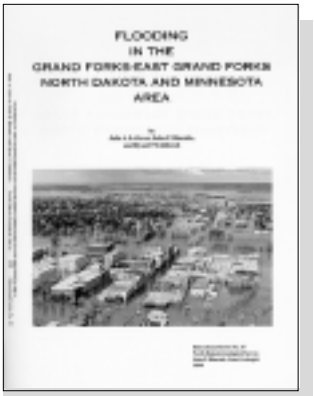
New Publications

Flooding in the Grand Forks - East Grand Forks North Dakota and Minnesota Area

by Julie A. Lever, John P. Bluemle, and Ryan P. Waldkirch



This 70 - page report (NDGS Educational Series No. 25) is a comprehensive analysis of flood problems in the Grand Forks area with recommendations for dealing effectively with future floods. The report includes a history of flooding in the two-city area, with a description and analysis of the major floods that have occurred since record keeping began in 1882. The report was prepared to update prior NDGS reports published in 1968 and 1980 and provide accurate and factual information to assist the general public and decision makers in planning flood control measures for the future.

Grand Forks and East Grand Forks were built along the Red River because of the advantages of the location – the availability of river transportation, woodlands on the floodplain for construction and fuel, and a ready source of water. Many of these advantages have become disadvantages – problems in maintaining an orderly pattern of growth given the constraints of the river and railroad and a repeated flooding problem. It is too late to move the cities and the already-developed residential areas on the floodplain, which probably should have been left to the river. It is perhaps, an unfortunate fact that, even given the benefit of sound planning advice, city governments almost always tend to "cave in" to pressure from interests that stand to profit from ill-advised development.

The writers of the report point out that the best approach to alleviating the flooding problem in the Grand Forks area consists of adopting strict, informed, land-use controls for flood-plain development to reduce flood damage and flood-control effort. Areas that suffer repeated, severe flooding should be vacated to the river. The great initial expense of relocating homes and businesses will eventually be offset by reduced costs in combating future floods. The additional width returned to the river will help to lower future river crests and the city will benefit from the nearly created parkland.

The report stresses that, except for structures that were placed in the path of floods, the flood problem in Grand Forks-East Grand Forks is not due entirely to human actions. Diking, road construction, increased sediment in the river channel from farmed land all tend to affect the flood situation in various ways. But regardless of what humans have done to the land, or may do to alleviate the problem, whenever the weather refuses to cooperate, it produces a flood. Unofficial accounts of several eighteenth and nineteenth century floods higher than any experienced in the 20th century are probably accurate; absolutely no responsibility can be assigned to man for any of these early floods. We will continue to have severe floods and there is no reason to believe we've seen the last or nearly the worst of the Red River. Our best recourse is to try to minimize the damage and then "get out of the way" when floods happen.

The writers caution against the notion that the 1997 flood was an unusual event. Rather, it is probable that the relatively long period of time during most of the first half of the 20th century, when few serious floods occurred, was an anomaly. It's not unlikely that floods the magnitude of the one in 1997 might be expected to occur as often as once every 30 or 40 years.

The report includes two colored maps of the two-city area, that accurately detail the extent of the 1997 flood, as well as the extent of the area that would be flooded at various river stages.

Educational Series No. 25 **Price $5.00**

The Major Coals in Billings, Golden Valley, and Stark counties, North Dakota

by Edward C. Murphy, Ned W. Kruger, and Gerard E. Goven,

Thick coals, the HT, Lehigh, Harmon, Hansen, and T Cross, were correlated across Billings, Golden Valley, and Stark counties. A half dozen or so cross-sections of Fort Union and Upper Cretaceous strata were constructed for each county. The 42 page report also includes isopachs and contour maps of the HT, Lehigh, Harmon, Hansen, and T Cross coals for the three-county area.

NDGS Open-File Report 00-1. **$5.00**

Publications of the North Dakota Geological Survey

The NDGS recently issued a new List of Publications. The List is available without charge from the Publications Clerk, North Dakota Geological Survey, 600 East Boulevard Avenue, Bismarck, ND 58505 - 0840 or by phone (701) 328-8000.

RECENT ARTICLES authored by NDGS Staff Members

(In non-NDGS publications – NDGS authors are bolded)

Bluemle, J. P., 1999, Time from a geologic point of view: Celebrate 2000 Magazine, Bismarck Tribune, Bismarck, ND, April 4, 1999.

Bluemle, J. P. , 1999, Global warming: a geological perspective: Arizona Geology, Arizona Geological Survey, vol 29, no. 4.

Bluemle, J. P., 2000, Global warming: a geological perspective: Professional Geologist; American Institute of Professional Geologists, v. 36, no. 2, p. 3 - 6.

Bluemle, J. P., Sabel, J. M., and Karlén, Wibjörn, 2000, Evidence relating to rate and magnitude of past global climate changes: (Abstract for paper to be given at the national AAPG meeting in New Orleans, April 16 - 19, 2000).

Bluemle, J. P., 2000, The magnitude and rate of past global climate changes: Eighth International Williston Basin Horizontal Workshop, Bismarck, ND, May 7 - 9.

Burke, R. B., 2000, Non-Wausortian Early Carboniferous buildups (reefs), Little Belt Mountains, Montana: Geological Society of America Abstracts with Programs, v. 32, no. 5, p. A-4, abstract no. 70121.

Burke, R. B. and Eby, D., E., 2000, Mud mounds, reefs and shoals in the Early Mississippian Williston Basin; depositional processes and textural spectra: SEPM-IAS Research Conference on Permo-Carboniferous Platforms and Reefs, El Paso, Texas, 15 - 16 May, 2000.

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Gosnold, W. D., **LeFever, J. A**., Todhunter, P. E., and Osborne, L. F., Jr., 2000, Rethinking flood protection: does the traditional approach need to change?: Geotimes, v. 45, no. 5, p. 20 - 24.

LeFever, J. A., 2000, Drilling of oil-bearing shales horizontally: the Bakken Formation – successes and failures: presented in Jackson, MS at the PTTC Workshop on Horizontal Drilling in Oil Shale, 21 p.

LeFever, J. A., Bluemle, J. P., and Waldkirch, R. P., 1999, Flooding in the Grand Forks - East Grand Forks North Dakota and Minnesota area: North Dakota Geological Survey Educational Series 25, 70 p., 2 plates.

Osadetz, Kirk, Obermajer, Mark, Maowen, Li, Snowdon, Lloyd, Fowler, Martin, Hansen, William, **LeFever, Julie, Diehl, Paul, Burke Randolph**, Carroll, Kipp, Rygh, Marv, and Clark, Mac, 2000, Oils in United States portions of Williston Basin *in* American Association of Petroleum Geologists, Abstracts with Programs, v. 9, p. A110.