in gases ".

The old ideas, however, proved very durable. It was only gradually, under the influence of practice, and of the experimental material accumulated in laboratories and in industry, that the old views of Dalton, on the incorrectness of which Mendeleev first spoke out, began to be replaced by the new ideas.

In some areas this had begun some time earlier, and had entered firmly into scientific and technical usage (the equations of state of real gases), while in other areas the process is still going on at the present time, particularly as regards solutions of liquids in compressed gases.

A typical example is the well-known monograph by Hildebrandt "Solubility of Non-Electrolytes"/3/, in which, 60 years after the work of Mendeleev, there is not a single line devoted to gaseous solutions.

Expressions like "the content of ammonia vapor in a mixture of hydrogen and nitrogen under pressure"- instead of " the solubility of liquid ammonia in a mixture of hydrogen and nitrogen under pressure" — are still regarded as usual in scientific and technical literature.

The practice of using high pressures in the chemical industry in the last 25 years has led to the final triumph of Mendeleev's ideas concerning gaseous solutions. In the periodic literature one now encounters, more and more frequently, papers on investigations of gaseous solutions, particularly by Soviet authors.

However, until now these papers dealt only with the study of solubility of liquids in high pressure gases, and vice versa, and, as the most recent investigations have shown, these data are not sufficient to form a basis for the problem as a whole.

The experimental studies have been mainly of dilute solutions. It would appear that the thermodynamic properties of these solutions