

WODC RELEASES NEW MAP AND GUIDE

In time for the 1996 hiking season, WODC has recently released a significantly updated and improved second edition of the Club's *Trail Map and Guide to the Sandwich Range Wilderness*. The first edition of the popular *WODC Map and Guide* was released in 1991.

The new map, printed on tear and waterproof Tyvek, incorporates more than 75 changes, and an improved color scheme. Attractive features of the old map are retained in this new version. Mileages between trail junctions are noted, and demarcations between private land, USFS land, Mt. Chocorua Scenic Area and the federally designated Sandwich Range Wilderness. For all of its detail, the map remains readable and easy to use.

As with the earlier edition, the WODC owes a huge debt of gratitude to cartographer Mike Bromberg, who painstakingly collected corrections, reviewed every detail of the map, and then field verified each change using a compass, altimeter, and visual surveying. Mike's hard work and meticulous attention to detail have produced one of the most accurate hiking maps available in the White Mountains today.

Despite these many improvements, WODC continues to price the map at \$5.00, a cost that includes a convenient Tyvek map holder. A limited number of the new maps are available unfolded and suitable for framing or laminating.

On the reverse side, the new edition features an extensive guide to the WODC trails. The map incorporates over 100 text changes, updated trail data, camping regulations and related information. Detailed descriptions are included for every WODC trail, along with a substantial amount of information on White Mountain National Forest regulations and general backcountry travel information.

This new map arrives at a time when map making is in high gear in the White Mountains. The Appalachian Mountain Club is currently planning to update their

maps, using Global Positioning System (GPS) mapping techniques, and the Randolph Mountain Club is due to release a new map of the Northern Presidentials this July 4, incorporating new GPS data and data from Washburn's map of the Presidential Range.

The new *WODC Map and Guide*, with its high degree of accuracy and legibility, will be widely used.

Doug Mayer

Map Details

We are pleased to inform members that the 1995 edition of the *WODC Guide and Map to the Sandwich Range* is now available. This welcome news is traceable to many members to whom we express our gratitude. Foremost we are indebted to Mike Bromberg who was the cartographer for the new edition as well as the 1991 version. Mike is an amateur in the sense that he volunteers his time, but a professional in the quality of the output. Unlike most professional cartographers



Mike Bromberg in his element

who limit themselves to the graphical process, he participates in gathering the necessary information by hiking all trails which appear on the map, chairs the Map Committee which has the major responsibility for decision making, writes text, proofreads map and text, and oversees printing in its final form. He even delivers the completed maps to Wonolancet.

Following is a statement of the Trails Committee which expresses its thanks. "Finally, we'd like to extend a note of thanks and recognition to Mike Bromberg. Among the changes are a number of trail adjustments, such as the extension of the Kate Sleeper Trail and the relocation of part of the Kelley Trail. Since this is a *Map and Guide*, Mike also incorporated a number of suggestions from the Trails Committee intended to encourage responsible use of the trails. This includes the removal of several fragile, unmaintained trails that could be easily damaged by overuse. Thank you, Mike, for all your work."

Producing a map is a team effort. Our thanks to all for their help. On the Map Committee were: David Bowles, Mike Bromberg, Paul King, Chip Kimball, Fred Lavigne, Peter Smart, Fred Steele, Nat Steele, Ralph Weymouth, George Zink and Sally Zink. Trail distances for the new edition were measured by Jon Burroughs. Tim Dalton assisted Mike in communications with the publisher. Rangers at the Saco District of the USFS made several valuable suggestions.

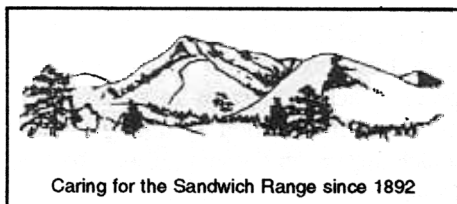
Copies of the latest edition are available from:

**Wonolancet Out Door Club
HC 64 Box 5
Wonolancet, NH 03897**

Prices including packaging and postage:

Folded map in envelope	\$5.00
Unfolded map in mailing tube	\$8.00
Laminated (3 mil), unfolded map in mailing tube	\$15.00

Unfolded and laminated maps are limited in number. If you are certain you want one, order now.



The Newsletter is published twice each year by the Wonalancet Out Door Club. The mailing address is:

WODC
Newsletter Editor
HC 64 Box 5
Wonalancet, NH 03897

The Editor encourages members and interested readers to submit material for use in future issues. Articles, poems, drawings, comments, criticisms, suggestions, are welcomed.

LIBRARY CLIPPINGS

The room where the WODC books, maps and memorabilia are located is in the lower level of the Cook Memorial Library in Tamworth. This downstairs room also contains the genealogical and town history collection maintained by the Tamworth Historical Society. WODC books are in a locked cabinet, formerly located in a corner of the Wonalancet Post Office and moved to its present location in September 1992.

The WODC Library Committee has met four times since November. One of our first concerns was taking an inventory of items in the cabinet. David Govatski, an employee of the Forest Service and WODC member, offered to meet with us and evaluate our collection. David is a book collector, particularly interested in books of White Mountain history, and knowledgeable of their value. With David's assistance, an inventory was compiled and a value placed on each item.

There are many interesting books: travel guides by Sweetser; books by Frank Bolles; *Oakes' White Mountain Scenery*; *Historical Relics of the White Mountains* by J. H. Spaulding; Drake's New Hampshire, and Drake's Maine. These last two books were originally intended to inform railway passengers traveling in the White Mountains. There are many more books; a list is available from the Library Committee. There are also old maps,

memorabilia from inns in the Wonalancet area, and photographs.

