



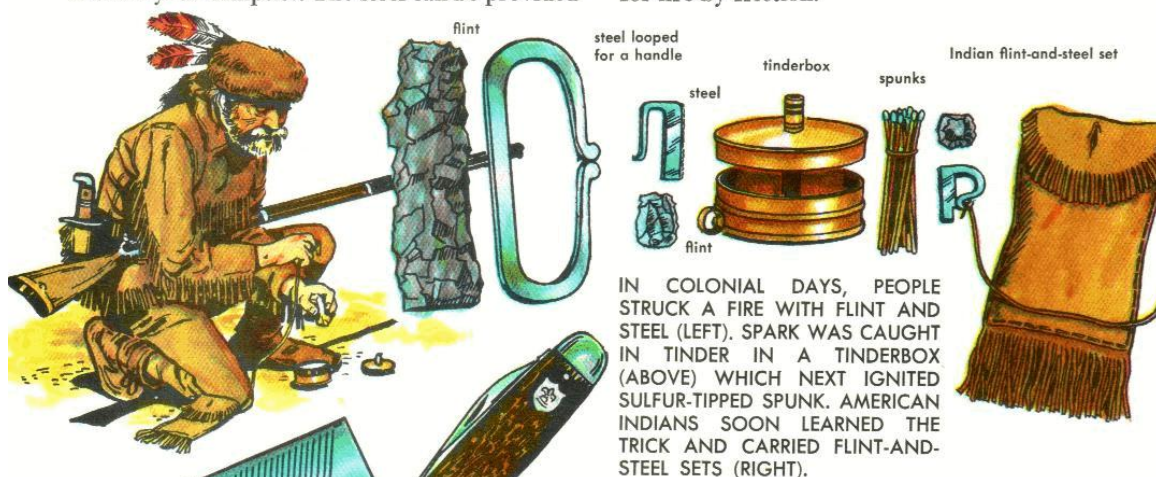
Fire Without Matches

EARLY CAMPERS had no matches. They had to make their fire by more primitive means. It is good to know how they did it in case you ever find yourself without matches in camp.

Before matches were invented, the common way of making fire was by striking steel against a piece of flint and catching the spark in tinder. To make fire this way, look for a piece of flint around your campsite. The steel can be provided

by an old file, or, if necessary, a knife blade.

Friction was the Indian's way of making fire. Not all woods are good for this method. In the East and the Middle West, you should have success with basswood, willow, slippery elm, poplar, white spruce, northern white cedar; in the West with cottonwood, white fir, willow, Sierra juniper, and California buckeye. Yucca is the best for fire by friction.

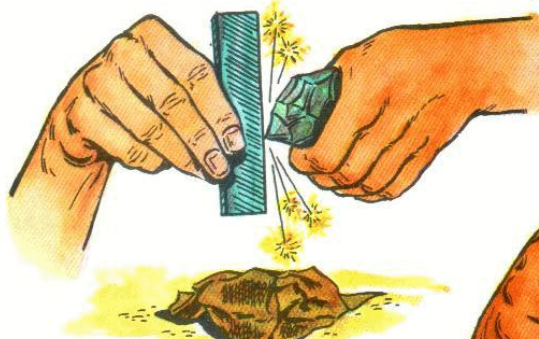


IN COLONIAL DAYS, PEOPLE STRUCK A FIRE WITH FLINT AND STEEL (LEFT). SPARK WAS CAUGHT IN TINDER IN A TINDERBOX (ABOVE) WHICH NEXT IGNITED SULFUR-TIPPED SPUNK. AMERICAN INDIANS SOON LEARNED THE TRICK AND CARRIED FLINT-AND-STEEL SETS (RIGHT).

