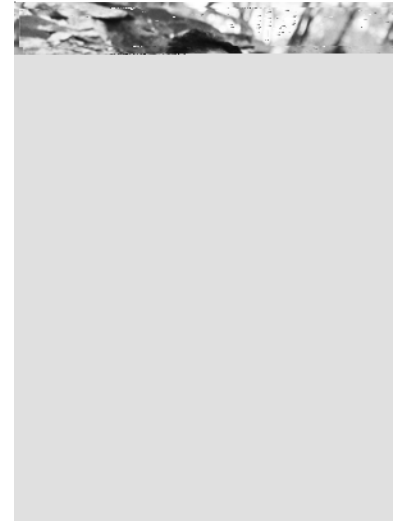


GEOLOGY *at SMU*

An occasional newsletter for alumni and friends: July, 2004.

Neil Tabor studies ancient climate through paleosols



In this issue, we are pleased to introduce in the cover story our new faculty colleague, tenure-track Assistant Professor Neil Tabor. Neil comes to us from University of California, Davis, after serving as Professor Crayton Yapp's postdoctoral fellow supported by National Science Foundation funds. Neil's primary training is in sedimentology with an emphasis on ancient soils as paleoenvironmental indicators. Neil has become a player in the debate over the role of carbon dioxide in the current and ancient climate of the Earth. Neil combines classical interests with a modern analytical laboratory tool bag.

This brings to mind the recent passing of geologist and former chairman of Caltech, Professor Robert P. Sharp. Sharp, the classically-trained geomorphologist, had the wisdom to move Caltech's department in the direction of isotope geochemistry in the early fifties and planetary science in the sixties. While recognizing that geology must expand into new areas to remain intellectually stimulating, he never forgot about field work.

In the early days of planetary exploration, Sharp admonished the new scientists not to forget about the Earth. Following Sharp's advice, it is interesting to think about the formation of the Grand Canyon (a place where Sharp took many generations of geologists, just like we do here at SMU) and what it might tell us about the history of the surface of Mars.

Mars is one of the big stories and the object of a major

SMU Golden Mustang takes

For SMU alumnus, Starkey Wilson (B.S., 1951), Alaska represents a land of great potential. Starkey has been involved in Alaska for over 40 years and currently maintains a home on Bell Island, southeastern Alaska. Starkey's current business interests involve coal and gold and perhaps most importantly, his dream of harnessing Alaska's geothermal energy to move us towards the future hydrogen economy.

On the last weekend in April, Professors David Blackwell, Bob Gregory, Louis Jacobs, and Brian Stump met Starkey at a hotel overlooking the Alaskan Railroad Train Station on the shore of Cook Inlet in Anchorage, Alaska. The purpose of the trip was to make some contacts with the University of Alaska in order to foster exchanges between the group in Fairbanks and SMU.

While in Anchorage, we met with its former mayor, Jack Roderick, who now serves on a Presidential commission that promotes Arctic Research. Jack also authored the book, *Crude Dreams*, that describes the history of oil exploration in Alaska. Over lunch, we received a quick tutorial on the structure of the University of Alaska system and the setup of the state and local government. The afternoon was set aside for geology.

Anchorage was devastated in the great 1964 earthquake; the Turnagain Heights landslide was initiated by the ground motion that liquified the underlying Bootlegger Cove Clay generating a slump some 8000 ft by 1200 ft. The landslide moved a subdivision of homes some 500 feet towards Cook Inlet killing 4 and destroying 75 homes. The area is now a nature reserve and the boundary of the slide is marked by a scarp that gives way to a humicky and jumbled landscape.

Portage Glacier is a short drive down the Kenai Peninsula from Anchorage and provides the opportunity to see an active glacier and chevron-folded metasedimentary rocks of Cretaceous age. Most striking is the obvious retreat of all of the glaciers in this area, most of which occurred within the 20th century. The entire field of view of the lake was originally under the glacier well into the 20th century. The retreat of ice has been spectacular.

Top left: Confluence of several glaciers on the flight into Anchorage. See also p.7. Center left: Photograph shot into the Turnagain Heights landslide, a result of the great magnitude 8 earthquake that devastated Anchorage on Good Friday, 1964. The chaotic terrain results from the rotation of large blocks of clay moving seaward in the slide.

Portage Lake at the foot of Portage Glacier, southeast of Anchorage, marks the limit of the glacier in the 20th Century. The lake empties via a creek into Turnagain Arm that marks the advance of ice during glacial maxima. Just as in many other parts of the world, the last hundred years has been a time of major retreat of glaciers. Portage Glacier is no exception. The foot of the glacier lies in the valley at left hand side of the mosaic. In 1915, glacial ice covered the entire area of lake visible in the photo. This suggests that a major change in climate is underway. Whether or not this is the result of human activity, high latitudes will be affected most strongly, seeing the biggest temperature effects.

Top right: Chena Hot Springs main pool first developed in 1905.
Center right: δD - $\delta^{18}O$ diagram showing the position of Alaskan water samples collected in April, 2004, with respect to the global meteoric water line (shaded area with slope 8). The springs are



law. She published a paper on tax law associated with the transport of natural gas.

Jack Rogers (M.S, 2000) completed his first year teaching at Valencia Community College in Florida. Jack is continuing his Ph.D. work on a part-time basis.

Peter Kubick (B.S., 2002) has accepted a position with Kerr-McGee beginning in September and



David D. Blackwell, Hamilton Professor, Ph.D., Harvard. Geothermal studies and their application to plate tectonics, energy resource estimates and geothermal exploration.

Robert T. Gregory, Professor, Chair, Ph.D., California Institute of Technology. Stable isotope geology and geochemistry, evolution of earth's fluid envelope and lithosphere.

Eugene T. Herrin, Shuler-Foscue Professor, Ph.D., Harvard. Theoretical and applied seismology, solid earth properties, computer analysis of geophysical data.

Louis L. Jacobs, Professor, Ph.D., University of Arizona. President of the Institute for the Study of Earth and Man. Vertebrate paleontology, evolution.

Bonnie F. Jacobs, Assistant Professor and Chairman of the Environmental Science Program, Ph.D., University of Arizona. Paleobotany of Tertiary deposits of Africa, appli-