

Mount Colden's Trap Dike-Great Slide- S.E. 90's Slide Traverse



Colden and the 90's Slide from Cliff.

Dates: 10/24/05 and 8/27/07
 Length of Traverse: 13+ miles
 Duration: 12 Hours

	<u>Min. Elev.</u>	<u>Max. Elev.</u>	<u>Chg Elev.</u>	<u>Length</u>
Trap Dike:	2863	3700+ -	830	.25 mile
Great Slide:	3700+ -	4714	1000	.30 mile
90's Slide:	3380+ -	4560	1220	.75 mile

Foreward written by a geologist friend...

Mount Colden's Trap Dike

"The trap dike on Mount Colden occurs as the floor of a distinct linear notch starting near the remnants of the winter (2006-2007) and earlier landslides on the eastern shoreline of Avalanche Lake. Its dip is near vertical and it strikes approximately east-southeastward (112°) extending north of the summit of Mount Colden. The dike sharply intrudes the wall

rock consisting of massif anorthosite dominated by coarse-grained (up to 20 cm), blue-gray plagioclase crystals. The dike itself is a fine to medium-grained intermediate to mafic rock with a distinct ophitic texture. The texture consists of white plagioclase laths, often several millimeters or more in length with crystals of black pyroxene (augite?) and oxide minerals in the interstices. Garnet occurs as red grain aggregates often rimming the mafic minerals. Xenoliths and well-developed chill margins were not observed; however, in several areas slickensides occur, indicating differential movement between the dike and the host rock. Widely spaced, darker stripes in the rock, up to a centimeter in width or more, appear to represent the late growth of hornblende and other mafic minerals along planar features and may be related to the deformation of the dike near the contact where it becomes amphibolitic. The contact with the anorthosite is knife-sharp and planar on both sides of the dike. The dike itself is up to 20 m or more in width.

It occupies a discrete notch that in some places cuts one hundred or more feet into the anorthosite host rock. Well-developed sets of joints, at approximately right angles, combine to produce a stepped pattern and the hand and footholds required to climb the dike. It is likely that the freeze and thaw action within these joint sets has allowed the development of the deep notch on the northwestern shoulder of Mt. Colden since the last ice advance. The notch serves as a natural funnel for runoff and mass wasting, and several waterfalls are developed. One can imagine that a strong flow of water would greatly complicate the ascent up the dike.

The trap dike is best described as a metamorphosed diabase or garnetiferous metagabbro. Trap rock is a term that applies to any fine-grained, dark-colored igneous rock and is not technically applicable here. The dike rock at this location is actually relatively light colored on the weathered surface and has between 35-50% mafic minerals (including garnet). However, the name "trap" aptly applies to the occurrence in another way because essentially once you start climbing the dike, you are trapped within the steep anorthositic side walls with no way to go but up.

What do these observations tell us about the dike and its origin? The cross-cutting relationship with the anorthosite clearly shows that the dike is younger, but by how much? The dike could conceivably be related to any number of events that occurred after the crystallization of the anorthosite nearly 1.16 billion years ago, perhaps even the opening of the Atlantic Ocean. A famous example of this event, the rifting apart of North African and North America, is the Palisades sill exposed in the lower Hudson River Valley. However, the presence of abundant garnet in the Mount Colden dike rock suggests that it must have been

intruded before the last major metamorphic event to affect the Central Adirondacks, nearly 1.05 billion years ago. Garnet is, with few exceptions, a medium to high-grade metamorphic mineral. The garnet in the dike has many similarities to similar garnet development in the surrounding anorthosite, suggesting both rocks experienced the pressure and temperatures conditions required to form the garnet. Despite the growth of garnet in the rock, the dike clearly retains its original igneous texture, as do the surrounding anorthositic rocks, suggesting despite the high-grade metamorphic conditions that occurred in the Central Adirondacks 1.05 billion years ago, the rocks were protected from any deformation accompanying the metamorphic event, perhaps by the strength of anorthosite massif itself which may have served as a rigid buttress about which less competent rocks were highly deformed. The margins of the anorthosite massif, for example at the top of Whiteface Mountain, often show signs of deformation and destruction of their primary igneous textures.



Trap Dike and lower portion of the Great Slide in 2004.

