YBRA UPLIFT

Issue 9 ***Spring 2003***

Fanshawe Lodge with new camp truck (center); clockwise from top left: Lodge porch view, Towne Point over the study halls, mule deer by Wadsworth, diligent students, dinner time, lunch in Elk Basin; year's brush clearing pile on the Point

From the President...

Starting with the Princeton Geological Expeditions of the late 1920's, YBRA has played an important role in the development of Rocky Mountain geology and geological education. Furthermore, YBRA is a beautiful place. For those of us who have been students or faculty there, it is a special place. For all of these reasons, YBRA represents a place that is worth preserving.

YBRA is presently in great shape, but several trends suggest concerns for the future. Changes in enrollment patterns in geology at Colleges and Universities as well as in geology curricula have placed less emphasis on geology field camps such as those run at YBRA by Penn, SIU, and Penn State. Since the early 80's, field camp enrollments have declined nationally. This has led to the closure of numerous field camps. Until recently YBRA was largely unaffected by this, but even the YBRA field camps are now feeling the effects of this national trend.

YBRA has wonderful but quirky physical facilities that are slowly aging. In particular, the bridge over Rock Creek that was built in the early 60's is at the end of its life and needs to be replaced. In addition, the camp's water system, which is now classified as a public water supply under Montana law, needs work. Together, these capital projects are expensive and beyond YBRA's present financial capabilities. The YBRA bridge fund was created to help fund these projects. I want to thank everyone who has contributed to the Bridge Fund over the past year. I would like to appeal to those who have not yet contributed to send in a bit extra with this year's dues.

In recent years, other threats to our land and our water supply have appeared. We have responded to these threats through the legal system. In the mid-90's our downhill neighbor (the ski hill, then the Sundance Supper Club) diverted water from Howell Gulch across YBRA land to irrigate for horses. We went to court to stop him and to protect out water rights. He went to water court to press his water claim. After nearly a decade, in January of this year, this water claim was denied. In the end, we prevailed, but not because of the merit of the case, but rather because ownership of the Sundance property had changed. The new owner of the Sundance property did not want to litigate the water claim. However, he wants to subdivide the land into as many as 25 lots. He has been turned down (repeatedly) by the County for a variety of reasons largely related to emergency access to the proposed development. YBRA's road and bridge across Rock Creek do not meet the County's standards for access to a subdivision. Furthermore, Sundance does not have a clear right-of-way of sufficient width to create a legal road and bridge. The new owners of the Sundance property have gone to court to get a road and bridge easement that would allow development. YBRA has the clearest legal documents about the right-of-way, legal documents that could prevent this development. So, we again find ourselves involved in legal case with a court date set for late July.

Hindsight is always better than foresight, particularly in legal matters. But having looked over documents from the recently settled water case, I feel that it was not worth pursuing as vigorously as we did. It is important for YBRA to protect its land, but at what cost? The legal expenses from the water case were enormous. Without those expenses, YBRA would be able to replace the Rock Creek bridge today. I am very concerned that our new legal case could prove costly (...so far, the expenses have not been too large). I want to assure the membership that contributions to the Bridge Fund cannot be used for anything other than major capital expenses (bridge and/or water supply). We are trying to work with our neighbors to get other bridge users (including the present Sundance owner) to share the costs of the bridge. But, even if we are successful, YBRA will (and should) bear much of the cost of the bridge. Please help out with a contribution to the Bridge Fund.

Peter Crowley
YBRA President

YBRA Summer Schedule 2003

June	Penn-YBRA Field Course 1 (6/5 - 7/10)
	Penn State Field Course (6/5 - 6/19)
	SIU Field Course (6/21 - 7/29)
July	Penn-YBRA Field Course 2 (7/10 - 8/15)
	Penn Environmental Studies (7/5 - 7/20)
	Cincinnati Museum (7/20 - 8/9)
	New Jersey Museum (7/20 - 8/1)
August	SIU Alumni College (8/3 - 8/6)
	Red Lodge Womens Retreat (8/8 - 8/11)
	Work Week (8/11 - 8/16)
	Amherst Alumni (8/16 - 8/23)

YBRA is on the Web!

