths (3,600,000 calories), woolly rhinoceroses (1,260,000 calories), and aurochs (979,200 calories), it hardly seems worthwhile to hunt hominins that are just as wily and dangerous as the hunters, the researchers conclude today in *Scientific Reports*. Some instances of cannibalism from nine Palaeolithic sites in Europe, which date from 936,000 to 14,700 years ago, might be chalked up to starvation or not wanting to waste a perfectly good body that died from natural causes. But in most cases, the study suggests, it's more likely that prehistoric cannibalism was primarily ritualistic in nature, consecrating victory over a hopefully tasty enemy.

Cannibal calorie counting

This breakdown of the average energy per human body part helped convince scientists that human cannibalism was largely ritual—not dietary—in nature.



*Calorie count from skeletal tissue comes primarily from bone marrow.

(Graphic) C. Maticic/Science; (Data) J. Cole/Scientific Reports

Tools NOT cannibalistic but more vegetarian ...





Iridium occurs as “insoluble impurities” within Platinum-group metals, also alloyed in Copper and Nickel ores. As pointed out earlier : it is likely to be the rarest of elements in the Earth’s crust. Iridium is found in notable quantities in meteorites, and its relative abundance in the famous KT boundary layer is an important piece of evidence, indicating that the dinosaurs were indeed wiped out by a large meteorite/asteroid colliding with Earth at the end of the Cretaceous (K). The coeval Chicxulub crater at the north shore of the Yucatan peninsula is interpreted as the impact site.

It stands to reason that the Earth’s core contains a much higher concentration of Iridium than the crust. Given the fact that it is the densest of all elements*, Iridium will have sunk into the Earth’s core when the entire planet was still in a molten state as well as subjected to heavy bombardment by meteorites.

* There is a bit of a controversy about whether **Osmium (Os)** has a higher density than Iridium.

*

* *by Anne Marie Helmenstine, Ph.D.*

* *Updated January 02, 2019*

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* *Have you ever wondered which element has the highest density or mass per unit volume? While osmium is generally cited as the element with the highest density, the answer isn't always true. Here's an explanation of density and how the value is determined.*

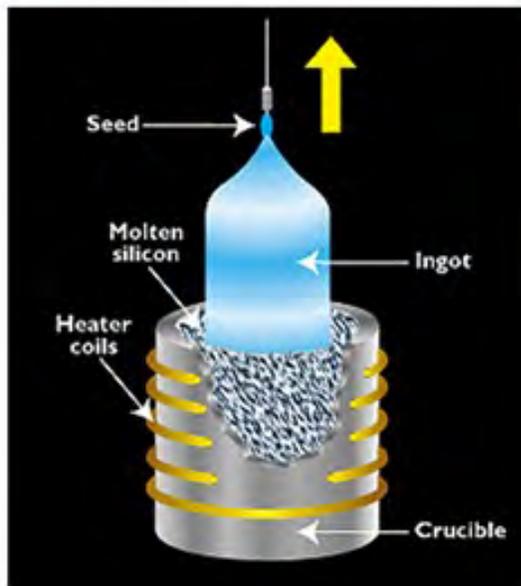
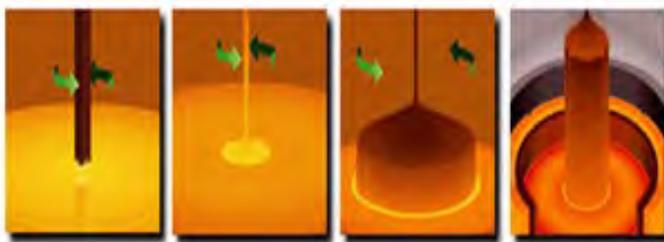
* *Density is mass per unit volume. It can be measured experimentally or predicted based on properties of matter and how it behaves under certain conditions. As it turns out, either of two elements can be considered the element with the highest density: osmium or iridium. Both osmium and iridium are very dense metals, each **weighing approximately twice as much as lead**. At room temperature and pressure, the calculated density of osmium is 22.61 g/cm³ and the calculated density of iridium is 22.65 g/cm³. However, the experimentally measured value (using x-ray crystallography) for osmium is 22.59 g/cm³, while that of iridium is **only** 22.56 g/cm³.*

The market value of Iridium is very close to that of **Gold (Au)** - so the Iridium sample exhibited in the little glass vial weighs only half a gram.



Silicon is, of course, the stuff that gave Silicon Valley its name. It arguably is the most significant and impactful material of our age, being unequalled as the raw material for almost all semi-conductor devices. From the first humble applications of the transistor in 1947 to the mind-boggling complexity of present day integrated circuits and the extreme miniaturization of electronic devices, Silicon has been at the very root of all Information Technologies worldwide, as well as the chief enabler for Social Media.

Silicon does not occur naturally in its elemental (native) form. The process of isolating and refining it is relatively simple, if technically demanding. It begins with the heating of pure quartz sand in the presence of high-grade coal : the coal's Carbon rips the Oxygen off the quartz (SiO_2), a process called reduction, and leaves molten Silicon behind. This melt is refined by a variety of processes, until a degree of purity of more than 99,9999999 % is achieved, which means that there is less than 1 foreign atom per 1 billion silicon atoms !!