With approval of the Executive Committee, a book binder who specializes in restoring antique books is repairing our first edition of the *History of Carroll County*. In addition, a safety deposit box has been secured where several of our valuable books are being stored.

Materials from the WODC Library are presently available to anyone who wishes to use the Tamworth Library while it is open—Tuesdays and Wednesdays from 2 P.M. to 8 P.M. and Saturdays from 10 A.M. to 2 P.M. It will be necessary to get a key either at the main desk, or from Sally Zink. To conform to the procedures of others using this room, items must be used in the Genealogy and History Room, and cannot be taken from the library.

The Club committee is presently sorting the items. We have obtained document cases, along with acid free file folders in which to store papers. Books are on the cabinet shelf. We need to purchase archival type Mylar for the odd newspaper clippings and photographs.

Now that there is some organization of materials, this is an opportune time to ask our members to donate materials, books, memorabilia concerning hiking, the Wonalancet Intervale, the boarding houses in the Intervale, or of general hiking or other interest that Club members might find enjoyable. To keep members involved and to supplement the material we have already received, we would welcome any items you would like to give. You can be assured that all will be gratefully received and carefully attended.

We encourage your visit to the WODC library.

For the Library Committee,

Barbara Nordeen
Barbara Sidley
Sally Zink

SPRING TRAILS REPORT

Although many trails won't be clear of snow until May or June, planning for the 1996 season has been going on since last fall. Our 1996 calendar, which appears elsewhere in this issue, represents the ongoing effort to protect the trails from the continuous ravages of water and hiking boots. Since WODC trail work continues to be done primarily by volunteers, we hope that other hikers who use and enjoy the trails will join us on one of these trips. It's a unique opportunity to give something back to the mountains we all enjoy, and also receive a mix of fun and camaraderie.

The Sandwich Range Conservation Association (SRCA) trail crew will return this season. Jointly supported by funds from WODC and the US Forest Service, the crew allows us to accomplish time consuming and technical projects. This year we hope to focus on the upper sections of the Dicey's Mill Trail, where several gullies need restoration. Time permitting, the crew will also work on the upper section of the Walden Trail, which suffers from some of the worst erosion on any WODC trail.

Although the future of AmeriCorps is uncertain, the Forest Service continues to be optimistic that we'll see a crew in the WMNF this year. If so, we look forward to working with them again and helping to maximize their contribution to the Forest.

Other volunteers and trail crews may come and go, but WODC Adopters provide a long term commitment to the maintenance of the trails. In 1995 the Trails Committee helped several Adopters who requested extra help on their trails. We look forward to continuing this partnership in 1996, as evidenced by several scheduled trips.

Given the heavy use our trails now receive, an Adopter's task can be a major undertaking. While every hiker is grateful for the removal of brush and blowdowns, few realize the amount of hidden work, such as erosion control, which is also undertaken. While some Adopters may have the time and energy to care for all the needs of their trails, others may find the task overwhelming. The solution lies with your friendly Trails Committee.

During the coming year we will be communicating with all Adopters to better understand the role they want to play in the maintenance of trails. By knowing what work each Adopter plans to do, and when, we can complement activities to insure that needs of each trail are met.

For the Trails Committee.

Peter Smart

BRUSHING

Note: To help insure consistent care of trails, the Trails Committee is drafting a comprehensive guide to the maintenance of WODC trails. Written by Chris Conrod and edited by the Trails Committee, the guide will attempt to document current trail maintenance standards, and help insure that the needs of the trails are met over the long term. The guidelines will expand upon those previously approved by the Executive Committee, and will cover a wide range of issues, including brushing, blowdown removal, erosion control, signs, and blazing. While much has already been written on these topics, none of it is precisely suited to the conditions and traditions of WODC trails. The following paragraphs are a short selection from an initial draft. The Trails Committee invites your comments and suggestions.

Peter Smart

In general, WODC trails should be cleared so that a large person with a full frame pack can walk the trail after a rain storm without getting soaked. Allowing for regrowth between brushing sessions, the recommended width is four or five feet with a height of eight feet. If the trail is used frequently in the winter, the adopter has the option of clearing higher to allow for snow cover.

Plants that are entirely removed should be cut flush with the ground, and branches should be cut flush with the trunk or limb from which they are removed. This results in a natural appearance and free of potential hazards to the hiker.

Try to avoid overpruning trees, and never remove the tops. This is not only unsightly but also encourages lateral growth that increases your later work and produces an even uglier tree.

(Continued on Page 9)