We are pleased to announce that the YBRA now has its own Web site at www.ybra.org. The site is currently under construction, but should be fully functional by the end of summer. It will include such features as the annual schedule of activities, contact information, rates and fees, and links to our family of user organizations. Prospective users will be able to review summaries of local field exercises, the geology of the region, and the camp facilities. Incoming students and the membership will enjoy our photographic camp tour, summary of the local community resources, and history of the YBRA. We believe that this Web site will be a very useful tool for promoting the camp and maintaining contact with our members and alumni. Keep checking in with us from time to time to see the latest news and features!

Having our own domain name makes it much easier for people to find us, but the service does add up to about $300 a year. To help offset this, we're hoping next year to distribute digital copies of the *Uplift* by email to interested members, rather than the printed and mailed versions, which are becoming increasingly costly to produce. Copies of current and past issues will also be posted on the Web site for download at any time. If you'd like to help out by receiving the electronic version, please send your email address to uplift@ybra.org. Files will be sent in Adobe PDF format. Anyone not specifically requesting this service will still receive the printed version in the mail. We'd also like to start a general membership email list to have in case special announcements are needed between the annual mailings. If you wish to participate in this list, please indicate so when emailing uplift@ybra.org, or send your address directly to membership@ybra.org. All addresses received will be strictly confidential, and will not be posted on any Web site or ever released by the organization. We're as fed up with spam as you are!

HTTP://www.ybra.org

Significant YBRA People

Officers:
President: Peter Crowley, Amherst
Vice President: Virginia Sisson, Rice U.
Past President: Ed Beutner, F&M
Secretary: Dale Springer, Bloomsburg U
Treasurer: Betsy Campen Billings, MT

Councilors:
Marv Kauffman, Red Lodge, MT
Bob Giegengack, U Penn
Kevin "Doc" Hoover, Red Lodge, MT
Rob Thomas, Rocky Mt. College, MT
Ben LePage, U Penn
Kirk Johnson, Denver Museum Nat. History
Russ Dutcher, Carbondale, IL
Rich Fifarek, SIU
James "Bud" Alcock, Penn State-Ogontz
Laurel Goodell, Princeton
Peter Muller, SUNY-Oneonta
Don Fisher, Penn State

Special Councilors (Emeritus):
Bill Bonini, Princeton
John Utgaard, SIU
Gerry Brophy, Amherst
David "Duff" Gold, Penn State

Librarian:
Linda Dutcher, Carbondale, IL

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Work Week 2003

Because of our short operational season each summer, the amount of ongoing maintenance around the camp is often beyond the capabilities of a single handyman to complete, and we rely on volunteer help for many of our non-routine repairs. As many of you know, several years ago we instituted an annual Work Week to provide a time when we could get a number of members and friends of the camp together to tackle these tasks as a team. Projects typically include painting, fixing doors and windows, carpentry repairs, and brush clearing. This summer's Work Week is scheduled from the afternoon of August 11th to the morning of August 16th. We have plenty to accomplish this year and are hoping for a good turnout. As always, participants will stay free in our cabins and receive hearty meals from Jeanette's kitchen. If you are interested in attending, please contact one of our organizers below. If you are emailing us, please indicate your arrival and departure dates, the number of participants, their lodging preferences, and any special dietary requests. We look forward to seeing you!

Russ & Linda Dutcher - 618-549-3918, dutchrus@siu.edu

YBRA Physical Plant

The 2002 season at the Beartooth Research Camp was interesting at the very least. Some I am sure would rate it as disastrous or nearly so - we were short of disaster however. Those most effected were the faculty and the kitchen crew. The students were resilient and helped everyone get through the various sessions. They are more flexible. Those of you with no contacts regarding last summer may wonder what this is all about. The answer is water, both quantity and quality. Other words that need be considered are chlorine, chlorination, paint, sandblasting, weather, timing, performance, and some others not needing mention.

