that no γ -radiation follows the emission of the α -particle, and thus giving a direct proof that there do not exist any γ -rays of appreciable amount arising from the transition $\text{RaC}' \rightarrow \text{RaD}$. The measurements of the β - γ and γ - γ 'coincidences' show no dependence on the length of the impulses, showing that none of the excited levels can have a lifetime longer than 10^{-3} sec.

In order to check the level scheme of radium C' of Ellis and Oppenheimer¹, sets of measurements were made of the coincidences between β - γ and γ - γ due to the radiations from radium C and C'. The β - γ coincidences were measured as a function of the absorption of the β -particles. The result is that the ratio of coincidences to the number of β -particles decreases rapidly with the thickness of the absorber, but becomes nearly constant for thicknesses of 1.3–2 mm. aluminium. The presence of coincidences at an absorber thickness of 2 mm. aluminium shows that even the hardest β -group (upper limit 3.15 Mv.) is connected with the γ -rays, in agreement with the scheme of Ellis and Oppenheimer. This latter result is in contradiction to the results of Bothe and Maier-Leibnitz², who found no coincidences between the hard β -rays and the γ -rays, an observation very difficult to reconcile with the level scheme.

Although my own results agree broadly with the level scheme, a closer comparison shows certain discrepancies; the decrease in coincidences with absorber thickness is more rapid than expected, and the number of coincidences with the hard β -rays is too small. It ought to be mentioned that the comparison is very dependent on the values adopted for the efficiencies of the γ -counter for rays of different energy. Special experiments were made in order to determine these values. The differences between the expected and experimental results are greater than the possible error in the determination of the efficiencies and must be explained in some other way.

The γ - γ coincidences were also measured as a function of the thickness of lead between the source and one γ -counter. The shape of the experimental absorption curve of the relative number of coincidences is in fair agreement with the values expected from the level scheme.

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* Footnote added in proof. J. V. Dunworth has recently (NATURE, July 22, p. 152) used the same principle. His result for the half value period of radium C' is 1.50×10^{-4} sec., in good agreement with that given here.

¹ Ellis, C. D., International Conf. of Physics, London, 1934.

² Bothe, W., and Maier-Leibnitz, H., Z. Phys., 104, 604 (1937).

Adsorption of Helium Gas on Active Charcoal between 4.2° and 1.78° K.

MEASUREMENTS have been made on the adsorption of helium gas on charcoal between 4.2° and 1.78° K. We determined the quantity adsorbed at various pressures and various temperatures. At the same time we also observed the adsorption velocity.

Above the λ -point, the adsorption seems to be normal. However, on passing the λ -point, the adsorption seems suddenly to be stopped (this could not be explained by the 'film' phenomena). Further, it seems to us that the adsorbed helium assumes a metastable state. The equilibrium pressure remained practically constant on lowering the temperature still further. However, at 1.97° K., the adsorption started suddenly again. It was also possible to get the adsorbed helium from this metastable state by a slight increase of temperature.

By increasing the temperature, starting from a temperature below the λ -point, it was again found that the adsorption becomes constant on passing the λ -point.

Briefly, it seems to us that the observed phenomena shows a certain analogy with 'critical' adsorption.

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'Breaks' in Interfacial Tension Curves

WHEN a single solute is adsorbed from one phase to a water-oil interface, the interfacial tension usually falls in a regular manner with increasing adsorbate concentration, to a limiting value corre-

INFLUENCE OF BENZYL ALCOHOL ON BENZENE-WATER INTERFACIAL TENSION