

JULY 2003

BATS NEWSLETTER



From the Editor

The July edition of BATS News has a little something for everybody: from TinY's fascinating and informative list of what the well-equipped caver should carry on every trip, to Lee's exciting new proposal for a long rappel expedition at Rainbow Mountain, Nevada. It's easy to tell that the BATs are a diverse group with varied interests and skills from Seth's look at where the LED light has come from—and where it is going. Carrie's amusing account of the rainy day rappel at Harpers Ferry will keep you up-to-date on recent VBAT activities. In the always-trying-to-make-improvements-catagory, we've included page numbers, photo credits and captions to help the reader. The cover also has a new look and feel.

I hope you enjoy it!

Allan

Announcements:

Congratulations to Sarah Pearce who graduated from Broad Run High School on June 14th.

Congratulations to Bobby Kinson who is the proud father of a son. Little Henry Jacob Kinson was born on Saturday, May 31st, and weighed in at 6.8 lbs.

Our newest V-BAT is Chris Reasonover.

F e a t u r e s

BATS News July 2003

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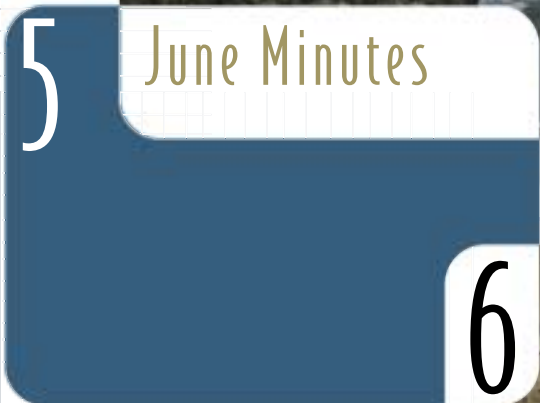
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Calendar & Events



June Minutes



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Calendar

July 8

BATS Monthly business meeting, Salem Church Library, 7:00 PM, Program: Lee Rodrigue presentation on Rainbow Wall

July 19-20

OTR Work Weekend, Dailey, WV

July 26

BATS Monthly Cave Trip, Glades Cave, Russell Loynes trip leader

July 26

Cleanup of Nellies Cave, Blacksburg, VA, meet at 9 AM at picnic pavilion in Nellies Cave Park, contact Joey Fagan <jfagan@dcr.sstste.va.us>

July 31

Deadline for joining The Robertson Association (the folks who run OTR)

August 4-8

NSS Convention, Porterville, CA

Aug. 29-Sep.1

Old Timers Reunion, Dailey, WV

September 26-28

Fall VAR at Rural Retreat, VA hosted by the Front Royal Grotto

October 3-4


Bridge Day Team rappel at Whitesides Mountain, NC

October 18

Bridge Day at New River Gorge Bridge, WV

Ongoing Events

Vertical Practice at TinY's house every Tuesday evening except the 2nd Tuesday when practice will be held the Thursday following the 2nd Tuesday



BATS June Meeting Minutes,

Present: Carrie Bader, Nikki Bennett, Evelyn Bradshaw, Raymond Herlong, Ken Hornung, Meredith Johnson, Russell Loynes, Mike Manke, Vikki Manke, Chris Reasonover, Lee Rodrigue, Allan Weberg, Edytka Christner, Brandon Hill

Treasurer's Report: Nothing has changed since last report.

Membership: About 6-7 people have not paid their dues yet. Get with Raymond.

Trip Reports: Carrie talked about Speleofest, Meredith gave a rundown on her and Kelsea's trip to Salisbury Mine/Cave, Allan talked about a trip to Glade Cave led by Russell.

Newsletter: Allan briefed everyone on the new e-newsletter. Allan is editor, Mike Young is in charge of the art, and Meredith is the editor. Next issue will have page #s, captions and photo credits. There was a mistake on the Whitesides date in the last newsletter, it is in October, not September.

Bridge Day: TinY has mailed out the package to Passages to Adventure. There will be a lottery drawing to determine whether we get a spot on the bridge or not. On the 20th we'll find out if we got picked. Meredith is in charge of the belay team, and will develop a list of protocols for the team.

OTR Picnic Table: It was suggested that instead of taking the money out of the BATS account to build a picnic table to be kept at the OTR, that all who participate at OTR could contribute. Lee volunteered to chair a committee to build the table and get an estimate of how much it will cost. He'll report the cost and post it to the BATS list.

Fundraiser Ideas & Holiday Party: We need someone to act as chair for the BATS holiday party (last year it was held in lieu of the January meeting). The most popular suggestion was to hold a silent auction of caving stuff at the party to raise funds for the grotto, so the chair would also organize this. Carrie volunteered to put together a proposal on how much BATS t-shirts and bumper stickers would cost to produce.

Trip Planning: The next OTR work weekend is July 19th. The monthly BATS trip for June will be June 28th. The Front Royal Grotto is cleaning up Island Ford Cave, owned by WVCC. Get with Meredith if you want to join the trip.

OTR is labor day weekend!! REMINDER: July 31st is the last day to join TRA. Also, remember that OTR is a volunteer-dependent weekend, and BATS will be helping out in various ways. Susi Pearce will head the brew crew shift. Get with TinY if you want sauna duty, and we will also be doing some gate duty and our traditional shower duty. Also, we need a good team and volunteers for the tug-a-rope-a-rama, get with Meredith on this one.

Kentucky Strip Mine Alert: Meredith brought in some information on a Kentucky strip mine project that would affect karst terrain in Rockcastle County, KY. A letter writing campaign is going on against the mining. The mine is near an endangered bats cave, as well as blind cave fish and blind crayfish. Meredith has a template protest letter if anyone is interested in sending one in.

Survey Activities: The Endless Caverns survey will be sometime this Fall. The Front Royal Grotto has monthly surveying trips, Janet Tinkham is the POC. Also, Gangsta Mappers for Breathing Cave (3rd weekend every other month).

Presentation: Meredith presented a slide show of Rapps Cave and the Grand Caverns cleanup weekend.

What Is in My Cave Pack?

by Mike "Tiny" Manke

Having only been caving three times with the BATS Grotto, I was still quite the novice. The drive to Blowing Cave was over four hours long and I had planned to spend the night at the Aqua Campground in Highland County, VA. I was relaxing in my lawn chair beside a well-built but as yet unlit campfire, finishing up my dinner, when I saw them across the campground.

The older gentleman was clearly lecturing a teenage girl and boy as they taped their flashlights to their hard hats. He held their lights steady while strip after strip of duct tape was applied. Around each of their waists was a fanny pack they all pawed through as he continued speaking to them. It was clear to me that they were getting ready to go caving and this was an opportunity to possibly join them.

As they walked by my campsite I asked them where they were headed. "Marshalls Cave," the older man replied, "I am taking my daughter and her boyfriend on their first caving trip."

I had never been to Marshalls Cave and asked if I could join them. I explained I was new to caving but had been well prepared by the BATS Grotto. Still in my caving clothes from the earlier trip, I grabbed my helmet and cave pack and we were off.

