LIGHTING

By Oliver Cameron
with Ole Wik

What did you do about lighting?[1]

In the wintertime, when the days are short, you can do a lot of work just by moonlight, because of the snow—even without moonlight, or when the moon is new or just a little sliver. That's enough light to do ordinary chores when you're used to making your way around and doing work outside.

I would use my daylight hours in the house for whatever I needed to do, and when it got to where the light was dim in the house, I'd go out and do chores, and sometimes more than just chores. If I wanted to get poles, I could do that by moonlight. With enough moonlight, a fellow could work out there all night if he wanted to.

Kerosene Lanterns

I cut a groove across the handle of a peavey. I can stick that peavey into the ground or snow, hang a lantern on it, and do quite a bit of work by that—cutting wood, unloading sleds or even loading them when you want to get an early start, before it's daylight.

Homemade log peavey, used for rolling logs.
Image: http://lumberjocks.com/projects/8271

What kind of lantern?

It's a Dietz kerosene lantern. There are two kinds. One has a short globe, kind of fat. Another has a longer globe that is more like an indoor lamp chimney.

Which one did you use with peavey?

The lantern. It has a lever that you lift to raise the globe, and you let it back down.

Dietz Small Barn Lanterns as used in the Amish Buggy Light
http://www.amishwares.com/site/1504461/product/ANG-SBL

Kerosene Lamps

There are two types of kerosene lamps. Some have wicks. Those that have a round wick give a lot more light and heat that the ones that use a flat wick.

Others, like Aladdin lamps, have mantles, just like Blazo gasoline lamps. Any kind of mantle lamp gives off more light and is more efficient than a lamp that just has a flame burning off the end of a wick.

Aladdin lamp showing round wick and mantle. Image source:
http://theaccidentalhermit.blogspot.com/2009/09/kerosene-addiction-iii-how-to-use.html

Have you used Aladdins?

Yes, especially when the kids were doing home schooling.

Did you have any problems with them?

I didn't, no. The problem was with the people using them.

How so?

The amount of flame you get varies with the heat in the room. If you start using it in a cold house and then the house warms up, the flame will get bigger and bigger. If you're not watching, you get a smoked-up chimney and there will even be flame coming out the top of the chimney. It can be dangerous.

We had the same problem in our small iglu, where the temperature fluctuated somewhat with each feeding of the wood stove. Before you knew it, the thing could be out of control. We gave up on it.

They made a unique sound when they started taking off like that.

How about flat wick lamps?

Those wicks require a lot of trimming. You need to trim them about every time you use them. Otherwise they get carboned up, and pretty quick you've got a little spike of flame that's sticking up and smoking.

But they're economical.

Yes and no. You don't use as much kerosene because you're not getting as much light, but a mantle lamp will give you more light from the same amount of kerosene. It's a matter of time. You're using your kerosene faster with a mantle lamp, but you're getting a lot more light for it. In either case, it pays to keep your chimney clean.

Do you mind the smell that you get when you turn a kerosene lamp off?

The lamp sits on a shelf inside the house. I have an opening just above the window, with a 4" stovepipe running out through the wall to an elbow, then up a little ways. On the inside I have a piece of tin shaped so that it makes kind of a cup that faces downward, and the lamp fits just underneath that. The house being warm, there's always a little air going out through the pipe, unless it's closed off.

Whenever I use a kerosene lamp I set it on that shelf so that the chimney is under that stovepipe. Its purpose is to drain off the fumes from the lamp and vent them outside, more or less like a chimney. It works quite well.

Does the wind bother it?

No, I haven't had any problem with it.

Are you located in the trees?

There is wind blowing there alright, but the horizontal pipe has two elbows—one on the inside of the house, facing downward toward the lamp chimney, and another a ways out from the house, facing up. Those elbows may have something to do with it.

What is the diameter of pipe?

I'm not sure now. I had a couple of different ones at different times. I know that one was made I know with 4" pipes. I think I had one with 3" pipe on it too.

When you've got a vent like that, you're competing with your stove for the air inside the house. There's enough heat from the lamp so that it got its share. I've not had any problem there.

Did you have air coming in around door?

Oh, yeah. I purposely allow for some circulation in the house.

Do you close off that vent pipe when you're not using the lamp?