The features described above suggest that the dike was intruded during the Precambrian, likely within a few tens of millions of years after the anorthosite. Numerous smaller, garnet-bearing mafic dikes are known from many of the High Peaks and the surrounding region, suggesting that the Mount Colden trap dike is not unique, aside from its prominence and topographic expression, size, and continuity. Chemical analyses will help determine if the dike is related to a number of interesting gabbroic bodies, observed along the southern edge of the anorthosite massif near Newcomb, less than ten miles distant. These small, round gabbroic bodies known as coronitic metagabbros, because of their beautiful concentric metamorphic mineral growth patterns, are thought to have intruded shortly after the anorthosite and experienced the same high-grade metamorphic event. Because of their mineralogy, including olivine, and coarse grain-size the alteration of their texture is much more pronounced than seen in the trap dike. Some workers feel that these gabbros represent the parental magma to the anorthosite which itself formed by the crystallization, accumulation, separation, and ascent of plagioclase

crystals leaving behind a residuum of heavier, mafic minerals. It is interesting to speculate that the Mount Colden trap dike, although technically younger than the anorthosite, may be a sample of the magma from which it was formed! Talk about an interesting twist on the folk classic "I'm my own grandpa".

A classic reference on the trap dike is given below:

Jaffe, H. W., 1946. Postanorthosite gabbro near Avalanche Lake in Essex County, New York. *Journal of Geology*, v. 54, p. 105-116."

Introduction

This hike marked my second ascent up the Trap Dike/Great Slide on Mount Colden with a return route down the S.E. 90's slide. The first hike in 2005 was inspiring, though very unnerving for me and my uninitiated fear of heights. My return on this date found me feeling in control and leading several others up the precipitous route that inspired me two years prior. I think my final words of that day in 2005 were, "I don't know if I'd hike the Trap Dike again." I suppose I now know the answer. The first part of this report is, in part, a comparison of personal hiking growth. It also includes pictures from both 2005 and 2007. Numbers and elevations are approximations based on both topographical and GPS data.

The day's original group started with myself, a geologist friend (J.) and a coworker and Winter 46r named Mark. Mark's friend, Gary, joined us for the first leg of the journey to the Avalanche Lean-to area, about four miles into the trip where he veered to ascend Colden via Lake Arnold. A man from Ontario, Scott, joined us at the base of the dike and a family (son, mother, uncle) joined us on top of "the crux". Their stories will be told in turn.



Avalanche Lake.

The Hike Past Avalanche Lake

7:15 a.m.: The first leg of the journey began at a comfortable pace...thankfully slightly slower than my norm. A temperature in the high 50's felt perfect as the sun awoke the forest. Fog still hovered above most bodies of water. I led for a bit and injected a little hiking humor by walking past an obvious turnoff to Marcy Dam. I figured I'd see how long it would take for someone to catch on. Less than a hundred feet later there were a few confused comments. I laughed and said, "Just trying to instill confidence as the trip 'leader'". That was the first of multiple amusing comments and incidents. We arrived at Marcy Dam within the hour and grabbed a quick snack. I began to wake a bit as we exchanged more humor.

In 2005 at this location, a hiker approached our group and asked if we'd lost a rope...our climbing rope. Rico (*WalksWithBlackflies*) gave me a sideways glance since I was the one who was "assigned" to carry his rope, but didn't securely attach it to my pack. It was really just a precaution anyway and we never really needed it. I was glad they returned it since was expensive and more importantly snagged incessantly on the cripplebrush which made Rico's bushwhack much harder that year :) .

The lighting at the dam was near perfect for photos and a survey of our day's route hopeful goal. The Trap Dike is not viewable from the Dam, but the upper portion of the Great Slide of Mount Colden can be viewed from an oblique perspective. It looks faintly green, thin and less than impressive from the Dam. Inversely, Marcy Dam looks like a stick in front of a puddle from the slide.

The one mile hike to the Avalanche Camp area was uneventful and our comrade who was working on the last few mountains of his "46" departed to the left and Lake Arnold while we continued toward Avalanche Lake, a favorite spot of mine defined by the looming cliffs of Mt. Colden's on the east and Avalanche Mountain to the west. The lake looked a bit low which coincided with my estimation of the Cascade Lakes earlier. It had been dry and this worked to our advantage for our hike up the dike which can become dangerously slippery as the water content increases. I took several beautiful photos, so I thought. I've a fairly new digital SLR and discovered that my camera was on manual and the aperture was set incorrectly resulting in several over-exposed pictures.

The boulder hop around the edge of the lake was beautiful as always and gave us some good views of the fresh debris from this past winter's avalanche at the base of the dike. Several trees floated near the hitch-up-matildas. The Great Slide loomed impressively above the lake and adjacent to the dike. I looked forward to the upcoming views and exposure.