I asked the father about his caving experience and he boasted of his many years of caving. "Marshalls has always been a favorite of mine," he mused, "I am taking these two on their first trip so they learn to do it right."

Looking to learn something from him I asked what

they had in their fanny packs.

"Everything we will need for this cave trip except the kitchen sink," he replied.

Seven hours later, as I enjoyed some caver Kool-aid by my campfire, I realized that it was I who had the kitchen sink in his cave pack. I had loaned all of them batteries when they ran out of light. It was my trash bag the daughter had worn when she got cold after falling into water. My compass had pointed the way out of the cave. My webbing had pulled the daughter up a slick flowstone climb to get out of the cave. My accessory cord had made a crude but effective seat harness to tie the webbing to the daughter. And it was my spare light the son wore on his helmet when the duct tape no longer would keep his flashlight in place.

This was the first cave trip where the contents of my cave pack had made a positive difference on the outcome of the trip. On many occasions since, this difference has been repeated. Over the years, the contents have changed very little, but the results have remained consistent.

I carry a well-stocked cave pack with the worst-case-scenario in mind when I go underground. Vertical trips and long survey trips add to the list but the basics of what I carry in my pack remain the same.

Here is a list of my cave pack contents with some thoughts on less-than-obvious uses for some of its contents. I carry these items on all trips. The quantities of food, water, and batteries are increased for longer trips.

1. Drinking Water: at least 2 20-ounce plastic disposable soda bottles. The bottles can be used to store and transport liquid waste out of the cave. They can also be cut in half and used to make crude splints.

2. Food: two Snickers Bars and two Power Bars. The Snickers Bars are good even when smashed and the Power Bars are less tasteful but very filling.

3. Extra Helmet-mountable Light: with extra bulbs and batteries for 24 hours of light. Extra batteries are stored in a waterproof container.

4. Hand Flashlight: with extra bulb and batteries. It should use the same batteries as your helmet lights for interchangeability.

5. 20-feet of Webbing: excellent hand line and emergency Swiss seat or diaper harness. Can also be used to secure a splint or wrap a sprained ankle.

6. Extra Medium-weight Polypro Shirt with Zip-up Collar: kept in pack when traveling through the cave and worn when surveying, sight-seeing, or waiting for rope at the bottom of a pit. It can also be used for splinting, padding, or dressing an injury.

7. Reinforced Space Blanket Material Survival Hooded Shirt: with drawstrings to hold in heat on hood, sleeves and waist. It can also be used for splinting, padding, or dressing an injury.

8. One Large Lawn and Leaf-sized Trash Bag: it makes a one-size-fits-all raincoat and keeps body heat in when I am wet and on the hike back to the car at the end of the trip. I carry a second trash bag inside my cave helmet above the suspension.

9. Warm Polypro Hat: 50% of your body heat is lost through from your shoulders up. I usually carry this in my cave helmet in a gallon size zip-lock bag to keep it dry. The zip-lock bag can be used as a wound dressing. It can also be filled with water and squeezed with a small hole in the corner making an excellent eye wash tool.

10. Stainless Steel Multi-purpose Tool: much like a Leatherman tool with pliers, knife, screwdrivers, and file, etc. I use it to repair my light, open stuck carabineers, and every

other imaginable purpose. Stainless steel will not rust from repeated wet trips.

11. "The Peanut Butter Jar": This tough hard plastic waterproof jar holds my emergency kit for whenever the mud hits the fan. The jar can be split and used as a splint. It contains the following items that can make the difference between a tough trip and a disaster trip.

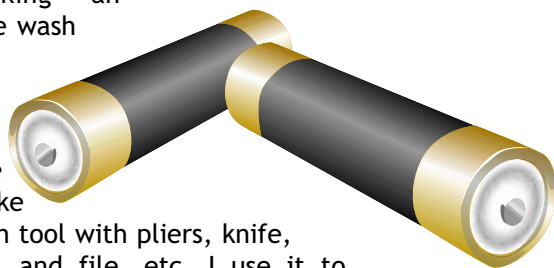
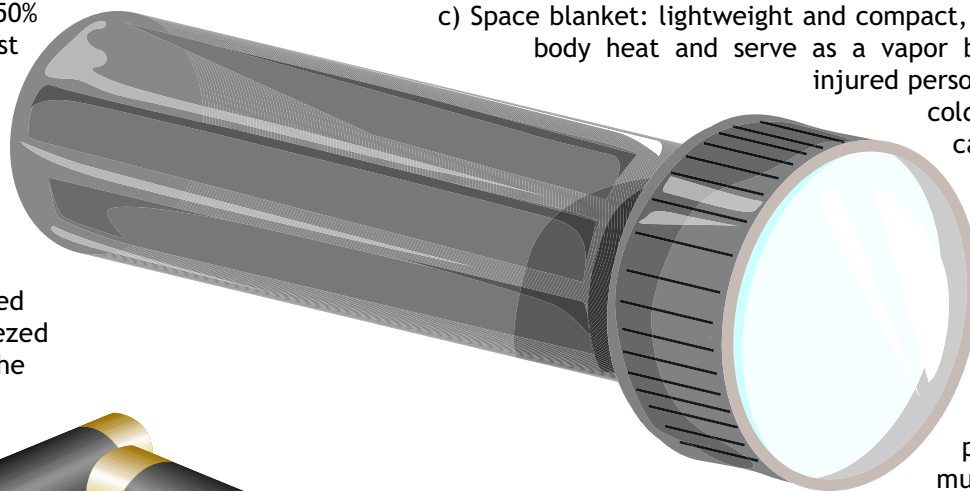
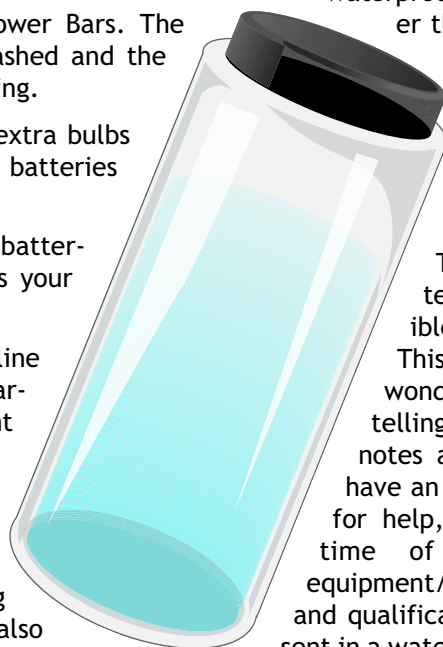
a) six index cards sealed in six half-pint zip-lock bags with a pencil and ink pen. The outer card has a written list of all contents in "The Peanut Butter Jar," and is visible through the clear plastic side of the jar. This list of contents is so you do not have to wonder what is in the jar if I am not capable of telling you. The cards can also be used to leave notes at key junctions in the cave should you have an emergency. If you need to send someone for help, a written description of the incident, time of incident, location in the cave, equipment/supplies available at the incident scene and qualifications of those cavers left behind can be sent in a waterproof half-pint bag with the person going for help. If someone is injured, the injured persons name, age, type of injury, vital signs, brief medical history, medications taken or needed, emergency family member contact information, and any other information that could be helpful to rescuers, can be sent out of the cave in writing. The information communicated by a short pencil and paper is much more valuable to rescuers than the memory of an excited, exhausted, and panicked caver.

