

# REPORT OF INVESTIGATIONS

NUMBER 1

SEPTEMBER 1966

## TWELVE MAPS SUMMARIZING THE GEOLOGIC FRAMEWORK OF SOUTHEASTERN NEBRASKA

By

R. R. BURCHETT AND M. P. CARLSON



CONSERVATION AND SURVEY DIVISION, LINCOLN  
PUBLISHED BY THE UNIVERSITY OF NEBRASKA

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Reports of the Division are published by its departments: Geological Survey, Water Survey, Soil Survey, Resource and Industry Survey, and Conservation Survey. The Information Bureau is a service agency designed to facilitate the immediate practical application of the factual information developed by the research of the departments of the Division. This is accomplished through correspondence, local field examination in problem areas, office and public meeting conferences and hearings, and distribution of departmental publications.

# Twelve Maps Summarizing the Geologic Framework of Southeastern Nebraska

By R. R. Burchett and M.P. Carlson

This publication is the first in a series of planned reports designed to make more generally available the results of regional and special investigations. Many of the regional studies by the Geological Survey are compiled and duplicated at a scale too large for general distribution and thus are not readily available to all interested parties. It is hoped that this series of reports at a reduced scale can be more effectively utilized.

Report of Investigations Number One is a series of twelve small scale maps for a thirteen county area in southeastern Nebraska. This area was chosen for study because of its importance in understanding the Paleozoic history of Nebraska. These counties contain the only outcropping rocks of Permian and Pennsylvanian age and also the most complete stratigraphic record of pre-Pennsylvanian deposits in the state. However, due to systemic and intersystemic unconformities, there is great variation in the vertical sequence present within the area. Control points and thickness or elevations are shown on each map. This information was obtained from studies of outcrops, oil tests, water wells, and stratigraphic tests.

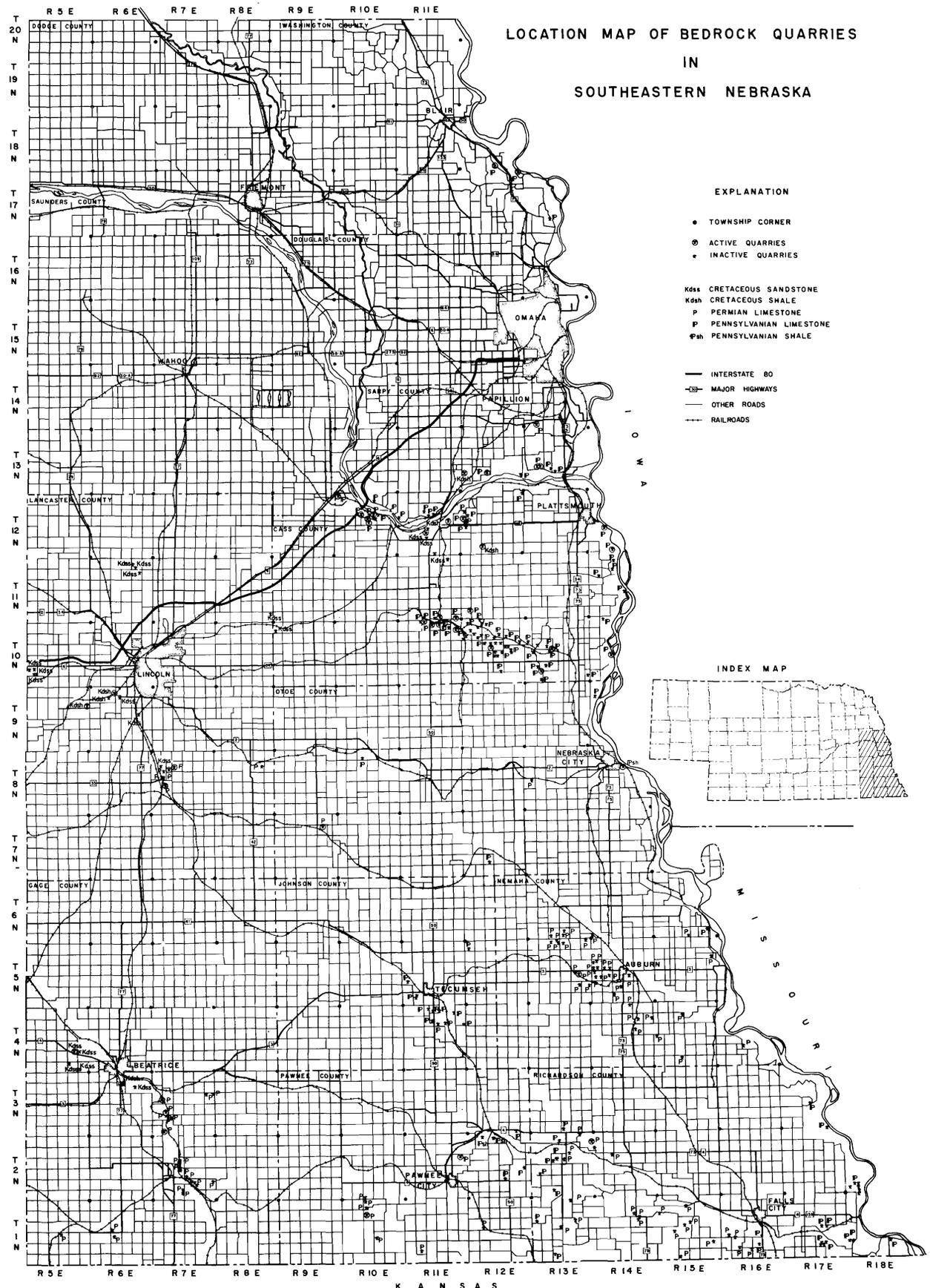
These twelve maps summarize the surface and subsurface data in southeastern Nebraska and will serve as a framework for more detailed studies. The illustrations of various horizons and intervals are presented in the order of increasing geologic age as they are normally encountered. All of the maps were originally compiled and are available at a scale of 1:250,000 either individually or as a set. The information in the files of the Nebraska Geological Survey may be studied in the offices of the Survey. Materials including samples, are not loaned but some data can be duplicated upon request. Copies of electric logs in eastern Nebraska can be obtained from the Kansas Well Log Bureau, 508 East Murdock Street, Wichita, Kansas.

A complete publication list of the Nebraska Geological Survey is available upon request.