The Trap Dike and Great Slide

We met an Ontario man named Scott at the south end of the lake. He'd spent the previous night nervously awaiting bears that never came and contemplating a solo hike of the Trap Dike. He admitted later that he was working up the nerve/waiting for an invite from someone like us who had similar goals. We asked him along and found each other great company with similar humor. There are several herd paths along the lake. The one along the shoreline is, perhaps, the easiest though I led us into the evergreens a bit higher. I viewed it as pre-trap dike exit training. The push through the thicket was over quickly as we exited into the avalanche debris and, in short order, ate a snack in the aperture of the dike. J. explained that he needed a sample of the oldest type of rock in the dike for research.



Base of the Trap Dike 2007. Note the wide gap in the trees from this past winter's avalanche when compared with the 2004 photo.

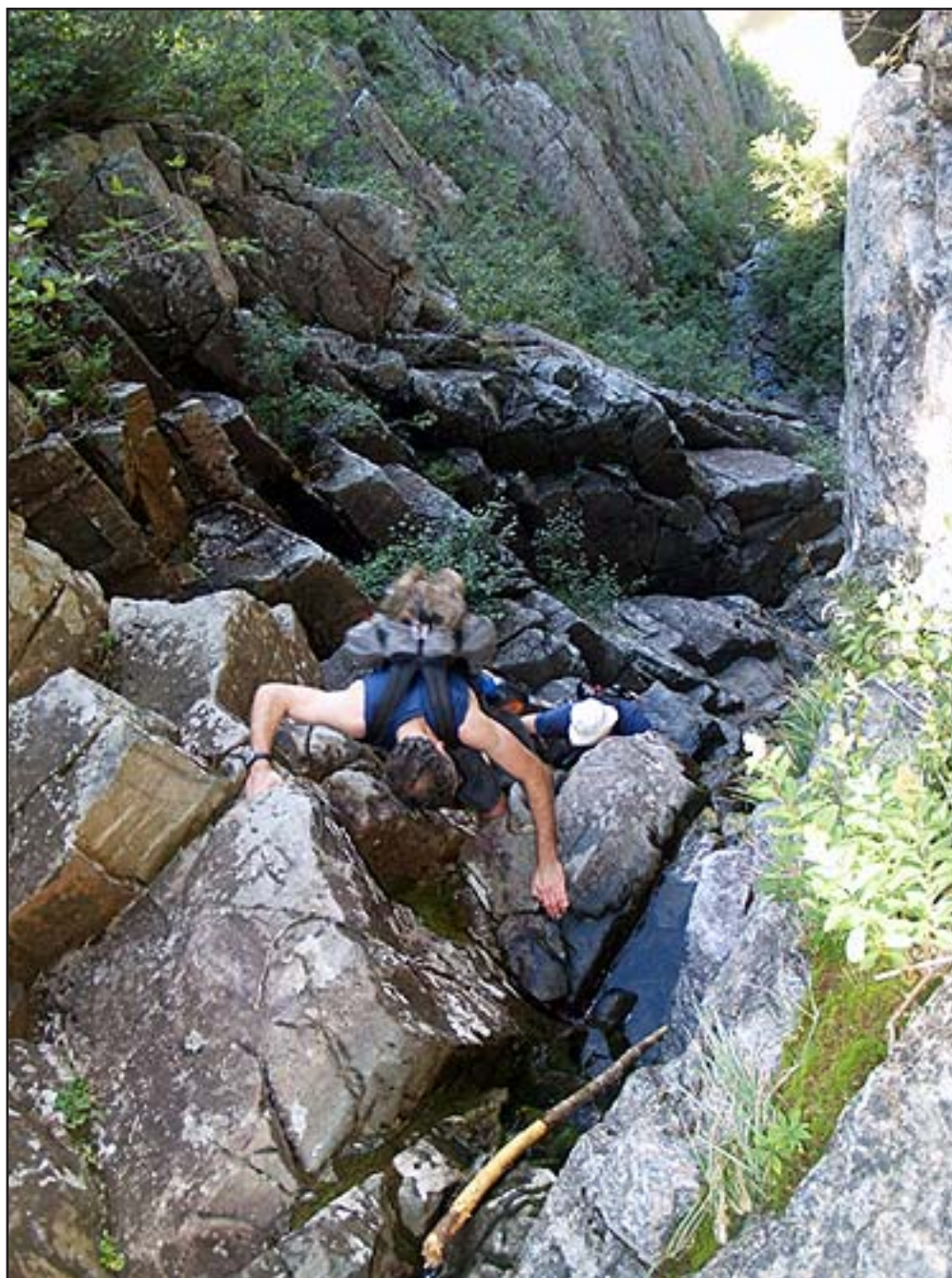
In a jest regarding our upcoming climb, I said, "On my epitaph, let it be read..." J. finished the rhyme without forethought, "I tried to climb and ended up dead!" I only remembered this exchange when watching the video J. took with his digital recorder.

