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NEWS ITEMS

Wakefield Dort, Jr. (Geology, Univ. Kansas, Lawrence) helped sponsor the Symposium on Pleistocene and Recent Environments of the Central Plains, held at the University of Kansas, Autumn 1968. It attracted a large number of persons representing many of the disciplines involved in Pleistocene studies. The Proceedings Volume, containing 23 papers, will be published in November 1969. Inquiries may be sent to Wake Dort.

John J. Fisher (Univ. Rhode Island, Kingston) has completed a study of the relationship of Pleistocene stratigraphy to water resources on Block Island off the Rhode Island coast. The two-year study was conducted under a Department of Interior Water Resources Grant using field resistivity studies. In general, there is a high correlation between the geohydrologic characteristics of the Pleistocene deposits and the resistivity data. In addition, also at University of Rhode Island, Lewis F. Royal has completed a pollen study of postglacial sediments from Wordens Pond Bog in southern Rhode Island, while Kenneth E. Phillips did a similar study on the pollen and macrofossils of an early postglacial beaver site at Point Judith at the southern end of Narragansett Bay.

Watson H. Monroe (U. S. Geol. Survey, GPO Drawer 2230, San Juan Puerto Rico) under sponsorship of the International Hydrologic Decade and other organizations, is preparing a Glossary of Karst Terminology. The Glossary will include a brief definition, partial and complete synonyms in English and other western languages, and if necessary, one or more quotations from authoritative sources. A rather crude first draft has been circulated to authorities in several countries. On the basis of suggestions received, a second draft will be circulated to all who are willing to give critical review of the terms. Those interested in reviewing this second draft are invited to write now to Watson Monroe for a copy. Publication of a "preliminary" edition is expected in about a year from now. In the meantime, Monroe is continuing work on a description of the karst features of Puerto Rico.

Norman P. Lasca (Univ. Wisconsin at Milwaukee) returned to the west coast of Norway summer of 1968 to continue work on the glacial chronology, and during the winter 1968-69 worked on Wisconsin river-ice studies in conjunction with his excellent cold-room facilities. His students are studying till fabric problems (micro versus macro), stratigraphy problems in the State, Pleistocene lake levels along Lake Michigan shores, and ice on rivers and lakes.

Parker E. Calkin (SUNY, Buffalo) is still investigating the glacial geology of northwestern New York State; a progress report on the glaciolacustrine strand lines is ready. The past austral summer 1968-69 was spent in the Wright Valley, Antarctica (with Robert Behling of Ohio State Univ.) where the interrelations of drifts from the inland ice, from the alpine glaciers, and from the Ross Sea were given special attention. It is apparent that many of the ice advances have not occurred here because of any local climatic event, and conventional Quaternary stratigraphic terminology realistically cannot be applied.

Victor C. Miller (Indiana State Univ., Terre Haute) had prepared for presentation at the Symposium on the Geology of Libya, in mid-April 1969 "A Preliminary Investigation of the Geomorphology of the Jebel Nefusa, Libya." There is considerable disagreement as to the origin of the Jebel Nefusa, a 300-km-long, 200-to-500 meter-high linearly-segmented north-facing plateau escarpment, completely devoid of outliers, extending across the northwestern corner of Libya. After months of intensive study and research, the Jebel remains a challenge to the imagination. It will require much future aerial photograph and field work and the gathering of subsurface data. Since coming to Indiana State Univ., Miller has organized a geomorphology field trip program largely designed to serve graduate students in physical geography and earth science. The program has been operating in 1968 and 1969 with an annual Spring vacation trip (New York-southern New England) (southeastern U.S.) and a month-long trip to the western States. Interest is high, and the trips are entirely student financed.

William B. Bull (Univ. Arizona, Tucson) after 12 years with the Subsidence Research Section of U. S. Geol. Survey, has moved to Tucson where he teaches geomorphology at last. He is continuing his studies of the fluvial geomorphology of arid regions, and the use of prehistoric soil moisture as an indicator of late Quaternary climatic change in central California.

Henry T. Ore and W. B. Wadsworth (Idaho State Univ., Pocatello) are preparing for a second summer on quantitative analysis of alluvial fan surfaces. This project started as a pilot study to provide systematic sampling recommendations based on analysis of variance, factor analysis and trend surface studies of various alluvial fans. This study hopefully will provide information on the levels of variability in different kinds of size parameters interrelations among the different kinds of variables that one can measure and therefore recommendations for future studies of all sorts relating to alluvial fans. Long term interests will involve interrelations between alluvial fan parameters and quantitative aspects of the basins they drain.