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- Figure 2. Configuration of Pre-Pleistocene Bedrock Surface in Southeastern Nebraska
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- Figure 12. Configuration of Precambrian Surface in Southeastern Nebraska

# LOCATION MAP OF BEDROCK QUARRIES IN SOUTHEASTERN NEBRASKA

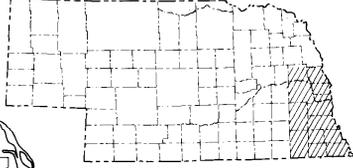


**EXPLANATION**

- TOWNSHIP CORNER
- ⊙ ACTIVE QUARRIES
- ⊗ INACTIVE QUARRIES
  
- Kds CRETACEOUS SANDSTONE
- Kds sh CRETACEOUS SHALE
- P PERMIAN LIMESTONE
- P PENNSYLVANIAN LIMESTONE
- P sh PENNSYLVANIAN SHALE

- INTERSTATE 80
- MAJOR HIGHWAYS
- OTHER ROADS
- RAILROADS

**INDEX MAP**



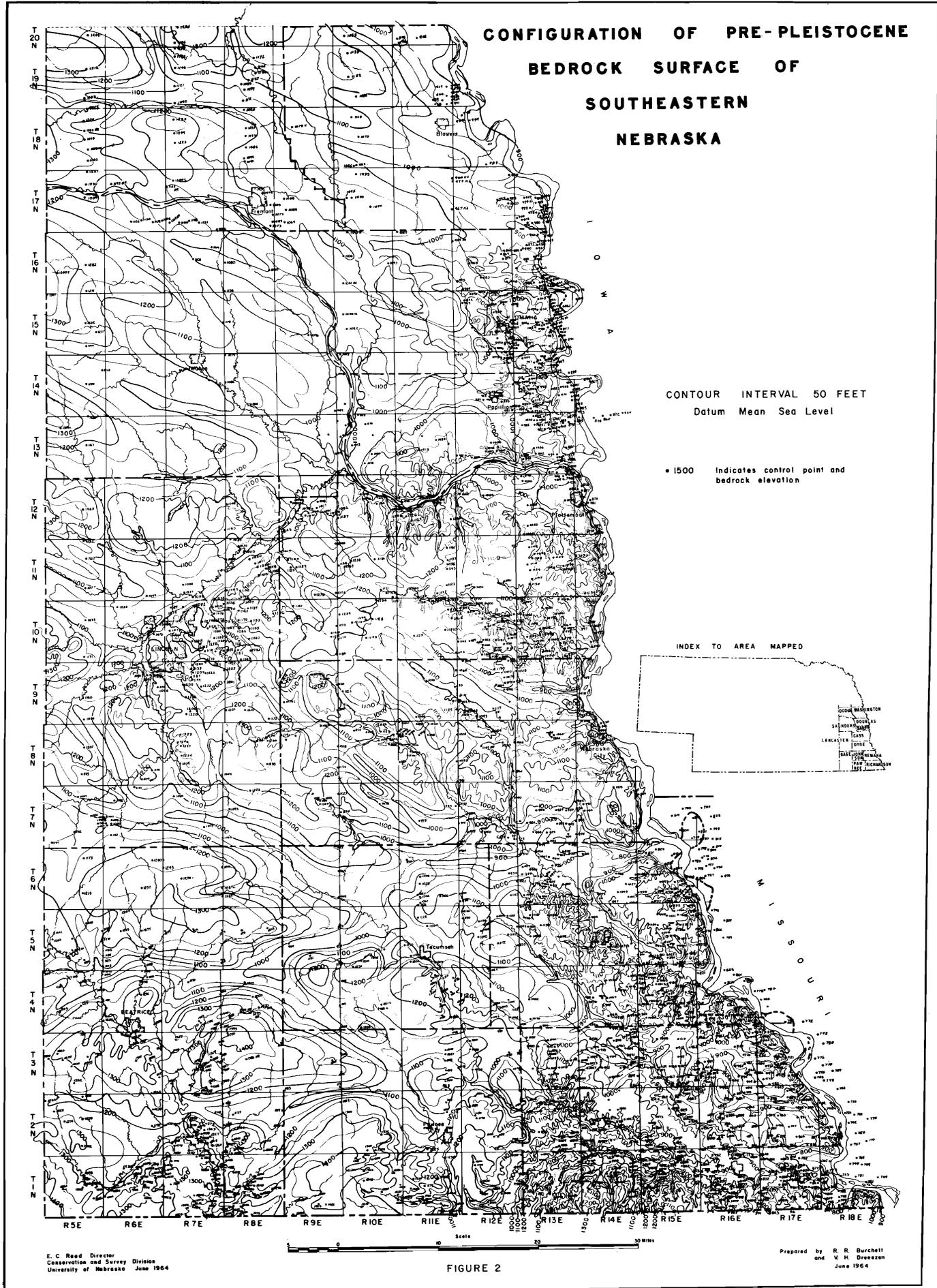
E. C. Reed, Director  
Conservation & Survey Division  
University of Nebraska



Prepared by  
R. R. Burckett  
1 March '66

**FIGURE 1**

# CONFIGURATION OF PRE-PLEISTOCENE BEDROCK SURFACE OF SOUTHEASTERN NEBRASKA



CONTOUR INTERVAL 50 FEET  
Datum Mean Sea Level

• 1500 Indicates control point and  
bedrock elevation

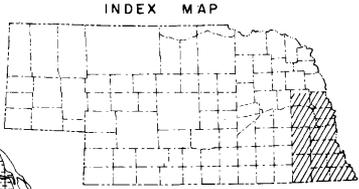
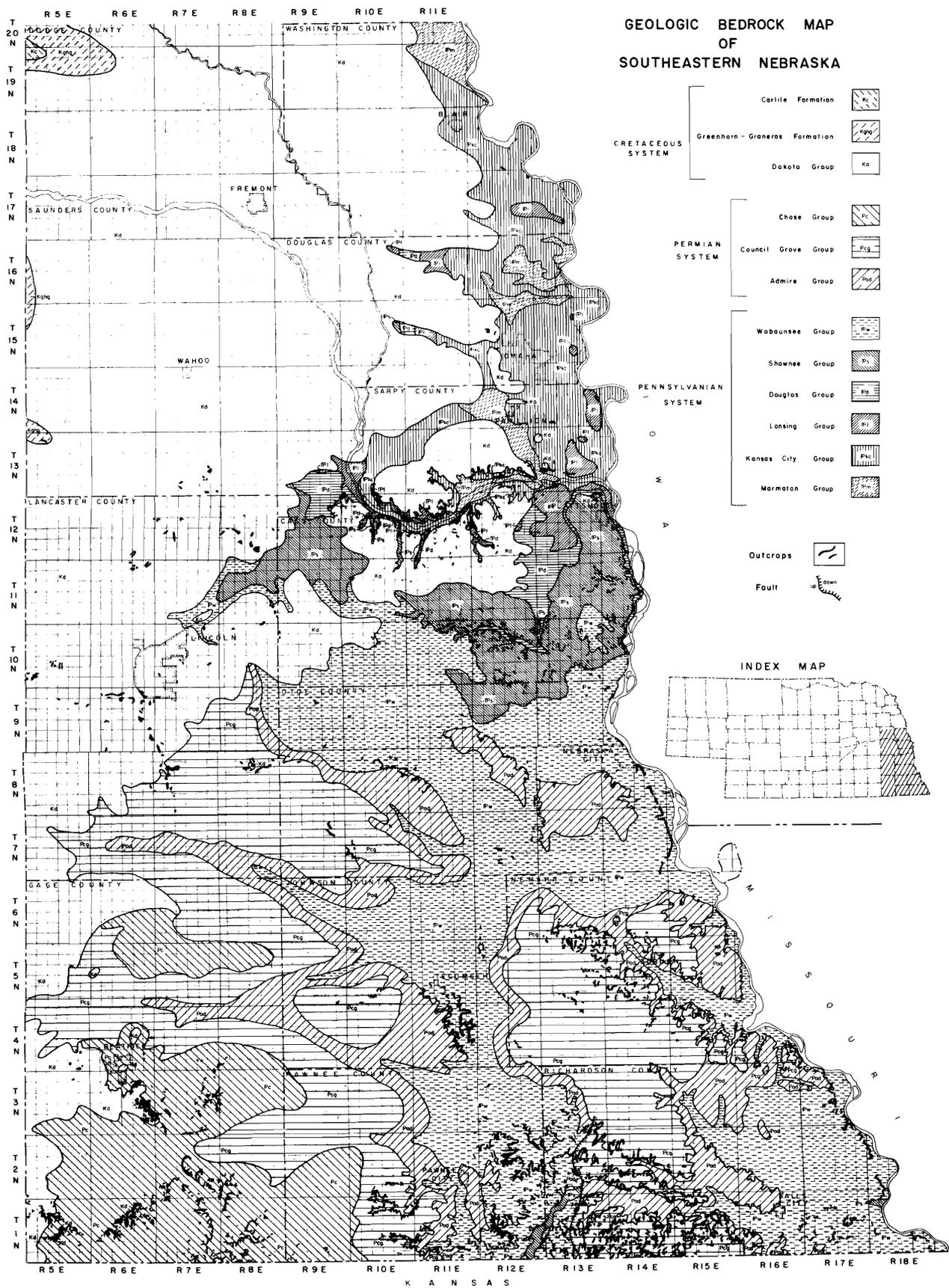
INDEX TO AREA MAPPED

