THE GEOLOGICAL SOCIETY OF AMERICA

GEOMORPHOLOGY NEWSLETTER #5

William D. Thornbury, Editor July, 1959

The editor apologizes to all the persons who sent material to him on time for the lateness of the Newsletter. Various personal matters made it impractical for him to get the Newsletter out at the anticipated time and it is hoped that not too many of the items will have lost their interest because of the delay in editing the Newsletter.

New panel members for the Geomorphology Group for the period June 1, 1959 to June 1, 1961 are :

L. B. Leopold	U. S. Geological Survey (Washington)
J. P. Miller	Harvard University
G. M. Richmond	U. S. Geological Survey (Denver)
R. P. Sharp	California Institute of Technology
M. G. Wolman	John Hopkins University (Geography)
J. H. Zumberge	University of Michigan

Section E (Geology and Geography) of the American Association for the Advancement of Science will sponsor a symposium on Quantitative Terrain Studies at its forthcoming meeting in December at Chicago. An encouraging number of papers have been promised and it appears likely that there will be three sessions dealing with this subject. The program is still somewhat tentative but it appears likely that the papers to be presented will fall mainly into three categories: (1) those dealing with terrain analysis for specific purposes (e.g. military), (2) those in which emphasis is upon geomorphic and other processes or factors which control the evolution of the landscape, and (3) those dealing with equipment and devices for measuring terrain factor values. This should be a program of interest to all geomorphologists. Why not plan to attend?

NEWS ITEMS

The Geological Survey of Canada is continuing work this summer in the Elbow-Outlook region. Special studies on patterned ground and ice-shove structures of the area are being made under the sponsorship of the Geology Department of the University of Saskatchewan.

J. R. MacKay is spending the summer in British Columbia continuing his investigations of solifluction, a project sponsored by the National Research Council, Ottawa. He will also carry on patterned ground studies under the support of the Association of American Geographers.

W. H. Mathews will work this summer on isotope dating of the volcanic rocks of interior British Columbia with the objective of developing a local time scale that may contribute to the interpretation of the geomorphic history of the region.

R. E. Deane and a group of graduate students from the University of Toronto will study the shoreline features, bottom sediments, and physical limnology of Lake Ontario. Precise leveling of the Iroquois shoreline will be continued.

J. Terasmae is continuing the mapping of the surficial geology of the Cornwall area and study of the palynology, and radiocarbon dating of the drill samples from the Hamilton, Ontario, area.

Paul Karrow, Ontario Department of Mines, will continue this summer his mapping of the surficial geology of the Galt, Ontario, area.

A. Dreimanis and J. R. Kramer, University of Western Ontario, are continuing their studies of the glacial deposits along the north shore of Lake Erie. Some of the results of their studies were presented in an interesting fashion at the spring field conference of the Eastern Friends of the Pleistocene.

J. D. Ives, of McGill University, along with four graduate students, is continuing an investigation of the final stages of deglaciation in northern Labrador-Quebec. Three other members of the McGill Department of Geography will be working upon geomorphic or glacial problems. J. C. Brown is continuing his investigations of the Champlain Sea and other late glacial water bodies in the Montreal Plain area. J. T. Parry is initiating a two-year study of the geomorphic processes operating on the limestones of Anticosti Island, and J. B. Bird is giving further attention to the geomorphology of northern Canada, after having completed last summer an investigation of periglacial processes as manifested on Prince of Wales and Somerset islands.

P. E. Wolfe, Rutgers University, is continuing his study of the evidence for post-Miocene uplift in the Rocky Mountain region of Wyoming and Montana, work that was interrupted by a year spent in India on a Fulbright grant.

Sheldon Judson, Princeton University, will study an archeological site in Sicily to explore the possibility of getting additional geomorphic information as well as data on recent sedimentation.

W. N. Melhorn, Purdue University, under a G. S. A. grant, will do further work in northern Michigan, with emphasis being placed on the origin of the lake basins, drainage derangements and diversions, and the Lake Border Interlobate morainic systems.

W. R. Muehlberger and Ernest Lundelius, University of Texas, have initiated a study of the terraces of the Colorado River (in Texas). They are particularly interested in the soil changes as the river crosses climatic zones and the possibility of correlating the terraces with the Mississippi Valley terrace sequence.

Wilson Laird, State Geologist of North Dakota, indicates that the state survey is engaged in glacial and groundwater studies in Kidder and Stutsman counties.

The following University of Illinois Ph. D. candidates will be working in western Canada on a variety of glacial problems under the general direction of George W. White and Paul R. Shaffer:

Brian Ellwood,	in the Vermilion region of east-central Alberta
John Scott,	along the South Saskatchewan River
George Hughes,	in the vicinity of Edmonton, Alberta
Richard Parizek,	in the Willowbunch Lake area, Saskatchewan
Cotter Tharin,	in the foothills of the Canadian Rockies west of Calgary
James E. Greer,	in Saskatchewan.