Donald J. Easterbrook (Western Washington College, Bellingham) has continued his research on geochronology and correlation of Pleistocene deposits in the Puget Lowlands, along with an investigation of alpine glaciation in the Cascade Range near Mount Baker and relationship to late Wisconsin continental glaciation. From March to September, he will be on leave studying glaciation of parts of Sweden and the European Alps.

Hubert A. Ireland (Univ. Kansas, Lawrence) has returned from an east to west round the world trip collecting Silurian rocks for research on an NSF grant, and visiting many universities along the route. Special places of interest and geological work were Malaysia, Nepal, Kashmir Kabul and Bamiyan in Afghanistan, a trip over the Elburz Mountains to Caspian Sea from Teheran, being caught in the July revolution in Iraq, spending two weeks in Saudi Arabia, driving to Hungary from Paris and thence to Czechoslovakia for the Congress. He completed his collection of Silurian rocks around Prague and Brno but was caught in the Russian invasion, had to travel south and east through Austria and Yugoslavia to get into Romania and Bulgaria to follow the original travel plans.

Robert H. Rutford (Univ. South Dakota, Vermillion) during the past year started on studies of the Pleistocene geology of McPherson, Edmunds, and Faulk counties under direction of Cleo Christensen. Darrell Leap continued his work in Brown and Day counties, and Lynn Hedges proceeded with the study of Charles Mix and Douglas counties. Rutford and Craig Mills continued mapping in the area between Coteau de Prairie and Big Stone Lake in Grant and Roberts counties. An auger drilling project was started that will continue summer of 1969. Fred Steece and J. C. Harksen have moved to Rapid City to man the Western Field Office of the South Dakota Geol. Survey. Harksen will continue his work in the Badlands.

John W. Blagbrough (Museum of Northern Arizona, Flagstaff) continues his studies of periglacial mass movement deposits in the higher mountain ranges of southern New Mexico. In summer 1969, he will be at the Institute of Arctic and Alpine Mountain Research Station above Boulder, Colorado, observing frost action and nivation processes as they may relate to the development of cirques.

Roger B. Colton (U. S. Geol. Survey, Denver) has been dividing his efforts between mapping surficial deposits in Connecticut at 1:24,000 and mapping the Mare Undarum Quadrangle of the Moon at 1:1,000,000. About 6 months of each of the past two years has been spent on each project. After 1 July 1969, he will be assigned again to the Connecticut Cooperative Mapping Program full time. Recently he compiled two maps, one showing the location of streamline molded features and striations in northwest Connecticut, and the other of the eastern half of Connecticut.

Luna B. Leopold (U. S. Geol. Survey, Washington) has been working on the hydrologic effects of urbanization in cooperation with R. Adam Miller of the Harrisburg Office, and John Troxell of Phoenixville, Pennsylvania. He is also continuing with William W. Emmett (USGS, Wash.) and Thomas Dunne (McGill Univ.) in an attempt to take the moving bedload out of a stream in Wyoming in order to measure transport rates and particle size. Emmett has completed study of the hydraulics of overland flow which combines laboratory and field sprinkling processes. Emmett also is summarizing the quantitative results of all the vigil network sites he and his colleagues have been observing over a period of years in the Western States. These data include rates of downhill mass movement, rates of gully aggradation and degradation and rates of surficial erosion. Dunne has completed work concerning the way in which water gets into a stream channel. His results are especially interesting because he finds that the Horton overland flow model did not apply to the watershed in Vermont where he did his work. Rather, hydrograph rises are importantly determined by the rainfall which falls on the stream channel itself and on many small topographic re-entrants or draws near the channel, the surfaces of which are saturated. Garnett Williams (U. S. Geol. Survey, Washington) has completed another set of flume experiments dealing with sediment transport under constant depth conditions. Ed Helley (U. S. Geol. Survey, Menlo Park) has been improving the Arnhem (Swiss) bedload sampler and hopes to produce a usable field sampler which can catch bedload including small to moderate-sized gravel.

Peter P. David (Geology, Univ. Montréal, P.O.Box 6128) is presently working on the radio-carbon chronology of dune activities in the Brandon area, Manitoba, and on the pattern and rate of dune migration in the Prelate area, Saskatchewan. He is also involved with Pleistocene stratigraphy in southwestern Saskatchewan. Franz Mayr, formerly at University of Innsbruck, Austria, has joined the Geology Dept., Univ. Montréal. His latest work in Europe concerned the establishment of a new type of stratigraphy for the Würm glaciation in the Austrian Alps. Jacques Lebeus is studying sand dune areas in the Lac St. John region, Que.