b) Mini Mag flashlight: this is my fourth source of light and uses the same AA batteries as my other lights. It also makes a great short splint.

c) Space blanket: lightweight and compact, it will reflect body heat and serve as a vapor barrier for an injured person lying on the cold cave floor. It can also be used as a wound dressing and additional rain coat.

d) Thread reinforced packing tape: much stronger than duct tape, this can be used to hold backup lights to your helmet, hold splints or wound dressings in place, or hold the soles on your worn out cave boots when they fall off in the cave.

e) Duct tape: wrapped around the peanut butter jar or water bottles can be used to fix anything including splints and wound dressings.



f) Orange flagging tape: is used to mark the trail in the cave when lost or when someone is sent out of the cave to get assistance. It can also be used to write notes on with an ink pen under wet conditions.

g) Eight AA batteries: more battery power for lights above and beyond your original battery supply. AA batteries will fit most electric caver lights.

h) Two AAA batteries: more battery power for my personal light which I wear on a leather cord around my neck. Personal light is used when changing batteries in my main lights and is my fifth light source. The leather cord will break before choking me if it gets hung up in a crawl or fall.

i) Two four-hour candles: these can provide a heat source when hypothermia threatens. When combined with a trash bag these make an excellent heat tent that could be the difference between life and death in a cold wet cave. They are also my sixth last-ditch light source.

j) Waterproof matches: used to light my candles to keep warm and for light.

k) Six napkins: can be used to clean hands before treating an injury, wipe dirt out of your eye, as a wound dressing, or for personal hygiene needs.

l) Whistle: if I need help or need to communicate in a high noise waterfall area, a whistle will last a lot longer than my voice.

m) Four pieces of Moleskin: your feet are your way out of the cave. Moleskin will treat blisters and keep you walking a long time in cold wet boots. It can also be used for bandaging wounds.

n) Small Folding Scissors: used to cut moleskin, wound dressings, plastic bottle splint material, or clothing.

o) Two four-inch Sterile Gauze Pads

p) Nine Butterfly Wound Closures

q) One 3-inch x 4.5 yard roll of gauze

r) Two 2 x 3 inch self-adhesive band-aid.

s) Six fabric knuckle bandages

t) 4, 200mg ibuprofen tablets

u) Another large lawn and leaf trash bag

v) 32 trail reflectors: made by wrapping reflective tape around a paperclip. The wire end of a paperclip can be stuck in rock crevice on floors, walls, or ceilings. These excellent small reflective trail markers are visible over great distances in a cave.

w) Six latex gloves: provide protection for you when treating others' wounds.

12. Small Compass: it always knows North from South when all of those cave walls and rocks begin to look the same. I wear it around my neck with my personal light.

13. 20 Feet of 3mm Accessory Cord: worn as my bootlaces: in a bind, I can lace my boots with as little as three feet of this. The other 17 feet can be used for binding anything, including the soles of worn-out boots to a cavers feet.

14. My Cave Pack itself: heavy ballistic material will insulate you from the cold of the cave floor or walls. Adjustable heavy straps make excellent splint binding material.

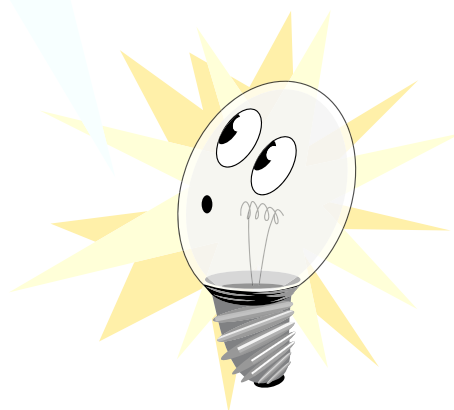
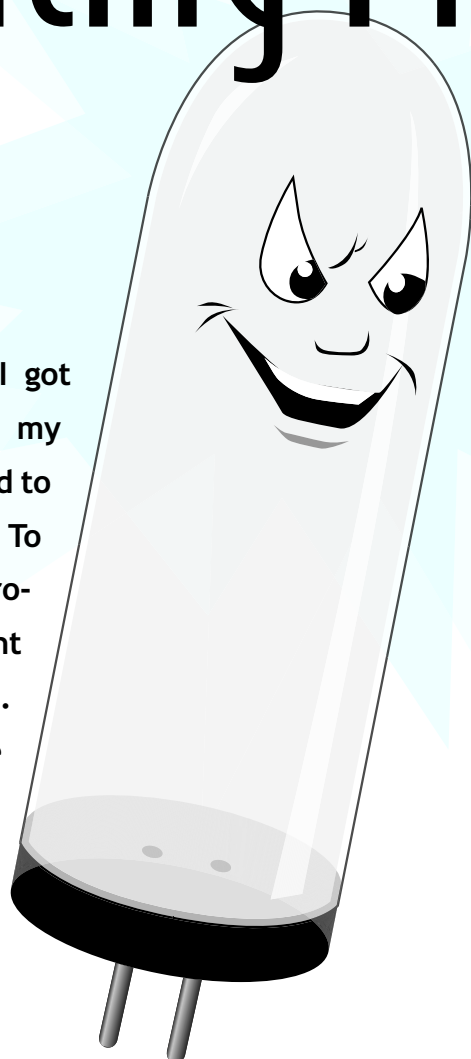
The V-BATS Bridge Day Rappel Team

was successful in the lottery for a rappel spot on the New River Gorge Bridge for Bridge Day 2003. Our lottery draw was for rigging location #16. This will put us uphill from the railroad tracks for our landing zone. I am not sure what our rappel height will be here but it should still be well in excess of 650 feet.

A Lighting Primer

by Seth Lake

When I tell cavers that I got into caving because of my interest in lights, they tend to look at me kind of funny. To me it seems a natural progression. Light is life; light is a caver's best friend. Whether your preference is an old-fashioned ceiling burner, a high-power quartz halogen lamp, or a newer LED based unit, we all carry several sources of illumination with us into the unknown.



Carbide seems to be the “old school” caver’s preference. For those who can stomach the smell, endless tweaking, 30-minute lag time between adjustment and result, the packing and changing of carbide—you will be rewarded with a nice, even, warm glow of yellowish light and a good heat source for those slow-moving expeditions.

Calcium carbide produces acetylene gas when mixed with water and has been in use since the 1890s in general lighting and mining. It is still being applied as a welding flux. The gas is explosive and, although nontoxic, can cause asphyxia due to oxygen displacement. Carbide lighting has several other deficiencies including, single rope technique work (fire and nylon do not mix well,) the flame being extinguished from wind, and a general incompatibility with water and wet conditions. It seems to this caver that we

have come a long way from 1892 and that there are better alternatives available to modern cave men and women.