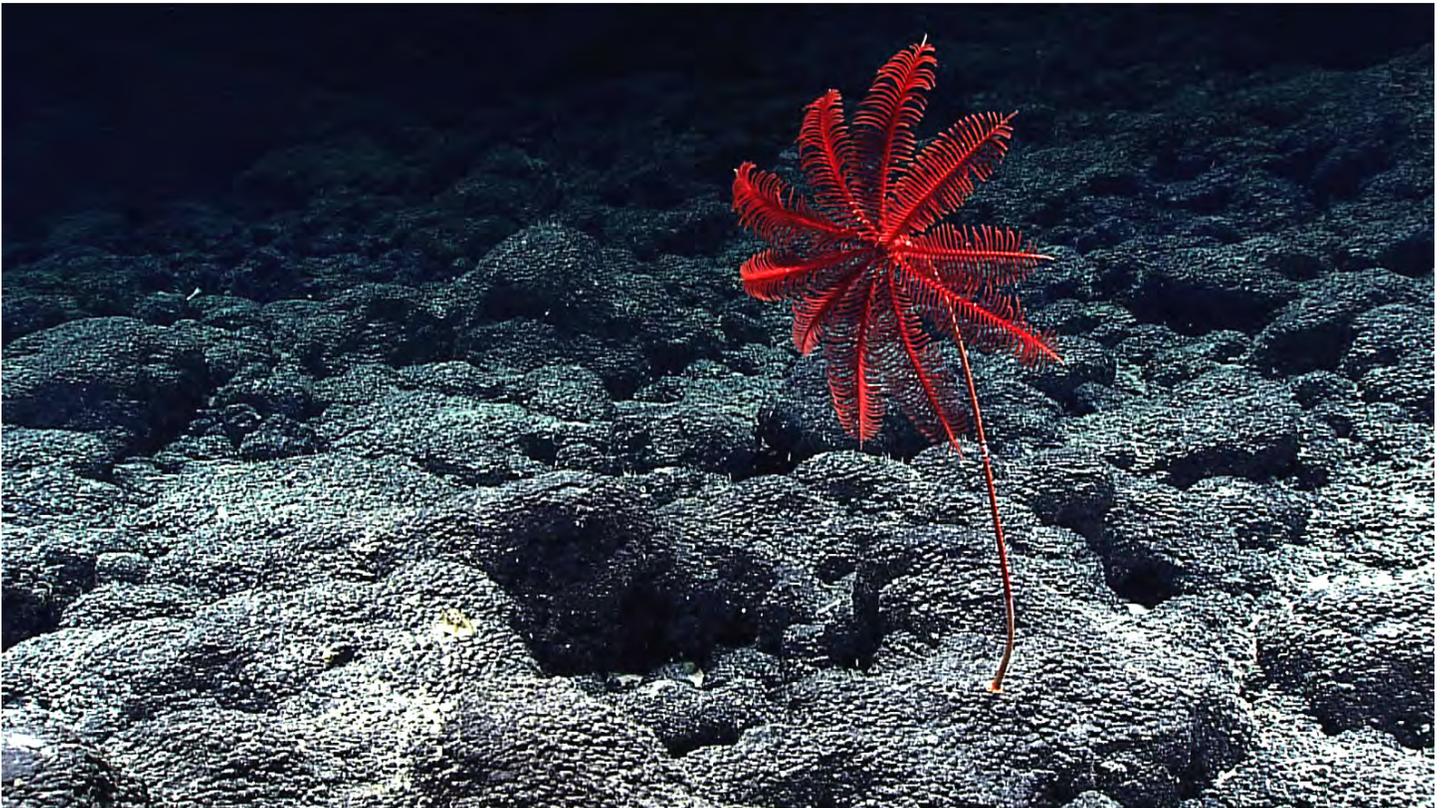
The resulting single crystal ingot is cut into wafers. The Silicon may have been “doped” while still in the molten state, or the wafers can be doped after they have been shaped for their intended purposes. Doping refers to the controlled introduction of “impurities”, with the purpose of changing the Silicon’s electrical conductivity (among other characteristics). These treated wafers then become the substrate for integrated circuits and countless other semiconductor devices.

Crinoids (“Sea Lilies”)



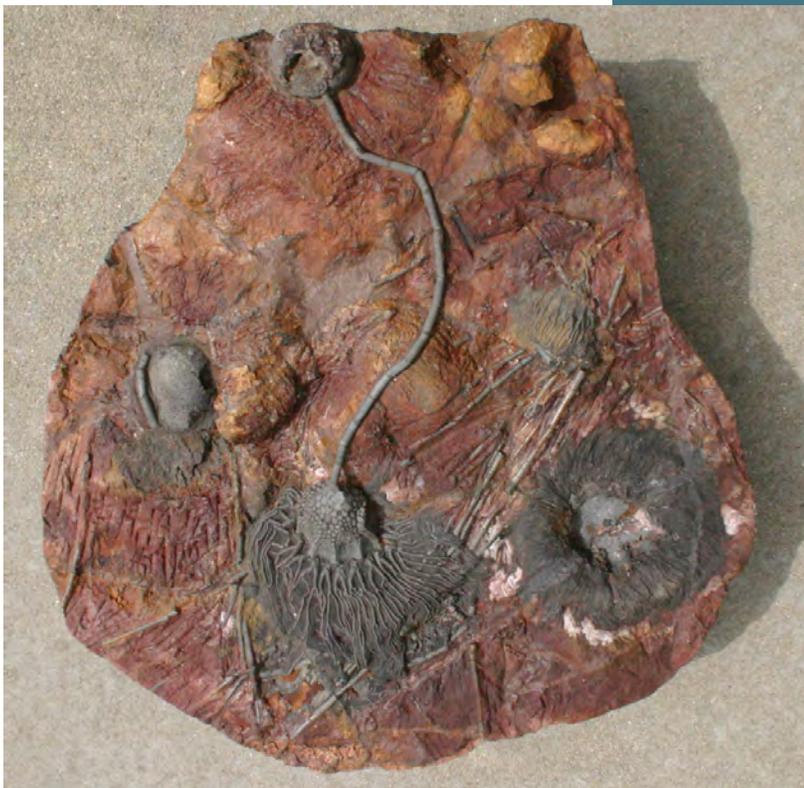
Scyphocrinites elegans. Upper Silurian, 420,000,000 years old. Alnif, Morocco

Not plants (“lilies”) at all, but relatives of Sea Stars, Sea Urchins and Sea Cucumbers. Common and often spectacular fossils of the Late Palaeozoic and early Mesozoic eras, Crinoids still inhabit today’s oceans, where they are restricted mainly to deep water



Proisocrinus ruberrimus, found living in the Central Pacific Ocean at great depth.

Scyphocrinites elegans was an unusual crinoid, living not attached to the sea floor, but being suspended by a bulbous float, which enabled it to cruise the oceans as a macroplanktonic drifter. (See painting and actual fossil below.)



“Orthoceras”



Cut and polished slab of what is known in the market place as *nero fossile* and often referred to as “Orthoceras Marble”. It is quarried on a massive scale in southeastern Morocco.

In the absence of more specific identifications, it is safer to refer to the fossil content as **orthocone nautiloids**: which means “straight cone-shelled Nautilus-like cephalopods”. (Think of them as Chambered Nautilus, with their shells uncoiled.)

The stone is, by definition, NOT marble, but a black bituminous limestone of the Devonian period (about 375 million years old), and it represents one of the Late Devonian extinction pulses, known as the Kellwasser Event. A mass die-off occurred, when large areas of the ocean became anoxic, turning the water into a black grimy sludge, killing the marine life, including the squid-like nautiloids, by the millions. The fossil shells have all been arranged by water currents in, more or less, one direction, with their wider ends pointing down-current.