Yes. I have a wooden plug that I use to close the pipe from inside the house. It's got a handle on it, and then it's kind of like a cork. It lies there near the lamp. When I turn off the lamp, I let the fumes come off the wick until I don't smell it much, and then I put the plug in. It depends on what I'm doing, how busy I am, and whether I remember it or not.

Do you get condensation in the pipe?

No. I suspect there's enough heat to keep it from condensing in there.

I hear you about the smell. I used to hate that. I'd turn the lamp down real low and let it cool off for a few minutes. Then I'd blow it out and turn the wick down into its holder to keep air away from it. To top it off, I'd put something like a tin can lid over the top of the chimney to keep any fumes from getting into the room.

I found that lamp reservoirs with long necks were more likely to smoke. I think that was because as the kerosene level dropped, the wicking action had to operate over a longer distance. I always chose lamps with the shortest possible neck.

Simple low-profile, short neck, flat-wick kerosene lamp.
Image: http://forum.luckymojo.com/oil-lamps-questions-and-answers-t6918s180.html

How much kerosene did you need for a winter?

In Ambler, I used to buy it by the barrel. If I remember right, we were using Aladdin lamps at that time too. I figured on getting a barrel every three years.

Out at the lake, did you get your kerosene in five gallon cans?

I did have it in five gallon cans, but a few years ago there was an outfit that brought a bunch of equipment through to build a new runway in a town that was not too far away. They had a cat fall through the ice, and it was down in the water. They had to camp there

for a while near our lake while they flew in equipment to get that cat out. They finally got it running again.

While that was going on I did some favors for the fellow who owned that outfit. He used my ham radio quite often. When he was getting ready to bring big heavy scraper out, he offered to bring me a barrel of kerosene if I wanted it, so I bought the kerosene and he hauled it out there. Eventually I did put the last half barrel into five gallon cans, just so that it was easy to handle.

What do you suppose your yearly kerosene consumption was when you were living at the lake?

That would depend on which year. After I got the solar panels and the batteries and especially after I started using LEDs, I didn't use near as much kerosene—maybe a couple of gallons all winter.

Before that?

Probably four or five gallons. I'm not sure about that, but that would be close. I didn't ordinarily try to light the whole house—just enough to see my way around. If I had work that needed more focused light, I took it closer to the lamp.

That's the wave of the future, Oliver. America's going to have to learn how to do that.

Gasoline Lanterns

I also have a double-mantle Coleman. I very rarely use it, but sometimes when I'm working out inside my Quonset shelter there, I'll use it because it really lights it up.

Coleman two-mantle gasoline lantern.
http://www.amazon.com/Coleman-Dual-fuel-2-Mantle-Lantern/dp/B005Z3R1YK

Carbide Lamps[2]

I also have a couple of carbide lamps. One of them is a headlamp. I have a special hat that's made for it to mount on.

Miner's helmet with attached carbide lamp. Image: http://www.ironminers.com/mineforum/viewtopic.php?t=730

There's a little lever on it that allows you to adjust the amount of water that drips onto the carbide to make acetylene. You regulate that dripping of water to get the size of flame you want.[3]

How long will it run on one fill of carbide?

It will last quite a while. For enough light to walk along a trail, I can get three hours out of it, something like that. Of course that depends on how much flame I'm using, and also on the lamp itself. Some have bigger reservoirs than others.

How much water would you need for that amount of carbide?

The tank may only hold 1/4 cup of water. I think it holds less than what carbide there is in the lower compartment. It's doesn't run down there in a stream—it's just going drip, drip, drip.

They used to use those for coal mining, right?

Yes, and also tunnel work or underground work. That was always a certain amount of hazard, because if explosive gases built up in the area where you were working, it could ignite them. That's why they used to take a canary down with them.

Any kind of lamp with a flame is pretty handy sometimes if you want to warm your hands up. The carbide lamp especially has a flame that sticks out the side, and I've used it for thawing out padlocks and so on. You can get a flame that'll shoot out there for two or three inches.

Open flame of a carbide lamp.
Image: http://www.ironminers.com/mineforum/viewtopic.php?t=730

Will a carbide lamp hold the gas if you turn it off?

Once the water has been soaked up by the carbide, the carbide won't off-gas any more. You can use it again.