Electric lighting wasn’t invented by Edison, as many tend to think. Like Ford, he just mass-produced his product and packaged it into a consumable good. Incandescent filament lamps haven’t changed much since 1879 when the world was introduced to them; they’re still just a highly resistive filament suspended in an oxygen-free atmosphere. Some of the technology has advanced in that we now use halogen and xenon gasses to raise the color temperature, help prolong the life of the lamp, and increase the efficiency, but the overall picture is the same. Although the modern halogen and xenon lamps are much more efficient, they are still very fragile as are the old fashioned standard incandescent lights.

Other electric lights have branched out quite a bit from Henry Woodward and Matthew Evans' patented light bulb; we now have fluorescent lights, HID metal halide, and sodium vapor lamps, to name just a few. None of these, for one reason or another, are very well-suited for caving purposes. They either require enormous power, in the case of HID, or require large ballasts. And the fact still remains that glass is fragile, it will shatter with even a seemingly minor impact and leave you in the dark. There is, however, a fairly recent invention that is a beautifully suited photon emitter for the electric caver: the LED.

Portable electric lighting is a two-headed beast. On the one hand (head) you have the actual light-emitting unit, on the other is the power source that enables the emitter to function. There are many battery chemistry options available, each with their own pros and cons.

Lead-acid power is a technology that's nearly 100 years old, is not very energy dense, and is highly toxic and corrosive. Although alkaline chemistry is the mainstay for portable power, it is not very well suited for fast drain devices because of its high internal resistance and is not rechargeable.

Nickel-Cadmium (NiCd) batteries, because of their highly toxic nature and "memory effect" are becoming less and less popular as Nickel-Metal Hydride (NiMH) batteries are becoming more prolific. NiMH batteries don't exhibit the memory effect of NiCds, have an energy density more than twice that of NiCds, and are much more environment friendly.

Lithium batteries, developed in the 1990s and generally considered the best for portable power, come in several flavors—non-rechargeable 1.5V or 3V Lithium-Iron Disulfide (Li/FeS₂), 3.6V Lithium-Ion (Li-ion) and 3.7V Lithium-Polymer (Li-pol). Energizer is the only company that makes a 1.5V Lithium battery that is interchangeable with NiMH, NiCd and alkaline batteries, and only in AA format. Other lithium-based battery chemistries are rechargeable and highly energy dense, but cannot be replaced in the field with other, more common, battery chemistries.

Light emitting diodes (LEDs) came about in the 1960s and began their life as very dim indicator lamps. It wasn't until very recently that LEDs became used in general lighting with catchy adjectives like "super bright." Blue LEDs came out in 1993 and white not until 1996. LEDs can only emit a single frequency of light, meaning that there is no such thing as a true white LED.

White LEDs are in actuality blue emitters. This blue light is sent through a yellow phosphorous layer, which absorbs the light's energy and retransmits it as a polychromatic white light, much like fluorescent lighting. The quasi-white light that is given off by LEDs is very lopsided in its emitted spectrum; it's generally heavily biased towards the blue end of the spectrum. "Warm white" emitters are due out at the end of the year that supposedly generate more reds of the visible spectrum and are much closer in color to the traditional filament bulb.

The light output of LEDs, once considered low grade, is beginning to catch up with that of traditional bulbs.

Presently available 5mm Nichias (so-called "super-bright" or even "hyper-bright") put out about 1.5 lumens (a measure of total light output) and Lumiled's 1 watt Luxeon Star puts out about 20. The newly available 5 watt LSeS are rated for 120 lumens, the equivalent of 80 Nichias, when driven to their 700mA spec. As a comparison, red LED indicator lights in the 70s were emitting only about .01 lumens.

Since LEDs are solid state, meaning that they have no glass tube to break, they are much more durable than light bulbs. The current Nichia and most of the Lumiled offerings are rated for 100,000 hours, or over 11 years of constant use—much, much longer than any filament bulbs. LEDs do not burn like filament bulbs which generally either function near 100% or do not function at all; they have half-lives and slowly diminish in output over their very long and useful lives. As with any complicated device there is a failure rate, and LEDs do have their limitations. Overdriving and under heat sinking LEDs is a sure way to reduce their useful life.

Current LEDs are about as efficient as halogen/xenon bulbs, in that they give off about 20-25 lumens per watt of input power. Although there are much better efficiencies to be had with fluorescent lights and HID, this is about as good as it gets for portable lighting. Normal filament bulbs, like those in your house and the standard bulb in your Petzl, are only a little better than half as efficient at ~15 l/w. It is generally considered that LEDs will make huge gains in efficiency in the near future, possibly getting up to 250 lumens per watt of energy, while filament bulbs are near the end of their development cycle.

Halogen bulbs increase in efficiency as they are overdriven, their useful lives diminishing, and their efficiency goes way down as they are under-driven. LEDs, on the other hand, greatly increase in efficiency if they are pumped with less-than-spec power. This is the secret to the outrageous advertising claims that are rampant with LED packagers and sellers. While it's true that an LED will physically light after dozens of hours on the same set of AA batteries, it may not be any brighter than your wristwatch's backlight near the end. As the batteries discharge and begin to lose their "oomph," the LEDs become more efficient at processing the power in a continuous cycle of less power but more light efficiency. As batteries discharge into an incandescent bulb and begin their downward spiral, the bulb's efficiency goes way down and it tries to suck more and more juice from the dying batteries. A very short-lived ride compared to the slow attrition of LED battery death.

LEDs are again unlike filament bulbs in that they are current driven devices. Incandescent lights are rated by voltage, like 4.8V or 6V, and are safe to drive directly from batteries that output to their voltage spec. Although LEDs also have a voltage spec, their important rating is their amperage draw, or current. Take a 5mm Nichia, it's rated for 3.6V 20mA (.072 watts). The 3.6V rating is nominal; it's for reference. It means that generally speaking, if you drive this bulb to 20 milliamps, then the driving voltage will probably be close to 3.6. Driving a typical Nichia 5mm

to its sweet spot of 20mA may require 4V or may require as little as 3.2V depending on the variances of that particular LED. Also, seemingly minute changes to the voltage drive of an LED will drastically change the current that it draws. What this means, in a nutshell, is that LEDs need circuitry to protect and drive them. In its most basic, crude form this is a simple resistor to soak up excess power. In all of its glory this is a constant current buck or boost circuit that will give you a precise amount of light output until the batteries are well on their way out. Protective circuitry is not an absolute necessity but—as I've personally discovered after spending many hours working on a 17 LED headlamp—when your LEDs get that angry cyan color from overdriving and too much heat, it's a real bummer.

There are many LED-based lights available these days. Most are of fairly recent release and have not yet been proven by time and use. Some of the better units are incredibly, unexplainably expensive. With all the less expensive choices it's still hard to find a good, dependable, usable light.

