

Discover...

FIREMAKING



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History and Technology

Fire has many uses, both ritual and practical, and plays an important role in our lives. In Africa, evidence for deliberate exploitation of natural fires may date back as far as 1.5 million years ago. From these early beginnings, humans developed the skills and equipment necessary to make and sustain fire. Fire-making objects in the Pitt Rivers Museum demonstrate these technologies. They show how methods still used today have ancient origins and similar utensils are used in many different places. The collections exhibit three different but not entirely distinct fire-making methods: Firstly, objects using friction; secondly, tools that create sparks; thirdly, techniques employing chemicals.



▲ Kamba Fire Drill, Kenya, 1928.48.3.1-.2

Fire from friction

Many peoples use the friction of drilling or sawing sticks to create fire. One wooden stick (the drill, plough or saw) is twisted or rubbed against another (the hearth). This motion generates heat and kindles dry materials (tinder) placed where the two objects touch. Substances like grit are often placed at the point of contact to create extra abrasion. This method is employed all over the world. Because the principle behind all fire sticks is the same, the objects look very alike. For example, those used in the early 20th Century by the Kamba people of Kenya look similar to those made in the same period by the Kota of the Nigiri Hills, India. The Museum's displays also feature an Ancient Egyptian hearth stick dating to around 4,000 years ago. This indicates the long history fire sticks.

We can identify slight differences in technique. The simplest sets use two sticks operated by the hands, as with the Kota of Tamil Nadu, or by the feet,



▲ Kota Fire Drill, Tamil Nadu, India, 1919.26.3.1 & .3

as with those used by Lhota Naga people from the Naga Hills, India. The more elaborate 'bow' and 'thong' drills utilise cords or straps that are pulled back and forth to speed up the movement of one stick against the other.

Sparking a flame



▲ Naga Tinderbox
Nagaland, India
1928.69.43.1 - .4

All over the world people light fires with sparks caused by striking flint and metal together. A kit includes flint, steel (or another metal), and tinder, usually carried in a container designed to keep the contents dry. With this method, creating fire can take up to 30 minutes, most difficulties resulting from wind or damp tinder. Neolithic (10,000 - 4,000 years ago) sparking flints are the earliest evidence for humans lighting, rather than simply controlling, fires. The Museum's displays feature a 2000-year-old Iron Age iron pyrite nodule from Cissbury Hillfort in West Sussex, England. Along with flint, this was probably used to light fires.

Containers for the kit vary enormously depending on whom they belong to and where they have been made. In Asia they were often suspended from the waist, as shown by a 19th Century Indian brass box that hangs from a belt. Elsewhere in India, the Lhota Naga covered their vessels with skin from goat's testicles. A soft leather pouch made by a Hausa or Fulani craftsman for use in the hot climate of Nigeria contrasts with a well-sealed enamelled box from the damper climes of St. Petersburg, Russia. These objects show the variety of styles and materials favoured by different cultural groups as well as the extent of a worldwide technology.



▲ Hausa or Fulani Tinder Pouch,
Nigeria, 1923.36.32.1 - .3



▲ Brass Tinder Box and Belt, North-
East India, 1886.1.415.1- .3

Chemically aided fire

Many chemical reactions generate heat and fire and various chemically aided fire-making methods exist. Friction and sparks still start the reactions but chemical compounds ease the process. They combat problems of wind and damp tinder, and reduce physical effort. To begin with these involved producing enhanced tinder. For example, amadou, a fungus that grows on decaying trees, was mixed with saltpetre (potassium nitrate), and used with sparking kits and in tinder pistols, a 17th Century invention. In the 19th Century further chemicals and mechanisms were developed. For example, the Museum's displays feature an English lighter that used stearin, a compound of purified fatty acids.



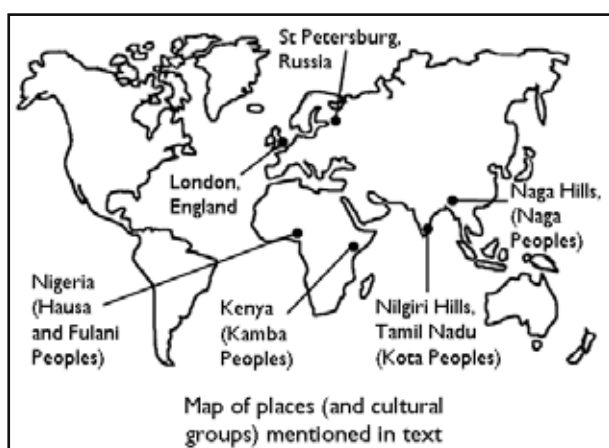
▲ Tinder Pistol, England, 1938.35.1101



▲ Bewick Stearin Lighter, London, England, 1938.35.1183

Matches are a more familiar chemical fire-making method. English chemist John Walker invented the friction match in 1827. There are now two types, 'strike-anywhere' matches and safety matches, both of which use phosphorus. Heads of strike-anywhere matches contain the chemicals needed to produce fire from frictional heat. Safety matches need a special striking surface that causes match heads to ignite.

Matchboxes are used to keep matches dry and provide a striking surface. The Museum displays a number of boxes including a British one dating to the 19th Century, which features a mechanism to grip and ignite matches. In many parts of the world gas lighters have superseded friction matches as the main fire-making technique.



Further reading

A. J. Cruse. 1946. *Matchbox Labels of the World*. London: Robert Ross & Co. Ltd

Christy Miller. 1926. *Bryant & May Museum Catalogue: The Bryant and May Museum of Fire- Making appliances: Catalogue of the Exhibits*. London: Bryant & May Ltd.

William T. O’Dea. 1964. *Making Fire: A Science Museum Illustrated Booklet*. London: HMSO.

The objects featured in this **Introductory guide** can be found at the following locations:

Court (ground floor)

Case no. C133A, C133B, C134A, C134B, C135A, C135B – Methods of Firemaking

Compiled by:

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DCF Court Project, 2002-03

Front Cover Image:
Tinder Pistol;
England; 1938.35.1101