E. C. Reed Director  
Conservation and Survey Division  
University of Nebraska June 1964

FIGURE 2

Prepared by R. R. Burchett  
and V. H. Dreeszen  
June 1964

# GEOLOGIC BEDROCK MAP OF SOUTHEASTERN NEBRASKA



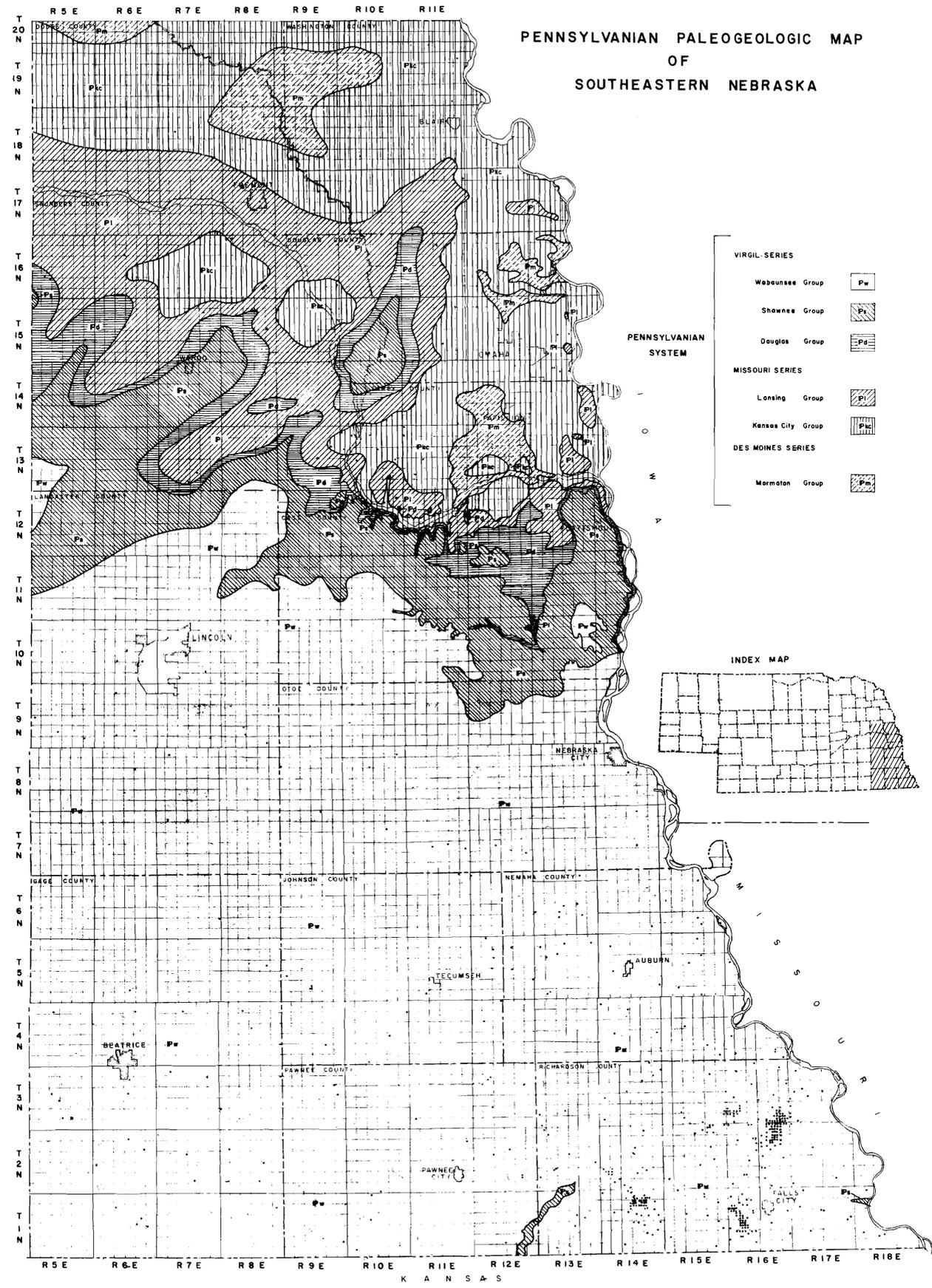
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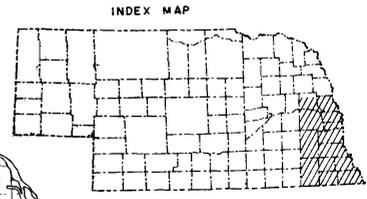
Prepared by  
 R. R. Burchett  
 March 1966

FIGURE 3

# PENNSYLVANIAN PALEOGEOLOGIC MAP OF SOUTHEASTERN NEBRASKA



- PENNSYLVANIAN SYSTEM**
- VIRGIL SERIES**
    - Webeunsee Group Pw
    - Shawnee Group Psh
    - Douglas Group Pd
  - MISSOURI SERIES**
    - Lansing Group Pl
    - Kansas City Group Pkc
  - DES MOINES SERIES**
    - Marmaton Group Pm