1996 Trail Calendar

- May 4** For our first project of the year, we'll give adopter Andy Thompson a hand on the **Bennett Street Trail**. Work will include brushing, blowdown removal, maintenance of water bars, and review of last year's drainage work.
- May 11** **Chocorua Mountain Club's Annual Trails Day** is a great chance to help out a sister trail club and enjoy a great meal too. For details call Kate Lanou at 617-492-6159 or 603-323-7327.
- 5/30-6/2** Celebrate **National Trails Day** with this backcountry overnight on **Kate Sleeper Trail**. The primary goal is to restore eroded trails on Mt. Whiteface. In addition to overnight volunteers, day hikers are needed to pack tools in and out.
- June 22** A variety of treadway restoration projects await us on **Kelley Trail**. Specific work will be determined by the interests of those who attend.
- July 20** **NH Trails Day**: Join us on the **Square Ledge Trail** with adopter John Mersfelder. Working in two or more smaller groups, we plan to clear brush, blowdowns, and waterbars. Annual WODC barbecue to follow.
- July 29** **SRCA** begins 3-4 weeks work on the upper sections of **Dicey's Mill Trail** and **Walden Trail**. Base camp will be in the vicinity of Camp Rich.
- Aug 2-4** WODC volunteers will join the SRCA crew for work on **Dicey's Mill** and **Walden Trails**. Volunteers are also welcome at any time during this cooperative WODC/SRCA project. Come see your membership dollars at work.
- Aug 24** **Trailwrights** has been invited to join us on this work trip with the **Chocorua Mountain Club**. Possible projects include treadway restoration on the Old Paugus or Bee Line Trails. Potluck supper to follow.
- Sept 14** Treadway restoration on the upper **Brook Path** with adopters **Roger and Susan Korpi**. This will complete work begun last year.
- Oct 5** Working with adopter Chris Conrod, we'll stabilize sections of the **Lawrence Trail** below the "Overhang". May be done as a day trip or an overnight.
- Oct 26** **Trailwrights** will help us place the final water bars on the **Dicey's Mill Trail**. This will complete a substantial restoration begun by AmeriCorps and SRCA.
- Nov 9** Close out the season with a very important **Waterbar Extravaganza!** Although waterbar clearing is an ongoing project, this is the ideal time to remove the dammed-up fall leaves. We want to cover as many trails as possible, so lots of volunteers will make this annual project a success.

We invite you to join us for any of these activities.

No prior experience is needed, just the desire to join us. Tools and guidance will be provided. Full-day volunteers should be ready to leave the respective trailhead at 8:30 A.M. Please arrive early to allow time for planning and distribution of tools. Bring work gloves, a good lunch, and plenty of water. If you arrive late, please hike up the trail to the work site. We also welcome onlookers who would like to know more about trail maintenance.

Prior arrangements are needed only for overnight trips. Please call 603-323-8666

CAMP SHEHADI

Note: This is the second of three articles on the WODC shelters in the Sandwich Range Wilderness. The third will appear in the fall of 1996 Newsletter.

Many hikers wonder how Camp Shehadi got its name. All three WODC shelters are named for individuals who made some contribution to the Club. Concerning Camp Shehadi, the name is that of a guest at Wonalancet Farm who presented a lecture for residents and summer guests in the Wonalancet Chapel during August of 1899. Mr. Shehadi Abdullah Shehadi was a former resident of Syria, then living in Providence, RI. Shehadi lectured to an appreciative audience, and he donated the proceeds to fund construction of a shelter near the peak of Mt. Whiteface.

First documented evidence of the shelter is found in *Appalachia* of March 1900. The shelter was constructed on Mt. Whiteface in 1899 at a site that is now on the Rollins Path in the first col north of and about one-quarter mile from the open ledges. An early photograph, Figure 1, appears in the 1901 *Guide to Wonalancet and the Sandwich Range of New Hampshire*. The camp, described as an enclosed structure with double doors sufficient in size to accommodate six to eight people, was heated for winter use by a small stove. Dimensions of the original camp are not known, though an estimate of size is possible from early photographs. Comparing the height of grown men standing in front of the shelter with the apparent dimensions of the camp, it was about 12 feet long, at least 10 feet wide, 8 feet high at the front, and half that height in the rear. No windows are visible. Walls of the cabin were of large diameter logs, running horizontally. The camp is sturdily built.

Records in the Wonalancet Farm register and *Appalachia* show snowshoeing was a popular AMC winter activity in the 1890's. During this period, in 1898, Gordon Taylor blazed the middle section of the Blueberry Ledge trail for the convenience of snowshoers; the lower and upper sections were already in existence.

Intended winter use accounts for the doors and stove, not usual on shelters in the range. The shelter on Sandwich Dome had a small opening in the front wall that may have held a door.

Designing and building the camp was solely a Club initiative; there is no evidence that AMC played any role in its construction. The architect and builders are unknown. Many permanent residents in the area could do such work, and were eager to increase their earnings.

The original structure was heavily used for about twenty years. How short the life span of unprotected wooden structures in our mountains can be, and how un-



Figure 1. Camp Shehadi in 1899

disciplined users were in backcountry ethics, is illustrated by a statement in the 1908 *WODC Guide* that "The Camp has received a good deal of hard use, and is now getting almost beyond repair." The first major reconstruction came about due to a musical event in the interval.

In August of 1926 Leo Schultz of the New York Philharmonic Society gave a recital at the Gane house (Peggy Johnson's and Paul Henle's in 1996). The Gane daughters, Marjory and Gertrude, were talented musicians who regularly held musical events at their large house. Active WODC members, they opened their home to Club members and guests for these events. About 125 people attended the Schultz performance, and a collection of over \$125 received. Mr. Schultz requested

that the proceeds be used to build a new shelter on Mt. Whiteface.

When Mr. Schultz made the recommendation, Camp Heermance on Whiteface existed, and the White Mountain National Forest established. Beginning in the fall of 1926 and extending through 1928, numerous discussions were held concerning the new camp. Where should it be built? Should it be at the site of Camp Heermance, or the present Shehadi? Would a stone structure be more appropriate in this harsh climate? How much would a stone camp cost? Who would do the construction? Would the newly formed WMNF give permission for the camp?

In 1928 the Club received a letter from the Forest Service "giving government instructions for the new camp." In addition, an outhouse must be built. At the fall annual meeting members decided not to build a new shelter, but to do extensive restoration of Camp Shehadi.

President Walter Walker reported at the annual meeting in September 1929 that rebuilding of the shelter was complete. After general rejoicing at the announcement, members voted to retain the name of Camp Shehadi, and to rescind a former vote to name the shelter for Leo Schultz.

