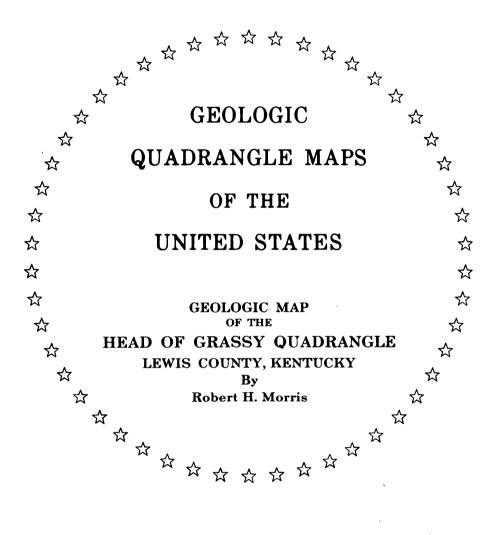
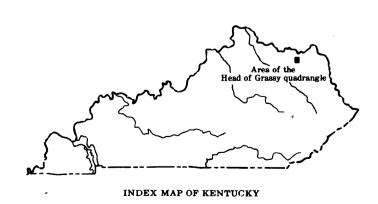
DEPARTMENT OF THE INTERIOR UNITED STATES GEOLOGICAL SURVEY

PREPARED IN COOPERATION WITH
THE COMMONWEALTH OF KENTUCKY
UNIVERSITY OF KENTUCKY
KENTUCKY GEOLOGICAL SURVEY
WALLACE W. HAGAN, DIRECTOR AND
STATE GEOLOGIST





PUBLISHED BY THE U.S. GEOLOGICAL SURVEY washington, D. C.