Roger L. Hooke (Univ. Minnesota, Minneapolis) has recently returned from studying alluvial fan segmentation, lakes, and tectonic history in Death Valley, California. Five tectonic events are recorded by fan segmentation in southcentral Death Valley south of Badwater. Three of these are post-Lake Manly. Sedimentation rates in post-Manly time appear to have been quite high and to have obliterated most shorelines on the west side of the valley. The gravels with good desert pavement, however, can be subdivided into three units; whenever either the oldest or next-to-oldest of these units gets down to altitudes of 200 feet above sea level, Manly shorelines are cut on them. Radiocarbon dates from a core from the playa near Tule Spring indicate that Lake Manly existed from before 21,500 years B.P. to later than 13,000 years B.P. The dates were from depths of about 15 m and 9 m, respectively. Hooke also completed work on forms of the ice cap margin last year near Thule, Greenland. A project on the flow field in the margin of a polar ice cap will start summer of 1969.

William R. Farrand (Univ. Michigan, Ann Arbor) has renamed the former Glacial Geology and Polar Research Laboratory at University of Michigan, the Quaternary Research Laboratory; this lab whose orientation is interdisciplinary undertakes research on any or all aspects of the Quaternary world. During this year Univ. Michigan Quaternary scientists jointly sponsored a lecture series "Topics in Quaternary Research" for which a number of outstanding specialists were brought to the campus.

Cyril J. Galvin, Jr. (Dept. of the Army, Coastal Engineering Research Center, Washington) as a first step in accumulating a wave climatology for oceanic coastlines (and possibly relating wave climatology to coastline morphology), 202 station-years of visual wave observations were obtained from the coasts of the conterminous United States at 26 U. S. Coast Guard Stations. For five segments of this coastline, the pairs of mean wave height and mean wave period are: California, 2.4 ft. & 12.5 sec; Oregon-Washington, 3.2 ft. & 10.2 sec; Atlantic north of Chesapeake Bay, 1.6 ft. & 6.9 sec; Atlantic south of Chesapeake Bay, 1.6 ft. & 5.4 sec; eastern Gulf, 1.1 ft. & 5.1 sec. In the CERC Beach Evaluation Program, repetitive surveys of 91 profile lines on 8 Atlantic coast beaches continue for the 7th winter season. Other profiles are being obtained by measuring sand levels on surveyed pipes along two profile lines on each of 11 Atlantic coast beaches. In addition, wave observations are being obtained on many of these same beaches. All survey, pipe profile, and wave data are collected on scanning forms, and all aspects of data treatment are now automated.

John T. Andrews (Inst. Arctic & Alpine Research, Boulder, Colorado) during summer of 1968 began a continuing program in the northern fjords of Cumberland Peninsula, Baffin Island. The program is supported for the next two years, and one graduate student, two undergraduates, and Andrews will be working in the area in summer of 1969. Attention will be focused on the postglacial recovery of the area, on the vertical extent of glaciation, and on the late-glacial chronology. Field work in Colorado is confined to developing a glaciological program on the small glaciers lying along the Continental Divide in the Colorado Front Range and on establishing a program to study the free-thaw processes within the Front Range.

Stephen C. Porter (Univ. Washington, Seattle) spent summer of 1968 working on the glacial geology of Swat Kohistan in northern West Pakistan (under auspices of American Museum of Natural History) in an area of high peaks (to 20,000 ft.) and local relief of as much as 13,000 ft. Evidence of three Quaternary glaciations was found, the youngest two of which are divisible into two and three stades, respectively. The glacial succession in Swat appears to be far better developed than that in the Kashmir Basin, which has long been the "type" area of Himalayan glaciation. Kenneth Hopkins completed field studies on late Quaternary volcanism and glaciation of Mount Adams. He has evidence of extensive intra-Wisconsin volcanism, and in some areas the late Wisconsin drift is the most extensive on the mountain. Donald Biederman is completing work on the history of the Juan de Fuca lobe on the northern Olympic Peninsula, a project involving stratigraphic studies, mapping the limits of glaciation, and evaluation of Quaternary sea level changes. Robert Carson is currently working on the glacial history of the southeastern Olympic Peninsula looking especially for evidence of pre-Fraser glaciations and for the relationship of Puget Lowland ice advances to those from the Olympic Mountains. George Linkletter completed one season of a two-season project on weathering and soil formation in the ice-free valleys of Antarctica. He is studying the chemical and mineralogical changes due to weathering on glacial drifts of different age in the hope of evaluating the importance of climate and time on soil formation in polar regions.