Although there is no definitive statement of who did the work, reconstruction took place during the presidency of Walter Walker. He was a hard working man, and one suspects he was deeply involved in the planning and construction. Minutes from the annual meeting state simply that "Camp Shehadi has been rebuilt," and, "The President's report was accepted on a rising vote of thanks given to him for his fine work and his devotion to the interests of the Club." The \$126.60 raised at the Schultz concert paid the total cost of rebuilding, and the new toilet. Considering the fact that in 1915 the Club was paying \$2.50 per person per day for work on trails and camps, this seems reasonable.

So the original Camp Shehadi existed for thirty years before a major restoration.

Was it a wholly new construction on an old site, or were salvageable portions of the first camp reused? Records give no clue.

In September of 1942 a Forest Ranger from the Conway office inspected Camp Shehadi and reported to Supervisor Graham, "The grounds were found littered with tincans. The shelter itself was in good condition but lacked evidence of much use."

Tin cans and other refuse were a problem at all three WODC shelters. There was no "Carry In—Carry Out" policy or a well-established user ethic at the time. Campers left discarded items at or near the shelters; animals found the conditions favorable. Depressions near shelters were used as garbage pits and can dumps. As recently as the mid 1970's, trash was a problem. At the 1973 annual meeting thanks were extended to campers from Camp Wachusett "whose members carried thirty 5-gallon bags of trash down from Camp Rich." Campers despoiled the area around shelters by cutting fire wood, sacrificing both dead and live trees. The customary fire rings of loose boulders at shelters were four feet or more in diameter.

Today most campers are better educated than their predecessors in terms of backcountry manners and ecological awareness. And there have been other changes: WODC supplied blankets at each shelter, each had a shelf on which users left a small supply of food for emergencies; each camp held a register to record the user's name, date, and some comment.

Club records from the mid 1930's through the early 1950's hold no evidence that any major work was done at Shehadi; it was a period of low activity for the Club due to three factors. The great economic depression beginning about 1929 resulted in fewer guests at inns and boarding houses in the White Mountains, including Wonalancet.

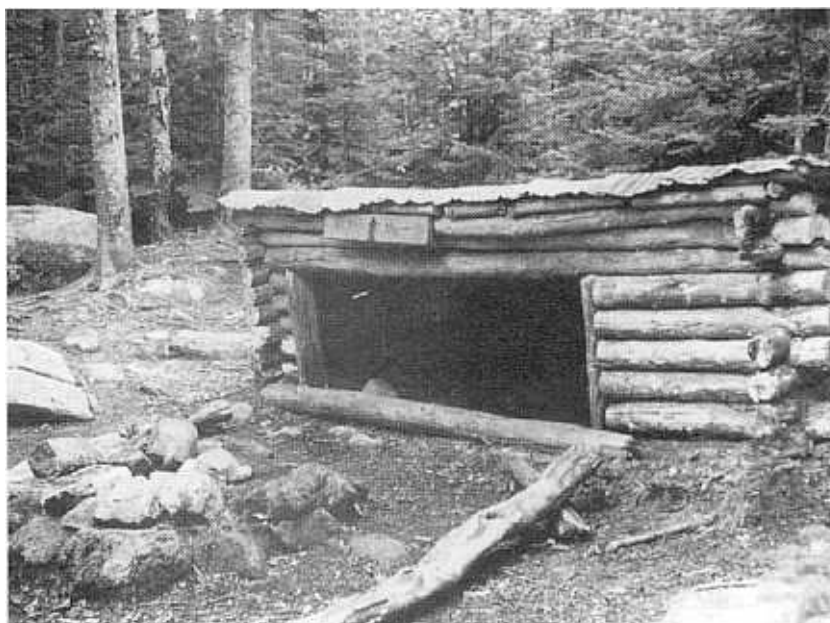


Figure 2. Camp Shehadi in 1993

In 1938 a destructive hurricane produced major damage to the Forest, portions of which were closed for several years. There were extensive blow downs near all three camps, but the shelters themselves were undamaged.

Before the depression of the thirties and forties ended, and hurricane damage cleared, the nation was precipitated into World War II. Club activity was minimal.

Except regular maintenance such as painting the metal roof or replacing a rotted basal log, there has been no major reconstruction on Shehadi since the 1930's. A photograph of the shelter taken in 1993, Figure 2, indicates much work is needed now. Note particularly that the shelter lacks headroom; several times during the years the basal logs in direct contact with the soil rotted out and were not replaced.

The major reason for the neglect of all three shelters during recent decades is found in developments from 1975 on, related to the Roadless Area Review and Evaluation (RARE II) and Wilderness designation. During RARE II the Forest Service took a comprehensive look at all the roadless and undeveloped areas in the 154 National Forests and 19 Grasslands of the nation to identify for Congress those areas that were strong candidates for Wilderness designation. Prior to RARE II the Forest Service did not consider

Wilderness designation on National Forests east of the Mississippi River.

In New England, as RARE II progressed, public support was strongest for Wilderness designation of the Sandwich Range. WODC members were pleased by the public support, but perplexed by the effect designation would have on the shelters. Forest Service policy at the time required the removal of all shelters from Wilderness unless needed for public safety; shelters were not for the pleasure or convenience of users, nor for preservation of their cultural and

historic values.

Consequently, WODC spent neither time nor funds repairing shelters that the Forest Service planned to tear down. Because of this neglect, the shelters are slowly deteriorating.

Is there no hope of preserving any WODC shelters? There is, I believe, if WODC members have sufficient resolve and will. Since passage of the National Historic Preservation Act in 1966, intended to ensure that federally funded or permitted acts do not destroy cultural resources important to the nation's heritage, the Forest Service has begun to modify, although slowly, its policy toward the preservation of cultural resources in Wilderness. In the words of a Forest Service official, "The Forest Service is over 25 years behind in cultural resource inventories in Wildernesses, and managers often do not have even rudimentary information needed for wise decisions."