I was amazed at the mere trickle of water that traversed the dike. It freezes solid in winter, becomes a torrential waterfall with spring's melt until May or June and varies thereafter depending on rainfall until the cycle renews. Our timing was perfect. I don't think I wet my feet more than twice as opposed to my last trip when I was soaked at times. Humor was still aplenty as well. Mark turned to J. during one of the small climbs and asked with sarcasm, "Does this dike make my butt look fat?"

The initial ascent and climbs were easy. Elevation gain was quick and obvious as the slide on Algonquin became more visible, the lake changed perspective and the downward slope of the dike walls became ever more apparent. The higher one climbs, the deeper the shade in the morning hours as well. I took several pictures of Algonquin's west slide in preparation for a future trek over Avalanche Mountain and slide whack up Algonquin. Various trickles of water wet the hairy moss in some areas, but were easy to avoid with several dry routes available. Only the final major climb labeled "the crux" had more limited options. The crux can best be described as a 50 foot class 4 rock climb which basically means a rope isn't necessary, but some may want to use one. This translates into, "Bring one to be safe."

The crux had only one viable option in 2005: a small stepped chute that veered slightly away and to the right of the waterfall area. The chute is an easy climb until near the top where one is forced into two choices: 1. Scoot onto a small plateau on the left and wiggle around a nearly level outcrop or 2. upward from the chute. Nearly level means very slightly slanted toward the ground. I chose the upward route from the chute, but only succeeded with help from Rico who aided me in finding the invisible handholds that were slightly out of reach. This was my terror-stricken, adrenalin-filled approach last time. Additionally, my camera bag was trapped between my chest and the stone. This forced my body away from the wall...not a wise position for gear.

Prior research and a quick assessment told me to stay close to the waterfall if possible for the 2007 trip. It seemed a better route as I ascended. I quickly noticed that my pack hindered head movement so I took it off with Mark's help and threw it over a shoulder while I continued the climb. My adrenalin released as I got higher, but my fear of heights was sufficiently desensitized to that of caution rather than paralyzing fear.



Mark and Scott about 2/3 of the way up the Crux..

support...like the Gothics cable, but the plan modified as J. looped it around his waist. Mark stayed a step higher so I could use his ankle as a hand hold in addition to a small crack in the rock itself. In this way, I could maneuver and do what I needed to let J. use my body as support. He crawled around and onto the small (2-3 foot) ledge and worked his way over to me and under the outcrop. From there he slowly stood and pulled himself to safety. He yelled several expletives at us and about us as he relaxed. I think he snuck around a rock afterward to change underwear...kidding, kidding.

Rico, my regular hiking partner, found one picture of our rope adventure particularly amusing. He asked me to find the mistakes. I found five immediately. To be fair, it was a transitional photo where we were moving, but it

Once over the lip, I threw my pack on the nearest level rock, grabbed a camera and began snapping photos. I wanted to show the height and perspective of the climb. It's not what most climbers would call a technical climb, but it's likely the closest I'll come to it. A fall could easily be fatal in this section.

J. opted to climb the chute area. I walked near the edge to watch and make sure all was ok. It wasn't. At the top, in the same area that nearly subtracted 10 years from my life in 2005, he calmly stated that he was going to go back down. Calm quickly passed to frozen fear, a feeling I'm very familiar with. I climbed down the top portion above and to his side and I told him to relax and just stay stable, that we'd get him up...just breathe. After vacillating between ok and I'm going down, he reluctantly agreed to take his pack off. He then took a rope out and tied the pack so we could pull it up. Mark secured the rope (I think...just kidding) to a small tree and J. then tied himself in. My plan was to tie the rope for handhold

froze the details at just the right moment to make it amusing...and dangerous in the wrong circumstance. Mistakes (embellished for humor) are as follows.

1. Rope on the wrong side of my neck...if J. fell we'd both plummet though...
2. the rope was tied around his waist...There's probably a better way.
3. Rope wrapped around J.'s ankle...he'd have made a nice spin before the rope caught around his midsection snapping him to a halt.
4. Too much slack in the rope...adds jarring stop or could snap the rope if he plummeted.
5. Rope around his ankle is also under an outcrop of rock which I saw and fixed.