To turn it off, you shut off the water. The light will go out, but not like turning off an electric lamp. When you shut it off, the flame starts to get smaller, and quite often there will be just a little tiny bit of a flame that will last for quite a while.

If I'm not going to be using the lamp for a few minutes, I'll turn it down just to where there's hardly any flame, and it'll keep burning there. When I open up the water supply and let it run again, it's ready to go.

Is it hard to get carbide?

Some places it might be. I've never had any problem.

Where do you usually get it?

At a hardware store.

Solar Panels

In my little tight house, it takes quite a bit of ventilation to burn a kerosene or gasoline light. Usually I don't need to use those gas lamps very much. I don't like to use my lamp venting system when I don't keep much of a fire, so I got some solar panels. Even in the wintertime I can keep a small battery charged up enough to keep a few LED lamps going.

Tell me about your solar panels, batteries, and LEDs.

I have four panels that sit side by side in a frame off the end of the house. They're usually standing fairly straight up and down, because most of the light is coming from pretty close to the horizon. When the sun is higher in the sky, I lean them back more, depending on where the most light is coming from.

I guess the panels are three feet tall and maybe 18" wide. They're made of glass stuck with plastic. A bear played with one of them, and had a high old time. He didn't leave a piece of unbroken glass bigger than a dollar, but the panel would still put out a little bit. I was amazed.

I have two large deep-cycle batteries, well over a hundred amp hours, that I keep charged all summer. Along toward fall, when there isn't a lot of power coming off the panels and I need lights, I start using two small batteries. They're about four amp hours.

After I use one of the small batteries all day, it's pretty well discharged, so there isn't much back pressure to keep it from taking the charge that's available. Between the two batteries, if there's a really stormy day, I usually have enough to keep my little LED lights working.

It's an odd situation. I don't need the system in the summertime. In the wintertime, when I have a clear day, I don't get any power to speak of from those panels. But on a cloudy day—not snowing or dark, just overcast—the clouds seem to dissipate the sun and direct it down, so from my rather large array I get enough to charge a small battery.

I have the LEDs on a sort of extension cord. I have one fastened permanently at the head of my bed, one on the far end of the house by my workbench, and another one that I can hang above the stove or move to the sewing machine or to the sort-of rocking chair where I sit and read.

[image of rocking chair]

How many watts are the LEDs?

I don't know, but they don't draw much.

LEDs are amazing. I have a night light that draws only 0.4 watts. I hooked it up to a photocell sensor, so it comes on only when it starts to get dark.

One more thing. I have a folding panel that is 10 watts, I think. It's about 16" square and folds in half. I sometimes use it to charge up those little batteries. I can set it on the edge of the house, and it helps quite a bit. Of course the batteries are all inside the house, where it's warm. The juice comes in through a wire.

EXTRA SECTION[4]: CUT BOTTLE CANDLE LANTERN

By Ole Wik

Oliver once told me that he would cut a bottle by wrapping a string around it, putting a combustible liquid on the string (probably kerosene), and lighting the string to create a ring of heated glass. He'd then pour cold water over the bottle. Uneven contraction of the hot and cold parts of the bottle would cause it to crack off along that seam.

Indoor candle holder and outdoor candle lamp.
Image: Curt Madison

A search of "How to cut a glass bottle" on YouTube brings up a number of methods illustrating this technique, using various fuels. Others show how to score the glass with a glass cutter before heating and chilling the glass. This eliminates the string and flame entirely, and apparently gives a cleaner cut. Either way, the edges of the new rim should be dulled with sandpaper or a whetstone to avoid cuts.

Oliver also mentioned a design that allowed him to walk around outdoors with a candle. As I recall, he cut a window cut out of one side of a tin can and fastened the can to a board with the intact bottom on top and the candle inside. He said that he could walk with that window facing forward, and that the breeze created by his motion did not blow the candle out because there was no second opening through which the air could exit.

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1) This essay stems from a series of telephone conversations that Ole Wik had with Oliver between December 2007 and February 2008. Highlighted text indicates remarks made by Ole.

2) Calcium carbide (CaC_2) reacts with water to produce acetylene gas. A carbide lamp has a water reservoir above and a carbide chamber below. The rate of water flow determines the rate of acetylene production.

3) The graphic below shows the construction.