The quarrying and cutting of large blocks of limestones like these is a major export industry for Morocco. :



But there are still areas in the vast southeast deserts of the country, where these limestones form the bedrock and where the relentless actions of wind and blowing sand have exposed beautifully polished natural surfaces :



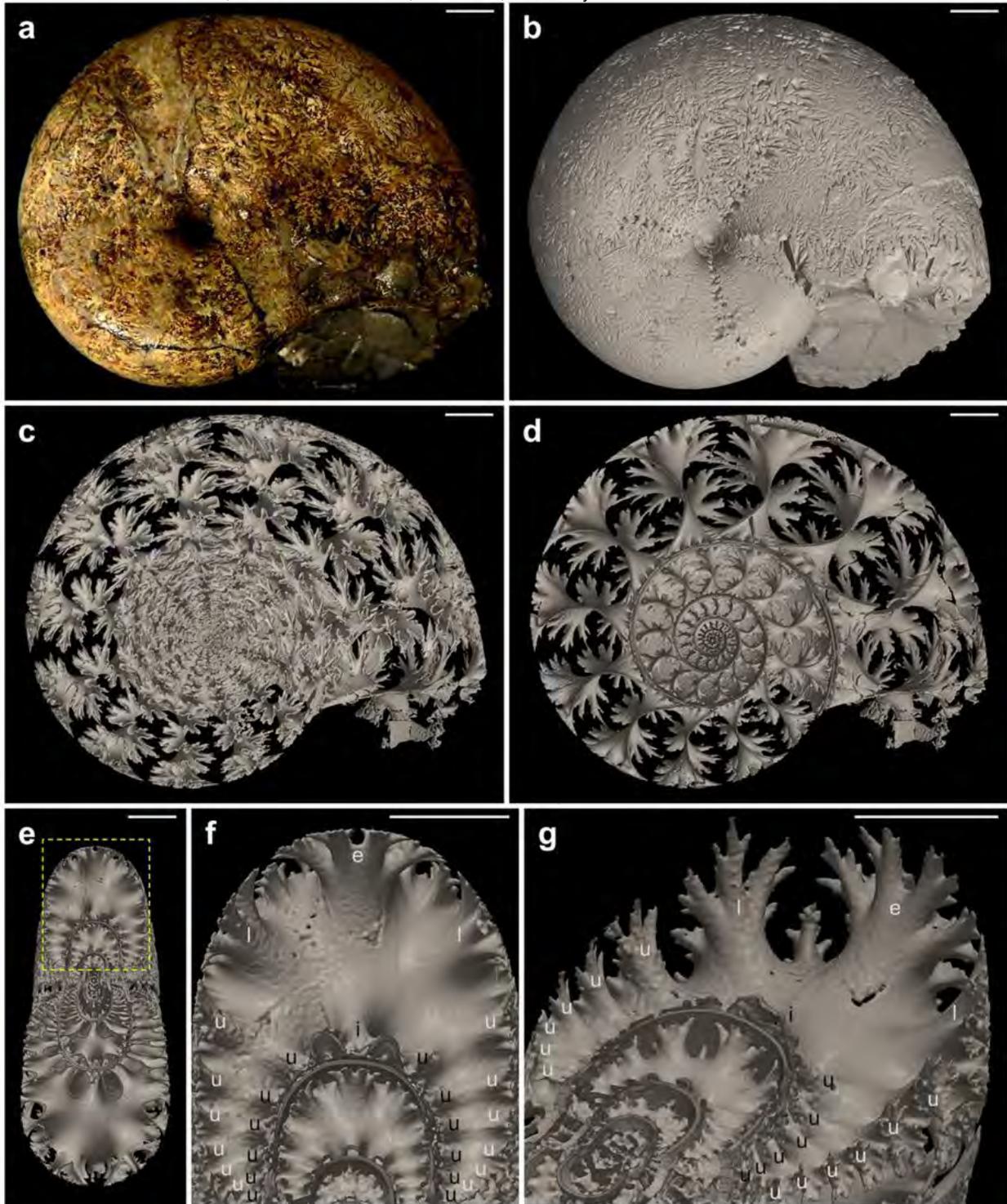
Ammonites

Two examples of the Cretaceous Ammonite *Cleoniceras* sp. from Madagascar. (The large cut specimen is on loan from Carrie & Barry Saxifrage.)

In contrast to nautiloids (whether orthocone or coiled), the chamber walls (septa) of ammonites are highly folded. This is especially obvious along the suture lines, where the septae connect with the outer shell (cone or conch). The smaller specimen on display has its outer shell removed to display the extreme intricacy of the suture lines. The larger specimen appears to have a much more simple chamber wall, but, having been sectioned medially, this is deceiving, as is demonstrated dramatically in the micro CT images on the following page.

(Shinya Inoue & Shigeru Kondo, Scientific Reports volume 6, Article number: 33689 (2016))





(a) Incident light photograph, left lateral view of NMA00802. (b) Micro-CT image of (a). (c) Three-dimensional data of the septa extracted from (b). (d) Median section of (c). (e) Transverse section of (c). (f) Magnified image of a yellow dotted square in (e). (g) Diagonally upward view of (f). e, external arm; l, lateral arm; u, umbilical arm; i, internal arm. Septal arms in the outer and inner regions are shown with white and black characters, respectively. Scale bars, 5 mm.

Damesites cf. damesi
Upper Cretaceous ammonite from Hokkaido, Japan

Obsidian

The silvery sheen in this sphere is caused by layers of microscopic inclusions within the Obsidian (probably gas bubbles). This type of Obsidian is sometimes called “Galaxy Obsidian” or “Silver Sheen Obsidian”. The effect, called *chatoyance*, is known from a variety of minerals and other materials.



Obsidian is NOT a mineral, but a rock, more specifically : a volcanic rock which cooled so rapidly that its inner structure is not crystalline, but that of glass.



Raw Obsidian fractures (flakes) in a conchoidal fashion, which creates very sharp edges.

This quality lends itself to the manufacture of stone tools like the projectile points pictured below. The material was widely traded across North America by First Nations.