I got tired of looking for the perfect light, so I decided to make my own. I took a brand new 5 watt (yes, that's a single LED that takes 5 watts of power) called the Luxeon Star and mounted it into an Easter Seals Headlamp. The naked LS shoots light in 160 degrees. To direct the light forward, I used plastic optics called a collimator, which bends the light forward instead of reflecting it. For drive from either the 4AA helmet-mounted pack or the 4D belt-mounted pack I used a constant current switching step-up power

converter that was produced by a fellow light enthusiast. By under-driving the 5W unit to ~2 watts I significantly increase both the converter's and LED's efficiency and prolong the assembly's life span. While not perfect, I'm still working and refining the design. For less than \$100 I have an excellent, very usable headlamp that will require no upkeep beyond recharging the NiMH batteries, will never need a bulb replacement and is sure to start a conversation whenever some unsuspecting soul is about.

Many of today's available lighting instruments are based on decades-old technology. LEDs are in their infancy. While incandescent lights are exhausting their avenues of progression and carbide lamps haven't changed in 50 years, LED illumination is just beginning to gain its feet. With batteries becoming smaller, lighter, and able to hold much more charge, portable electric lighting is taking off. Looking to the future, I cannot see how LED lighting will not dominate the caving world and, indeed, the entire lighting market. Even those old, crusty cavers we all know and love will be forgoing their cap lamps for the promise of solid state illumination.

candlepowerforums.com - BBS style message board about everything lights.

ledmuseum.home.att.net - An on-line museum dedicated to LEDs.

lumileds.com - Makers of the most powerful LEDs in the world.

www.nichia.com - Leading manufacturer of the traditional white 5mm LEDs.

Fieldhouse Cave

The owner of Russell Lawrence Domepit (aka Fieldhouse Cave) in Pendleton County, WV asks that cavers abide by two new conditions of access to the cave. These include announcing your presence and a new parking location. Before entering and after leaving the cave, visitors are to stop by Mr. Harper's residence to inform him of their arrival and departure. If no one answers the door then leave a note with the names in your party and when you expect to depart the premises. Parking along Germany Valley road and crossing the fence to access the cave is no longer permissible. Instead, cavers should turn onto the gravel road 1/4 mile south of the "usual" parking area and proceed 200 feet to a power line cut through the trees. Turn left into the cut and follow it to a large sinkhole. Park by the sinkhole and follow the flagged trail to the cave. This parking area is superior to the original because it accommodates more vehicles, offers greater privacy for changing clothes and avoids damage to Mr. Harpers new wire fence. A map to the new parking area and Mr. Harper's residence may be found on the PSC web site.

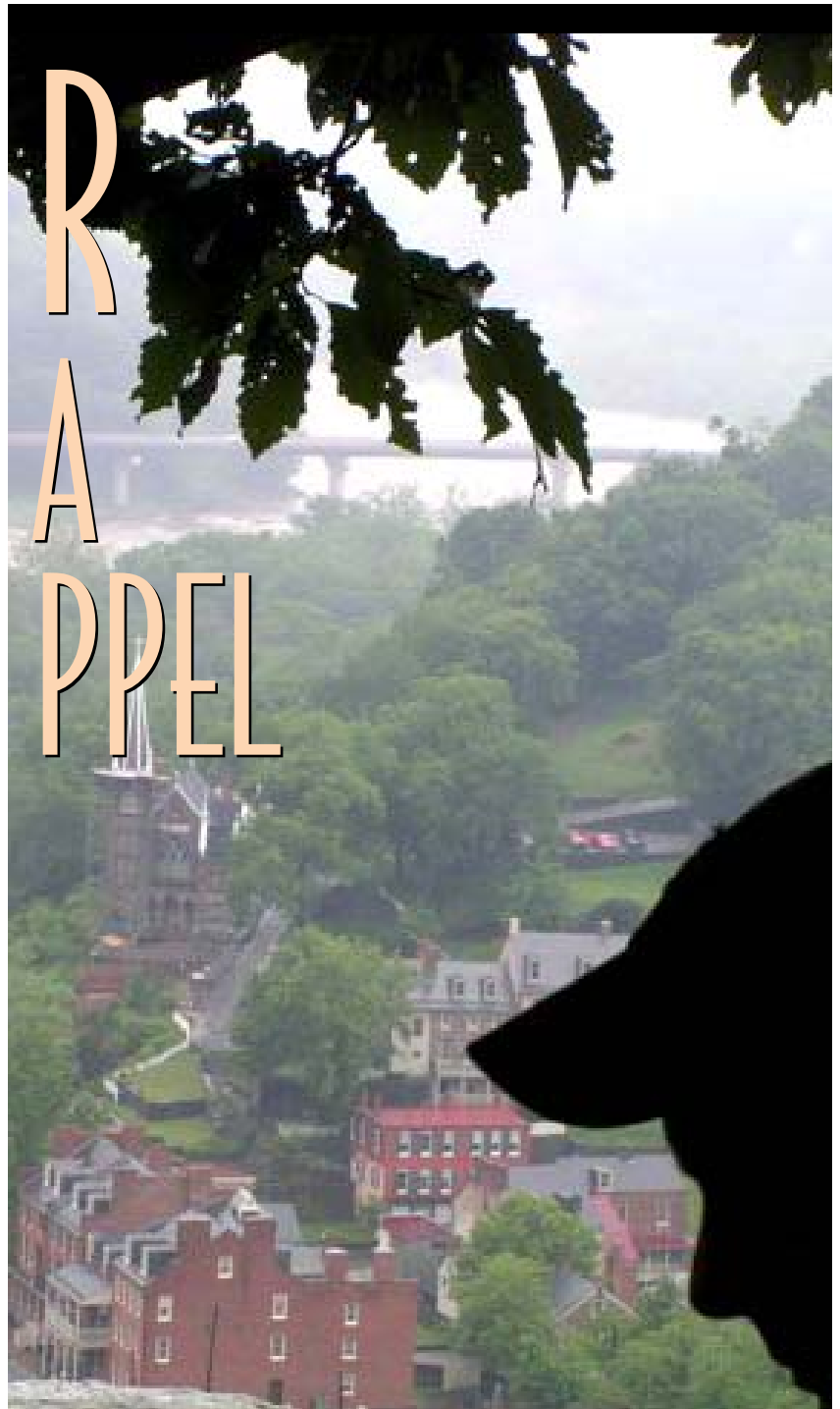
HARPER'S FERRY

by Carrie Bader

I rolled up in my distinctively decorated and abused VW at Harper's Ferry, WV at 9:10 AM June 7th; early by Caver Standard Time. As I hopped out to grab my vertical gear and my brand spankin' new 300-footer (rope), I was greeted by Robin and Lance Mitchell, Chris Reasonover, Sarah Richards, Debbie Frazier, Seth Lake, Bob Handley, and the ever-infamous Mike "TinY" Manke. Our illustrious editor, Allan Weberg, was running on true Caver Standard Time and had not yet arrived.

