

Read the following description of a burning candle.

A drawing of a burning candle is shown below. The candle is cylindrical in shape and has a diameter of about $\frac{3}{4}$ inch. The length of the candle was initially about eight inches and it changed slowly during observation, decreasing about half an inch in one hour. The candle is made of a translucent, white solid which has a slight odor and no taste. It is soft enough to be scratched with the fingernail. There is a wick which extends from top to bottom of the candle along its central axis and protrudes about half an inch above the top of the candle. The wick is made of three strands of string braided together.

After holding an outside flame close to the wick for a few seconds, the outside flame can be removed and the flame sustains itself at the wick. The burning candle makes no sound. While burning, the body of the candle remains cool to the touch except near the top. Within about half an inch from the top the candle is warm (but not hot) and sufficiently soft to mold easily. The flame flickers in response to air currents and tends to become quite smoky while flickering. In the absence of air currents, the flame is of the form shown in the figure, though it retains some movement at all times. The flame begins about $\frac{1}{8}$ inch above the top of the candle and at its base the flame has a blue tint. Immediately around the wick in a region about $\frac{1}{4}$ inch wide and extending about $\frac{1}{2}$ inch above the top of the wick the flame is dark. This dark region is roughly conical in shape. Around this zone and extending about half an inch above the dark zone is a region which emits yellow light, bright but not blinding. The flame has rather sharply defined sides, but a ragged top. The wick is white where it emerges from the candle, but from the base of the flame to the end of the wick it is black, appearing burnt, except for the last $\frac{1}{16}$ inch where it glows red. The wick curls over about $\frac{1}{4}$ inch from its end. As the candle becomes shorter, the wick shortens too, so as to extend roughly a constant length above the top of the candle. Heat is emitted by the flame, enough so it becomes uncomfortable in ten or twenty seconds if one holds his finger $\frac{1}{4}$ inch to the side of the quiet flame or three or four inches above the flame.

The top of a quietly burning candle becomes wet with a colorless liquid and becomes bowl shaped. If the flame is blown, one side of this bowl-shaped top may become liquid, and the liquid trapped in the bowl may drain down the candle's side. As it courses down, the colorless liquid cools, becomes translucent, and gradually solidifies from the outside, attaching itself to the side of the candle. In the absence of a draft, the candle can burn for hours without such dripping. Under these conditions, a stable pool of clear liquid remains in the bowl-shaped top of the candle. The liquid rises slightly around the wick, wetting the base of the wick as high as the base of the flame.