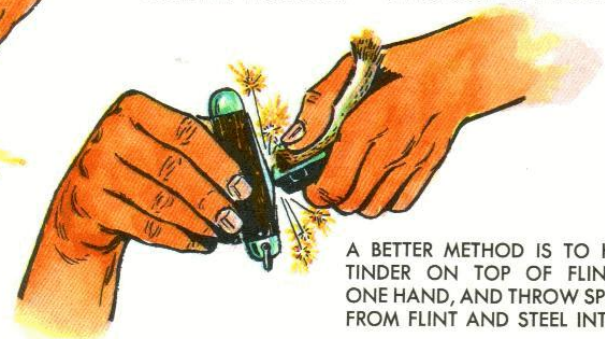
FOR STEEL, USE PIECE OF AN OLD FILE. IN AN EMERGENCY YOU CAN USE BACK OF KNIFE, BUT THE STEEL WILL BE NICKED.

FOR TINDER, CHAR SMALL COTTON RAG, OR USE PIECE OF LIGHTER WICKING.

PLACE EMBER IN DRY CEDAR BARK. BLOW IT INTO FLAME.



USUAL WAY OF MAKING FIRE IS TO THROW SPARKS INTO TINDER LYING ON GROUND, BY STRIKING A SHARP CORNER OF FLINT WITH STEEL EDGE.



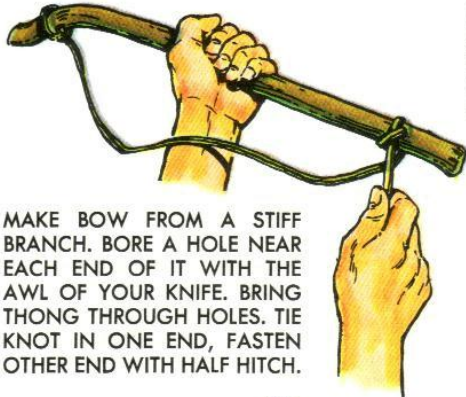
A BETTER METHOD IS TO HOLD TINDER ON TOP OF FLINT IN ONE HAND, AND THROW SPARKS FROM FLINT AND STEEL INTO IT.



MAKE A SPINDLE $\frac{3}{4}$ " TO 1" IN DIAMETER, ABOUT 10" LONG. WHITTLE IT ROUGHLY OCTAGONAL. ROUND ONE END, POINT THE OTHER.



THE HEAD BLOCK IS MADE OF HARDWOOD AND HAS HOLLOW FOR HOLDING UPPER END OF SPINDLE. REDUCE FRICTION WITH SOAP.



MAKE BOW FROM A STIFF BRANCH. BORE A HOLE NEAR EACH END OF IT WITH THE AWL OF YOUR KNIFE. BRING THONG THROUGH HOLES. TIE KNOT IN ONE END, FASTEN OTHER END WITH HALF HITCH.

THE FIRE BOARD IS ABOUT $\frac{3}{4}$ " THICK, 3" WIDE, 15" LONG, OR LONGER. CUT A NUMBER OF NOTCHES ALONG THE EDGE, ABOUT 1" DEEP. GOUGE OUT CIRCULAR HOLLOW TO FIT BOTTOM END OF SPINDLE.

WHEN AN EMBER HAS FORMED, KNOCK IT FROM FIRE BOARD INTO SHREDDED CEDAR BARK.



TWIST BOWSTRING ONCE TIGHTLY AROUND THE SPINDLE. HOLD FIRE BOARD STEADY ON GROUND WITH ONE FOOT. PLACE ONE END OF THE SPINDLE IN A HOLLOW ON FIRE BOARD. PLACE HEAD BLOCK OVER TOP END OF SPINDLE. PRESS DOWN ON HEAD BLOCK WHILE MOVING BOW FROM SIDE TO SIDE. KEEP YOUR LEFT WRIST FIRMLY AGAINST LEFT LEG. AS SMOKE RISES, PRESS HARDER.



BEST TINDER FOR MAKING FIRE IS DRY CEDAR BARK.

FOLD CEDAR BARK AROUND THE EMBER. BLOW EMBER INTO FLAME WITH YOUR MOUTH, OR SWING THROUGH THE AIR UNTIL THE BARK BURSTS INTO FLAME.