introduced in I may be taken equal to $|\Delta|\hbar^2N/mkT_0\Omega$; it is assumed that $x \ll 1$. The condensation temperature is then T_c rather than T_0, where $(T_c-T_0)\sim xT_0$. There is a latent heat $\sim x^2RT_0$, and a discontinuity in the specific heat $\sim xR$ (C_v is greater below than above T_c). The specific heat vanishes as $T\to 0$. These results are in general agreement with those obtained by Lamb and Nordsieck[3] from a perturbation treatment of the inter-particle interactions.

Since the calculation can claim validity only to terms of order x, it appears that a consistent treatment of binary interactions predicts results that are at least in qualitative agreement with experiment. However, in view of the great difficulties encountered in extending such a treatment to higher order collisions (higher orders of x), calculations based on liquid-type models[4] would still seem to be of considerable interest.

It is a pleasure to thank Drs. W. E. Lamb and A. Nordsieck for access to their results prior to publication, and for pointing out the existence of the alternative distribution function.

[1] L. I. Schiff, Phys. Rev. **59**, 751, 758 (1941); referred to here as I and II, respectively. The present notation follows these references.
[2] The writer is indebted to Drs. L. Tisza and E. Teller for pointing out to him that the perturbation theory evaluation of I (29) disagrees with that obtained from I (34) without the residue term.
[3] W. E. Lamb, Jr. and A. Nordsieck, Phys. Rev. **59**, 927 (1941).
[4] L. I. Schiff, Phys. Rev. **59**, 839 (1941).

Vibrational Analysis of CD and CH Bands in the Region of 2260–2500A

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IN a short note in this journal McDonald[1] reported two red-degraded bands lying at λ2264A and λ2367A and excited by condensed discharges in methane. No further details were known about them up to the present time.

TABLE I. *Vibrational scheme for* CD.

	$v''=$ 0	1	2	3	4	5	6		
$v'=0$	44,187	42,194	41,440					1092	
1			42,532	41,224				1021	71
2				42,245	40,979			931	90
3					41,910	40,687			
4							40,318		
	1393	1354	1308	1266	1223				
	39	46	42	43					

TABLE II. *Vibrational scheme for* CH.

	$v''=$ 0	1	2	3	
$v'=0$	44,156	42,234	40,395		1469
1			41,864	40,102	
	1922	1839	1762		
	83	77			

During a more thorough investigation of the entire CD and CH spectrum[2] plates were taken from condensed discharges (with a rotating spark gap in series) in helium containing small amounts of vapor from heavy paraffin and ordinary benzol. They show, in the region mentioned, several faint bands of similar structure. All of the heads could be arranged in the vibrational scheme shown in Tables I and II.

While the vibrational structure is rather narrow in respect to the known CD and CH bands, the first and second vibrational differences are related as the ratio of the reduced mass (i.e., its square root) of the isotopic molecules CD and CH. This fact and the circumstances of excitation, together with the apparently singlet structure of the bands, suggest that the ions CD^+ and CH^+ are the emitters.

[1] F. C. McDonald, Phys. Rev. **29**, 212 (1927).
[2] Cf. L. Gerö and R. F. Schmid, Phys. Rev. **59**, 528 (1941).