Obsidian Flow



Jamie Hale *The Oregonian/OregonLive*

Copper



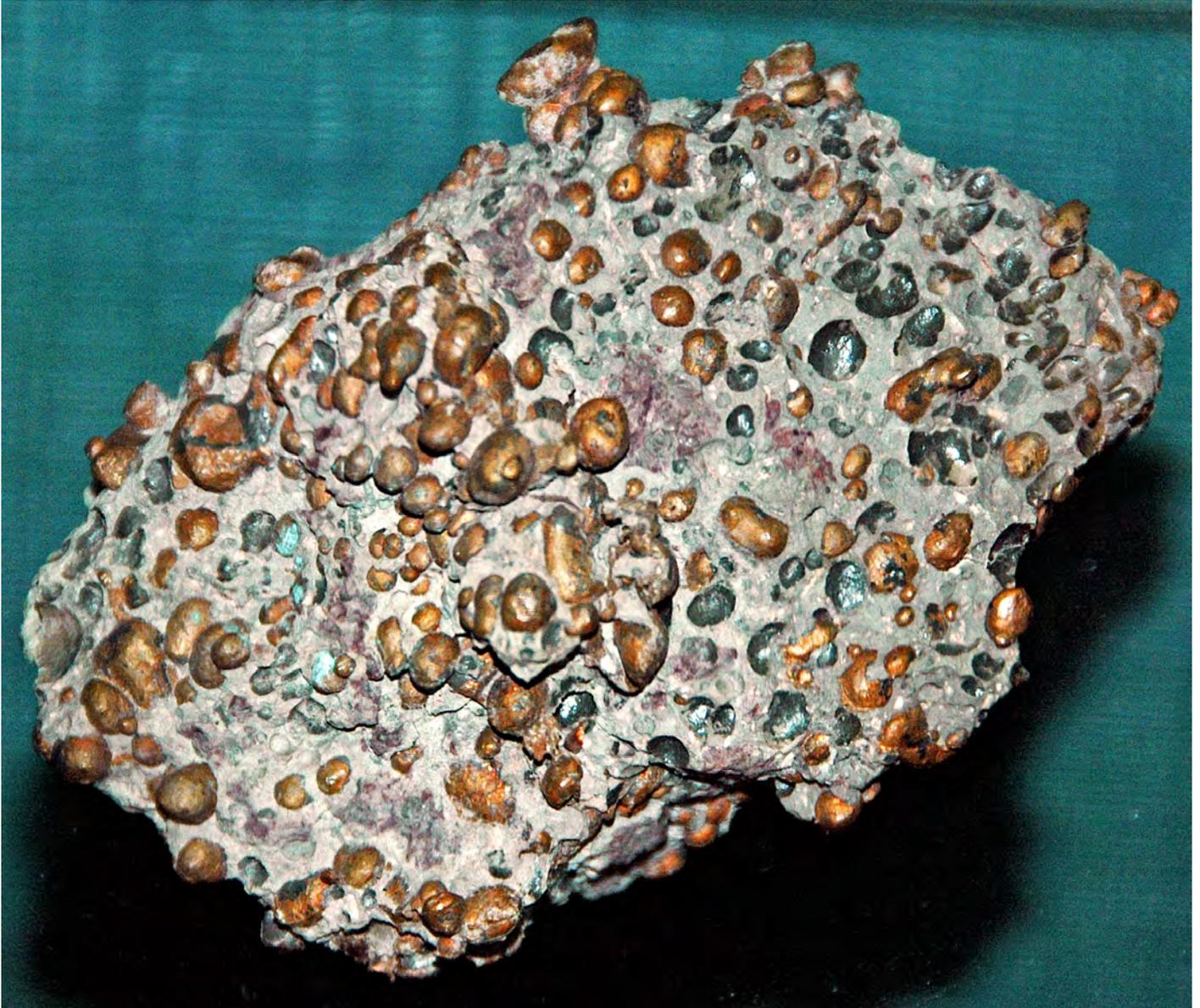
Copper (Cu) is the oldest metal known to and worked by humans. The reason for this is the fact that in several places on Earth elemental (or native) Copper has been found, usually as large nuggets lying in stream beds. Copper can occur as irregularly shaped fillings in so-called Amygdaloidal Basalts, and after the rock itself has weathered away, the ground remains strewn with these abstract metal sculptures, like the one in the image above, found by Ray Kendel in the Keweenaw area of Northern Michigan, USA, famous for its occurrences of native Copper and its ancient mines.

Note how similar its shape is to the vesicles (amygdules) in the basalt cobble on the left : there small cavities in the lava rock, caused by gas bubbles, have been filled, not with Copper, but by the mineral Prehnite.

“Amygdule” comes from the Greek word for almond (αμυγδάλου) and refers to the shapes of bubble-like inclusions in volcanic rocks, as in the case of the three Basalt pebbles from Scotland, containing small agates, pictured on the right.

Similarly shaped Copper ores are known from Michigan. See following page.





Copper is very malleable, which means it can be worked fairly easily by hammering. First Nation peoples took full advantage of this quality, creating tools and pieces of art of great sophistication.





Copper was the ultimate symbol of wealth among the native peoples of the Northwest Coast; like gold, it reflects the brilliance of the sun. According to Nuxalk legend, copper was given to the people by Tsonoqua, who received it from Qomoqua, the master of wealth who lives in a copper house at the bottom of the sea. According to Haida tradition, copper came from the territory of the Eyak people in the Copper River area of Alaska, where it occurs as pure nuggets in the river gravels. In the Prince Rupert harbour shell middens, the use of copper in the form of bracelets, pendants and tubes can be traced back more than 2,000 years, and thus appears to be an early feature of north coast trading and warfare.

Throughout the coast, shields made of copper denoted the high rank of their owners and were exchanged at ever higher values between chiefs at potlatch feasts. Among the Kwakwaka'wakw, coppers were particularly associated with the distribution of wealth at weddings. The Haida used coppers as a marker and symbol of wealth, and some wealthy chiefs owned a dozen or more. A copper which belonged to Albert Edward Edenshaw was sold to a Tsimshian chief for eight slaves, one large cedar canoe, one hundred elkskins and eighty boxes of eulachon grease. After a chief's death, his coppers were often fastened on his memorial pole.

© Canadian Museum of History

*Family duelling pistols, late 1700 hundreds.
Made in London*

From Wikipedia, the free encyclopedia

Duelling Pistols

A duelling pistol is a type of pistol that was manufactured in matching pairs to be used in a duel, when duels were customary. Duelling pistols are often single-shot flintlock or percussion black-powder pistols which fire a lead musket ball. They were made in identical pairs to put both duellists on the same footing. Not all fine pairs of pistols are actual duelling pistols, though they may be called so.