W. S. Cooper, following completion of his studies of the coastal dunes of Oregon and Washington, G. S. A. Memoir 72, has turned his attention to the coastal dunes of California and northern Baja California.

W. Armstrong Price, with assistance from the Institute of Marine Science, University of Texas, and the University of Corpus Christi, is conducting tank experiments on the basic principles of shoreline development.

Fred Moore, Colorado School of Mines, is completing work on his Ph. D. thesis at the University of Wyoming, a study of the geomorphic evolution of east flank of the Laramie Range, Colorado-Wyoming. He is relating the Tertiary Great Plains sediments east of the Laramie Range to the Sherman erosion surface atop the Laramie Range.

David Harris, Colorado State University, is completing a study of the late Quaternary alternations of erosion and alluviation along Boxelder Creek west of Fort Collins, Colorado, and hopes to find an explanation for the period of arroyo-cutting which began in the area about the turn of the century.

Richard Threet, University of Utah, and Arthur Bruhn, Dixie Junior College, St. George, Utah, plan to start a long-term study of the erosional history of the St. George basin. Involved in the study will be such problems as the inversion of relief, the Hurricane fault, and the transverse canyon of the Virgin River through the Beaverdam Mountains.

Howard Powers and Hal Malde expect to complete a study of a portion of the western Snake River plain in Idaho that involves to a large degree an interpretation of the Pleistocene stratigraphy and history of the region.

Donald R. Coates, Harpur College, plans to continue this summer his study in New York State of drainage basin geomorphometry in an attempt to link parameters of geomorphology and hydrology in the low-flow end of the stream-discharge spectrum.

During last January and February an American Geographical Society Expedition studied Recent and late Pleistocene fluctuations of the San Rafael Glacier in southern Chile. Members of the group who returned to the United States in late February were Calvin J. Heusser of the American Geographical Society, Shoji Horie of Yale University, and Ernest H. Muller of Cornell University. Donald B. Lawrence of the University of Minnesota is continuing the ecological study of recent moraines on Cerro Fitzroy, Cerro Tronador, and other Chilean peaks.

K. Brandtner of the University of Vienna plans to carry on during the summer his search for evidence of pre-classical Wisconsin glaciation in the northeastern United States, with a view to possible correlation with the European chronology.

Roald Fryxell, graduate student at Washington State College, is studying the limits of Wisconsin glaciation within the Colville Indian Reservation, eastern Washington.

William B. Bull, U. S. Geological Survey, is continuing his study of alluvial fans in western San Joaquin Valley, California, with particular attention being given to differential sediment compaction resulting from irrigation on the fans.

Peter W. Birkland, graduate student at Stanford University, will be mapping this summer the glacial deposits in the Tahoe-Truckee area, California.

William C. Bradley, University of Colorado, will start, this summer, some new studies of the marine terraces in the Santa Cruz, California, area. Emphasis will be placed upon the origin of the very low terraces, deformation of the terraces, and weathering effects upon the terraces.

Gordon W. Greene, U. S. Geological Survey, Menlo Park, and other members of the Geophysics Branch have installed tiltmeter station in Death Valley in order to measure the rate of present-day diastrophic movements. This project is an outgrowth of C. B. Hunt's study of the Pleistocene history of the area.

F. S. Hudson, San Francisco, is completing a study of the Sierra Nevada stream terraces and stream gradients in the Merced River area with the objective of relating them to the tectonic and glacial history of the Yosemite area.

John Montagne, Montana State College, is completing a study of the Saratoga Valley area, between the Park and Medicine Bow ranges, Colorado-Wyoming, which involves an interpretation of the effects of lithology and diastrophic activity upon the geomorphic features of the region. Montagne has also, along with David Love and other members of the U. S. Geological Survey, been studying the Cenozoic history of the Jackson Hole area and attempting to interrelate the tectonic instability of the area to sedimentation, drainage, and glacial history.

Andrew Mazola, Wayne State University, is continuing his studies of the bedrock topography of eight counties in southeastern Michigan.

Weston Blake, Jr., graduate student at Ohio State University, is now working up the results of the summer field seasons of 1957 and 1958 that were spent in North-East Land, Spitsbergen, where particular attention

was given to the raised beaches and late Pleistocene chronology.

Father Carl F. Nieset, St. Joseph's College, after directing the college's field course in the Grants County, New Mexico, area will continue his field studies in the area.

Ansel Gooding, Earlham College, will continue his studies on the Pleistocene of southeastern Indiana. This summer he will devote his attention to the terraces along the Ohio Valley.

Fred Pessl, Jr., a graduate student at the University of Michigan, will spend the summer around Mesters Vig, northeast Greenland, studying the landforms and glacial geology of the Sortehjorne area.

