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? WHY THE WEATHER ?

Dr. Charles F. Brooks,
of Clark University,
discusses:

THE GASES WE LIVE IN

The Greek philosophers thought of the atmosphere as one of the four elements; we now know, however, that air is not an element, but a mixture of gases. Each gas exists practically as if none of the others were present. Thus, the heavier gases form a larger proportion of the lower atmosphere than they do of the higher. For example, helium, a very light, non-explosive gas, now extracted from natural gas for use in balloons, constitutes only .004 per cent. of the air at sea level, but probably forms a much larger part of the upper atmosphere. At sea level, perfectly dry air would contain about 78 per cent. of nitrogen and 21 per cent. of oxygen, and minute quantities of several other gases.

Nitrogen, an inert gas amounting to a little more than three fourths of the air, gives body to the atmosphere and dilutes the oxygen. The compounds of nitrogen made by bacterial action, electrical discharges, and various chemical processes supply essential food to plants and animals, and give us the basis for explosives and many other chemical products. Oxygen, unlike nitrogen, combines readily with other elements, and is the basis of combustion. The carbon dioxide content of the atmosphere is quite variable, as carbon dioxide is taken up by plants and given off by animals. Air in closed rooms may contain as much as one per cent. of carbon dioxide, which with water vapor and dust, acts as a heat regulator in the atmosphere.

The water vapor present in the atmosphere displaces air equal to itself in volume. Although small in amount, never exceeding 4 per cent. of the atmosphere, it is the source of clouds and rainfall. It is lighter than air, so that moist air, instead of being "heavy" is actually lighter than dry air at the same temperature and pressure.

(Tomorrow: Spring Showers from Winter Snow)
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