Standard flintlock pistols have a noticeable delay between pulling the trigger and actually firing the bullet. Purpose-built duelling pistols have various improvements to make them more reliable and accurate, such as longer and heavier barrels, spurs on the trigger guards, saw handles, platinum-lined touch-holes and hair triggers. All component parts were manufactured, hand-finished and then adjusted with great care and precision, which made duelling pistols much more costly than standard firearms of the period. Special care was taken when moulding the lead bullets to ensure that there were no voids which would affect accuracy. Pistols were carefully and identically loaded, and each duellist was offered his choice of the indistinguishable loaded pistols. As duels were generally fought at short distances which were paced out, typically 35 to 45 feet (11 to 14 m), between stationary opponents, extreme accuracy was not required.



Hemming/Preston powder horns, 1876



From Wikipedia, the free encyclopedia

Powder Horn

A powder horn was a container for gunpowder, and was generally created from cow, ox or buffalo horn. The term may also be used for any personal container for gunpowder, regardless of material or shape, for which powder flask is the strictly correct term.

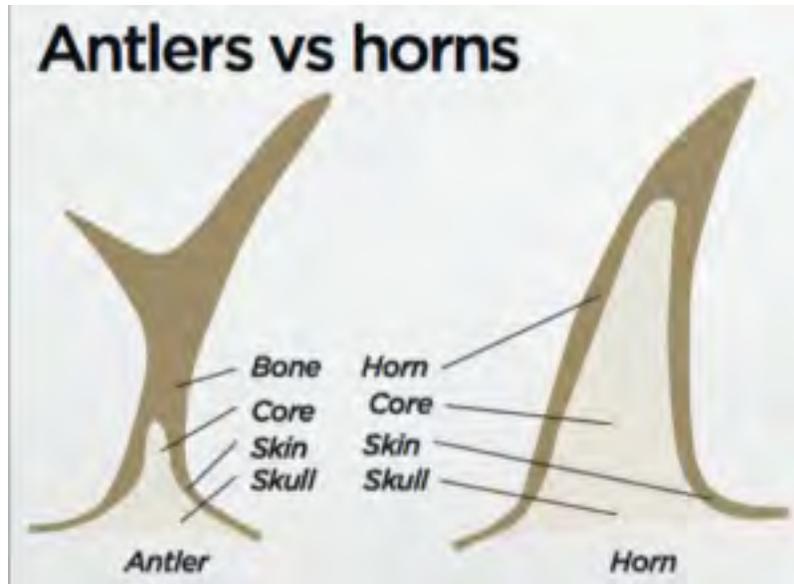
Typically there was a stopper at both ends, in later examples spring-loaded to close automatically for safety. The wide mouth was used for refilling, while the powder was dispensed from the narrow point. In some cases the point was closed and the mouth used for both, with a powder measure, a type of scoop used to dispense the powder, and in others both ends were open and the horn merely used as a funnel. The horn was typically held by a long strap and slung over the shoulder.

The inside and outside of a powder horn were often polished to make the horn translucent so that the soldier would be able to see how much powder he had left. The use of animal horn along with nonferrous metal parts ensured that the powder would not be detonated by sparks during storage and loading. Horn was also naturally waterproof and already hollow inside.

Although forms of pre-packaged paper cartridges go back to the Middle Ages, their extra cost and small benefit to civilian users discouraged wide-spread adoption of them except for militia duty. For example, on April 19, 1775, in Lexington and Concord, paper cartridges were routinely used by many civilians on the opening day of the American Revolutionary War. Similarly, the British soldiers there carried cartridge boxes holding 36 paper cartridges. The advantage of paper cartridges was speed; 3 to 4 rounds a minute were possible using paper cartridges. Measuring each charge before firing reduced the rate of fire to about one round per minute.

There were other methods, including small cloth bags containing the correct amount of powder for a single shot, that might be carried on a bandolier (again requiring a container for a supply for refilling). An important safety concern was that when reloading a muzzle-loading gun soon after a shot there might be small pieces of wadding burning in the muzzle, which would cause the new load of powder to ignite as a flash. So long as no part of the loader faced the end of the barrel this was not dangerous in itself, but if a spark reached the main supply in the powder flask a fatal explosion was likely. Various precautions were taken, both in the design and use of powder measures used with flasks, or in the flasks themselves, to prevent this from happening.

Antlers and Horns



Bone vs keratin, branched vs unbranched, shed vs permanent - Ben Garrod explains what sets antlers apart from horns :

Antlers

Antlers are paired, branched structures that are made entirely from bone and are shed annually. Developing antlers have a high water and protein content and a soft, hair-like covering known as velvet, which comprises blood vessels and nerves. As a result of hormonal and environmental changes, the antler ossifies – the growing, spongy bone is converted into harder, thicker lamellar bone – before the velvet falls away altogether. Antlers are usually only present for a few months before being shed and, apart from reindeer, only occur in males.

Horns

Horns are unbranched, two-part structures with a bony core and covered by a keratin sheath (the same material found in human hair and nails), which grows from specialised hair follicles. Horns are a permanent feature and, in many species, grow continuously.

From the team at BBC Wildlife Magazine

Two examples :



Wapiti male, Jasper National Park, AB



Bighorn Sheep male, Yoho National Park, BC

Iron Ball, presented to the Cortes Museum by Ian Disney, 2014

Cannonballs (solid round shot) were manufactured from cast iron and came in a specific set of weights. Ian Disney's iron sphere weighs 4.557 kg (= 10.046 lbs) and has a diameter of 10.4 cm (= 4.09 inches).

(In contrast : the British *Demi Culverin* gun used a 4 inch round shot, weighing only 9 pounds.)
The standard density for cast iron is 7.21 g/cm³ ; for steel it is 7.77 g/cm³.

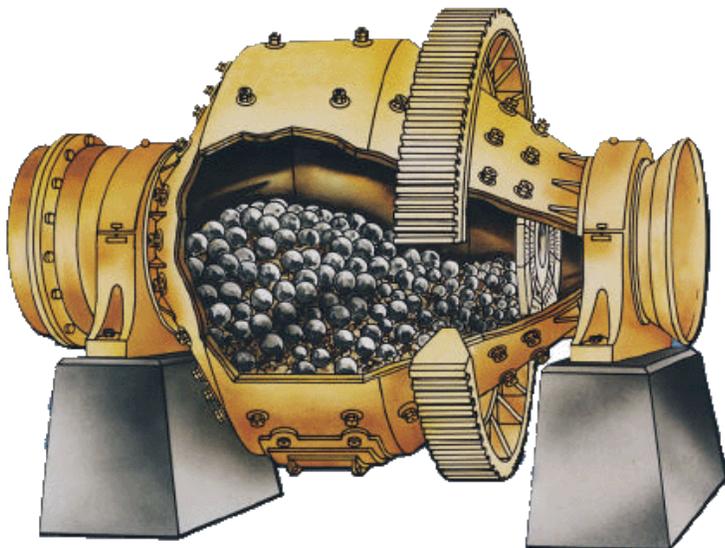
Ian's iron sphere has a specific density of 7.74 g/cm³.