WODC now has the opportunity to work with the Forest Service in uncovering the cultural and historic role of shelters in the Sandwich Range Wilderness, and in deciding if any, some, or all are worth keeping.

George Zink

POTLUCK REVIEW

On Saturday, January 27, a potluck dinner was held at Runnells Hall in Chocorua for WODC members and the general public, to socialize and then to discuss issues regarding Wilderness. About 40 people attended, despite the snowy weather. After dinner, George Zink, John Mersfelder and Peter Smart gave presentations and responded to questions and comments from the audience.

George Zink discussed the legislation that created federal Wilderness areas, which he was very familiar with through his successful work on the creation of the Sandwich Range Wilderness and the Pemigewasset Wilderness in 1984. The "New Hampshire Wilderness Act," signed by President Reagan on June 19, 1984, created these areas under the original federal Wilderness Act of September 3, 1964 and the Eastern Wilderness Act of January 3, 1975. Each of these Wilderness Acts stated that its purpose was to preserve the wilderness character of certain federal lands so that they would be unimpaired for future generations and to perpetuate their "specific values of solitude, physical and mental challenge, scientific study, inspiration, and primitive recreation" for both the present and future generations. The 1964 Act states that designated Wilderness "is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain." Each Wilderness Area is managed by a Federal agency: the US Forest Service, or Park Service, or Fish and Wildlife Service, or Bureau of Land Management. Our New Hampshire Wilderness areas are managed by the Forest Service. There is a Management Plan for each Wilderness area, which is revised every 10 years to conform to current values, and legislative changes. Decisions made under the Management Plans include such items as whether to remove bridges, shelters and other manmade "improvements," and whether to stock trout in ponds. Public input is required for the management plans and other decisions, so George urged all

present to make their opinions heard on the issues under consideration.

John Mersfelder raised some thought-provoking questions about our attitudes toward Wilderness. "How did you come to feel or believe as you do about Wilderness?" "Is one's behavior modified by Wilderness, and should it?" "Can one have a Wilderness experience while carrying a cellular phone, or high tech camping equipment?" "Is Wilderness an anachronism?" "Is it consistent with the tendency toward greater organizational and technical complexity?" "Do you buy into Thoreau's dictum that in wildness is the preservation of the world?" Most of those present felt that Wilderness had great spiritual importance for them, as well as ecological importance. However, they didn't feel that people's behavior in Wilderness should be regulated, other than by the examples of others, since the prohibition of such things as cellular phones and certain colors of clothing and camping gear would be more intrusive than the behavior itself.

And as a conclusion, Peter Smart led a discussion on how trails can protect Wilderness but how they also change it by their existence. The audience compiled a list of the features we value about trails, and noted many conflicts with the values we listed for Wilderness. Wilderness is valued for being uncivilized, easy to get lost in, without amenities that make life easier, unmarked by man, and a place of solitude. Trails guide us to our destination and points of interest, make it easier, quicker and safer to travel, and introduce people to the Wilderness who otherwise might not go there. However, trails do make Wilderness less wild, and "accessible recreation" was not one of the purposes Congress cited for Wilderness. Trails do serve to confine most human traffic to the trail corridor, leaving the rest of the Wilderness area free of visible traces of man. This leads to the conclusion that Wilderness trail maintenance should strive for a natural and unobtrusive appearance, while providing a durable trail that prevents greater impact. Subtle techniques can also be used to make a trail easy to follow, so that it fulfills its function of keeping people on the trail.

The audience compared on-trail and off-trail experiences in New Hampshire Wilderness areas with those in the Western U.S., which was an interesting discussion.

This evening was valuable background for later possible discussions about policy issues that both the Forest Service and the WODC may deal with such as: where to encourage and discourage camping, whether there should be less blazing and signing of some Wilderness trails, the closing or relocation of trails where erosion control is difficult, and the proposed Forest Service parking fees. We welcome all questions, comments and suggestions from members about forums that they would find worthwhile.

Judith Reardon

THANKS

for helping us update and correct our membership list. Let us know if we have spelled your name wrong, applied dues to the wrong year, etc. It's most helpful to send a **completed** card with your dues. Otherwise we may have to guess what you want. For example, if we receive a check for \$20 in November 1995 with no further information, we will have to guess 1) whether it is an individual or family membership, 2) whether any contribution is intended, and 3) which membership year the member is trying to pay. So please fill out your card; then we won't have to guess. If we have guessed wrong, please let us know and we'll correct it. Thanks.

DRY WATERFALLS OF KELLEY BROOK

Introduction:

My favorite WODC trail is the Kelley Trail. I can't explain fully why I am fascinated by it, but I am; every hike along the brook, even in the bed of the brook, is enjoyable. Through the years I have made many observations: a river bed that is almost free of rounded boulders, a river running on bedrock, exposed rock walls of considerable height showing prominent jointing, and a series of three steep-sided bowls or amphitheaters that I interpret to be dry waterfalls. It is about these waterfalls that I write.

I have not made accurate measurements of the many features described below. The help of people with greater expertise and more accurate devices than available to me, would be helpful.