It was not only raining cats and dogs, but "lions and tigers and bears, oh my!" We gathered the rope, people and gear and headed over to the bus. It was decided that Mr. Weberg was either wimping out (never!) or would just have to catch up with us. We appeared a strange lot as we loaded ourselves and the gear onto a bus of early-morning tourists of the generic variety.

The bus played elevator-music bluegrass and a voice droned on about the historical significance of the town as it pulled up to the empty street lined with dark buildings and dropped us off. We filed into the ranger station to



*The town of Harper's Ferry from Maryland Heights (Allan Weberg in silhouette.)
(Sarah Richards)*

check-in and were asked to write a description of ourselves, just in case we were to get into some trouble we couldn't get ourselves out of—not likely!

It was time to get on the job! We started on the steep hike to the top of the 250-foot cliff we were hoping to rappel down. Soon, we stopped at the bottom of the stairs under the rail bridge and listened as TinY voiced his concerns about the day's activities. The rain, of course, was not the bother. Cavers rappel through waterfalls all the time. The wind, however, in a free-rappel situation, can be a dangerous factor. It was decided, that we would make a final



Carrie Bader and Chris Reasonover rig Carrie's new 300-foot rope. (Sarah Richards)

determination at the top of the cliff.

We started to climb the stone wall to the road, and who should decide to join us but Allan. He sauntered up beside us as the group walked up the road to the path. Lord, what a path! Not only was it steep and rocky, but the rain added an extra special element of slippery fun. At least three people ended up falling on their butts. Finally we reached the top and were presented with a beautiful view of the C & O Canal and the views from the cliff we were about to descend.

Here's where I got excited. I was about to de-virginize my brand new rope. I had finally been able to purchase rope at Speleofest over Memorial Day weekend. Three hundred feet of pure white rope! After we set up some tarps to keep us and our gear relatively dry while waiting for our turns, Chris, Allan, and I started to rig my rope. Yes, three people are a lot to rig one rope. But we're new and gung-ho and it was my rope so I was sure as hell gonna help rig it! It was rigged expertly and efficiently (a testament to TinY's instruction) as a few others worked on the second rope. Things were rigged, padded and ready to go in no time. Then came the third rope. TinY rigged it and tossed it over the side and...it got into a tangle on the way down. So what followed was half an hour of thumb-twiddling and b.s.ing while TinY untied, padded the rope, and rigged an edge line that was to hang parallel to the climbing rope for about 50 feet. We were going to set up a fourth rope for climbing but this borrowed rope was found coiled in the bag and none of us wanted to deal with that. We rigged it, but didn't toss it.

So, it was time to descend! I had since been informed that I, sadly, would not be the first to go down my shiny, white rope. The two most experienced, being Allan and TinY, were to go down first. So Allan (sniff!) was the first person on my rope; but I was the second! Allan, however, got a

nice surprise before beginning his descent. He rigged, unclipped his safety and then all of a sudden SWISH! he was on the next ledge. He had, thankfully, caught himself before he went careening down the rope. At the time he claimed it was his French Wrap that stopped him, although upon later recollection he does not remember saying that. Whatever it was, he was a tad shaken, but Allan cannot be stopped and he continued on rappel.

It was decided that for the time being Chris was on top radio and TinY, once he landed, was on bottom radio. As soon as the "all clear" was given, Robin and I clipped in, called, "On rope," and started to rig in. I always start with six bars, and rigging six bars with 300-feet of rope weight is not as easy as in TinY's tree! I was rigged, at the ledge, and ready to go. I called, "On rappel," and unclipped my safety; the moment of reckoning. I love rappelling—though not so much going over edge. So, slowly, s l o w l y, I lowered my weight onto my rack, then inched myself down over the ledge and onto the cliff-face. This time I was lucky and was able to shift my weight from the ledge onto my rack without much of a jolt at all. Once I was in free-hang I spread the bars and started my descent.

Because of the slickness of the new rope, I was able to descend at a pretty good pace on all six bars. My rope was



Carrie Bader gets the tangles out of her new rope while Allan Weberg and Chris Reasonover wait to help rig. (Sarah Richards)

not rigged at the fully free-hanging spot, so there was some cliff wall to contend with on the way down. But all-in-all, it was a very nice ride! The canal and the scenery were beautiful, especially since it had stopped raining, and we had spectators. We would hear the occasional encouraging shout from the tourist walkway on the rail bridge as our team rappelled down.

I waved to TinY and Allan as I came closer to the bottom, descended through the treetops, through some sticker bushes (grrrr), and landed softly on the ground—success! I called, “Off rope,” after I had unhooked and the call was relayed to the top. I watched as Robin completed her descent with ease and landed a few feet from me. I was ready to do it again! Now here was the hard part—the ascent. I walked over to the designated ascent rope, gave the on rope call, and rigged my Frog system, pulling the slack out of the rope. I felt like I had gone ten feet and not moved an inch and finally starting my upward climb.

It had not occurred to me to bring kneepads on this venture, and for the good of future rappellers, let me tell you, “It sucks not to have ‘em.” It is now two-and-a-half weeks later and I still have bruises on my knees and shins from that cliff. The rock was jagged, broken, and sharp. It jutted out all over the place. There wasn’t much free-hang in the ascent and I ended up mostly doing a half-climb, half-ascent with one foot out of my foot loop. As if that wasn’t enough of a pain, when Robin began to tandem climb below me (this is not to say that Robin is a pain!) the rope began to spin! Being the well-trained VBAT that I am now, however, this was only a pain, not a problem. It had been

decided that it would be easier to transfer to the edge line when you reached it rather than try and pass the three or four rope pads. So, when I reached the red colored edge line I clipped my safety on and asked Robin to stay put for a minute while I did my midair transfer. It was quick and easy and when I finished I yelled down to Robin that it was ok for her to continue. Then I added, “I can’t believe I just switched ropes 200-feet in the air”—amazing!

I finished my ascent on the red edge line, climbed onto the ledge full of sticker bushes, (grrrr) and gave the off rope call. Debbie relieved Chris from his radio duties so he could do his descent and I decided to give the other rope a try. This was a slightly trickier rig. After I had clipped in and called, “On rope,” I then had to slide my safety down with me as I climbed to the lower ledge. Once I had situated myself there, I proceeded to rig, call, “On rappel,” and move off the ledge. The second time, as usual, was easier. I started my descent on six bars and decided I wanted to pop one off. I went to do so and noticed the cold steel against my fingers—my gloves! I had forgotten to put

them on after I had rigged, they were clipped to my harness. So, I clipped my safety and was about to go for my gloves when I realized my safety lanyard was too damn long. I had adjusted it long to climb down to the second ledge and had forgotten to readjust it. Cursing the annoyance, I let it get out of reach and put on my gloves. Then I hooked my top ascender as high as I could, stepped into my foot loop, unhooked my safety, jammed my bars, and unhooked my top ascender—piece of cake! The rest of the descent was smooth and beautiful.



