HINTS AND SUGGESTIONS ON CANDLE MAKING

When boiling fat in water this summer, often times the water would appear to nearly all evaporate away. Apparently little tallow is produced while mostly water remains in the bucket. Water can only reach a temperature of 212°F. and then it boils. On the other hand, the little tallow that is produced while the water is boiling, can reach much higher temperatures. When most of the water is gone and the fat sits in a shallow layer of tallow, this is when most of the tallow is extracted from the remaining fat.

At or just before this time, I have often added a great deal of fresh fat to the bucket. This has worked out alright. That new fat does render tallow, but possibly there is some waste. I consider fat completely rendered when it turns into brown crisps which have the appearance of crisp bacon (smells much the same also). This freshly added fat often does not reach that point before the tallow begins to start burning. (We have removed the tallow, added more water to this partially unused fat and rendered more tallow from it. But I do not think it was as good a quality.)

It is important to realize when the tallow is beginning to burn. It will give off a light white smoke, almost the appearance of steam. At this point the tallow should be taken off the fire. Be careful as it is extremely hot at this point (as I said much hotter than boiling water). If the tallow is left over the fire while it is burning, it is possible, though it never happened this summer, that the temperature could reach the flash point and the tallow could burst into flames. Caution should always be taken when handling tallow. It is usually very hot and always extremely flamable. Care should be taken not to overfill buckets and to keep buckets away from high flames and flying embers. Caution should be practiced to avoid slopping over of tallow into the fire from the bucket for the surprise and sudden intensity of heat from the tallow flaming up could cause you to spill the whole bucket over the fire. Also, buckets should be placed where they will not be kicked or tipped over. This is especially a problem in dimly lit rooms.

If a bucket of tallow flames up it is best to throw something completely over it to cut off the oxygen to the fire. Water should not be used for a violent reaction occurs when hot oil and cold water come together. A fur or skin may be used to put over and smoother the fire from a bucket of burning tallow if that is all that is available. Possibly some consideration should be made to have something alway available. I do not believe enough respect was paid this summer to the dangers of tallow being near an open flame.

When rendering and most of the water is out of the fat and tallow mixture, several changes occur. These changes usually occur quite rapidly. The

tallow should be watched closely when it is expected these changes are about to happen or have already started. The bubbles of the boiling mixture become smaller and less violent. The liquid is, up to that point, a light muddy brown in color and consistancy but changes suddenly to a dark clear liquid. Also, the scent of bacon fat becomes very strong. At this time the tallow can be left over the fire a little while longer, but should be taken off before it begins to burn.

The tallow then can be strained of its impurities and paraffin can then be added to it. It has been suggested on training tapes that the paraffin be added in the living history room out of sight of the visitors. This I do not believe is necessary. If visitors are observing you putting paraffin in the tallow down in the rendering area or stump room, then this is a good time to launch into the different qualities of tallow different animal fats produce. And that sheep or mutton tallow and the elk and possibly the buffalo tallow that the expedition used were good and needed no additions. We are not here to deceive visitors.

I use more than 50 percent paraffin in the paraffin-tallow mixture. Some of the candles I made I am sure are two-thirds paraffin. I think that is a little high. Part of the problem is that I believe paraffin expends its volume when it is melted and heats up. Too much paraffin in a candle causes it to not feel greasy, to be harder to pull out of the mold, and to be a white color which is unrealistic for a tallow candle. Paraffin heavy candles do seem to burn somewhat longer.

If the candles are coming out white, and this will depend also on the quality and color of the tallow you produce, some tallow separately can be put over the fire and burned. This burned tallow will be darker and it can be added to the candle mixture to give the candles a yellowish or tannish color. This I do not believe is deception since we are trying to let the visitor experience the feel (greasiness), smell and color of the candles that would have been produced on the expedition. I must caution again, however, to not allow the tallow to reach its flash point temperature as it super heats over the fire.

Well; these are some of my observations and suggestions that have come out of rendering fat and making candles in the summer of 1979. It is a good idea for one person to be in charge of the operation. He can always be in touch with how things stand with candle production. He can keep materials supplied and equipment in good working condition. And, he is in a better position to make observations and control experiments of the candle making and rendering process. It does tend to be a messy and not always such a pleasant job, however.

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