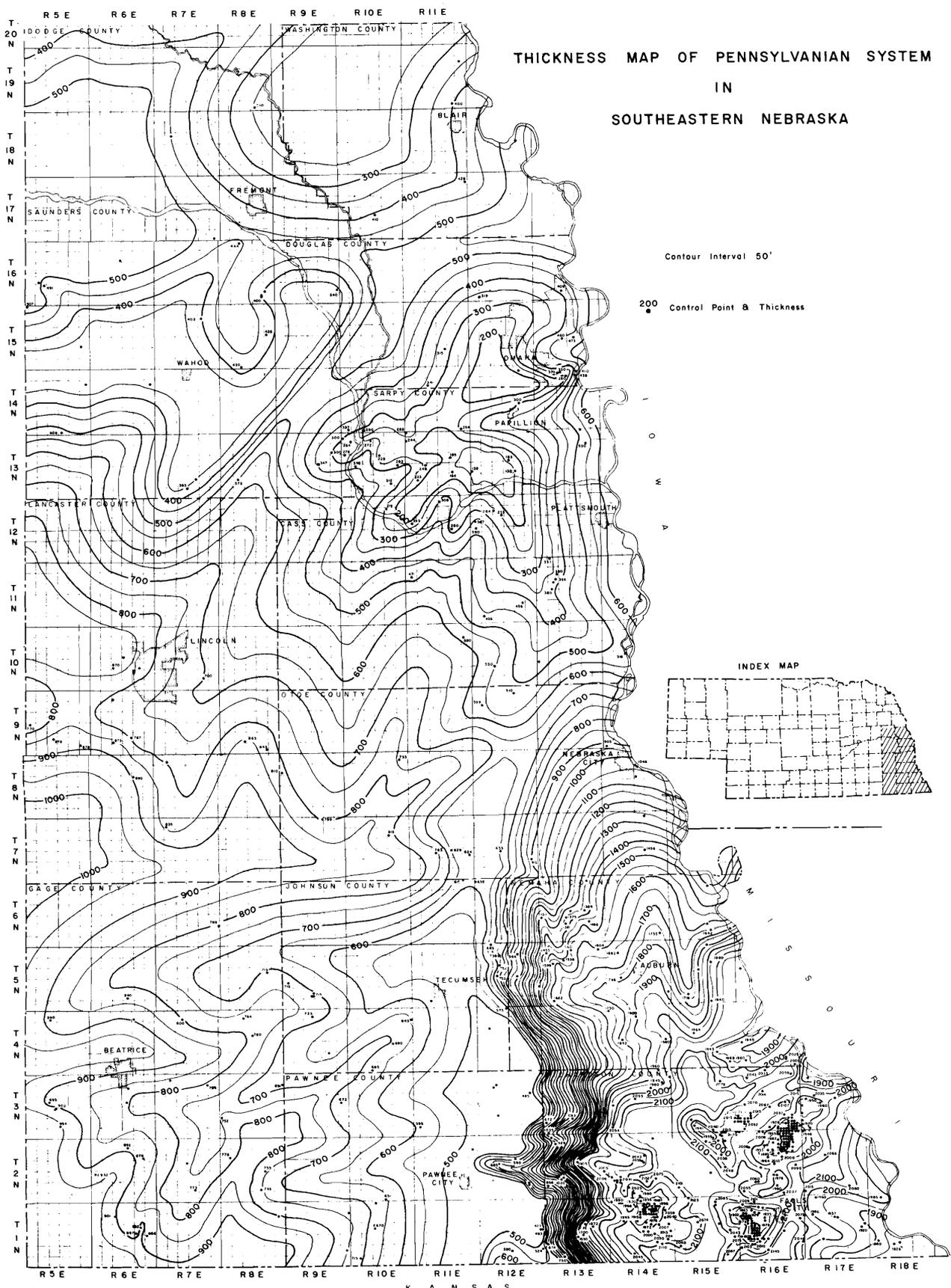
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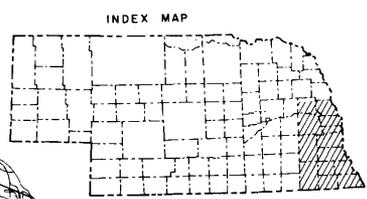
Prepared by  
R.R. Buchheit  
March 1966

FIGURE 4

# THICKNESS MAP OF PENNSYLVANIAN SYSTEM IN SOUTHEASTERN NEBRASKA



Contour Interval 50'  
 200 Control Point & Thickness



E. C. Reed Director  
 Conservation & Survey Division  
 University of Nebraska

Prepared by  
 R. R. Burchett  
 July 1956

SCALE  
 FIGURE 5

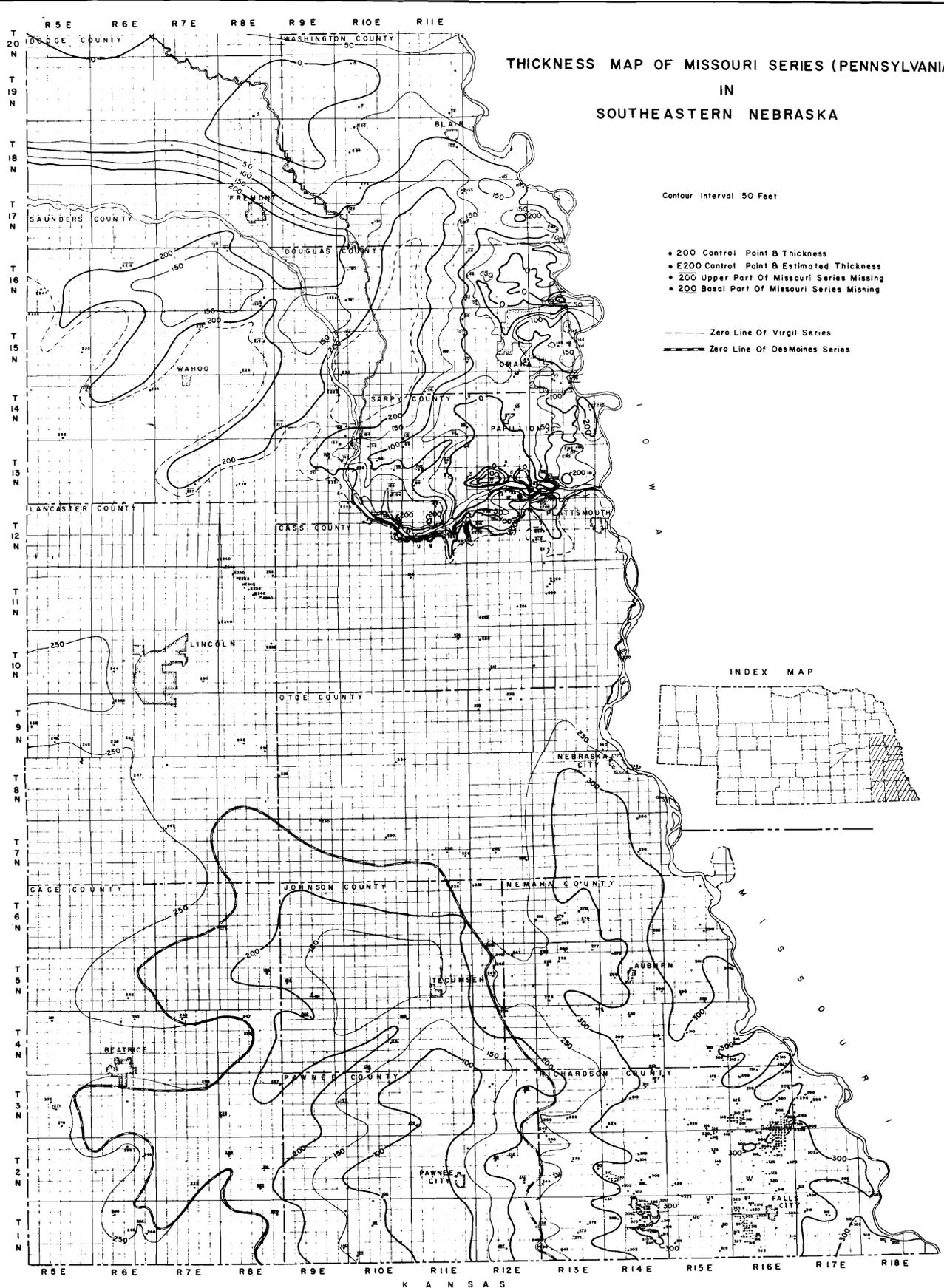
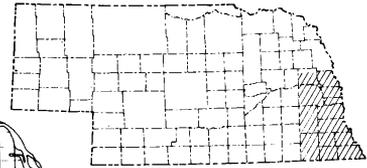
# THICKNESS MAP OF MISSOURI SERIES (PENNSYLVANIAN) IN SOUTHEASTERN NEBRASKA

