

Winter Trekking Food

By John W. Powers (aka Joseph LaFreniere): 10/24/03

This paper presents what can best be described as just the beginning of a discussion on basic food requirements for winter camping as a historic reenactor. It began with my own experiences winter camping bivouac-style and the realization that I was short-changing my body – not enough calories generating heat at night and a shortage of energy during the day.

I make no claims to having done extensive research. I've done enough to satisfy my initial concerns. Over time I, and others, may add to this work-in-progress for the benefit of all who love to reenact at winter camps.

Historic Perspective

Thom Swan, Karl Koster, and Angela Gottfred among others have offered insights into historic diets during the era. Basically winter foods were monotonous and in short supply – lots of protein and calories via game and fish, heavy reliance on wild rice, and maple sugar. Imported goods – flour, salt pork, peas and beans – scarcely made it past early winter if then. At larger posts with gardens potatoes could augment the diet into deep winter.

As Swanny noted, there really wasn't that much trekking in our sense of the word going on during the winter. Most winter travel consisted of short, usually one-day (or at least intended to be one day) trips between posts or Indian encampments. Often no food was taken on these trips as the people expected to be fed upon their arrival. There are plenty of accounts of hungry nights around meager fires with or without blankets when a traveler misjudged distances or got temporarily lost.

To correctly interpret historic "treks" we should be skirting the edge of survival. While some may wish to do so, I prefer to enjoy my winter outings but within general parameters established by historic foodstuffs. As Swanny noted, "As a practical matter, I don't try to lose weight during a trek and don't recommend others do so either. Most of what you lose will actually be water, which you'll regain immediately upon being rehydrated. Cutting calories on the trail carries an elevated risk of hypothermia in addition to contributing to fatigue and on a winter trek in my part of the world that's a recipe for disaster."

Well put. Hence, some research into food.

The Science of Winter and Food

Probably the best source of winter camping advice and insight comes from Garrett and Alexandra Conover (“A Snow Walker’s Companion”). They have distilled lessons learned from over two decades of up north camping and guiding into a succinct, informative, and engaging book. Their techniques are rooted in traditional Indian ways and even with modernisms tossed in their knowledge directly translates to historic trekking.

Another great source is “North to the Pole” by Will Steger and Paul Schurke. Although we’re not going on expeditions, the lessons from this arduous adventure are applicable to us. Solid information on diet as well as the mental side of things. On critical aspects of winter camping Steger and the Conovers present the same basic advice.

Calvin Rutstrum’s “Paradise Below Zero” is a fantastic winter camping guide except for one area – food. His list of foods is good but lacks the analysis of the Conovers and Steger.

First Some Insights

Let me start with some information and observations gleaned from “North to the Pole” by Steger and Schurke:

- On Arctic expeditions it takes about a week before the work and cold start to take their toll and significantly increase one’s appetite.
- Daily ration – 2.25 pounds / person / day; 1.5 lb of it in animal fat (66%).
- Pemmican – staple: 60% ground beef and 40% fat; small amount of wheat germ, molasses and rose hips for nutrition.
- No sugar or caffeine – these stimulants can put body’s metabolism on roller-coaster ride; they drank herbal tea.
- Energy needs vary by person’s body weight / size / metabolism. For their group 6-8,000 calories per day were needed for people at the high end but just 4,500 calories for Ann Bancroft at the low end. Note they were working very strenuously in extremely cold conditions with only minimal times with heated tents.

- Water / fluids – Steger drank a quart of water every morning + 1 pint of herbal tea + 1 pint of lemon drink; then drank sparingly during the day.
- By fourth week several of party were reacting negatively to all the fat in their diet; nausea, diarrhea; bodies had become acclimated to cold by this time.
- Typical daily rations (diet was admittedly monotonous)

Breakfast: 3 oz rolled oats / 3 oz peanut butter / 4 oz unsalted butter / herbal tea

Lunch: 6 oz energy bar

Dinner: 8 oz pemmican / 6 oz egg noodles / 4 oz white cheese / 2 oz butter oil

Optional supplements: vitamins, chicken soup mix, energy bars, nonfat dairy milk, cocoa

Calvin Rutstrum observed that warm bannock or bread is a wintertime luxury that should be indulged. The Conovers observed that warm bread provides a morale booster when expedition rations become boring.