Background:

The last great ice sheet invaded New England during the Wisconsin Stage of the Pleistocene Epoch. During the early Wisconsin (about 150,000 years ago), North America was a few degrees colder on average than it is today, sufficient to make winters cold enough so that snow accumulated in a vast region of northeastern Canada. Through the years the snow turned to ice, and the ice mass became so thick that the ice began to move outward under its own weight, much as pancake batter spreads on a griddle. Geologists estimate that the maximum depth of the Wisconsin ice sheet was 10,000 feet; Mt Washington was completely ice covered to a depth of one mile. Of course there was a greater depth over valleys than over peaks, as the surface of the sheet was a gently sloping plane.

Direction of ice flow over New Hampshire, though varied, was generally from the north northwest. In its outward movement, armed with rock fragments frozen into its lower portions, it scoured the land. A powerful erosional agent, the Wisconsin ice sheet removed at most 50

feet of rock from the mountain tops and hills in New Hampshire.

The amount eroded from valleys was quite variable, depending on the thickness of the ice, the structure of the bedrock, and on the direction of movement with respect to the valleys. Ice flowing along a valley, e.g., in Carter Notch, scoured deeply; ice flowing across a valley, e.g., the Swift River Valley of Albany, eroded little. As a generalization, the Wisconsin ice sheet altered the altitude of the land only slightly, but rounded the landscape and redistributed unconsolidated materials. Many conspicuous features of the New Hampshire landscape are products of glacial action: many ponds and lakes, rounded hills, thin topsoils, ubiquitous wetlands, abundant gravels, and abruptly changing direction of stream flow.

At its maximum the Wisconsin ice sheet over eastern United States reached eastward into the Gulf of Maine, southward to where Long Island and New York City are now located, and westward toward St. Louis, MO. Glacier movement was neither regular in speed nor direction, resulting in curved lobes at the ice front or terminus.

Due to a warming climate, the Wisconsin ice sheet began melting slowly about 25,000 years ago. During the waning over New England the ice stagnated in place; it did not move even during the longest, coldest, snowiest winters. High elevations within the White Mountains were ice free first, long before the lowlands and valleys. In the region of immediate interest, peaks of the Sandwich Range were exposed, while the lowlands both south and north of the Range were covered by glacial remnants several thousand feet thick. Thus, the ice sheet became separated into huge blocks.

The last remnants of the ice sheet melted from over southern New Hampshire about 18,000 years ago, and from the lowlands occupied by the present towns of Ossipee, Madison, Tamworth and Sandwich, perhaps 12,000 years ago. The exact dates are not relevant here—nor are they accurately known; it is significant that geologic changes take place slowly over long periods.

The dry waterfalls of Kelley Brook:

What does a hiker observe today on the Kelley Trail? One half mile or so before reaching the top of the ridge, there is the first of a series of three large amphitheaters carved in the bedrock. From the level of the dry stream bed in which the trail runs, one looks up 30 to 75 feet to exposed rock ledge. These three amphitheaters are roughly circular, and vary in width from fifty to one hundred feet; the uppermost is the largest. Large trees are growing in the sand and gravel floors of these amphitheaters.

These amphitheaters are strung together like beads on a string, and separated from one another by fifty to one hundred yards of valley. In hiking out of an amphitheater and on to the next, it is necessary to scramble up a steep bouldery incline. In climbing out of the uppermost, one is only slightly below the height of Paugus Pass at 2,200+ feet.

The uppermost of the three amphitheaters contains a most remarkable feature. Extending east to west at the southern end of this bowl is a smooth horizontal rock ledge that extends from wall to wall. North of the ledge are piles of loose gravel, and the gravel is lower in elevation than the smooth rock ledge. Apparently, bedrock in the interior of the bowl is considerably lower than the southern lip. The feature calls to mind the plunge pool of a waterfall.

How could there have been waterfalls at these places where there is now no stream? Water in Kelley Brook first appears well below this elevation. A major flow of water is unexpected near the top of a ridge. What was the source of the abundant and rapidly flowing water?

Formation of Lake Albany:

The answer lies in considering late Wisconsin time when the ridge of the Sandwich Range first became free of ice, while the Swift River Valley to the north was still completely filled. As melting continued, water collected in a shallow lake north of the range, trapped by waning ice to the north and the Sandwich Range to the south. Stagnant ice was thick in contact with the range between Mt. Paugus and Mt. Chocorua, preventing the

eastward escape of trapped water. Water could not escape westward due to the high divide near Mt. Kancamagus. The lowest point in the Range available as an outlet was at Paugus Pass, where the Kelley Trail now meets the Lawrence Path. See Figure 3.

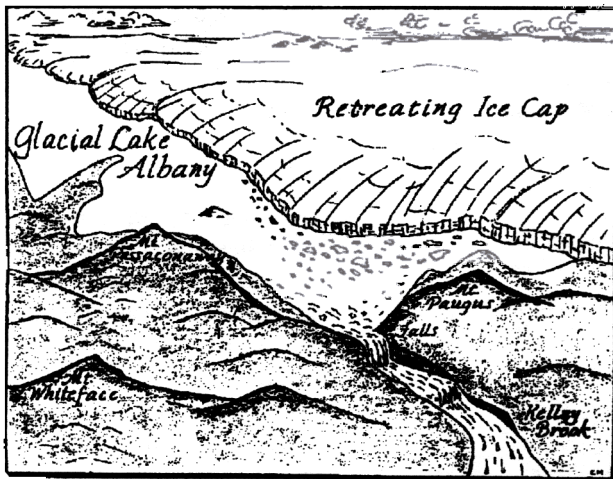


Figure 3. Lake Albany at Kelley Falls Stage

This lake, here named Lake Albany, expanded as ice melting continued. At the time meltwater was flowing down what we now call Kelley Brook, the Lake may have been as much as 8 miles long, several miles wide, and 1,000 feet deep. There was plenty of water to cut the three waterfalls of Kelley Brook.