Ernest H. Miller (Syracuse Univ.) is in Reykjavik, Iceland, on research leave from his university until August 1969 where field work will be devoted to study of ice marginal features with a view toward recognition of criteria that may identify past glacial surges. A multidisciplinary, 2-week long symposium on the occurrence of polar sea ice in Icelandic waters was held in Reykjavik early in February 1969. Much interest was in reference to climatic changes. Publication of the 32 papers will be in Icelandic, but papers of more than local significance will be printed in English in Jokull for 1969. With appointment of Sigurdur Thorarinsson to the faculty of the University of Iceland, a gradual transition is under way to develop geologic research within the university. At least for the time, Thorarinsson retains ties with the Natural History Museum (Natturugripasafnid), where Gudmundur Kjartansson continues with preparation of the geologic map of Iceland.

William G. Pierce (U. S. Geol. Survey, Menlo Park) reports that his work on the Carter Mountain Landslide area in northwestern Wyoming has been published (in USGS Prof. Paper 600-D).

M. Gordon Wolman (John Hopkins Univ., Baltimore, Maryland) reports the following geomorphological theses or research papers completed or in final stages of completion in his department: Thomas Dunne: The Production of Runoff in a Humid Area; Andrew E. Godfrey: Geologic History and Processes of Fan and Pediment Development in the Northern Henry Mountains Piedmont, Utah; William W. Emmett: Mechanics of Overland Flow in Geomorphic Process; Robert Newbury: The Nelson River: Freeze-up and Thaw in a Northern River; Alan Strahler: Forests of the Fairfax Line, Virginia and West Virginia; and Wayne L. Newell: Factors influencing the grain of the Topography Along the Willoughby Arch in northeastern Vermont.

Alan V. Jopling (Univ. Toronto, Ontario) informs us that Ken Hewitt has been appointed to Erindale College where he will teach geomorphology and resources courses. Ken's thesis work dealt with mass-wasting processes in the Karakoram Himalaya. Last year the Geography Department acquired 5 acres of land at the Erindale Campus for the establishment of an experimental laboratory of Geomorphology. Jopling himself will spend May to August 1969 as Visiting Professor at Macquarie University, Sidney, Australia.

Edith M. McKee (416 Maple St., Winnetka, Illinois) mapped in detail the terrain at the bottom of Lake Michigan, and has prepared display of the data as scaled terrain diagrams. Publication was delayed until the City of Chicago released seismic data confirming a swarm of 9 faults within the City boundaries; these faults parallel a Precambrian granitic ridge which plunges from southern Wisconsin southeastward to Michigan. This ridge certainly influenced subsequent structures and stratigraphy. To understand the geologic setting of the lake, a series of paleogeomorphic terrain diagrams were made of the entire Great Lakes region. The Lake Michigan project was undertaken as a pilot study to demonstrate the advantages of displaying geological and geophysical data in scale-controlled three-dimensional terrain diagrams. A similar study of Lake Superior will be done summer of 1969 under sponsorship of the Great Lakes Foundation.

Troy L. Péwé (Arizona State Univ., Tempe) is continuing research for a third year on the glacial and nonglacial geology of the San Francisco Peaks near Flagstaff in central Arizona. A fine record of the middle and late Pleistocene as well as Neoglaciation is established and a K-Ar date was obtained from one of the ash flows associated with an earlier advance. Randall Updike is the main field investigator. In the White Mountains of eastern Arizona, the glacial geology as well as Plio-Pleistocene geology are under investigation by Robert Merrill and Péwé. Although an interesting glacial record exists, the type locality of the early glacial deposits may turn out to be nonglacial. The Plio-Pleistocene history includes the building of the mountain and deposition of enormous colluvial deposits. In Alaska, research is continuing on the altiplanation terraces of central and western Alaska, and it has become evident that these terraces are much more widespread than heretofore believed, and are much lower in elevation than previously known. Richard Reger is the principal field investigator. Work is underway on the interpretation of terraces of the middle Salt River in central Arizona with Peter Kokalis as main field investigator. Péwé plans to study altiplanation terraces in Siberia summer of 1969 prior to going to France for INQUA Congrès.