Contour Interval 50 Feet

- 200 Control Point & Thickness
- E200 Control Point & Estimated Thickness
- 200 Upper Part Of Missouri Series Missing
- 200 Basal Part Of Missouri Series Missing

--- Zero Line Of Virgil Series  
 - - - Zero Line Of Des Moines Series

INDEX MAP

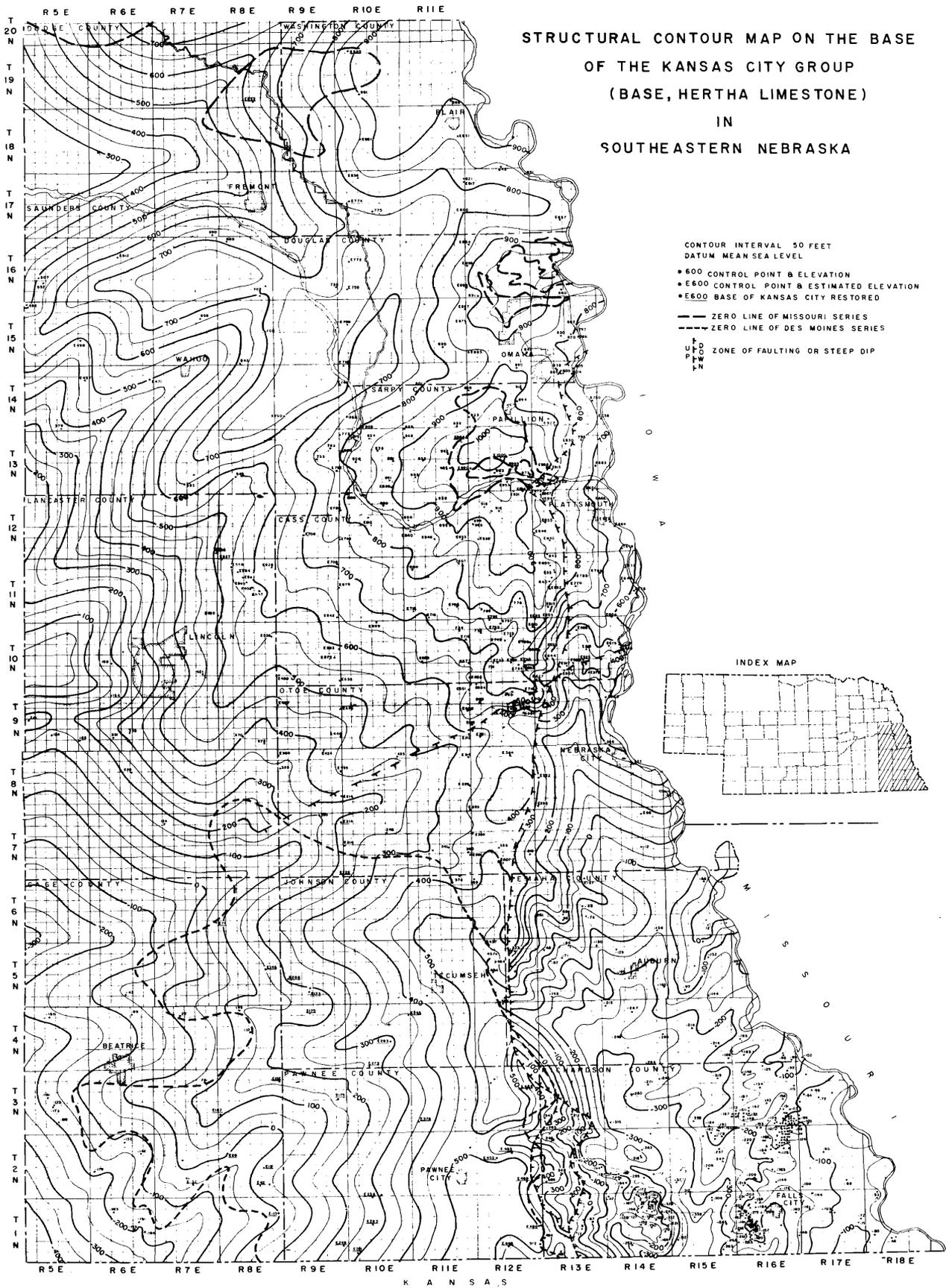


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Prepared by  
 R. R. Burchett  
 March 1966

FIGURE 6

STRUCTURAL CONTOUR MAP ON THE BASE  
OF THE KANSAS CITY GROUP  
(BASE, HERTHA LIMESTONE)  
IN  
SOUTHEASTERN NEBRASKA



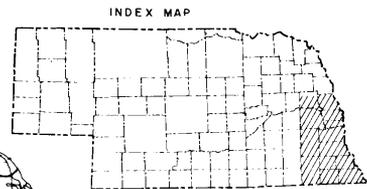
CONTOUR INTERVAL 50 FEET  
DATUM MEAN SEA LEVEL