We have known for a while that the two water tanks should be cleaned, and while doing that they would need to be painted inside and out. Welding for various reasons was needed on both tanks, and some plumbing needed to be rearranged. We started planning this with different business folks at least six months in advance, remembering full well that you can't work "up on the hill" in the winter months. We had to work with the ironworkers to put in new reinforcement in the green tank by Marathon and Thom Library. Also the main tank above Fanshawe Lodge had to have a manway cut in its side roughly 2 feet by 3 feet in dimensions and about 3 1/2 feet off the ground. People (2) representing the painters and the ironworkers agreed to go up the hill as soon as possible to plan the situation. The Camp was not accessible in April of 2002 due to lousy weather before and during April. This was an omen of some sort and indeed pointed to many problems ahead.

We were not satisfied with our chlorine delivery system in the water-treatment house on the slope above the main tank. This houses our filtration system that works magnificently. We must however, have chlorination. The chlorination provided to us by a specialty company in this area did not work and this was because it could not accommodate variable flow. The unfortunate results of this were that at times we had too little chlorine in our treated water and at other times we had the reverse situation with far too much chlorine in the water to the bathhouses and to the kitchen. There were several different solutions tried, and the best of these was carting water in one gallon and five gallon bottles from the bottom of the hill and from a home in town. That works, but obviously was only a short-term answer to the problem.

Many heads got into the act, and we feel now that we have an answer that will work. We installed a new 100 gallon water tank in the treatment house so that we will be able to feed a uniform amount to the chlorinator at all times in 100 gallon batches. Our treatment is chlorination and filtration, both extremely necessary.
I am writing this from the foot of the hill on Howell Gulch Road - not being able to get to Camp now (Wednesday April 9, 2003). Last May was bad for weather, but so far this year looks a bit better.

Last year we were fortunate to have the services of Ray Raymond as Camp Handyman. The title is not suited to his talents - he is a skilled carpenter/cabinet maker and one who thinks for himself and sees what has to be done. YBRA profited greatly by his presence. The bad news is that he will not be with us this coming season. The good news is that Jeanette will be with us again - this being her 27th season as food-service director at Camp.

Last season we did other things besides fret and worry about the water. We were able to continue brush removal on campus (more to do), obtain a drag for the road, add some new planks for the wheel tracks on bridge, put up a "no parking " sign in front of marathon, install some new screen doors, build a new house for pump and pressure tank that serve the cabins with bathrooms, and rerouted some plumbing at the main tank that makes the water system more sensible.

There are new items planned, and hopefully we will get to some of to these in 2003. They include: 1) continuation of brush and branch removal; 2) paint the exterior of the water tanks; 3) build a small fire station near Thom Library and Marathon Washhouse, don't worry this does not include a fire truck, 4) put in new gas lines for propane to kitchen and the main washhouse, 5) enclose the exterior portions of rafters in Thom Library, the fascia and soffit also have to be enclosed. Much of our effort recently has related to fire prevention and protection. This must be continued and we intend to do this as rapidly as possible.

Keep in touch and let us know what you feel we should be up to at Camp.

Russ Dutcher

New Pump House Built by Ray Raymond,
and Modifications to Tank Piping to Improve Chlorine Mixing

Dorothy (Dottie) Foose

On December 30, 2001, Dorothy (Dottie) Jane Foose died peacefully in her sleep in Great Barrington, Massachusetts. Her death follows, by about seven years, the death of her husband Richard (Pete) Martin Foose, who had been chairman of the geology departments of Franklin and Marshall College in the 1950's and the Hitchcock professor of geology at Amherst College from the 1960's into the 1990's. With Dottie's death, YBRA lost the last of what was a remarkable partnership which contributed to and supported YBRA for more than 5 decades.

Dottie was born in Mount, Vernon IL on June 30, 1919 and grew up in Gary, Ind. As a freshman at Northwestern University, she took a geology course and, in the process, met a young lab instructor – Richard Foose. In 1937 the recent Phi Beta Kappa honors graduate of Northwestern University moved to New York to pursue her passion for music. She was a gifted vocalist, pianist, and trumpet player, who had numerous leading roles in musicals. In New York, she became a member of the chorus in the new Rodgers and Hammerstein production called "Green Grow the Lilacs." This production was later renamed "Oklahoma," but by that time, Dottie had left to marry Richard M. Foose on Feb. 11, 1939.