Dwight Deal (Sul Ross State College, Alpine, Texas) is continuing geomorphic and Late Cenozoic sedimentation studies of the upper Gila River and Mimbres River drainages in southwest New Mexico. To date, indications are that (1) Gila River established its course at least as far as Cliff - Gila - Glenwood Valley in Early Pleistocene or Latest (sic) Pleistocene, (2) it spilled westward over the barrier of the Burro Mountains in Middle Pleistocene, (3) periods of stability and downcutting are correlative across the Continental Divide and are climatically controlled, and (4) sediments in the area are unusually rich in colloidal clay, due probably to rapid weathering of a large quantity of tuff fragments, with clay skins common on coarse fragments 20 to 30 ft. below the base of the B horizon.

J. Harlan Bretz (2114 Cedar, Homewood, Illinois) has completed writing on the Lake Missoula floods and the Channeled Scablands, which is a review of all earlier interpretations and of recent contributions, plus a summary of the presently as yet unsolved problems.

Nicholas K. Coch (Queens College of C.U.N.Y., Flushing) despite his move to New York has continued his great interest in recent marine sediments. With Gerald H. Johnson (College of William and Mary, Williamsburg, Va.), he has identified a coquina facies in the Yorktown Formation near Chuckatuck, Virginia, as an offshore or barrier bar complex rather than the deltaic complex proposed earlier. He also collected coral samples from the nearshore facies of the Norfolk and Kempsville Formations. The corals were dated by John Goddard of Queens College at Lamont Geological Laboratory by the U-Th and Pa growth methods. These are the first absolute dates ever on the Virginia Pleistocene shorelines.

Meyer Rubin (U. S. Geol. Survey, Washington) spent some time in Alaska with George Plafker collecting wood and peat samples. The 1964 earthquake uplifted large areas of previously submerged sediments, and submerged other areas. Dating of the samples shows that the same type of movements have occurred in the same direction repeatedly in the past 7000 years.

ANNOUNCEMENTS ITEMS OF INTEREST PUBLICATIONS

Since 1962, Woods Hole Oceanographic Institution, in cooperation with the U. S. Geol. Survey, has been involved in geologic investigation of the continental margin off the east coast of United States. The area being surveyed extends from Nova Scotia to the Florida Keys. To date, over 2000 bottom samples, several 100 bottom photographs, nearly 100 rock samples ranging in age from Cretaceous to Miocene, and over 20,000 km of continuous seismic profiles have been obtained from this region. In the course of this investigation, a set of 3 charts of the continental margin off the east coast, and 3 charts of the Gulf of Mexico were compiled mainly from sounding from the U. S. Coast and Geodetic Survey and published by U.S.G.S. Two charts of the continental margin off the Canadian Maritime Provinces (Bay of Fundy to Flemish Cap) have also been compiled from soundings from Canadian Hydrographic Service field sheets. In 1966, structural studies were extended into the Gulf of Mexico where approximately 5000 km of continuous seismic profiles were recorded in the region between the Florida Keys and the Rio Grande. Over 10 dives have been made on the Tongue of the Ocean, continental shelf, and the east coast submarine canyons aboard DSRV ALVIN. From the summer of 1962 to February 1968, Kenneth O. Emery was in charge of the program. When Emery became Acting Dean of the Graduate program at Woods Hole in February, Elazar Uchupi took over the program.

As most of us know, James H. Zumberge resigned in August 1968 as President of Grand Valley College to become Director of the School of Earth Sciences at University of Arizona, Tucson. The School was created on 1 July 1967, and has been under the leadership of Larry Gould, former president of Carlton College and a geologist-administrator well known to the profession. The School of Earth Sciences included the Department of Geology, Department of Geochronology, the Tree Ring Laboratory, and the Office of Arid Lands Studies. The creation of the new school brings together in one unit departments that are closely related but heretofore separated administratively. Jim Zumberge also is professor in the Department of Geology and has resumed his teaching and research activities. His six and one-half years as president over a student body that grew from 200 to over 2000, with a faculty that grew from 15 to over 100, and overseeing a campus of 13 buildings on 900 acres having a total net worth of 16 million dollars left little time for geology until now.