On another note, this is the closest I will ever get to rock climbing. I don't feel the need to do gravity checks from vertical locations. This incident served to emphasize a deficiency: I needed to learn some basic rock climbing skills or at least a few handy knots.

The top of the crux was a touch above 3000 feet. Subsequent to this area were several smaller climbs, a small cave made by a large chunk of Anorthosite lodged against the southern wall and the debris in the dike and, somewhere, the exit! At around 3700 feet on a nice sunning rock, we took a lunch break and filtered water. The slab was above us though apparently accessible to our south. A mother/son/uncle team soon came up the dike and asked about the exit. We told them our best guess. On a side note, Rico/John/I hiked a good bit farther and enjoyed a forty-five minute bushwhack to a smaller slide and finally the Great Slide

Mark in the Upper Portion of the dike and entering the Great Slide from the herd path.





Kevin on an intermediate slide prior to the Great Slide on the first traverse. Photo courtesy of WalksWithBlackflies.

in 2005. John whacked the entire mountain. I didn't want to repeat that error. On a humorous note from my former trip, I managed to emerge from the cripplebrush before Rico and ascended a few hundred feet to rest on a comfortable ledge. Rico wasn't in view but a continuous string of curses emerged from the wiggling cripplebrush that attacked from all directions. To this day, we call the cripplebrush about 500 feet below the summit of Colden, "The Cursing Trees".

On this hike, a bent tree ideally marked our exit. I scouted ahead and didn't see it so I followed a well worn herd path near a lower elevation (around 3700') cairn and toward a small ledge. The slab face was in view and its gray expanse called to me. The steep incline was both a source of intimidation and excitement. As Mark stated, "The steeper the slab, the sweeter the whack." Or in J.'s words as he surveyed the slab, "S**t, I'm not climbing that!" He opted to hike further in the dike and actually found the bent tree. Based on his story of the herd path at that exit point, I followed the path more used. I veered right around and up on the ledge. The family from earlier was coming down "my" herd path away from "the slippery moss". I followed instinct and pressed on from where they emerged. The path continued south and slightly up as quickly came to the open slab. The whole whack took about 5 minutes. The slab of pitted rough anorthosite sits at a 40-45 degree (approx.) angle and looked down upon Avalanche Lake. A fall meant losing skin and sliding, rolling or worse. The pitch is far steeper just strides lower in altitude. Winter hiking is obviously more treacherous since the slab is covered with ice. I felt very confident and connected to the stone. Without worry, I was able to enjoy the incredible views! As I was taught, I stayed above small shelves in the stone should I lose my grip as I snaked my way up the center of the slide looking for the areas with the best footholds, least moisture/moss, and slightest incline which rarely dropped below about 40 degrees.

It took about fifteen minutes for J. to find his way to the slide about 200 feet above us. He chose the route on the slab that I did in 2005: the edge of the slide nearest the safety of the cripplebrush. Unfortunately, this tends to be covered with moss and captures the most moisture so it ends up slipperier than the central area. We hike the remaining 1000 vertical feet with the balancing boulder on top as our objective.



WalksWithBlackflies and John on the 90's slide from near the headwall.

Several small headwalls of a steeper pitch awaited on the route up the slide, but careful consideration yielded multiple foot holds. My legs and lungs burned from the exertion but I attributed my easy grip to my trail running shoes. The hitch up matildas, far below, remained in view until the summit, which we reached at 1:15. One half of our hike was completed!

Descending the 90's Slide and the Hike Out

I enjoyed the view for about twenty minutes as I ate and left my wife, Deb, a message. J. said he'd expended enough nervous energy and had to make an early exit to take care of his kids that evening, so he opted to exit via the Lake Arnold trail. Mark and Scott followed me to find the herd path to the 90's slide. This is located slightly north before descending from the summit and prior to a set of large boulders. I entered the knee high cripplebrush in a slightly incorrect area and wandered for about five minutes before realizing I again passed the hidden herd path by about fifty feet. 2005 found us wandering for forty-five minutes in to locate the path. I found an outcrop, trekked south and ran into it on top of a small cliff. We descended 100 or so feet to the top of the steep slide headwall...and steep it is, surpassing 45 degrees at times for the first two or three hundred vertical feet. The stone was even sharper and more "grippy" than the Great Slide. Views of the Great Range, Marcy, Grey Skylight, Redfield, Cliff and others opened before us...at least Scott and I. Mark descended the slide backward to save his knees. Again, my confidence was strong and I remained upright as I descended except in a few areas to find handholds. The days of my "gecko crawl" were over, I supposed. (Rico was amused that I used to use my stomach and chest as additional friction in past hikes.)

