

No. 545

A Science Service Feature

Feb. 7

? WHY THE WEATHER ?

By Dr. Charles F. Brooks
of Clark University

EFFECTS OF PRESSURE CHANGES

Our changing atmospheric pressure, which we take so much for granted, has many interesting effects aside from its well known control over the temperature and evaporation rate of boiling water. Changes in pressure, though usually not directly noticeable, appear to affect man slightly in a number of ways both physiologically and psychologically, but usually no more than going up or down a moderately high hill. Pressure changes may alter the levels of lakes or oceans by a foot or two at the most, a control which is often obscured by the much greater influence of winds. Unfortunately, on account of pressure and wind changes, our sea level datum is neither constant nor level. Even the earth's crust tilts when a marked "high" or "low" approaches. The most obvious influences of pressure changes are to be seen in the inflow and outflow of air from mines and gas wells. When considerable falls in pressure are anticipated, coal mine operators are warned and unusual precautions are taken against explosions of gases which are sure to issue in large volumes from the crevices in the coal. Nevertheless, not infrequently we read of fatal explosions taking place in coal mines.

Most striking of all is the air exchange through the small openings of large caverns or of gas wells. A cavern in the Black Hills was discovered through the sudden disappearance of a cowboy's hat into a hole in the ground. In northwestern Ohio, when the wind is northwest and the pressure rising, the indraft of gas wells is sufficient to hold a two by four timber against the well head. When the volume of the open space underground is large relative to the size of the mouth, only a small change of pressure will produce a considerable rush of air. This flow corresponds to the strong tidal currents through the narrow openings to large harbors,

All rights reserved by Science Service

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