A new quarterly journal devoted to the study of arctic and alpine environments ARCTIC and ALPINE RESEARCH now has two outstanding issues before the public. Annual subscription rate is \$12 (single numbers are \$4); write to The Editor, Arctic and Alpine Research, University of Colorado, Boulder, for your copies. Stated editorial policy includes the encouragement of papers in archeology, anthropology, sociology, history, the natural sciences, and any contribution relevant to high altitudes and high latitudes in either polar region. To give an idea of this, Volume 1, Number 1 Winter 1969 contains:
Radiocarbon Isochrones on the Disintegration of the Laurentide Ice Sheet, by Reid A. Bryson, Wayne M. Wendland, Jack D. Ives, and John T. Andrews, 2 beautifully printed maps, 11 pp.; continued, p. 7

- Polyploidy in the Canadian Arctic Archipelago, by J. G. Packer, 11 pp.
Features of the Ecology of Some Arctic Svalbard (Spitsbergen) Plant Communities, by O. I. Rønning, 15 pp.
Microfabric of Patterned Ground, by James B. Benedict, 4 pp.
Chronology of Neoglacial Moraines in the Dome Peak Area, North Cascade Range, Washington, by C. Daniel Miller, 16 pp.
The Shoreline Relation Diagram: Physical Basis and Use for Predicting Age of Relative Sea Levels (Evidence from Arctic Canada), John T. Andrews, 11 pp.

Volume 1, Number 2 Spring 1969 contains:

- Glacial Geomorphology of Remote Peninsula, Baffin Island, N.W.T., Canada, by Jack D. Ives and Jane T. Buckley, 12 pp.
The Contribution of Laurentide Ice Wastage to the Eustatic Rise of Sea Level: 10,000 to 6,000 BP, by Joseph M. Moran and Reid A. Bryson, 7 pp.
Geomorphological Investigations in West-Central Baffin Island, N.W.T., Canada, by Cuchlaine A. M. King and Jane T. Buckley, 15 pp.
Microenvironmental Factors Influencing the Nesting Sites of Some Subalpine Fringillid Birds in Colorado, by Neil F. Hadley, 6 pp.
The Analysis of Surface Fabrics on Talus by Means of Ground Photography, by Nel Caine, 8 pp.
Plant Disseminules in Wind-Blown Debris from a Glacier in Colorado, by Erik K. Bonde, 4 pp.

The Iowa State University Press (Ames, Iowa) published in February 1969 Robert V. Ruhe's Quaternary Landscapes in Iowa, (255 pp., 62 figs., 1 color plate) for \$8.50. The book explains the formation of landscapes based on geomorphology and soils within a framework dependent in part upon radiocarbon dating of the Pleistocene and postglacial time. Ruhe received the 1968 Award for the most outstanding book published by this Press and written by an Iowan author (Geotimes, May-June 1969, p.34).

The Deserts of the World, edited by William G. McGinnies, Bram J. Goldman, and Patricia Paylore, is now published by University of Arizona Press (P.O.Box 3398, College Station, Tucson, Arizona), with 788 pp. for \$15. It contains an introduction by the Staff of the Office of Arid Lands Studies, Weather and Climate, by Clayton H. Reitan and Christine R. Green, the section on Geomorphology and Surface Hydrology by Lawrence K. Lustig, reviewed last year here, Surface Materials, by Harold E. Dregne, Vegetation by McGinnies, Fauna, by Charles H. Lowe, Desert Coastal Zones, by Joseph F. Schreiber, Jr., an Appendix on Ground-water Hydrology, by Eugene S. Simpson, an extensive bibliography, and Maps of Arid Regions of the World by Continents (after Meigs).

The Classification of World Desert Areas, by George M. Howe, Lawrence J. Reed, John T. Ball, George E. Fisher, and Gordon B. Lassow of The Travelers Research Center, Inc., Hartford, Connecticut, appeared in December 1968, as Technical Report 69-38-ES, distributed by the Earth Sciences Laboratory, U.S. Army Natick Labs., Natick, Massachusetts. The classification is in terms of military significance for all arid and semiarid environments, based upon climatic characteristics (precipitation, temperature, humidity, fog, and clouds, sunshine, wind, blowing sand and dust) and terrain characteristics (landforms, relief, slope, surface materials, hydrology, natural vegetation, and cultural features). Every region is illustrated with a map of political divisions and principal physical features and a map of distribution of dry climatic types; the regions are Eurasia, Southwestern Asia, North Africa, South Africa, Australia, South America, Europe, and North America. Pages total 104, references 192. Free.