David McCulloch, a graduate student at the University of Michigan, will spend the summer in Huerfano Park, Colorado, on a field program involving stream study and determination of the relationships of the terraces and pediments of the area to climatic changes.

John Reid, a graduate student at the University of Michigan, will study the petrofabrics and stratigraphy of a set of ice cores collected from the Ross Ice Shelf during the IGY 1958-59 season.

Ralph Kehle, research associate at the University of Michigan, is currently working on data reduction in connection with the Ross Ice Shelf Deformation Project begun in 1957-58. He is engaged in the analysis of strain measurements made at the Antarctic site.

George Kunkle, a graduate student at the University of Michigan, is working on the ground water geology of the Huron River watershed in southeastern Michigan and is devoting his attention primarily to determining of the extent of known aquifers and a search for new ones.

James H. Zumberge, University of Michigan, will spend the summer directing the Data Reduction Program for the Ice Shelf Deformation Project.

R. P. Goldthwait, Ohio State University, with two of his graduate students, will return this summer to Alaska for a month of field study of the glacial deposits around a decaying ice mass and will also start studies of the dead ice itself.

G. M. Stanley, Fresno State College, is studying the old shorelines of the Salton Sea Basin to determine whether there is evidence of any vertical movement on the San Andreas fault which bounds the basin on the east side.

R. L. Nichols, Tufts College, returned to the McMurdo Sound area, Antarctica, for the 1958-59 field season to continue his geomorphic studies in the area.

It may not be too late to get in your suggestions for corrections or additions of definitions of geomorphic terms in the Glossary. Send your suggestions to Hoover Mackin, University of Washington, Seattle, Washington. If you would like to have a mimeographed copy of Hoover's classical paper, "The concept of the graded river", one will be sent you upon request.

Preston McGrain, Assistant State Geologist of Kentucky, has called your editor's attention to the fact that in 1956 the mapping of Kentucky upon 7 1/2 minute, 1:24,000 scale maps was completed. Kentucky has a great variety of geomorphic features and if you will take the time to go through your file of the Kentucky maps you will find some very excellent maps for use in laboratory study of geomorphology.

You who are particularly interested in terrain analysis will be glad to learn of a recent publication of the U. S. Army Engineer Waterways Experiment Station, Corps of Engineers, Vicksburg, Mississippi. This publication is Technical Report No. 3-506 and is a handbook entitled "A technique for preparing desert terrain analogs". The text was written by J. R. Van Lopik and C. R. Kolb.

D. A. Holm writes from Dhahran, Saudi Arabia, to be on the lookout for a series of 1:500,000 scale geographic and geologic maps of the Arabian Peninsula that are to be published by the U. S. G. S. in conjunction with Aramco. Coming soon are some of the Rub' al Khali with fine detail derived from aerial photos.

Your editor was not exactly overwhelmed by letters demanding that the section recommending good new topographic maps be continued, but enough letters did come to suggest that perhaps a few welcomed these suggestions. At any rate we are including it for at least one more time. For this Newsletter we would like to list a few new or relatively new maps that show some of the striking features of the Colorado Plateau region.

Maps on a scale of 1: 24,000

Cedar City (Utah) . . . . . the Hurricane Cliffs
Temple Mountain (Utah). . . . . Lake Bonneville shoreline features
Anvil Points (Colorado). . . . . Roan Cliffs
Sapinero (Colorado). . . . . Black Canyon of the Gunnison
Davis Mesa (Colorado). . . . . Salt structures
Paradox (Colorado) . . . . . Salt structures

Scale of 1: 62,500

The Rincon (Utah). . . . . Waterpocket fold
Woodside (Utah) . . . . . Book Cliffs
Lees Ferry (Arizona). . . . . Vermilion and Echo Cliffs
Tanner Wash (Arizona). . . . . Echo Cliffs and the Marble Gorge
Tidwell Bottoms (Utah). . . . . The "Reef" at southeast side of the San Rafael Swell
Jacob Lake (Arizona) . . . . . East Kaibab monocline
Grover (Utah) . . . . . Aquarius Plateau

Geomorphologists are deeply indebted to Herb Wright and his colleagues at the University of Minnesota for their continued activity in the field of translating important German articles and books into English. The translation of Troll's "Structure soils, solifluction, and frost climates of the world" is particularly welcome. It may be obtained from the U. S. Army SnowIce and Permafrost Research Establishment, Corps of Engineers, Wilmette, Illinois.

The admission of Alaska as our 49th state gives added interest to the University of California Press publication "Landscapes of Alaska". This publication may not have come to the attention of some of you. It is 148 pages in length and was prepared by various members of the U. S. Geological Survey and edited by Howel Williams.

If your editor may be pardoned an expression of his personal opinion, he would say that the P. B. King's "The Evolution of North America", published recently by the Princeton University Press, should be read by all geomorphologists. It should appeal particularly to those of you who are teaching a course in regional geomorphology.