The rest of this mile long slide passed quickly. The headwall on the northern most section (there are two upper portions) was one of the steepest areas. It then let up slightly as we crossed over to the main slide. Another mid wall again got steep and forced me to be extra careful as it passed the 45 degree decline mark. Careful consideration of handholds and footholds held us fast in place. Mark looked up and

commented to himself, "For future reference, something that looks that steep is possible." The upper headwall began to loom far back and above as we traversed the various rubble and chutes of the slide. Interesting stone intrusions littered this slide at perpendicular angles. Some were worn below the slab and others were harder and bulged above. The rubble increased as our elevation decreased. It seemed incredible that so much material could travel almost a mile, but such is the force of nature.

Ironically, I didn't get a scratch going up the dike, Great Slide or down the harder portions of the 90's slide. In the lower rubble I stepped off a two foot ledge and rolled my angle which forced all my weight onto the outer (5th) metatarsal of the foot. Several yards later, I did it again and my foot swelled which abated when Mark gave me some aspirin to help the hike out.

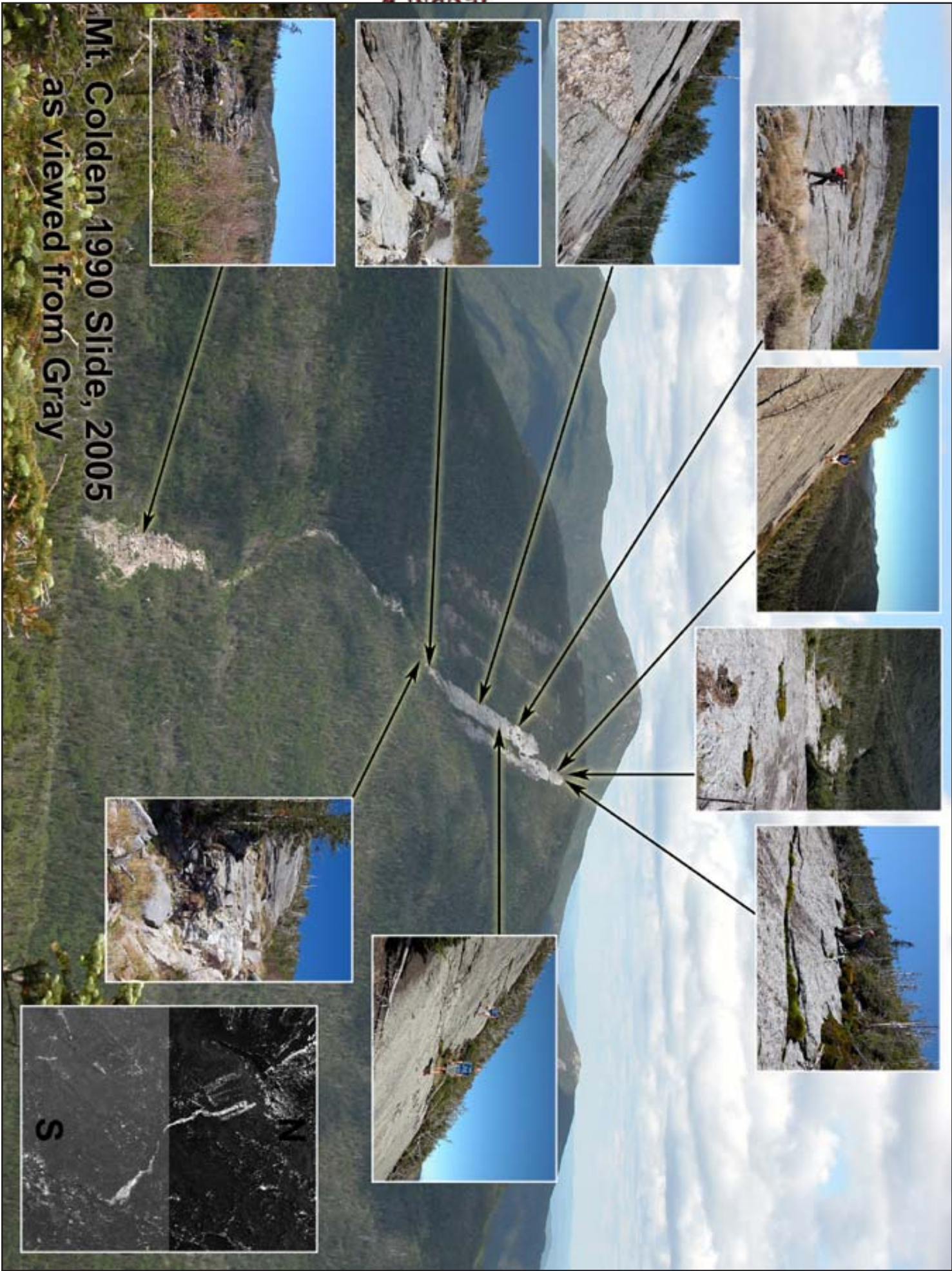
We neared the wide drainage and the 3 rock cairn marking our exit at about 4:00 p.m. where we took a break. Scott and I exchanged emails for a later picture exchange and I explained his route back to Lake Colden where he was camped. The maintained trail was just a short walk from the drainage. My memory served me well on this trip!..except for one small detail. I'm a clean person who likes to use hand sanitizer after using the "facilities". Each time I used my little bottle of alcohol solution, it seemed runny. I shrugged it off. After the third time and about an hour from the trailhead it occurred to me...I'd replaced sanitizer with some clear/oil-free sunblock. Mark likened it to his mishap of swapping toothpaste for diaper rash lotion used for chaffing.