How many years Kelley Brook continued as the outlet for Lake Albany I would like to know. In time, as the glacial lobe in the Swift River valley melted back from its contact with the ridge of the Sandwich Range, water flowed through a lower outlet east of Mt. Chocorua at an elevation of 1,100 feet. Later, other lower outlets occurred still further east.

Formation of the waterfalls:

During the period of meltwater flow down Kelley Brook, bedrock erosion in its valley was rapid. Several factors account for the rapid erosion. First, there was abundant water coursing down the stream; it was not the gentle flow seen today. Secondly, the long profile of the southward sloping land was steepest immediately below the lake outlet; abundant water and steep slope resulted in

rapid downcutting and formation of a deep channel. Downcutting in the upper portions of the brook was much more rapid than in the lower sections. Thirdly, much of the bedrock in the area is closely jointed. There are three prominent sets of joints almost at right angles to one another. One set is near horizontal, another near vertical, and the third at right angles to the other two. The distance between sets varies, in some exposures as close as 15-20 inches; consequently the bedrock splits readily into small blocks. In sum, the bedrock structure favors rapid removal by running water, and water was both abundant and rapidly flowing.

Although there is no sharp distinction between rapids and waterfalls, at the three amphitheaters conditions were favorable to the formation of waterfalls. Waterfalls usually develop where there are existing cliffs, and where streams cross from resistant rocks to weaker ones. Resistant rock layers act as cap rocks at the lips of falls, whereas the weak rocks erode readily and become plunge pools. These features are visible at active waterfalls today, such as at Fan Falls and Great Falls on the lower sections of the Bennett Street Trail.

How long the falls existed is another unanswered question, perhaps no longer than a year or two. When a lower lake outlet became available, water ceased to flow in the upper portions of Kelley Brook, and the waterfalls became fossils. It is these fossils we observe today.

George Zink



SUMMER ACTIVITIES 1996

The Executive Committee has arranged four special activities during the summer months of 1996, in addition to the Annual Meeting and potluck supper. One event is a field trip; others are presentations and discussions. Although sponsored by WODC, all activities are open to the public. If you have questions, phone for details. Please make reservations in advance.

■ **Saturday, June 8** the Club will hold a potluck supper and presentation at the Benz Community Center in Center Sandwich. The potluck supper will begin at 5:30 P.M. For reservations and further information phone Susan Bryant-Kimball at 284-6506.

At 7:00 P.M., following supper, Saco District Ranger Terry Clark will speak on the topic "New Directions on the White Mountain National Forest." District Ranger Clark was appointed to his present position several months ago.

Terry Clark in his school years fell in love with the wild areas of his native State of Washington, and spent many days hiking and camping in areas such as Mount Rainier National Park.

He is a graduate of the University of Washington with a degree in Forestry and Outdoor Recreation. He helped finance his college years doing trail maintenance during summer months.

Since joining the Forest Service Clark has worked in National Forests of Oregon, Washington, Idaho and Northern California. During most of his Service career he has been working on Recreation Management and Wilderness Management. On the WMNF he is an Infrastructure Staff Officer assigned to work concerning forest engineering, landscape architecture, construction management and developed recreation.

Terry's wife worked with the Forest Service for 17 years. They have two children, and are currently living in Conway.

■ **On Saturday, July 13** Chris Martin, Senior Biologist for the Audubon Society

of New Hampshire, will present an illustrated talk on the topic "Endangered and Threatened Raptors."

Martin has been on the staff of the Audubon Society for six years. Chris has provided information to WODC Newsletter writers for recent articles on peregrin falcons and their nestings on Square Ledge.

Before coming to New Hampshire, Chris worked for the National Park Service as a raptor specialist. He has strong recreation interests in lake and ocean kayaking, and photography.

The illustrated talk will be held in the Wonalancet Chapel starting at 7:30 P.M. For further information phone Barbara Sidley at 323-8694.

■ On Saturday, July 27 Nat Scrimshaw, Executive Director of the Sandwich Range Conservation Association (SRCA), will give an illustrated lecture on the subject "Wilderness, Human Community, and a Sustainable Future." The program will be held in the Wonalancet Chapel starting at 7:30 P.M.

Nat Scrimshaw is a co-founder and Executive Director of the SRCA, an organization dedicated to supporting citizen stewardship of the Sandwich and Squam mountain ranges. In 1990 he served as the Appalachian Mountain Club's Coordinator of the New Hampshire Heritage Trail. From 1992-1995 he was Executive Director of the Monteverde Institute of Costa Rica, a nonprofit educational organization providing programs in tropical biology, sustainable development, and gender studies for international universities, high schools, and lifelong learning for adults. He is currently employed at the Community School in Tamworth as a teacher.

For further information phone Barbara Sidley at 323-8694.

■ Saturday, August 17, Dr. Robert M. Newton of the Geology Department at Smith College will lead a geological field trip along the Kelley Trail.

Robert Newton is a long time summer resident of Madison, and is a graduate of the University of New Hampshire. His name is known to many as the geologist

who wrote the booklet on *Surficial Geology of the Ossipee Lake Quadrangle, New Hampshire*, published by the NH State Department of Resources and Economic Development.

Participants will meet at the Ferncroft parking area at 9:30 A.M. The walk along Kelley Trail is of low difficulty, and will be leisurely, providing ample opportunities for observation and discussion. Bring a lunch. The walk will take four hours, but can be extended if there is sufficient interest. Phone Barbara Sidley at 323-8694 for further information.

■ The Wonalancet Out Door Club Annual Meeting and potluck supper will be held Sunday, August 18. The potluck supper will take place in the grove beside the Wonalancet Chapel at 5:30 P.M., followed by the Annual Meeting in the Chapel at 7:00 P.M.