- 600 CONTROL POINT & ELEVATION
- 6000 CONTROL POINT & ESTIMATED ELEVATION
- 6000 BASE OF KANSAS CITY RESTORED

— ZERO LINE OF MISSOURI SERIES  
- - - ZERO LINE OF DES MOINES SERIES

UP  
P  
T  
N

ZONE OF FAULTING OR STEEP DIP



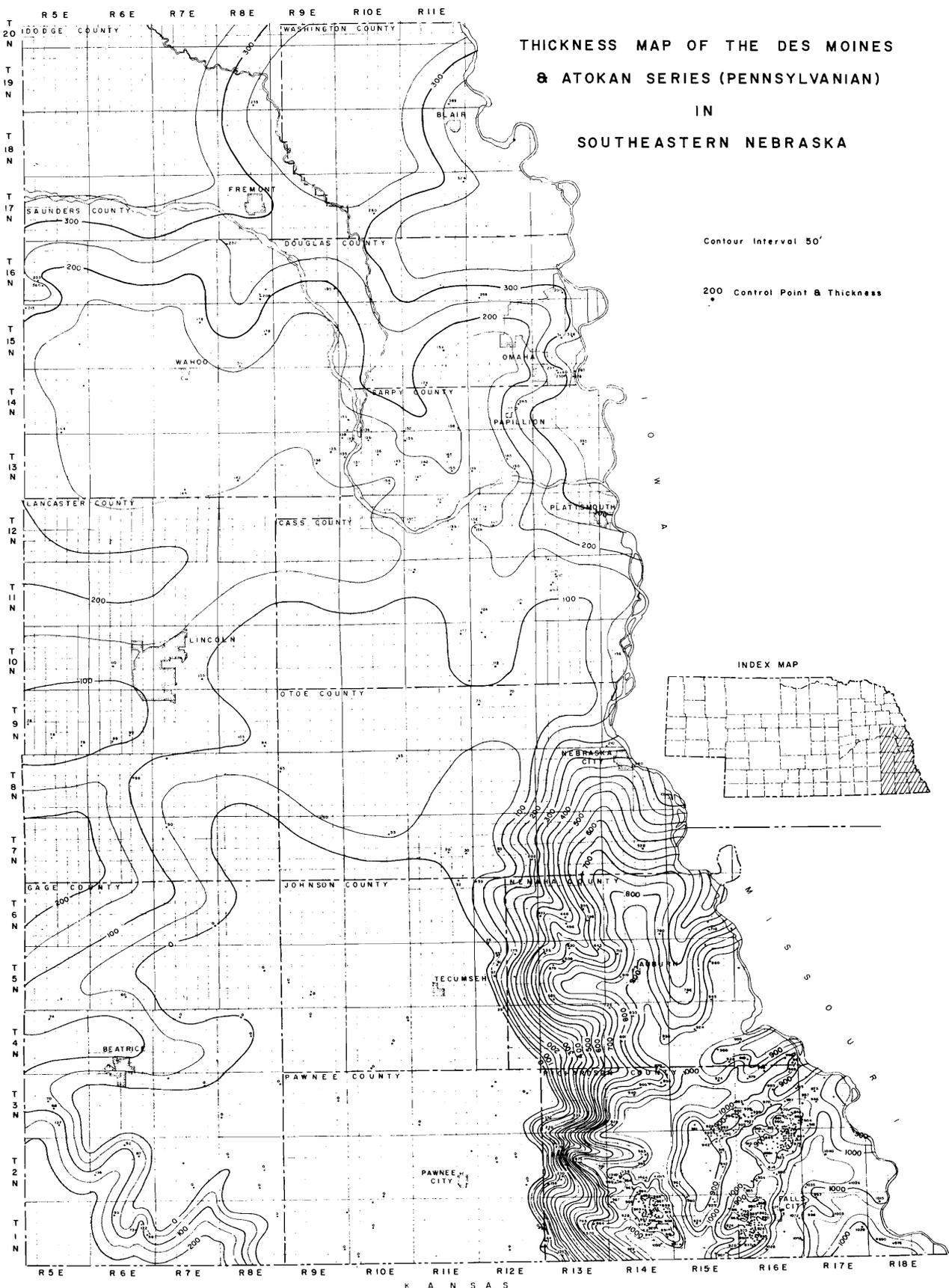
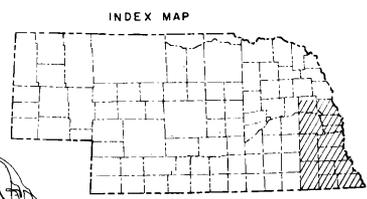
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Conservation & Survey Division  
University of Nebraska

Prepared by  
R. R. Burckett  
March 1966

FIGURE 7

THICKNESS MAP OF THE DES MOINES  
& ATOKAN SERIES (PENNSYLVANIAN)  
IN  
SOUTHEASTERN NEBRASKA

Contour Interval 50'  
200 Control Point & Thickness

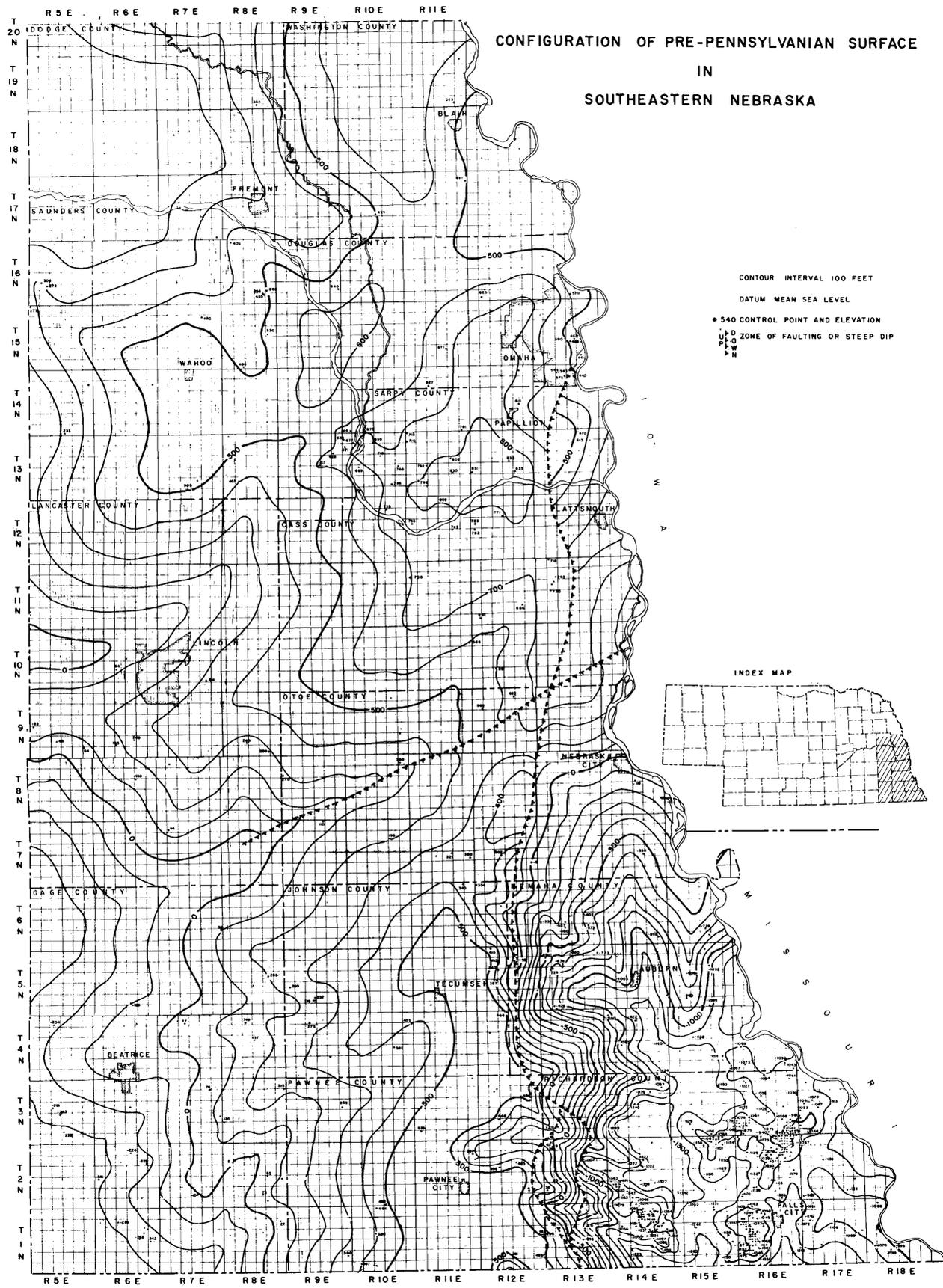


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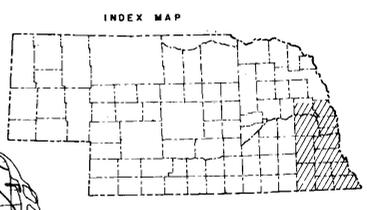
Prepared by  
R. R. Burchett  
March 1966