Rutstrum also offers fruitcake as a good trail food. He made one using a rich dough and lots of mixed fruits and nuts. Pre-cut into ration-sized portions it becomes a good trail food.

The Conover's "A Snow Walker's Companion" offers a wealth of advice regarding food:

- Experience has shown them that people's pre-trip diets don't wear off until day four. People's appetites increase as the trip goes on (due to both mental and physical adjustments).
- Body burns carbohydrates first, then fat, then protein, based on ease of metabolism. Fat provides the most energy or heat for its weight but releases it more slowly. Carbohydrates give more energy quickly and proteins give more energy more quickly.
- One example of caloric heat: they snacked on a mixture of cocoa (dry) mixed with butter as needed throughout the night while camping in the open; cocoa provided taste and some quick heat while butter provided slow-burning warmth.
- In temperate climate, active outdoorsperson might consume 3,500 calories per day; same person in winter will need 4,500- 6,000. They define moderate cold

winter weather as down to -20; after that it is severe and caloric needs can rise to 7,500-8,000 per day.

- Person bivouacking (camping without a heated tent) needs more energy more often. Their average ration for a person tent/woodstove camping is 2.8 pounds per day; on a bivouac-style snowshoe trip that rises to 3.8 pounds per day.
- Recommended ratio: 20% protein / 40% fats / 40% carbohydrates
- Protein: eggs, milk, lean meats, fish, whole wheat, oats, yeast, corn, rye, buckwheat, peas, beans; approximately 1,800 calories / pound; rebuild body tissues, liberate more heat than carbohydrates.
- Fats: butter, margarine, cooking oils, animal fats, cheese, nuts, nut butters; approximately 4,080 calories / pound; long burning, liberates most heat.
- Carbohydrates: sugars, syrups, cereals, pastas, starchy vegetables, rice, breads, pancakes, dried fruits, candy; approximately 1,800 calories / pound; quick energy.
- Coffee / tea: not ideal trail drink due to side effects of caffeine (stimulates nervous system and causes perspiration as well as dehydration); on short trips or easy trips in mild weather there's no problem bringing them.
- Oils: they believe animal fats provide more calories than vegetable oils and burn more slowly.
- Water: each person will need 4-6 quarts per day (hourly loss can be as high as one cup per hour).
- Pemmican recipe: 2 cups animal fat / 1 cup bacon drippings / 2 cups finely ground dried meat (jerky).

Nutritional Content of Selected Foods

The following table lists many of the likely foods a reenactor might take winter camping. I've focused on those that provide fat, protein, or carbohydrates (the main concern with winter camping). In some cases I've only listed one type (e.g., pinto bean) to stand in for a variety of one item. Some varieties (e.g., yellow peas) are not listed because I have not yet found analyses for them. Items are listed in alphabetical order.