The Executive Committee plans to send a letter to members reminding them of this meeting, and to include in the letter recommended By-Law changes that will be discussed and voted at the meeting. For further information phone Barbara Sidley at 323-8694 or Sally Zink at 323-8696.

(Continued from Page 3)

BRUSHING

In such cases it is best to remove the entire tree. Many adopters have come to the conclusion that if a small sapling needs pruning, the best course of action is to remove it because it will only present more problems later.

Unfortunately, the same respect for nature and the stewardship ethic that led us to become trail maintainers sometimes prevents us from doing a thorough job. Trail clearing is not for the squeamish. It is our job to play the roles of judge, jury and executioner. If a tree is a hindrance it must go.

Special considerations:

At some point, most WODC trails slab along the side of a hill. Both trail maintainers and hikers tend to concentrate on the downhill side of the trail, probably because the lower (relatively) vegetation

provides a more inviting route and better view potential. This causes an almost imperceptible but steady downhill migration of the treadway.

When this occurs on a graded route such as an old logging road, the treadway often ends on the very edge of the bank, which can lead to erosion problems. There are even cases where this downhill movement has resulted in the trail ending up in the outflow ditches that carry water away from the trail. Check out Dicey's Mill Trail to see examples of this.

By keeping aware of the terrain and favoring one side of the trail while brushing, usually the uphill side, the adopter can help guide foot travel toward the most stable route.

Chris Conrod



THE WILDERNESS

One of the chief difficulties citizens confront when they go off to seek refreshment from unspoiled nature is the number of other citizens who are doing the same thing. With international tourism tripling in ten years, with the surge of visitors rising steadily in national parks and in all well-known areas of great beauty, the visions—of forests, of wild shore and open water—are obscured in milling masses of people trampling the turf, parking the cars, shooting across the virgin snow in snowmobiles, and braining the innocent swimmer with their passing speedboats. And once such invasions begin, once hot-dog stands assemble round every Walden Pond, where can men find nature in her primal state?

Should we want to? Is there not something unattractively limited and elitist about an environmental attitude which puts the solitude of the few above the enjoyments of the many? Is there not some danger in concentrating so passionately on the fate of the bald eagle that we have no time for a day in the country for the ghetto child? May we not earn the scorn Tom Paine felt for Edmund Burke when he wrote: "He pities the plumage and forgets the dying bird?"

But there are a number of sound, entirely unelitist arguments for the preservation of the wilderness and of the wildlife it contains. In the first place, there are a large and growing number of people who want to spend some of their time away from the pressures of the man-made order. There is enough wilderness in the world to increase very greatly the number of national parks and to see to it that some of them are preserved in their original condition with access kept so strenuous that the solitary walker is most unlikely to be drowned out. Of the 97 million hectares of the world's surface—35 per cent are in North America alone, another 15 per cent in Africa. There is clearly room here for expansion.

Summer Activities

(See Summer Activities 1996 article for details.)

- June 8** 5:30 Potluck supper at Benz Center, Sandwich. 7:00 Speaker **Terry Clark**, Saco District Ranger, "New Directions on White Mt. National Forest."
- July 13** 7:30 Wonalancet Chapel. Speaker **Chris Martin** of the Audubon Society of NH, "Endangered and Threatened Raptors."
- July 27** 7:30 Wonalancet Chapel. **Nat Scrimshaw** of SRCA, "Wilderness, Human Community and Sustainable Future."
- Aug 17** 9:30 Field trip on Kelley Trail led by geologist **Dr. Robert Newton** of Smith College.
- Aug 18** Potluck Supper (5:30) in grove and Annual Meeting (7:00) in the Chapel.

Moreover, the lopsidedness means that, apart from the value of these places for recreation, they do not really fulfill their potential contribution to man's scientific and aesthetic interests. Preservation and conservation are not merely matters of catering to minority tastes. The still-untouched domains of nature, the still-living multitude of natural species are essential for the work both of the scientist and of the artist. They are needed to complete our still-patchy knowledge of the interdependence of living things and the underlying balances of the natural order not yet disturbed by man. They are needed to preserve the images of variety in plant and animal without which the human imagination could easily become a starveling. The animals, the plants, the biomes are entirely unrepeatable. Yet thousands of different animal species are already known to have been wiped out. In our own day, rapacious overkilling threatens to wipe out most of the major stocks of whales.

The lesson is obvious. How many essential species have vanished before

man discovered how useful they really were? The whole concept of conservation—of studying balances and cycles, of habitats and species, of keeping seeds of all kinds in "genetic banks" is, in essence, an attempt to secure for man a "fall-back" position in case his overweening confidence or overwhelming numbers unleash on him unmanageable threats to his sophisticated hybrids, his extensive monocultures, and his urban deserts.

And this perhaps is the ultimate meaning of the wilderness and its preservation—to remind an increasingly urbanized humanity of the delicacy and vulnerability of all the living species—of tree and plant, of animal and insect—with which man has to share his shrinking planet. As he learns to observe their interdependence and their fragility, their variety and their complexity, he may remember that he, too, is a part of this single web and that if he breaks down too thoroughly the biological rhythms and needs of the natural universe, he may find he has destroyed the ultimate source of his being. This may be too hard a lesson for him to learn anywhere. Least of all is it likely to reach him amid the perpetual thrust and din of his own settlements and inventions. But if somewhere in his community he leaves a place for silence, he may find the wilderness a great teacher of the kind of planetary modesty man most needs if his human order is to survive.

Barbara Ward and René Dubos

Only One Earth