FIGURE 8

# CONFIGURATION OF PRE-PENNSYLVANIAN SURFACE IN SOUTHEASTERN NEBRASKA



CONTOUR INTERVAL 100 FEET  
 DATUM MEAN SEA LEVEL  
 \* 540 CONTROL POINT AND ELEVATION  
 - - - - - ZONE OF FAULTING OR STEEP DIP

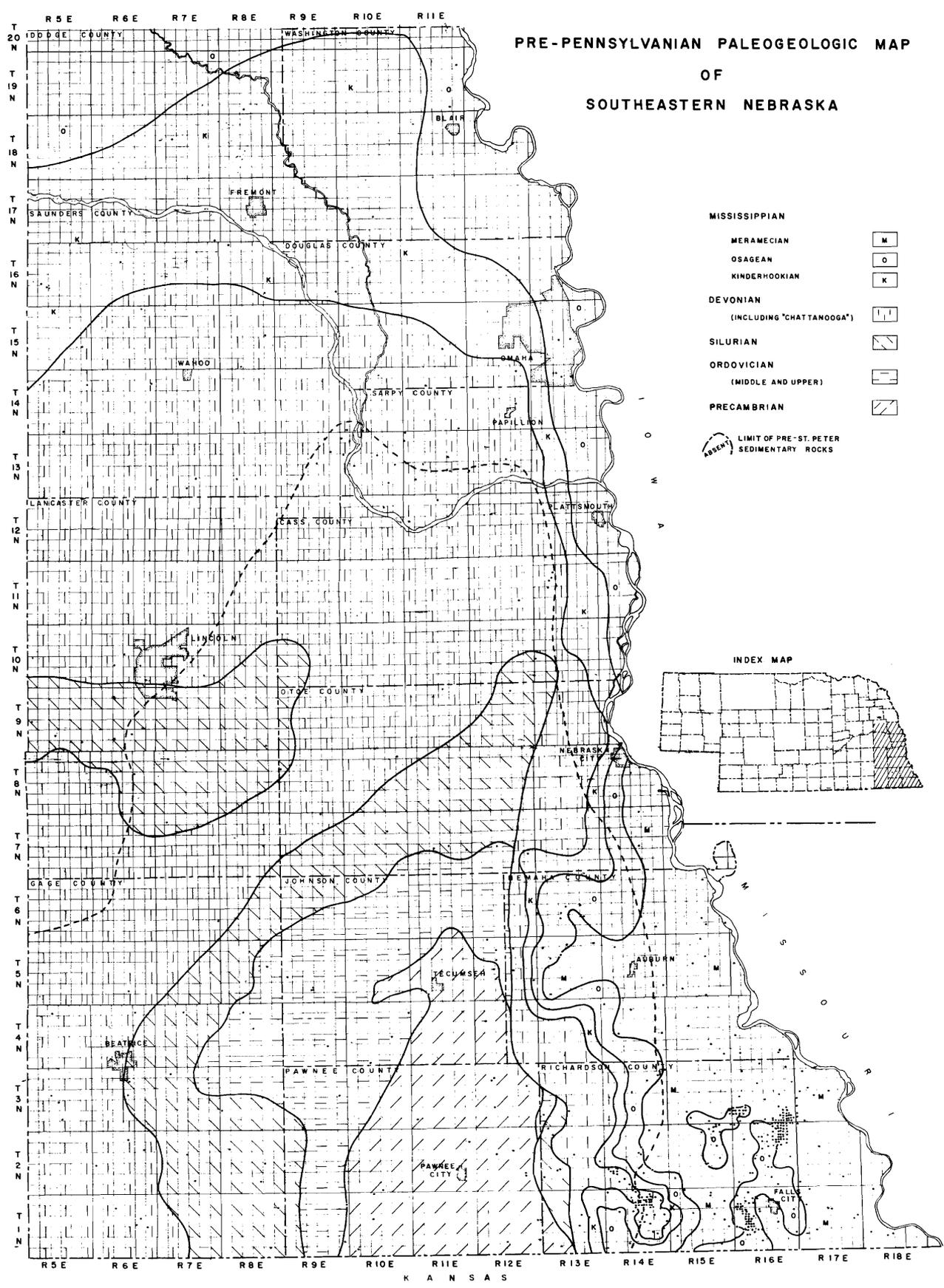


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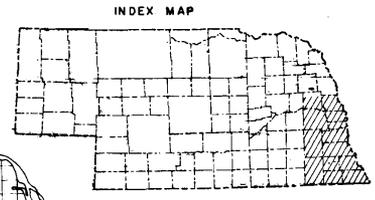
Prepared by  
 Mervin P. Carlson  
 December 1965

SCALE  
**FIGURE 9**

# PRE-PENNSYLVANIAN PALEOGEOLOGIC MAP OF SOUTHEASTERN NEBRASKA



- MISSISSIPPIAN
- MERAMECIAN M
- OSAGEAN O
- KINDERHOOKIAN K
- DEVONIAN  
(INCLUDING "CHATTANOOGA") /
- SILURIAN \
- ORDOVICIAN  
(MIDDLE AND UPPER) -
- PRECAMBRIAN / \
- ABSENT LIMIT OF PRE-ST. PETER  
SEDIMENTARY ROCKS

