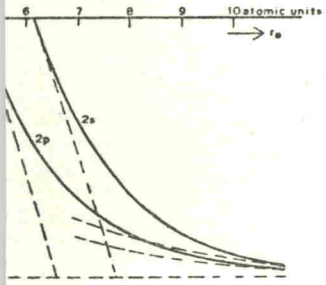
lit up into two adjacent levels, such that than the 2*s* orbit.



curves for the 2*s*- and 2*p*-levels. Dotted lines d the asymptotes of the approximation of § 2. lso an asymptote for both curves.

nctions. When certain values of the azi- $l = 0, 1, 2, \ldots$ and of the energy E ormula (2); n can eventually be imaginary

TABLE II

1*s*-level ($N = 1$, $l = 0$)

E omic units	r_0 atomic units	from section
—0.500	∞	3*a*
—0.4960	5.020	3*b*
—0.4834	4.068	3*b*
—0.4417	3.192	3*b*
—0 3965	2.807	3*b*
—0.3273	2.472	3*b*
—0.2323	2.200	3*b*
—0.2222	2.178	3*b*
—0.1250	2.000	3*a*
—0.0800	1.934	3*b*
—0.0566	1.902	3*a*
0	1.835	3*c*
0.0566	1.778	3*d*
0.125	1.711	3*d*
0.500	1.448	3*d*
1.928	1.15[5]	3*f*
2.193	1.08[5]	3*f*
2.518	1.01	3*f*
3.427	0.91	3*f*
4.935	0.81	3*f*
∞	0	3*e*

and non-integer) are chosen, the wave function (4), (6) is known as function of r or ρ.

Each time when a zero point of this wave function is found this node can be considered as the radius r_0 of the cage in which the hydrogen atom is compressed. This gives sets of corresponding values of E and r_0. For $l = 0$ and no nodes between $r = 0$ and $r = r_0$ a point of the 1*s*-level energy curve is found.

When for $l = 0$ there lies one node between the limiting points of the coordinate r, this is a wave function of a 2*s*-state. For $l = 1$ and when no zero point occurs, one finds points of the 2*p*-curve, etcetera. The various regions of energy will now be considered and methods described of finding nodes.

a) $E < 0$. When n is an integer, the wave function degenerates into a derivative of a Laguerre polynomial, with a number of

TABLE III

The 2*s*-level ($N = 2$, $l = 0$)

n	E atomic units	r_0 atomic units	from section
2	—0.1250	∞	3*a*
2.072	— 0.1165	10.36	3*b*
2.213	—0.1021	8.852	3*b*
2.5	—0.0800	7.815	3*b*
2.559	—0.0764	7.677	3*b*
2.885	—0.0601	7.212	3*b*
3	—0.0566	7.096	3*a*
3.412	—0.0429	6.824	3*b*
3.5	—0.0408	6.785	3*b*
4	—0.0312	6.611	3*a*
5	—0.0200	6.429	3*a*
∞	0	6.153	3*c*
4 *i*	0.0312	5.808	3*d*
3 *i*	0.0556	5.589	3*d*
2 *i*	0.1250	5.111	3*d*
i	0.5000	3.823	3*d*
0.902 *i*	0.6143	3.609	3*d*
0.637 *i*	1.234	2.91[5]	3*f*
0.557 *i*	1.611	2.67	3*f*
0.477 *i*	2.193	2.39	3*f*
0.446 *i*	2.518	2.26[5]	3*f*
0.414 *i*	2.920	2.15	3*f*
0.382 *i*	3.427	2.03	3*f*
0.350 *i*	4.078	1.92	3*f*
0.318 *i*	4.935	1.76	3*f*
0 *i*	∞	0	3*e*