The Arid Zone Newsletter, for 1967, a small book of 133 pages, is issued by Arid Zone Research Liaison Officer, R. A. Perry, for the Commonwealth Scientific and Industrial Research Organization, Canberra. It contains a great number of summaries of work done in Universities, State and Territory Organizations, Commonwealth Organizations, and Overseas Institutions. Most work reported is in zoology, botany, geography, soil and water conservation, hydrology, and meteorology. Of interest to us might be: Dune studies in central Australia, Desert dunes and estuarine fill ..., Geometry of Australian desert dunes, Reconnaissance estimation of stream flow, and the ever continuing Atlas of Australian Soils.

Pleistocene Mollusca of Ohio, Bull. 62, Part 3 (of 4 parts), 196 pp., 1968, at \$2.50, by Aurele La Rocque (Ohio State Univ., Columbus), State of Ohio Division of Geol. Survey, continues the pagination of this Bulletin (Part 1, 1966, 111 pp., in *The Geomorphologist*, No.11, p.11; and Part 2, 1967, p.113-356, in *The Geomorphologist*, No.12, p.14) through page 553 for Chapter 6, Freshwater Gastropoda. Subclass Streptoneura has 5 Families and 16 Genera; Subclass Euthyneura also has 5 Families but 19 Genera and many subgenera. These are the familiar species of the lacustrine sediments of North America. As in previous Parts, outline Maps of North America show distribution of the more important species, 119 for this Part 3, most with inset map of Ohio showing distribution by county. Plates 9 through 14 on glossy paper of photographs of 89 species are at back. Sketches of 80 individuals are through the text. Chapter at Part 4 on the terrestrial Gastropods will appear in 1969.

The Quaternary Research Center at University of Washington (Seattle) fosters interdisciplinary study of processes and environments of the Quaternary with emphasis on biological and physical influences and interactions. A. Lincoln Washburn, Director, is primarily responsible for initiating this Research Center with the help of a NSF University Science Development Grant. The Center is organized to allow faculty and graduate students to work together without regard to usual departmental restrictions, and may serve in an administrative capacity for projects. The Center does not offer degrees, but students may take departmental courses related to Quaternary studies in Anthropology (6 courses), Atmospheric Sciences (6 courses), Biology (4), Botany (3), Civil Engineering (5), Forest Resources (6), Geography (1), Geology (9), Geophysics (3), Oceanography (9), and Zoology (2). These departments supply 59 professors as Cooperating Faculty for courses in Anthropology, Archaeology, Botany, Climatology and paleoclimatology, Ecology, Geochemistry, Geomorphology and glacial geology, Glaciology, Limnology, Meteorology, Oceanography, Paleomagnetism, Paleontology, Palynology, Pedology, Periglacial research, Photointerpretation and photogrammetry, Radiometric dating, Sedimentology, Soil mechanics, Stratigraphy, Tectonics and volcanology, and Zoology. Laboratory facilities in these disciplines already are well established in the several departments, but new ones to be associated with the Center for sedimentology, paleomagnetic research, palynology, potassium-argon dating, oxygen-isotope research, and periglacial research are being built. Some of the world's leading Quaternary scientists are to be invited to the Center from year to year as visiting professors. Plans are underway to publish an international journal of Quaternary Research.

On February 12 and 13, 1968, a symposium on The Quaternary of Illinois in observance of the Centennial of the University of Illinois was held in Urbana. The supporting departments of the University were Agronomy, Anthropology, Botany, Civil Engineering, Geography, and Geology, plus the State Geological Survey and the State Natural History Survey. The first session of six papers of the symposium dealt with the history of, and stratigraphy and geomorphology of Pleistocene deposits in Illinois, and two papers on Midwest loess and two loesses in Ohio. The second session of 9 papers and an evening address dealt with soils, use of vegetation in glacial mapping, Quaternary climatology, vegetational history, and faunal and floral assemblages related to archeological sites. The evening address was on prehistoric man. The third session of 6 papers was on technology and resources, dealing with the engineering aspects of Pleistocene and recent deposits, and sources of mineral, water, and construction materials. All these papers are published in one volume, as University of Illinois College of Agriculture Special Publ. No. 14 (179 pp., 8.5x11 ins., paperbound with attractive cover, for \$5) Urbana, Illinois.

