**Copy of a printed graph referenced as "Radial distribution function or density for the ground state of hydrogen"**




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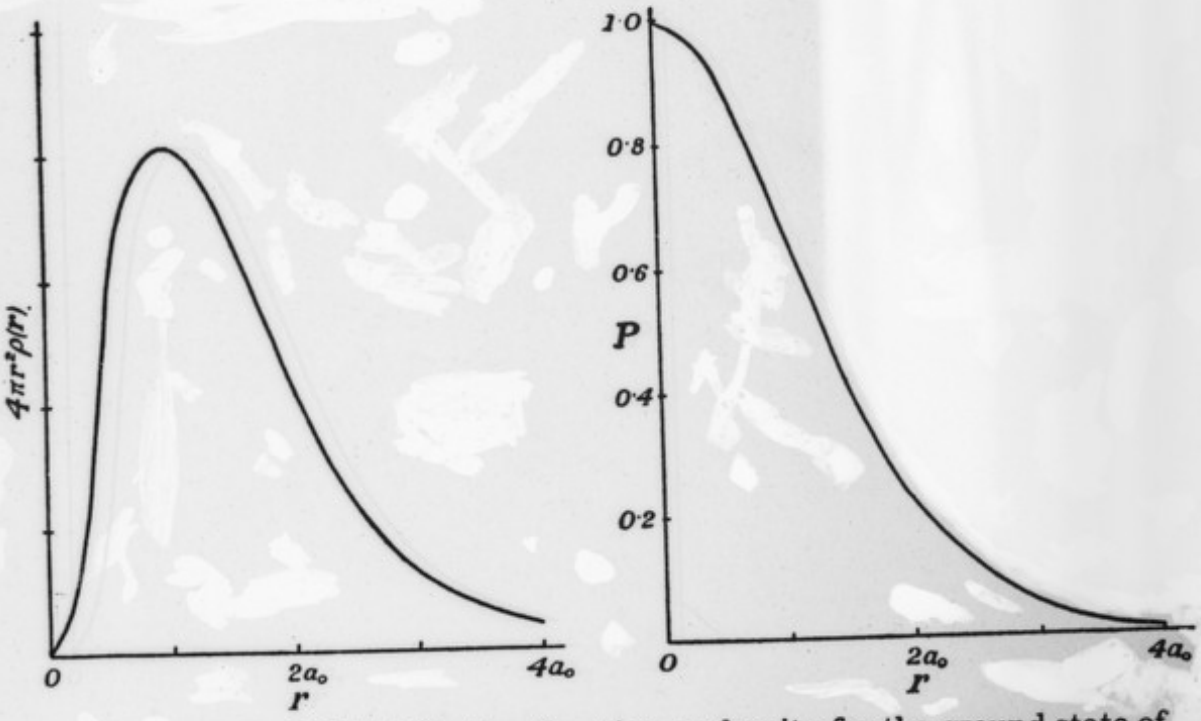
final comparison with the Bohr theory, that the maximum radial density in the new theory occurs when $r = a_0$, so that in this case the most probable distance of the electron from the nucleus is precisely that which it is supposed to have permanently in the old theory.

On the right-hand side of Fig. 2 there is shown the variation




**(*a*) Radial distribution function or density for the ground state of hydrogen. (*b*) Fraction of charge-cloud outside a sphere of radius $r$ for the ground state of atomic hydrogen.**

of $P(r)$, where $P(r)$ is that fraction of the total charge-cloud which lies outside a sphere of radius $r$. Evidently $P(0) = 1$, and $P(\infty) = 0$. It will be noticed that $P(r)$ falls off rapidly with $r$. If, for example in (*d*) above, we chose the boundary surface for which 10 per c[redacted] radius would be $2{\cdot}6a_0 = 1{\cdot}4$ A. [redacted] $r$) is

$$P(r) = \int_r^\infty \psi^2 4\pi r^2\, dr = e^{-2r/a_0}\left\{1 + \frac{2r}{a_0} + \frac{2r^2}{a_0^2}\right\}.$$