

# GEORGIAN RESEARCH EXPLORATION WORKSHOP

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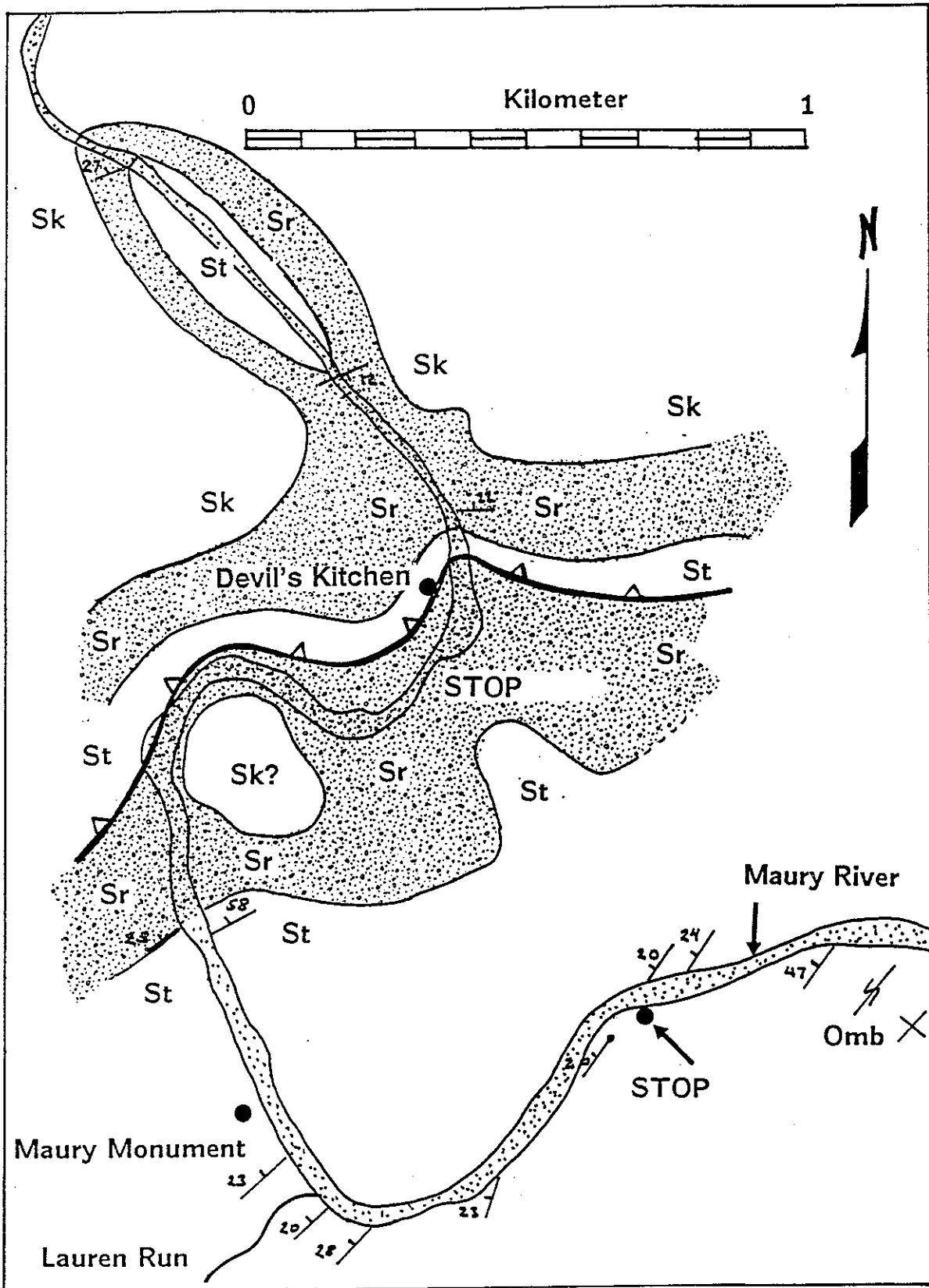


Figure 5. Geologic sketch map of the back thrust at Devil's Kitchen, Goshen Pass, Virginia. (from Spencer, Bell, and Kozak, 1989, IGC guidebook T157)

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Starting in the spring of 1990 the Keck Consortium and Georgian Technical University, Tbilisi, Republic of Georgia began negotiations for a possible faculty-student exchange in order to evaluate joint geological research opportunities in Georgia and the United States. During early January 1991 Drs. Carl Mendelson and Carol Mankiewicz spent a week in the Republic of Georgia as the guests of Georgian Technical University. Their role was to assess the feasibility of mounting a small exchange workshop during the summer of 1991. They returned to the United States enthusiastic about the prospects. During the summer of 1991 these negotiations came to fruition with a two-part exchange workshop. The first part (reported below by Prof. Beutner), sent a group of two Keck faculty and three students to the Republic of Georgia. The second part (reported below by Prof. Woodard) saw two Georgian faculty and three students visit a variety of Keck Consortium research sites in the United States.

### Part I

The Georgian phase of the project was led by Edward Beutner (Franklin and Marshall), Jill Schneiderman (Pomona) and students Lynne Chastain (Colorado), Ari Kogut (Beloit), and Nick Loizeaux (Williams) rounded out the group. We left the U.S. on June 7 and returned on July 5. In between, we experienced much of what Georgia has to offer, both geologically and culturally.