Cast iron, while attracted by a magnet, can not be magnetized itself. Ian's sphere is magnetic and has clearly expressed polarity.

It follows that the sphere is not cast iron, but wrought steel.

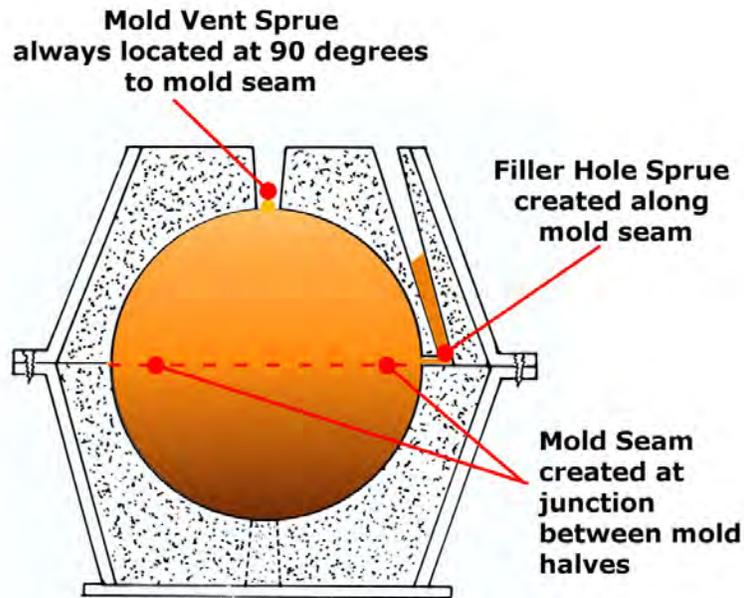
Ian's sphere does not have the surface features typical of a cast iron cannon ball, i.e.: no mold seam can be detected ; there is no filler hole sprue or mold vent sprue scar.

Conclusion : Ian's sphere is, in all likelihood, a standard **grinding-medium steel ball**, as used by SAG (*Semi-Autogenous Grinding*) and/or ball mills in ore crushing operations.



IN ACTUAL FACT THE
IRON BALL IN QUESTION
WAS GIVEN TO IAN BY
JAMES BINNIE IN THE 1980'S
HE WAS A TREE PLANTER
AND FOUND IT EAST OF CORTES
AUG 2 / 2018
IAN DISNEY

Old Cannon Balls

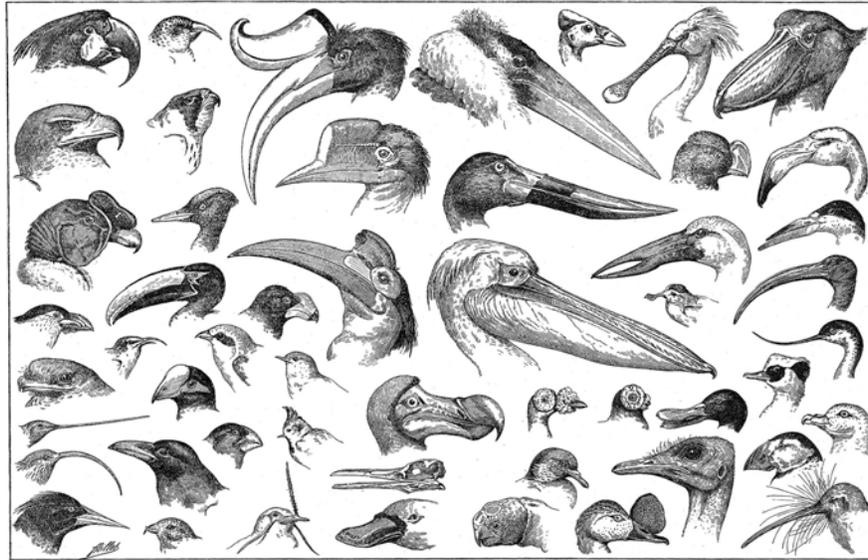


Solid Shot Mold

Three telltale “remnants” or projections on the casting that can be used as part of the authentication process for medium and larger solid shot.

<http://www.pochefamily.org/books/solidshotessentialsmod.html>

Bill Curvatures



The **Glossy Ibis** (*Plegadis falcinellus*) is a wading bird in the ibis family Threskiornithidae. The scientific name derives from Ancient Greek *plegados* and Latin, *falcis*, both meaning "sickle" and referring to the distinctive shape of the bill.

This is the most widespread ibis species, breeding in scattered sites in warm regions of Europe, Asia, Africa, Australia, and the Atlantic and Caribbean regions of the Americas. It is thought to have originated in the Old World and spread naturally from Africa to northern South America in the 19th century, from where it spread to North America.

The bird whose bill is exhibited here was found dead in Southern Alberta !

The **Western Grebe** (*Aechmophorus occidentalis*) is a species in the grebe family of water birds. *Aechmophorus*, "spear-bearer", from Ancient Greek *aichme* (a spear) + *phoros* (one who bears something around), in reference to its bill. *Occidentalis* = "western". Folk names include "dabchick", "swan grebe" and "swan-necked grebe".

The western grebe is the largest North American grebe.

This species of waterbirds is widespread in western North America, so there is no specific place of abundance

The bird was found dead on Cortes Island by Mike Manson.

The **American Avocet** (*Recurvirostra americana*) is a large wader in the avocet and stilt family, Recurvirostridae. *Recurvirostra* means "recurved bill". *Americana* = "American". This avocet spends much of its time foraging in shallow water or on mud flats, often sweeping its bill from side to side in water as it seeks its crustacean and insect prey.

American avocets were previously found across most of the United States until extirpated from the East Coast. The breeding habitat consists of marshes, beaches, prairie ponds, and shallow lakes in the mid-west, as far north as southern Canada.

The bird was found dead in Southern Alberta.

Feeding Techniques Enabled by Bill Shapes

The Ibis bill acts like the segment of a circle centred around a point located near the base of the bird's neck. This allows for a very efficient rotational movement when inserting the bill deeply into mud in search of worms and buried crustaceans.



Western and Clark's are the only grebes having a neck structure allowing rapid spear-like thrusting of the bill ... (audubon.org) This makes them efficient fish hunters.



The Avocet's upturned bill enables sideways sweeps in shallow water.