Dottie first visited YBRA in the 1940's when Pete came to Red Lodge during the summer break in his normal teaching responsibilities. Both fell in love with YBRA, and they returned almost every summer for the next 50 years. Pete would teach part of the YBRA field course and Dottie would insert herself both in daily camp life and in Red Lodge activities. In the early years, Pete and Dottie would show up at YBRA with their small children (Mickey, Mike, Steve, and Terry) and Dottie would spend hours with her children and others teaching them about the plants and animals around the camp. But she always kept some time for herself and for her music. As a gifted lyric soprano, she had studied with some of the best musicians in both the U.S. and in Europe. Red Lodge, of course, offered no such opportunities, but Dottie was not to be denied. She would find an unused piano in a church or a retirement home and would practice her repertoire. Red Lodge might be a long way from the television show that she hosted in Lancaster, PA or the theater stages she sang on in San Francisco, or the voice classes she taught in Amherst, MA, but Dottie was not going to let her talents languish. In addition to her practice, Dottie performed. She did this for any group that expressed and interest. One of the most memorable of these performances was at the International Days festival that Red Lodge hosts every summer. At one of these, Dottie performed the famous "habanera" aria from Carmen, appearing as a beautiful gypsy who used song to express the view that her love was like a rebellious bird which nobody could capture. It brought down the house. It may have been some of the first opera performed in Red Lodge. Regardless, it was the "talk of the town" for days.

However, many of Dottie's important contributions were not visible. She and her "Peter" were full partners and that meant she supported Pete in all his geological ventures. Whether it was camping out during geological trips, taking care of the children while he was teaching or traveling, or making sure that food and warm clothes were ready after a cold wet day in the field, Pete relied on her for support. The first reaction of many YBRA students was that Pete, with his pair of crutches, would be no match for them when climbing in the Montana mountains. They quickly realized their mistake when, bent over double and gasping for breath, they saw him disappear over the mountain top and down the other side. What most never saw were the hours that Dottie would massage his muscles to get him ready for the next day's field lessons. Without her support, Pete could not have been the inspirational and dedicated teacher he was. In turn, generations of students would not have had the same exposure to geology that inspired many of them to make it their career.

Pete and Dottie supported YBRA in other ways. In addition to teaching, Pete was a councilor for many years. Further, they gave generously to support the camp, gifts which included building a cabin which is named after them. Some of their greatest pleasures were sitting on the deck of Foose cabin at the end of the day, sipping on a concoction of peach schnapps and orange juice known as a fuzzy navel, and watching twilight settle over the plains.

Pete and Dottie are survived by their four children: Michele Page of Harvard MA, Michael Foose, of Reston, VA; Stephan Foose of Pittsfield, MA; and Terri Williams

Geology of the Red Lodge Area

A Primer to the Fort Union Formation

By Marv Kauffman

Introduction to the Fort Union Formation

Sitting in front of the Palisades are many low mounds and long, gently sloping ramps that lead up from the lowlands toward the mountain front. The Paleocene Fort Union Formation underlies many of these features. This formation resulted from the uplift of the Beartooth Mountains during the general mountain-building episode that produced the Rocky Mountains. Weathering, erosion, and redistribution of the eroded gravels, sands, silts, and clays occurred by gravity and by streams flowing off the mountains.

Uplift of the Mountains

The Beartooth Mountains were uplifted during what is called the *Laramide Orogeny*. This orogeny, or mountain-building event, occurred during late Cretaceous to early Paleocene time and produced the sediments of the Fort Union Formation. Weathering and erosion wore down these mountains, but they were again uplifted during subsequent tectonic events. Weathering and erosion of these later uplifts again shed large amounts of material off the mountains into the adjacent valleys and intermontane basins. Debris aprons were formed at the edges of the mountains. These aprons, or ramps, provided access into the mountainous region to early settlers in this area. Many of the first occupants moved their wagons and supplies up these sediment-laden slopes toward the higher country.

