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SOLUBILITY OF GASES IN LIQUIDS AT
LOW TEMPERATURES AND HIGH PRESSURES.

III. SOLUBILITY OF HYDROGEN IN LIQUID METHANE

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Data on the solubility of hydrogen in liquid methane have both thermodynamic interest and importance for a number of practical problems, especially in the separation of coke oven gas by the method of deep chilling.

Data on the equilibrium in the binary system H_2-CH_4 are scarce. We may mention the work of Freeth and Verschoyle (1), who determined the solubility of hydrogen in liquid methane at $90.63^\circ K$ and pressures up to 225 atmospheres, and the work of Shtekkel' and Tsin (2) for the $107.7^\circ K$ isotherm up to 90 atmospheres.

In the present research the temperature range ($90.3-127.0^\circ K$) and the pressure interval (up to 130-230 atm.) are both extended.

Experimental Part

The solubility of hydrogen in liquid methane was determined in the previously described apparatus (3), which is based on the principle of circulation of the gas through the liquid phase. The hydrogen was prepared electrolytically and