

No. 599

A Science Service Feature

April 13

? WHY THE WEATHER ?

By Dr. Charles F. Brooks  
of Clark University.

TERRIBLE TORNADES

One of the easiest questions to put but the most difficult to answer is "What makes those awful tornadoes?" Until a searching study has been made of the weather hour by hour both at the ground and up to heights of a few miles before and after such a disaster we must be content with but general and partial answers. We can say that tornadoes are violent whirlwinds which have worked their way to the ground from their birthplace in the free air. We know that such whirlwinds form in the free air only when there is great instability and consequent rapid adjustments between heavier air and lighter air. And we know that the instability becomes greatest when northerly and southerly winds from distant sources meet, or over and underrun each other. Solar heating of the lower air may so increase the instability as to cause tornadoes that could not have occurred from the interaction of the general winds alone. Take the March tornadoes for instance.

The surface weather maps of March 17 and 18 showed the occurrence of two great counterflows of air. On the morning of the 18th, temperatures were 60, 70, or higher, in the South, and from 30 above to 30 below zero in the North; and increasing winds were blowing head on from the warm region and the cold region toward the middle, where a strong low pressure or storm area was developing. The surface temperatures rose rapidly on the south of the meeting point and fell on the north. While at Cairo, Ill., the maximum temperature was 74 on the 18th, that at Springfield, Ill., was but 46 and that at St. Louis 50 degrees Fahrenheit. The tornadoes occurred in the early afternoon near the center of the low where the warm and cold winds met. Heavy to moderate thunderstorms, expressive of violent convection over wide areas, spread over the eastern states.

(Pick up one col. matrix 4-13.)

-----  
(Tomorrow: The Ice Patrol)  
All rights reserved by Science Service

SCIENCE SERVICE,  
B and 21st Sts.,  
Washington, D.C.