Coarse Facies, River Deposits, Lake Deposits, and Swamps

As the material was eroded from the mountains and deposited by gravity and streams, the coarsest gravels and boulders were dropped closest to the mountain source area. Sands were carried somewhat farther, and finer silts and clays were carried the greatest distance. Thus, the Fort Union Formation consists of coarse deposits (*conglomerates*), river deposits (*fluviatile beds*), mud or clay deposits, lake deposits (*lacustrine*), and swamp deposits (which result in coals). Each of these different rock aspects (called *facies*) can be seen within a short distance of the mountain front, especially along the hillsides between Red Lodge to Bearcreek and on to Belfry.

Coal Deposits of Red Lodge and Bearcreek

The swamp conditions that occurred over fairly wide areas during the deposition of the Fort Union Formation resulted in extensive coal beds in the Red Lodge/Bearcreek area. Small amounts of coal were mined in the early 1880s. A Northern Pacific branch line was completed into Red Lodge in 1889. A large group of settlers and mine workers soon moved into the area. A subsidiary of the Northern Pacific Railroad, the Northwestern Improvement Company, began mining in 1898. By 1910, the population of Red Lodge rose to nearly 5,000. Coal produced from this area supplied the Northern Pacific locomotives with boiler fuel, smelters at Butte and Anaconda with similar fuel, as well as fuel for homes in the Red Lodge-Billings area. It is reported that the higher quality coals that were easily mined here were sold from Bismarck, North Dakota to the Idaho-Washington state line.

Though mining started in Red Lodge, by 1900 it had expanded to Bearcreek, where the same coal beds crop out. That coal had to be hauled 4 or 5 miles over the Red Lodge/Bearcreek Bench, increasing the cost considerably. In 1906, the Yellowstone Park Railroad completed a line up the Clark's Fork valley from Bridger to the Bearcreek mines. This rail line greatly reduced the transportation coast for the Bearcreek mines.

Peak production in the Red Lodge/Bearcreek coalfields occurred in the early 1920s, when it is reported that as many as 8,000 to 10,000 people lived in this combined region. It is also reported that this was a typical frontier mining camp, with "gambling halls, saloons, knee-deep mud, and rough characters." Large numbers of foreign-born workers were attracted to this mining region, including Austrians, Finns, Hungarians, Italians, Norwegians, Russians, Swedes, and Welsh. Though differences occasionally flared, this mixture of nationalities eventually spawned the annual weeklong celebration in Red Lodge, known as the Festival of Nations. This event, which occurs every August, celebrates the ethnic and national diversity, and highlights each group's contributions to the cuisine, cultural, and linguistic characteristics of this region.

Production of coal declined from the mid-1920s, when much less expensive surface mining began in southeastern Montana. Throughout the 1930s, oil and gas production increasingly replaced coal for many purposes. A brief rebirth of the coal industry in the Red Lodge/Bearcreek fields during World War II was brought to a halt by the worst coal mine disaster in Montana history. The No. 3 Smith Mine of the Montana Coal and Iron Company at Washoe was the site of a tremendous explosion about 9:30 A.M. on Saturday, February 27, 1943. The resulting fires and gases claimed the lives of all but three of the workers in the mine at the time of the explosion. A sign on the Red Lodge/Bearcreek road near the town of Washoe poignantly tells the story (next page). The coal mining industry never fully recovered from this tragedy, though coal continued to be removed from a few mines. In 1970, the Brophy Mine, the last underground operation, was shut down.

Smith Mine - April 2003

"Smoke pouring from the mine entrance about 10 o'clock in the morning of February 27, 1943 was the first indication of trouble. 'There's something wrong down here! I'm getting out!' the hoist operator called up. He and two nearby miners were the last men to leave the mine alive. Rescue teams from as far away as Butte and Cascade County worked around the clock in six-hour shifts to clear debris and search for possible survivors. There were none.

