

**Note on the Changes in Composition of Compressed Air after Long Storage in a Steel Cylinder.**—In connection with a study of the composition of outdoor air,<sup>1</sup> a steel cylinder of compressed air was secured from the compressed air plant at the Laboratory of Technical Engineering of the Massachusetts Institute of Technology and brought to the Nutrition Laboratory of the Carnegie Institution in the fall of 1910 as a control on gas analyses made with outdoor air. Disregarding the earlier series of analyses in which the technique was developing, in the chemical composition of this gas the percentage of carbon dioxide was 0.032 and of oxygen was 20.870.<sup>2</sup>

The analyses were made with the exceedingly exact Sondén gas analysis apparatus, which is described in the cited monograph. The cylinder has remained in the Laboratory unused since that time. Recently the composition of the air has again been determined using the new form of the Carpenter gas analysis apparatus.<sup>3</sup> On the day on which these analyses were made, the composition of the outdoor air was reported as 0.030% for carbon dioxide and 20.940% for oxygen, the usual figures found with this apparatus. Two analyses of the air in the cylinder gave identical figures, both for carbon dioxide and oxygen, as 0.024% for carbon dioxide and 20.321% for oxygen. In the compressing of gas in these cylinders naturally the larger amount of water is removed, and yet there is enough moisture in the cylinder to facilitate oxidation.

The decrease in oxygen percentage incidental to seventeen years' storage is explained by the oxidation. The decrease in carbon dioxide content can be explained only by the presence of alkaline material in the cylinder.

**Summary.**—Analyses of compressed air after seventeen years' storage in a steel cylinder gave evidence of a slight drop in carbon dioxide percentage and a drop of approximately 0.6% in oxygen percentage.

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<sup>1</sup> See "Composition of the Atmosphere with Special Reference to Its Oxygen Content," by F. G. Benedict, Carnegie Institution of Washington, Publication No. 166, 1912.

<sup>2</sup> As no attempt was made to secure uncontaminated outdoor air in the air compressors, the fact that its composition differs from that of pure air is not of significance.

<sup>3</sup> "An Apparatus for the Exact Analysis of Air in Metabolism Investigations with Respiratory Exchange Chambers," by Thorne M. Carpenter, *Journal of Metabolic Research*, 4, 1 (1923).