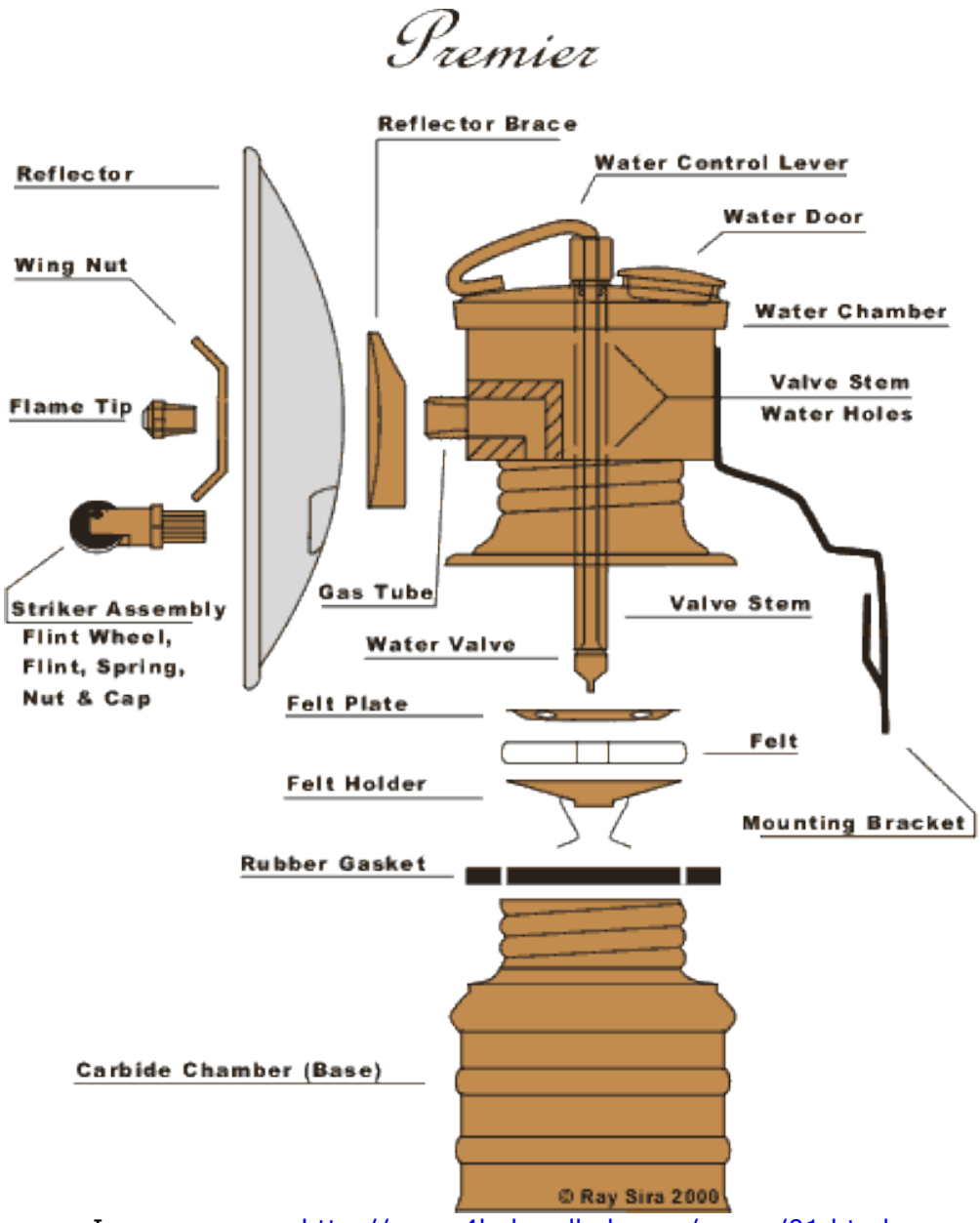

Image source: http://www.4bobandbob.com/pages/01.html

4) Air service companies in Kotzebue that served Ambler and the other villages in northwest Alaska often had more mail or freight than could be accommodated on their regularly scheduled flights. In such cases, they would lay on a non-scheduled flight known as an "extra section".

In the present context, I'm using the term for information and images that Oliver and I didn't discuss directly during our interviews, though we may well have talked about them many times during our Ambler years.