The night of March 4 the workers reached the first bodies. More followed until the toll mounted to 74. Some died as a result of a violent explosion in Number 3 vein, the remainder fell victim to the deadly methane gases released by the blast. The tragedy at Smith Mine became Montana's worst coal mine disaster, sparking investigations at the state and national level. Montana Governor Sam C. Ford visited the scene, offered state assistance, and pushed through an inquiry into the incident. Today's marker of the Smith Mine disaster follows a simpler one left by two of the miners

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New YBRA Service Award Announced

During lunch at last summer's Council meeting, the first Russ Dutcher Award for Distinguished Service was granted to its namesake in recognition of his many years of commitment to the Camp and the YBRA organization. The nameplate plaque, crowned by a picture of Russ and the outline of Mount Maurice, now resides on the fireplace mantle next to the kitchen, where it will always remind us of his many contributions, and those of future recipients. There are no specific guidelines for selection, other than a long and distinguished involvement with the operation of the Camp and the organization. Russ continues to be very active as our Camp Manager, and we look forward to his ongoing service for many years to come. Linda Dutcher has provided us with the following history of Russ's career and involvement with the YBRA:

Over the years, Russ Dutcher has seen the YBRA Camp from all sides: student, teacher, councilor, and manager. Russ' first YBRA experience consisted of a brief visit in 1951 as an undergraduate student at the University of Connecticut on the way to field work in the House Range in Utah in the company of Professor George Burke Maxey. Maxey, a native of Bozeman and Princeton graduate, was a member of the YBRA Council in 1951 and served as President in 1955 and 1956. Russ the student also visited YBRA for a brief period in the mid-50's after a pilgrimage to Belfield, N. D. in order to view a wrecked train car containing the charred remains of a field season's worth of coal channel samples intended for dissertation research!

In 1960, the year that he concurrently received his Ph.D. and became Assistant Director of the Coal Research Section at Penn State, he was recommended for membership in YBRA He was elected to the Council in 1962 and has served the institution continuously during the 42 years since that time. In addition to the offices of treasurer and vice-president, he has served as president more terms than any other individual: 9 terms during 1966-1968; 1979-1980; 1992-1995. According to the 1962 Minutes of Meetings, he made the motion to install a pay phone in the main lodge at a cost not to exceed $80.00. There had been no telephone at Camp.

During his tenure at Penn State, he arranged for their field geology course to use the facilities of YBRA He was among the faculty for the first class of 12 students using the Camp in 1965, teaching the course until 1970. At the Annual Meeting of 1965 he suggested an endowment fund which was created the following year. In 1965, Council also approved his proposed names for existing cabins and authorized signs with those names that we know so well today.

The beginnings of his engagement as Camp Manager began about 1966, with the title bestowed in or just before 1972. The years 1969 to 1971 were particularly notable years in the development of the physical plant of the Camp. New foundations, windows, floors and insulated ceilings were added to existing cabins. Bowen and Siegfriedt were renovated and the lodge rewired.

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Bucher, Heroy, Thom and Tom Dorf were built with another addition to Tom Dorf in 1970. Marathon Wash House was also completed in 1970. Excess dirt causing damage to Thom Library was removed and drainage improved. A second water tank was acquired from Sundance, Inc. and installed with the help of Ralph Thomas. A new seepage tank was installed and major repairs were made to the reservoir. The garbage dump at "the point" was also eliminated. Major bulldozer work eliminated the ridge south along the road between the final turn and the "red corner" and 8 culverts were added to the road.

Russ became Chair of Geology at Southern Illinois University Carbondale in 1970. In 1972, the Council discussed his proposal for SIUC to contribute funds to the Association for the purpose of providing additional facilities for use by YBRA, SIUC and other groups. These facilities included construction of Dusenbury Study Hall, changes to Wadsworth Study Hall and conversion of Thom Library to a research facility. This agreement was adopted June 24, 1973. In 1972, he also proposed covering the reservoir, but that was not accomplished until a number of years later.

Peter Crowley and Russ Dutcher

Along the way, Russ also taught for the Princeton-

Yellowstone-Bighorn Research Association
PO Box 20598
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ATTN: Proxy Enclosed