The walk back is usually a death march for me from the deeper locations, but this passed quickly as I watched Mark walk backwards down most of the dirt slopes. His knees required it, and thankfully, my knees remained strong. He navigated the rock hops portions carefully...as did I for my foot injury. We arrived at Marcy Dam at about 6:30 where I called Deb again to let her know of our progress. 7:15 found us at our cars. The mix of perfect weather, good hiking companions and a safe journey made the day a thorough success and inspired me further to attempt an annual traverse of this area.



Great Range from the 90's Slide, oh, and WalksWithBlackflies.

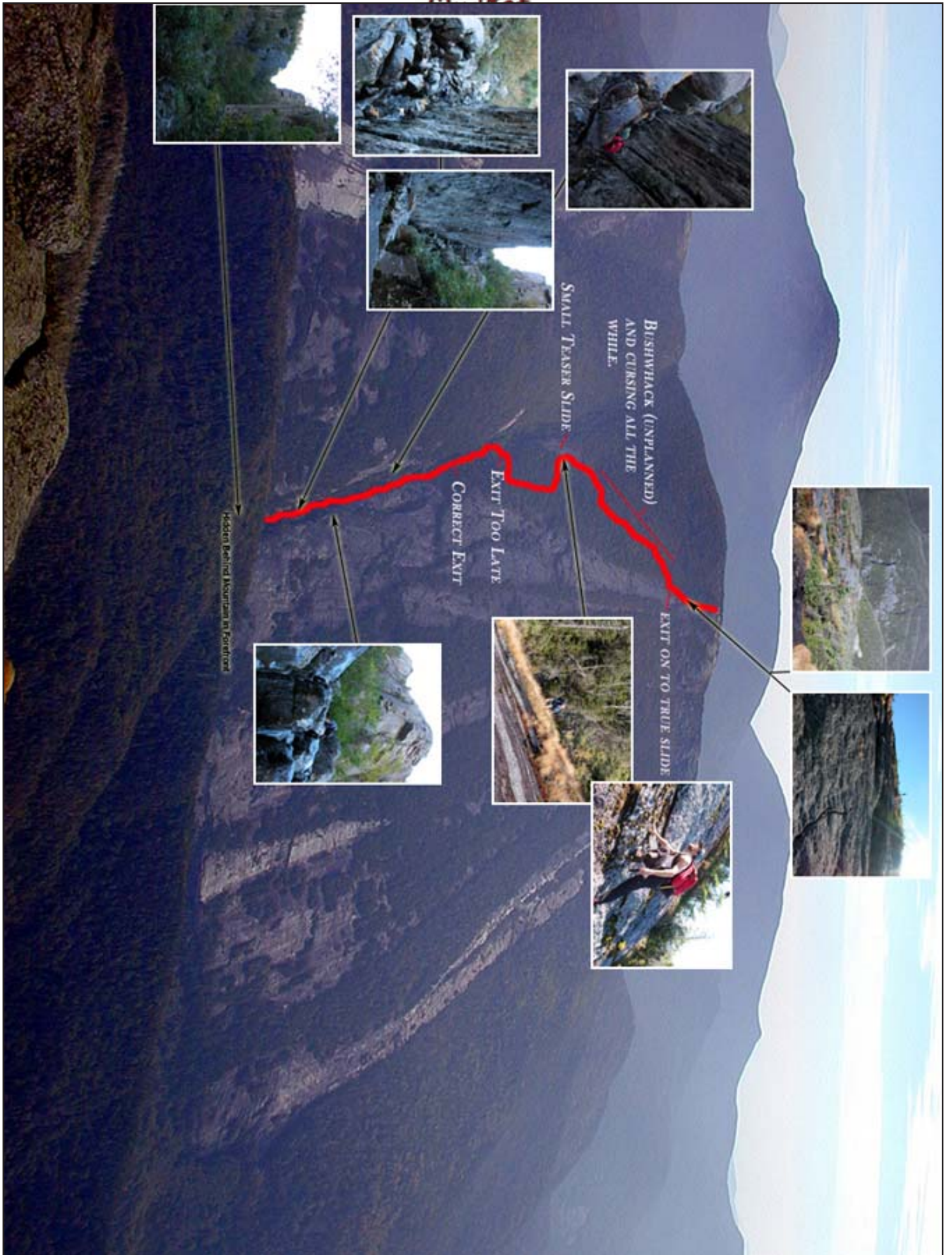
MudBat



Mt. Colden 1990 Slide, 2005
as viewed from Gray



M 12



EXIT ON TO TRUE SLIDE

BUSHWACK (UNPLANNED) AND CURSING ALL THE WHILE.

SMALL TEASER SLIDE

EXIT TOO LATE

CORRECT EXIT

Hidden Behind Mountain in Photograph

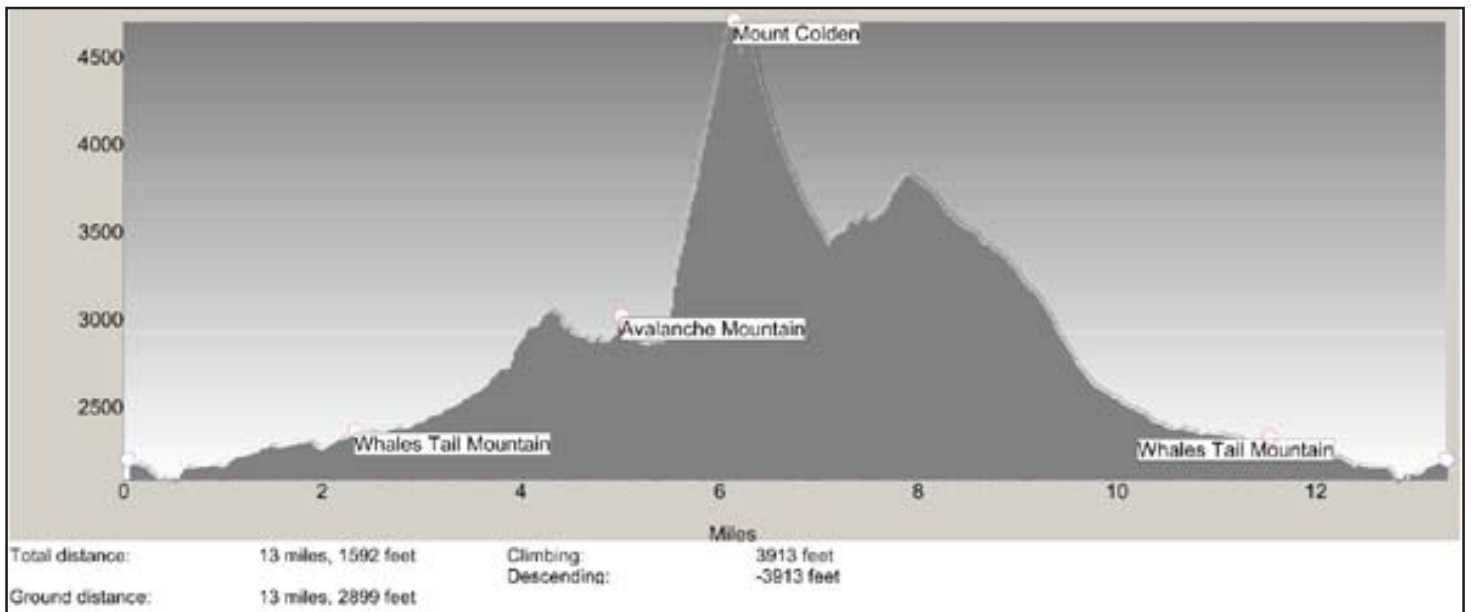


MudRat



Mark and Scott on the Great Slide

Profile of the entire traverse.



*John on the head wall of the 90's Slide.
Notice the herdpath.*



The last decline on the 90's slide.



*In the drainage looking at the distant
headwall.*