Mike “TinY” Manke sets rope pads for a rappel off of Overlook Cliff.
(Sarah Richards)

I came in sight of TinY and he shouted to me that he was going to pull me over the sticker bushes this time, God bless him. I was instructed to brake as he swung me out, then let go when he told me. It worked marvelously. I unhooked, gave the call, and sat back to watch the others. A moment passed and I heard TinY bemusedly remark, “That’s some helmet he’s got there,” referring to Lance who was currently descending on rope one. I looked up, confused, knowing that he had a Petzl Ecrin Roc, the same style and color as mine. What I saw, however, was Lance’s shiny bald head! I watched with trepidation as he made his descent, knowing the frequency and size of the rocks that had been dislodged all day. Fortunately he made it to

the ground without incident and laughed sheepishly when his forgetfulness was pointed out to him. Next time—helmet check!

This time around, I decided that I did not relish the idea of further injuring my shins, so I took the easy way out (or so I thought). I had been informed that there was a path leading from the landing spot to the main road which ultimately led up to the top. I walked down and was greeted by a crisscross wire fence and a doorway leading through it. I went through the fence which spit me out on the railroad track. This, understandably, made me a tad uneasy. To my left was a tunnel, to my right was more track. Across the track was a wooden path lined with a fence and on the other side of the fence was the tourist walkway. I was evidently entirely in the wrong place. I actually said out loud, “I can’t believe TinY expects me to walk through that tunnel,” although as far as I could see, that was the only way to go.

So, hesitantly, I ventured in. There was about six feet

between the wall and the tracks, too close for comfort, in my opinion. I had gone about 100 feet when I heard the far-off whistle of an approaching train. I didn't care that it still had a ways to go before it reached me. I went off like a shot. I was booking it out of there, and I still had my full harness and gear on! I don't know if anyone has ever run so fast in vertical gear. I came barreling out of the tunnel and stopped to let the train pass by.

At this point I decided to cross the tracks. I probably should have just hiked back up the hill and asked for more clarified directions, but was slightly rattled and just wanted to get somewhere other than where I was right at that moment. So, I quickly and carefully hopped the rails onto the wooden path where I discovered there was no access to the tourist path on the other side of the fence. Damn! So, I started trekking down the wooden path, wearing all my vertical gear neatly hooked up and out of the way on carabiners, towards the ghost town. As I walked along, several confused and intrigued people began to question me about my gear and those colorful dots they saw descending and ascending the cliff-face. All of the tourists mistook us for climbers. But I can't imagine any climber in their right mind who would have wanted to scale the cliff with the kind of rain we had gotten that day. But I didn't mind the misinterpretation and enjoyed myself as I walked, chatting with them, showing them my gear, and

telling them what we had been up to. The general response was, "Wow, I couldn't do that!" or, "That sounds really scary-dangerous." I assured them that it is lots of fun and only dangerous, of course, if you don't know what you're doing.

I reached the end of the wooden path and discovered that it led straight into another fence, argh! At this point I'd had enough of this nonsense, so I turned to scale the fence which is approximately 10 feet high. I am 5' 3" but was not daunted one little bit. As I mounted the fence I heard someone exclaim, "Oh my, are you sure you can make it! Do you need some help?" I almost grinned when I heard one of the folks I had been conversing with say, "I'm quite certain she's capable enough to do it," as I hopped neatly down on the other side. Nothing like a little boost to a caver's ego.

Finally on the right path, I made my way up the steep climb to our rig site. Everyone had successfully ascended, including Lance with my helmet to protect him on the way back up. With a sense of accomplishment, we posed—happy and dirty—for photos and proceeded to pack up as TinY congratulated us for a job well done. And we did do a good job! With our heads held high and the adrenaline still rushing, we hiked down the mountain, to our respective vehicles, and rode home with smiles on our faces.



The group on Overlook Cliff at the end of the day. The church in the town of Harper's Ferry can be seen in the background. (Seth Lake)

West Virginia

Cave Law

ARTICLE 7A. CAVE PROTECTION.

§20-7A-1. DEFINITIONS.

Unless the context in which used clearly requires a different meaning, as used in this article:

- (a) "Cave" means any naturally occurring subterranean cavity. The word "cave" includes or is synonymous with cavern, pit, pothole, well, sinkhole and grotto.
- (b) "Commercial cave" means any cave with improved trails and lighting utilized by the owner for the purpose of exhibition to the general public as a profit or nonprofit enterprise, wherein a fee is collected for entry.
- (c) "Gate" means any structure or device located to limit or prohibit access or entry to any cave.
- (d) "Person or persons" means any individual, partnership, firm, association, trust or corporation.
- (e) "Speleothem" means a natural mineral formation or deposit occurring in a cave. This includes or is synonymous with stalagmites, stalactites, helictites, anthodites, gypsum flowers, needles, angel's hair, soda straws, draperies, bacon, cave pearls, popcorn (coral), rimstone dams, columns, palettes, flowstone, et cetera. Speleothems are commonly composed of calcite, epsomite, gypsum, aragonite, celestite and other similar minerals.
- (f) "Owner" means a person who owns title to land where a cave is located, including a person who owns title to a leasehold estate in such land.

§20-7A-2. VANDALISM; PENALTIES.

It is unlawful for any person, without express, prior, written permission of the owner, to willfully or knowingly:

- (a) Break, break off, crack, carve upon, write, burn or oth-

erwise mark upon, remove, or in any manner destroy, disturb, deface, mar or harm the surfaces of any cave or any natural material therein, including speleothems;

- (b) Disturb or alter in any manner the natural condition of any cave;

- (c) Break, force, tamper with or otherwise disturb a lock, gate, door or other obstruction designed to control or prevent access to any cave, even though entrance thereto may not be gained. Any person violating a provision of this section shall be guilty of a misdemeanor, and, upon conviction thereof, shall be fined not less than one hundred fifty dollars nor more than five hundred dollars, and in addition thereto, may be imprisoned in the county jail for not less than ten days nor more than six months.

§20-7A-3. SALE OF SPELEOTHEMS UNLAWFUL; PENALTIES.

It is unlawful to sell or offer for sale any speleothems in this state, or to export them for sale outside the state. A person who violates any of the provisions of this section shall be guilty of a misdemeanor, and, upon conviction thereof, shall be fined not less than one hundred fifty dollars nor more than five hundred dollars and in addition thereto, may be imprisoned in the county jail for not less than ten days nor more than six months.

§20-7A-4. BIOLOGICAL POLICY; PENALTIES FOR VIOLATION.

It is unlawful to remove, kill, harm or disturb any plant or animal life found within any cave: Provided, That scientific collecting permits may be obtained from the director as provided in section fifty, article two of this chapter. Gates employed at the entrance or at any point within any cave shall be of open construction to allow free and unimpeded

passage of air, insects, bats and aquatic fauna. A person who violates any provision of this section shall be guilty of a misdemeanor, and, upon conviction thereof, shall be fined not less than two hundred dollars nor more than five hundred dollars and in addition thereto, may be imprisoned in the county jail for not less than fifteen days nor more than six months.

