A Science Service Feature

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SHELLS OF THE ATMOSPHERE

By Charles Fitzhugh Talman,
Authority on Meteorology.

Since the early years of the present century meteorologists have been accustomed to regard the atmosphere as composed of two concentric "shells." One of these, next the earth, is the troposphere, distinguished by a marked decrease of temperature upward and by a prevalence of vertical air movements. The average thickness of the troposphere varies from 10 miles or more over the equator to about 3 miles over the poles. Above the troposphere lies the stratosphere, which had been explored thousands of times by means of unmanned balloons before Prof. Piccard paid it a personal visit.

How far up does the stratosphere extend? Until recently it was described as extending to the outer limits of the atmosphere, and this conception is still common among meteorologists. Some 25 or 30 miles aloft, however, there is a region characterized by an abundance of ozone, which has important effects on radiation and temperature, and some authorities now call this region the "ozonosphere." Still higher, beginning at an altitude of about 50 miles, is the region of high ionization, which, because of its effects on radio signals, is popularly known as the "radio roof." Its new scientific name is the "ionosphere."

The ionosphere is subdivided into three or more "regions" of maximum ionization, of which the Kennelly-Heaviside region is the lowest and the Appleton region the highest -- so far as present knowledge extends.

SCIENCE SERVICE
21st and Constitution Ave.
Washington, D.C.