Gold

“The Gold Standard of all Metals is - Gold”. (Theodore Gray)



Largest nugget ever found. The so-called “Welcome Stranger” from Moliagul, Victoria, Australia in 1869 by John Deason and Richard Oates. It weighed gross, over 2,520 troy ounces (78 kg; 173 lbs). At today's prices, this nugget is worth US\$ 3,275,000.



Panning for gold dust and small nuggets.

Leaf Gold occurring in fine fissures within Quartz.



Gun Flint



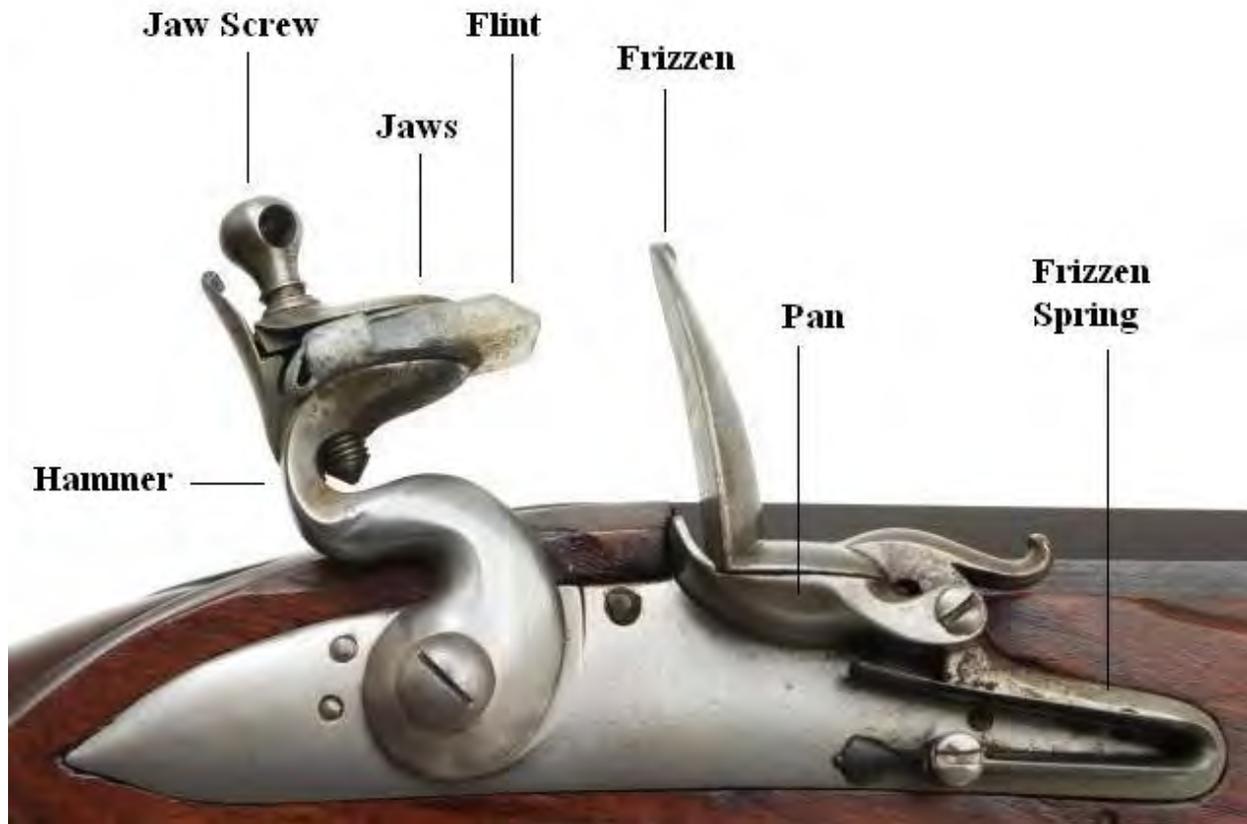
Original 18th Century Brown Bess Musket Gun Flint and Ball set collection 7 pcs



The Gun Flint in the tin box on the cabinet's sill was found by Barry Saxifrage on the shore of Grace Harbour, near Cortes Island. On loan to the Museum.

From Wikipedia, the free encyclopedia

Gun Flint - and Flintlock Mechanism



A typical flintlock mechanism has a piece of flint which is held in place in between a set of jaws on the end of a short hammer. This hammer (sometimes called the cock) is pulled back into the "cocked" position. When released by the trigger, the spring-loaded hammer moves forward, causing the flint to strike a piece of steel called the "frizzen". At the same time, the motion of the flint and hammer pushes the frizzen back, opening the cover to the pan, which contains the gunpowder. As the flint strikes the frizzen it creates a spark which falls into the pan and ignites the powder. Flame burns through a small hole into the barrel of the gun and ignites the main powder charge, causing the weapon to fire.

Most hammers follow Marin le Bourgeoys's design, and have a "half-cocked" position, which is the "safe" position since pulling the trigger from this position does not cause the gun to fire. From this position, the frizzen can be opened, and powder can be placed in the pan. Then the frizzen is closed, and the hammer is pulled back into the "full cocked" position, from which it is fired.

The phrase "don't go off half cocked" originated with these types of weapons, which were not supposed to fire from the half cocked position of the hammer.

From Wikipedia, the free encyclopedia

Flintlock Musket

Flintlock muskets were the mainstay of European armies between 1660 and 1840. A musket was a muzzle-loading smoothbore long gun that was loaded with a round lead ball, but it could also be loaded with shot for hunting. For military purposes, the weapon was loaded with ball, or a mixture of ball with several large shot (called buck and ball), and had an effective range of about 75 to 100 metres. Smoothbore weapons that were designed for hunting birds were called "fowlers." Flintlock muskets tended to be of large caliber and usually had no choke, allowing them to fire full-caliber balls.

Military flintlock muskets tended to weigh approximately ten pounds, as heavier weapons were found to be too cumbersome, and lighter weapons were not rugged or heavy enough to be used in hand-to-hand combat. They were usually designed to be fitted with a bayonet.



Lady Liberty is holding a musket & powder horn, ready to fight for freedom.
1779 Broadside. New York Historical Society.



This musket belonged to Isaac Preston, who along with his two brothers, used it to successfully fight off an attack by a large force of Finian American raiders during the war of 1812. The Americans briefly occupied the Preston homestead before being repelled. Amherst Island, where the homestead still stands was unofficially renamed "Three Brother Island" as a tribute to their bravery and determination.

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"Finian"

On November 1, 1812, a British major takes a survey of the prisoners of war held in the Montreal jail. These prisoners had been captured fighting on the American side. The British major finds that almost all of the prisoners are Irish.