Food	Unit	Wgt (g)	Calories	Carbs (g)	Protein (g)	Fat (g)
Bacon, cooked	2 slices	15	86	0.5	3.8	7.8
Beans, pinto	1 cup	185	218	39.6	14.4	0.9
Beef, dried	1 oz.	28	58	0.0	9.7	1.8
Beef, tallow	1 oz.	28	40	0.0	0.4	26.4
Blueberries		100	48	14.1	1.0	0.0
Butter†	1 oz.	28	201.6	0.0	0.0	23.0
Chocolate, bitter baking	1 oz.	28	143	8.2	3.0	15.0
Cranberries	3.5 oz.	100	57	14.4	0.0	0.1
Currants*	¼ cup	40	130	31	10.0	0.0
Fish, herring, Atlantic, cooked, dry heat	3 oz.	85	173	0.0	20.0	10.0
Fish, whitefish, smoked	1 filet	154	265	0.0	37.7	
Flour, cornmeal	1 cup	138	502	108.2	10.9	1.7
Flour, white wheat, unbleached	1 cup	125	455	95.1	13.1	1.3
Flour, whole wheat	1 cup	120	400	85.2	16.0	2.4
Hazlenuts (filberts)	1 oz.	28	177	4.3	3.7	17.5
Hominy (lyed corn), white, cooked	½ cup	128	92	18.3	1.9	1.2
Lard	1 oz	28	252	0.0	0.0	27.6
Oatmeal, quick cooking, dry	½ cup		150	27.0	5.0	3.0
Peas, green, raw	1 cup	145	122	21.0	6.5	0.6
Potato, baked	1 whole	202	145	32.8	4.0	0.2
Salt pork	1 oz	28	219	0.0	1.1	24.0
Sugar, white granulated‡	1 tbspn	12	46	11.9	0.0	0.0
Syrup, maple	1 tpspn	20	50	12.8	0.0	0.0
Vension	3 oz.	84	127	0.0	25.4	2.0
Wild rice, Nett Lake, dry	3.5 oz.	100	50	75.0	14.1	0.8

Sources: “The Living Heart Diet” by Michael E. DeBakey; Sun-Maid Raisins; Boise Forte Reservation and University of Minnesota; Quaker Oats Co.; nutrition.about.com; nutritiondata.com; and USDA.

† Although butter was not available in the interior, I justify its use because it packs so much nutrition and is more palatable than lard/tallow.

* Raisins could be substituted if cost is an issue.

‡ This is a stand-in for maple sugar which I believe has the same nutritional value.

Dave Schmid offered Martin Hunter's list of food for a typical trek into the forests during the 1800s (Hunter was an HBC man and his book "Canadian Wilds" is a classic). Here it is along with my analysis of its caloric values.

Provisions per man per day:

2 pounds of flour or 1 1/2 pounds of Sea Biscuits (3,265 cal / prot 94 g / carb 682 / fat 9.3)

1 pound of fat mess pork (3,504 cal / prot 18 / carb 0 / fat 384)

2 ounces of sugar (107 cal / prot 0 / carb 28 / fat 0)

1/2 ounce of tea

2 ounces of Peas (or Barley) (47 cal / prot 2.5 / carb 8 / fat 0)

1/2 ounce of carbonate of soda

1/2 ounce of salt

Plus, Hunter adds, "any game that may have been produced through the day."

It is a hearty diet of nearly 6,900 calories per day but light on protein – good hunting is to make up for that. And, as Hunter and others have noted, forget the gun and bring a gill net as fishing is a more reliable source of protein. I would substitute beans for the peas as they provide more nutrition per pound. With good hunting or fishing this diet would work well for a winter outing but is probably overkill for other seasons.

Modern Trekking Food

Let's begin with some of the ideas offered by contributors to the North West Journal on-line discussion group:

On most treks where we are actually traveling (as opposed to base-camp operations) our crew usually eats a hot breakfast and hot dinner, and rely upon

snacks during the day. I generally eat as much as I wish and consider it close enough. I don't care for pemmican enough to rely on it as a cold snack, though when hot it's at least edible. Smoked Chinook (King) or silver salmon makes a great high protein high fat snack that will keep you well fueled for a good long time and cold jerk washed down with well sweetened hot tea (we do boilups at mid morning, mid day and mid afternoon) works well also. Thom Swan

One food item I enjoy is a chocolate corn meal mush. Mix about 1/4 to 1/2 cake of chocolate (like abuelita) with water and heat in corn boiler. Then add cornmeal until thickened. It's a hot meal and high energy and resembles Cocoa Wheats in flavor. I also have ground my own parched corn to make corn meal, heated with water and add maple sugar. Again a flavorful and high energy hot meal. Paul Ellenbecker