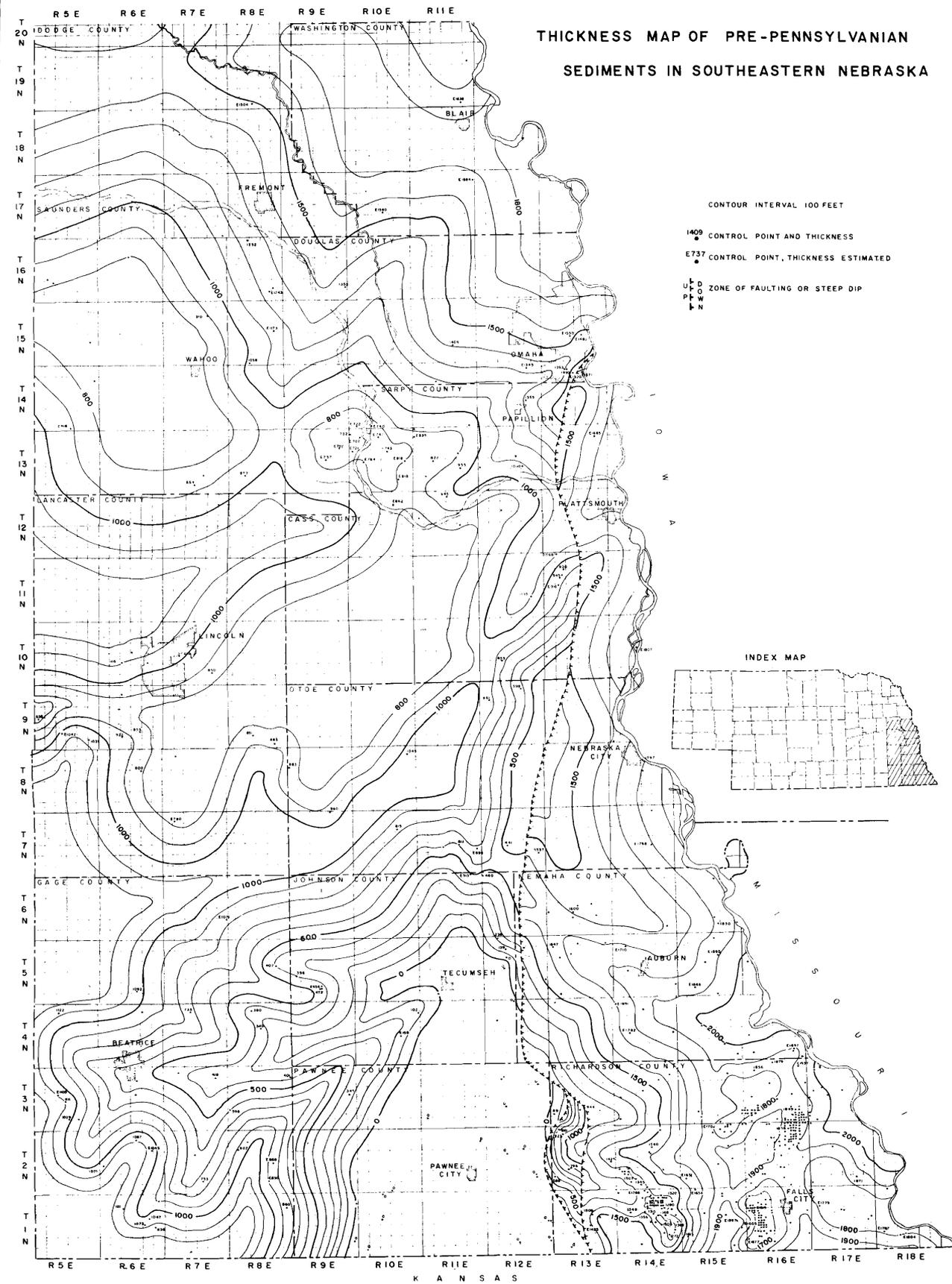


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University of Nebraska

Prepared by  
Merrill P. Carlson  
December 1965

FIGURE 10

# THICKNESS MAP OF PRE-PENNSYLVANIAN SEDIMENTS IN SOUTHEASTERN NEBRASKA



CONTOUR INTERVAL 100 FEET

1409 ● CONTROL POINT AND THICKNESS  
 E737 ● CONTROL POINT, THICKNESS ESTIMATED

U D ZONE OF FAULTING OR STEEP DIP  
 P O  
 W N

INDEX MAP

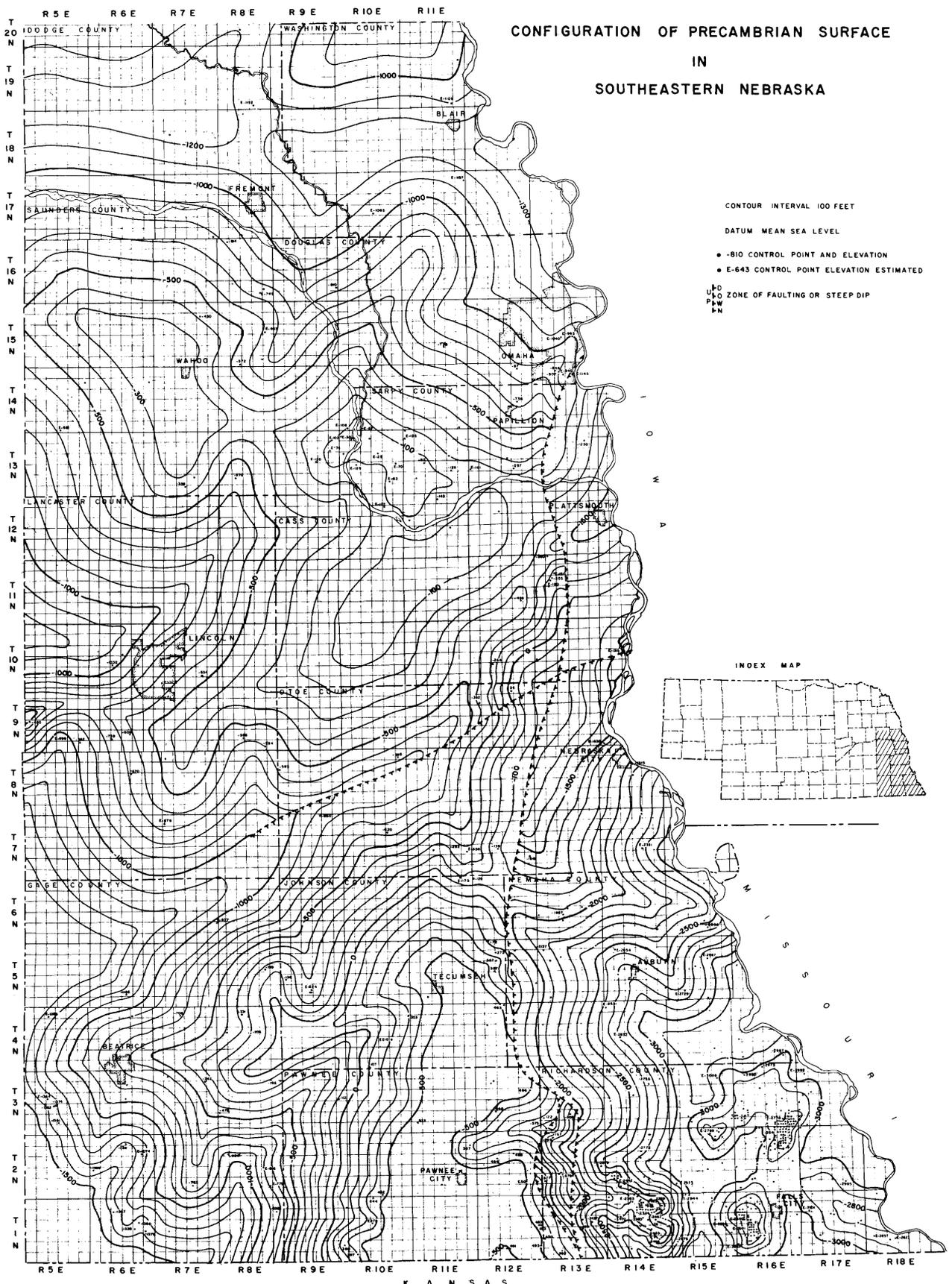


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 Marvin P. Carlson  
 December 1965

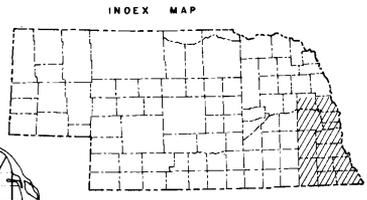
FIGURE II

# CONFIGURATION OF PRECAMBRIAN SURFACE IN SOUTHEASTERN NEBRASKA



CONTOUR INTERVAL 100 FEET  
 DATUM MEAN SEA LEVEL  
 • -810 CONTROL POINT AND ELEVATION  
 • E-643 CONTROL POINT ELEVATION ESTIMATED

U O  
 C O  
 P S W  
 H W  
 ZONE OF FAULTING OR STEEP DIP



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 Conservation & Survey Division  
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Prepared by  
 Marvin P. Carlson  
 December 1965

FIGURE 12