§20-7A-5. ARCHAEOLOGY; PERMITS FOR EXCAVATION; HOW OBTAINED; PROHIBITIONS; PENALTIES.

(a) No person may excavate, remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or paleontological site including saltpeter workings, relics or inscriptions, fossilized footprints, bones or any other such features which may be found in any cave.

(b) Notwithstanding the provisions of subsection (a) of this section, a permit to excavate or remove archaeological, paleontological, prehistoric and historic features may be obtained from the director of natural resources. Such permit shall be issued for a period of two years and may be renewed at expiration. It is not transferable but this does not preclude persons from working under the direct supervision of the person holding the permit. A person applying for such a permit must:

(1) Provide a detailed statement to the director of natural resources giving the reasons and objectives for excavation or removal and the benefits expected to be obtained from the contemplated work.

(2) Provide data and results of any completed excavation, study or collection at the first of each calendar year.

(3) Obtain the prior written permission of the director of natural resources if the site of the proposed excavation is on state-owned lands and prior written permission of the owner if the site of such proposed excavation is on privately owned land.

(4) Carry the permit while exercising the privileges granted. A person who violates any provision of subsection (a) of this section shall be guilty of a misdemeanor, and, upon conviction thereof, shall be fined not less than one hundred dollars nor more than five hundred dollars, and may be imprisoned in the county jail for not less than ten days nor more than six months. A person who violates any of the provisions of subsection (b) of this section shall be guilty of a misdemeanor, and, upon conviction thereof, shall be fined not less than one hundred dollars nor more than five hundred dollars, and the permit herein authorized shall be revoked.

§20-7A-6. Liability of owners and agents.

(a) Neither the owner of a cave nor his authorized agents acting within the scope of their authority are liable for injuries sustained by any person using such features for recreational or scientific purpose if the prior consent of the owner has been obtained and if no charge has been made for the use of such features.

(b) An owner of a commercial cave is not liable for an injury sustained by a spectator who has paid to view the cave, unless such injury is sustained as a result of such owner's negligence in connection with the providing and maintaining of trails, stairs, electrical wires or other modifications, and such negligence is the proximate cause of the injury.

OTR Old Timers Reunion

The annual meeting of The Robertson Association—OTR or Old Timers Reunion—will be held Labor Day weekend, August 29-September 1 in Dailey, WV. You must be a member of T.R.A. to attend without a sponsor and the deadline for becoming a member of T.R.A. is July 31st. For more information go to the OTR web site at <<http://www.otr.org>>

Rappelling Rainbow Wall

By Lee Rodrigue



A view of Rainbow Wall, behind and to the right of Rainbow Mountain, in Red Rocks, Nevada. (Lee Rodrigue)

When the VBATS first drew a spot in the Bridge Day Lottery in 2001, I was living in Las Vegas. I knew I wanted to be on the team, but convincing our team leader that I was still qualified to do the drop was going to require some traveling, and I didn't have time to jet back to the east coast for Harper's Ferry, Whitesides, and Bridge Day. So, my motto was, "If you can't go to the Team Leader, bring the Team Leader to you!" It was during the weekend that Mike "TinY" Manke came to Las Vegas, that the seed was planted for a grand expedition to Rainbow Wall, one of the top fifty classic climbs of North America in Red Rocks, Nevada (see <http://www.naclassicclimbs.com>).

Rainbow Wall, when it was first climbed in 1973 by Joe Herbst and Larry Hamilton, required numerous attempts to

summit using every aid-climbing technique available at the time. The aid climb called The Original Route is 13 pitches (the distance from one belay to the next), which total approximately 1,200-feet of climbing, much of it overhanging. It is characterized by long featureless dihedrals (inside corners) and loose blocks. Of course, these are features that are most important when climbing up the face. But what if you know someone with over 1,200-feet of PMI rope and a penchant for long rappels? If it overhangs enough, perhaps the loose block and absence of handholds might not be so important.

Looking at the distant greenish wall from about four miles away, TinY and I decided we would have to try to rappel it someday. After three years, I believe we are close to real-

izing our goal, thanks to some good luck on our part and a lot of research.

The first task is to determine if the powers that be, namely, the Bureau of Land Management, would even allow us to rappel down the face with a single rope. Climbers are free to ascend the route, but must obtain a permit to camp on the route or at the base. Aside from this, there are no restrictions besides those that apply to all climbing at Red Rocks (no new bolts, no destruction of the rock, etc.) However, "rappelling," has a very negative stigma at Red Rocks, since over half of the climbing-related injuries that occur can be attributed to John Q. Public purchasing a rope, harness, and figure-eight and heading out to enjoy an extreme sport.

My first inquiries into the possibilities of rappelling Rainbow Wall were met with resistance, primarily because my friends in the climbing community thought the BLM would never acquiesce. However, a fantastic twist of fate put one of my close friends and former employers in a position at the BLM as a climbing ranger. Finally, I had someone on the inside! Slowly, I came to show him that our (VBATS and NSS) version of rappelling was much more involved than that of the armchair mountaineers with which he was used to dealing. As it stands, this individual has not only indicated that he is likely to grant a special-use permit for this outing, but that he would like to join us to document the impact of climbing-related activities in the upper reaches of the canyon.

The next issue is figuring out the logistics of (1) where exactly to do the drop and (2) how to manage the rappels and ascents to enable all members of our party to accomplish their vertical goals for the day. Although this could be scheduled as a two-day affair, I would like to leave the BLM

with a good impression of our expedition by minimizing the amount of time we spend in this ecologically sensitive high canyon. How do we get people to the top of a wall that has no trail going up? How many people will it take to haul 1,200-feet (or more) of rope up to the summit? Which route will produce the greatest amount of free-hanging rappel? How can we avoid any climbers that might be on the wall that day? Once we rappel down, how do we get out, either from the bottom, or from the top?

Most of the questions about this venture remain unanswered. I hope to present some thoughts, as well as the research I've done to date, at the July BATS meeting, so that my fellow VBATs and BATs members can lend their insight to this process. I also hope to arouse sufficient interest to build a team of committed and qualified VBATs to help me realize this dream. Mind you, this is no Bridge Day. It is likely that we will be building our own anchors and placing gear in existing cracks the morning of our rappel. There is no trail leading to the summit of Rainbow Wall, so we'll be navigating using topographical maps and GPS. At least one scouting trip is required, which will involve not only approaching the base of the wall, but also the summit. Hiking out of the canyon at the base could possibly involve swimming through pools, rappelling through waterfalls, or limited ice climbing (the base of the cliff is over 5,200 feet above sea level). To find out more, be sure to come to the July BATS Meeting on Tuesday, July 8th!

Author's Note: Please, treat this project as you would a virgin cave exploration by not discussing it with persons outside our grotto. Numerous inquiries to the BLM prior to our expedition could result in a denial of all special-use permits at Rainbow Wall.

A BATS membership is only \$15 for non-NSS Members and \$10 for NSS Members. Contact Raymond Herlong to join up.