The thing about the modern menu and my trail menu is the common item of Protein & Carbohydrates. Basically I have found that an equal balance of both is what the doctor ordered. With further research each of you will find what foods were correct for your persona. Pemmican is vital & it gives that protein & fat that is needed. Throw in a piece of ships bread and wild rice and you have a meal that will keep your body going with the right energy intake needed. I worry about the weekend warriors that neglect their body and wonder why they are so down with energy and nutrition at the end of a long day. It has happen to me in years past. Dave Schmid

Now, let's see food: I gotta say I am a big pusher of pemmican. Straight and simple pemmican, not with peanut butter or berries but pounded meat and suet, is it good, well, not really but palatable, though I have had it good with added fixens. Normally we bust up some in the trade kettle and add a bit of flour and snow making a classic rubaboo, with added wild rice it can be a delight. A trek we did 2 years ago we dined well, we carried fish, which was of course frozen

and we boiled that up with wild rice till thick, a fine diversion from pemmican. Other than that it is a bit of coffee or tea and we are set, occasionally a flat unleavened bread is carried but nothing more than that for winter excursions, food is never a treat but a simple necessity, eat and get it over with has been a normal procedure for us. Karl Koster

... perhaps the biggest problem I see in reenacting [is] folks find 15 period foods like: coffee, tea, fish, meat, cornmeal, wild rice, chocolate, pemmican, nuts, dried fruit etc. and because they documented those foods, they feel safe they can haul all of them for a varied diet. Many times meals were VERY redundant.

Pemmican for breakfast, lunch and dinner – not pretty or tasty but effective. I have gone as long as 5 days on pemmican. Again, it becomes not a treat to eat but sustenance. Karl again

I agree with Karl that the foods we take winter trekking should be appropriate to the period. On the other hand, I'm not a masochist. I do not think it is breaking the rules to bring along a varied diet within the range of historical goods. Winter nights are long and lots of time is spent around a campfire – let's enjoy ourselves and have a veritable feast.

Some Basic Portions

The following table lists some basic portion sizes that people can use as a guide to create trail menus and determine provision amounts.

As I prepared the table one thing became clear to me, I can't eat this much food! At 6 foot 160 pounds I'm lean and in decent shape; my modern era diet is low fat, well balanced, and probably is right around 2-2,500 calories per day. Both the Conovers and Steger observed that trekkers live the first couple days off their pre-trek diet and stored food; it takes at least 3-4 days before the labor of the trail and the cold combine to significantly increase nutritional needs. By that time our mini-treks are over. At some point on a bivouac-style winter trek I would need 5-6,000 calories per day, but I don't think I could stuff that much food into me during a 2-3 night trek in moderate winter temperatures and doing average labor.

Use this table as a starting point and please don't take the caloric values as anything more than good approximations (I'm not a dietician, eh).

Food	Calories	Carbohydrates	Protein	Fats
Oatmeal (1/2 cup dry) + 1 oz. butter + 1 tspn maple sugar	398	XX	X	XX
Hominy (1/2 cup cooked) + 1 oz. butter	294	XX	X	XX
Bannock (1 cup flour, water, baking soda, no fat)	400	XX	X	X
Bacon (4 oz.)*	642		X	XX
Pemmican (4 oz.)	543		XX	XX
Salt pork (4 oz.)	876		X	XX
Beans (1/2 cup cooked)	109	XX	XX	
Venison (4 oz.)	169		XX	X
Whitefish smoked (6 oz.)	289		X	
Wild rice (1/4 cup – 2 oz., dry)	28	XX	X	
Chocolate drink (1 oz. bitter chocolate, 1 oz. butter, 1 tspn maple sugar)	391	XX	X	XX
Hazelnut & cranberry snack (1/2 cup, 50/50 blend)	103		XX	X

Note: "XX" indicates this is primary food value and "X" indicates this food is a minor source.

* Bacon grease should be sopped up with bannock and/or added to hominy.