William D. Thornbury had a Second Edition of Principles of Geomorphology published by John Wiley & Sons, N.Y. (in 1969, 594 pp., \$13.95). Upon casual glance this edition may seem the same as the first, but don't let appearances fool you. Chapters are the same, and many sections the same, but new material has been added throughout, results of new research placed appropriately, new photographs added and old ones rearranged, and some sections dropped -- modernization to a degree has been accomplished. As Thornbury states, there is no discussion of quantitative geomorphology. The old chapter on Tools of the Geomorphologist is gone and a fine new chapter on Paleogeomorphology, fittingly, takes its place.

Don J. Easterbrook's *Principles of Geomorphology*, McGraw-Hill Book Co., 1969, 462 pp., is beautifully illustrated with many oblique and vertical photographs, stereopairs of critical geomorphic features, and ground photographs, some by old timers in geology. Many topographic maps and line drawings help explain the text. Easterbrook from experience presents his own arrangement of chapters and hopes others using this book as a text will find them interchangeable if necessary. Part 1 on fundamentals deals with the basis of geomorphology and interpretation of maps and aerial photographs. Part 2 on glaciation covers separately in modern manner both alpine and continental glaciation. Part 3 on fluvial morphology treats stream processes and origin of stream valleys and drainage patterns in up to date fashion, but then reverts to older theories in evolution of fluvial landforms; rejuvenation and stream terraces, however, is well done. Part 4 on valley-side processes contains a much too brief account of weathering (neglecting the new geochemical approach, unfortunately) and also of soils, a fine, short chapter on mass movement, but a surprisingly far too brief evolution of slopes, with bare mention of the new work by so many in this subject. Part 5 is on groundwater. Part 6 on desert and eolian landforms, a fine summary, is exceptionally lucid for this topic. Part 7 is on coastal morphology and shorelines. Part 8 on relationship of geologic structure to topography capably covers folded sedimentary rocks, then a chapter on topography associated with faulting, and again an excellent and complete chapter on igneous landforms. An appendix on topographic map reading and a glossary of 418 terms certainly will help the undergraduate student for which the book is written.

R. G. West's *Pleistocene Geology and Biology*, with especial reference to the British Isles, John Wiley & Sons, N.Y., 1968, with 377 pp., 137 text figs., 16 photo plates (\$9.50), describes glacier ice and glaciers (13p.), glacial geology (29p.), non-glacial sediments and stratigraphy (12p.), periglacial deposits, structures, ground ice (31p.), how to make stratigraphic investigations (11p.), making biologic investigations: plants, vertebrates, molluscs, insects (beetles), microfossils, preservation, analyses, presentation & interpretation of data (23p.), changes in land and sea levels (23p.), chronology and dating: relative ages, paleomagnetism, dendrochronology, varves, geochemical methods, sources of error (24p.), climatic change of the past: biologic, geologic, and periglacial evidence, soils, isotopic determination of past temperatures, recent climatic changes, causes (27p.), and Pleistocene successions and their subdivision (17p.). All these subjects are treated too briefly for understanding in depth, of course, but the many references at the end of each chapter lead one further. Understandably, emphasis is upon British and European Pleistocene data; North American is so woefully out of date as to be misleading now. The last two chapters, on the Pleistocene of the British Isles (53p.) and Pleistocene History of the Flora and Fauna of the British Isles (57p.), over 36 per cent of the book, are competently written full reports, the major and creditable contributions of the author. A 10-page appendix on Methods of Isolating and Counting Fossils will help certain researchers. If any American geomorphologist wishes to know the modern British approach to the Pleistocene, this is the book to buy.

The Earth And Planetary Science Series of McGraw-Hill Book Co. now has in print a fine book on *STREAMS Their Dynamics and Morphology*, by Marie Morisawa, of 175 pp., 24 photographs, 14 tables, 61 sketches, maps, cross sections, and graphs, 5.5x8 ins., 1968, hardbound for \$5.95. After an introduction come short compact chapters on hydrology, hydraulics of streams, transportation of sediment load, fluvial processes: erosion, fluvial processes: deposition, slope and channel morphology, graded profile or the steady state, channel pattern, and the river basin. Many up to date references are at the end of each chapter. Unfortunately, most photographs are so severely trimmed and/or reduced that relationships to be seen in them do not appear evident. Morisawa wrote this book to educate students about rivers and to explain streams in terms easy to understand. Not only has she done this, but also produced a succinct synthesis of the many concepts and of new research on streams. Her finest chapter is on the condition of steady state; she convincingly presents a strong case also for no longer using the terms quasi- and dynamic equilibrium. Some parts are based upon the author's work in the past and some are new and original here. This is an excellent little book to own.