to contain (*a*) neutral atoms; (*b*) neutral molecules (a union of two atoms); (*c*) atoms with one positive charge; (*d*) atoms with one negative charge; (*e*) atoms with two positive charges; (*f*) molecules with one positive charge; (*g*) molecules of ozone (a union of three atoms) with one positive charge; and (*h*) a group of six atoms (O_6) with one positive charge.

As a final illustration of the use which can be made of these positive ray photographs, the following table, giving the complete analysis of all the substances corresponding to the curves shown in figure 5, is appended:

POSITIVE.

Atomic Weight	*Substance*	*Charge*
1	.....Hydrogen atom	+1
1.99	.....Hydrogen molecule	+1
6.80	.....Nitrogen atom	+2
11.40	.....Carbon atom	+1
13.95	.....Nitrogen atom	+1
28.1	.....Nitrogen molecule	+1
39	.....Argon atom	+1
100	.....Mercury atom	+2
198	.....Mercury atom	+1

NEGATIVE.

1	.....Hydrogen atom	—1
11.2	.....Carbon atom	—1
15.2	.....Oxygen atom	—1

IONS MADE VISIBLE.

The presence of ions has been demonstrated by recent experiments performed by Mr. C. T. R. Wilson, of the Cavendish Laboratory. Ions, it must be remembered, are much too small to be seen even with the aid of the best ultramicroscope. By making each ion become the centre of a small drop of water, however, Mr. Wilson has succeeded in visualizing their existence, and photographing the appearance of an ionized gas under various conditions. The method employed is based on the principle that when air (or other gas) suddenly expands to fill a larger volume it becomes cooled. If before the expansion the gas has been saturated with water vapor, after the expansion, on account of the cooling there is more than enough vapor to saturate the gas and some of it condenses