One of the geologic highlights was the cross-section northward from Tbilisi across the Greater Caucasus into Russia. This represents a well-exposed young fold-thrust belt, with deformed Mio-Pliocene molasse to the south followed northward by a succession of progressively older Cenozoic and Mesozoic strata in thrust sheets, ending in the Hercynian crystalline core of the range. This core is much better exposed in the Western Caucasus, near Sukumi. There, in the headwaters of the Kodori River, we found a major (mid-crustal?) Hercynian ductile shear zone which had not previously been reported. The zone was marked by a variety of mylonites, protomylonites and blastomylonites developed in gabbros and other metaigneous and metasedimentary rocks. Equally fascinating was the area near Borjomi in the south-central part of the country. There, on the north flank of the Lesser Caucasus, an Eocene island arc is developed on thinned continental crust. The stratigraphic section starts with continent-derived turbidites which then began to incorporate a volcanogenic component. Finally, the shallowing upward sequence of submarine andesites and andesitic basalts passes upward into subaerial flows and tuffs. Equally exciting were the relationships between modern and recent structures and the topography which were observed throughout Georgia. Folds are hills, faults and folds deform erosion surfaces, and uplifted terraces and aberrant drainages reflect active tectonics. Georgia may represent a unique opportunity to study the neotectonics of a modern, relatively simple zone of continent-continent collision.

Overall, the geology was exciting but difficult to get at because of logistical problems, which included vehicle problems, gasoline shortages, and poor planning. These difficulties and the degeneration of the political and social situation in Georgia since our visit rule out an exchange program at this time. During much of our stay we resided with the families of the Georgians who were coming to the U.S., and we can never sufficiently thank them for their marvelous hospitality, which included many elaborate and remarkable meals and much edifying conversation.

### Part II

On 12 July 1991 Prof. Tamaz Lordkipanidze and Liana Varagashvilli and students Nicholas Berdginishavilli, Dimitri Kalandadze, and Rati Ioseliani arrived at Kennedy Airport in

New York. The general plan was to introduce them to as many of the Keck Consortium research sites, faculty and students as was feasible during their three week stay in the United States.

Their itinerary can be divided into five segments, each representing different geological and cultural experiences. Carl Mendelson (Beloit) met their flight at Kennedy Airport and he drove them by car to upstate New York where they met Bill Fox (Williams) for a study of the Catskill Delta rocks and carbonate rocks of Paleozoic age studied by the New York research project. A day was then spent at Niagara Falls.

During the second segment they flew to Beloit, Wisconsin and met Hank Woodard, the Keck Consortium Coordinator, and participated in a reception and dinner which brought together all faculty and students from both the Wisconsin and Quetico research projects, along with Beloit College's President Victor Ferrall and other local dignitaries. Following this introduction to the Consortium, Prof. Woodard made a presentation designed to show some of the several different Keck research projects which had and were being carried on in the Boundary Waters Canoe Area Wilderness in northern Minnesota and in the Quetico Provincial Park wilderness in southern Ontario. Steve Burrell (Beloit) then guided the Georgians through three days of geological activities associated with the hydrologic aspects of the Chamberlin Springs area and the Baraboo Hills in Wisconsin. During this interval the Georgians were the guests of Hank and Lyn Woodard for a dinner in their home. Their Midwest stay was capped by a visit to "Old World Wisconsin" and an interview with Voice of America.

The third segment of their itinerary started in Denver, Colorado. They were met by Dr. Kent Van Zant (Amoco Production Research and former Beloit faculty member) and were shown the type of research activity carried on by geologists at Amoco's Denver facility. Dr. John Aleinikoff (U.S. Geological Survey) arranged for them to tour the laboratories and mapping facilities at the U.S. Geological Survey Denver Federal Center. Bud Wobus (Williams) then spent three days with the Georgians in the field in Colorado showing them the geology covered by earlier Keck research projects on the Thirtynine Mile volcanic field and the 1992 sites for the Pikes Peak Batholith research project.

A shopping spree in Denver was then followed by a flight to Billings, Montana where Ed Belt (Amherst) met the group and started segment four of their itinerary. Six days were spent showing them aspects of the Bighorn structural front, the Stillwater Complex, and the Cretaceous of eastern Montana. A typical "Wild West" rodeo was enjoyed by the entire group!

A return flight from Billings, Montana to Buffalo, New York allowed Bill Fox (Williams) to meet the group once again and show them some of the Paleozoic rocks in western New York on a return trip to Williams College. A gala send-off dinner as the house guests of Bill and Norma Fox, and a trip to Kennedy Airport on 31 July 1991 ended the Georgian's tour of Keck Consortium research sites.

## Summary

The purposes of this exchange workshop were to allow both groups of geologists the opportunity to assess geological research opportunities in the Republic of Georgia and in the United States, to get to know and better understand each other's professional objectives, and to gather data related to logistical and cultural questions which could be expected to arise on joint research projects. We believe that in this regard the workshop was very successful. Various potential projects were recognized and although logistical problems could be difficult, particularly in Georgia, they did not appear to be insurmountable. Unfortunately the political situation in the Republic of Georgia remains highly volatile, and until these difficulties diminish, the Keck Consortium Representatives unanimously feel that further discussions should be held in abeyance.

Prof. Henry Woodard, the Consortium Coordinator, wishes to take this opportunity to sincerely thank Rector Gocha Tchogavadze and his faculty and students for their wonderful hospitality afforded our faculty and students during our two visits to Georgia. Hopefully in the future it will be possible to pursue some of the professional goals that we discussed during this first exchange workshop.