The historian Alan Taylor in *Civil War of 1812: American Citizens, British Subjects, Irish Rebels, & Indian Allies* (Alfred A. Knopf, New York, 2010) writes :

"The Irish prominence was no surprise, given that most American immigrants came from Ireland. And, unlike the English and the Scots in America, the Irish were eager to fight for the republic and against the empire ... Thrilled by the declaration of war, Irish-Americans predicted that the liberation of Canada would send shock waves through the British empire, producing a republican revolution to liberate Ireland ... As in other American wars, the military relied heavily on immigrant recruits, which in 1812 meant the Irish."

[Decades later] "...The Battle of Ridgeway [was] fought near Fort Erie, across the Niagara River from Buffalo, New York, on June 2, 1866. The battle was between British and Irish-American irregular troops, known as the Fenians. The term **Fenian** was not in use in 1812 but was adopted later in the century. The continued attacks during the nineteenth century by Irish-Americans on the British colonies of North America were a major impetus behind Canadian confederation in 1867."

Pith Helmet & Sword

Pith helmet, 1914, British.

*Dress Sword, Lt. J. V. Preston
N.W. Field Force 1885*



minor anachronism

Papua New Guinea

Artifacts from Papua New Guinea
on loan from George Sirk



Papua New Guinea

Head carving
Black Palm wood spear
Bamboo Bow & Arrows

Note :

The bow's string is also
made of Bamboo

The Arrow heads are all
carved very intricately,
indicating different target
animals, including humans.



Muskox Skull

on loan from Dennis Mense



Location within Greenland
Coordinates:  61°12'30"N 48°10'10"W



The skull was found above the old Cryolite Mine, here seen in a 1940 photograph. (Cryolite (Na_3AlF_6 , sodium hexafluoroaluminate) is an uncommon mineral identified with the once large deposit at Ivittuut on the west coast of Greenland, depleted by 1987. The mineral has the ability to lower the melting point of molten (liquid state) aluminium oxide to 900-1000°C from 2000-2500°C.)

The Muskox (*Ovibos moschatus*), in Inuktitut: ᐃᐅᐅᐅᐅᐅ, *umingmak*, is an Arctic hoofed mammal of the family Bovidae, closely related to Sheep. Qiviut fibre is the fabled and highly valued soft inner wool of a Muskox's coat.



Chi Wara

While there are several versions of the story, the discovery of agriculture is credited to the hero Chi Wara, a half antelope, half human figure born from the union of the sky goddess Mousso Koroni and an earth spirit in the shape of a cobra. The Chi Wara came to earth to teach humans to sow crops, and thus is honored at both sowing and harvest festivals.

The Chi Wara itself is usually represented as a Roan Antelope with an almost human face, but also takes shapes of other creatures and emblems of farming. The hero descends from the sky goddess, and thus represents the sun, its body is often elongated and short legged to represent the aardvark who burrows into the earth like a farmer. Its high horns echo the stalks of millet, and it stands on a dancer clad in a mass of raffia stalks to represent both flowing water and a bountiful harvest. The zig-zag patterns echo the movement of the sun across the sky, and the penis of the male figure stands low to the ground, fertilizing the earth. The Chi Wara figures always appear as a male/female pair, combining the elements of fertility of humans with fertility of the earth. The female figure usually carries a young antelope on her back, and is said to represent human beings carried by the Chi Wara hero, as well as a newborn human carried on a mother's back.

Wikipedia



Bamana Chi Wara Paired ...
hamillgallery.com



Bamana Chi Wara Female ...
africadirect.com



Chiwara, Ci Wara or Antelope H...
beprimitive.com



Tribal Art - Bambara (or Ba...
dorothium.com



ra or Antelope Headdress



African Selections 4 Exhibit...
hamillgallery.com



File:Chiwara male drawing...
commons.wikimedia.org



Two Bamana-style Carved Chi ..
skinnerinc.com



mbara, Mali - Catawiki



File:Chi Wara Headdress, B...



Object: Chi Wara Headres...



AFRICAN-CHI-WARA-CHI...

Male and female *Chi Wara* worn as traditional head-dress in Mali, Africa.



Village Weaver *Ploceus cucullatus*

Taxidermy by Laurel Bohart (specimen from Nigeria)

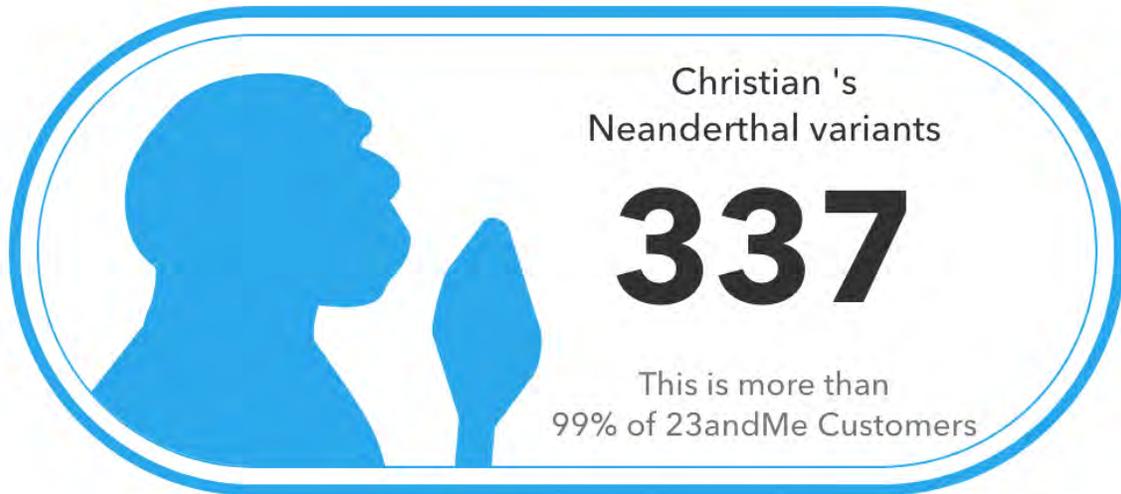


Male bird in breeding plumage. Photograph by Paul van Giersbergen, Libreville, Estuaire Province, Gabon.

Female at nest.



2020-11-18



Being thoroughly (100%) European and having an unusually high number of Neanderthal gene-variants in my genome, I assume the right and full responsibility for exhibiting this replica skull of my grandmother of 2000 generations ago.

Christian Gronau, curator





Flint nodule, transformed into a Hand Ax (*Faustkeil*) with a single blow.

