

A Science Service Feature

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? WHY THE WEATHER ? Mailed March 3, 1933.

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SYNTHETIC ATMOSPHERES

The idea is not altogether chimerical that the ventilating engineer of the future may be charged with the task of manufacturing the air supplied to buildings instead of merely "conditioning" and purifying that obtained from outdoors, as he does now to a rapidly growing extent. The atmosphere provided by nature is a strange jumble of gases, which, though mixed in fairly constant proportions, are not chemically combined with one another. A little more than one-fifth of the mixture is oxygen, without which no life can exist. The rest is mostly the chemically inactive gas nitrogen, which, in the elementary form contained in the atmosphere, plays but a minor role in life processes. There are about a dozen other constituents, all in small percentages, including carbon dioxide, which animals excrete and plants use as food, and water vapor, which is also of biological importance. The relations of the remaining atmospheric gases to the phenomena of life are still involved in much uncertainty.

That animals can live for long periods of time in gaseous mixtures radically different from natural air, provided an adequate supply of oxygen is present, seems to be well established, though whether any such mixtures would be preferable for habitual breathing remains to be seen. The physiological effects of various artificial atmospheres were studied as long ago as the year 1873 by Elihu Thomson, then a teacher at the Central High School in Philadelphia, and in recent years the investigation of this subject has been most actively carried on by Prof. J. Willard Hershey, of McPherson College, Kansas.

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