coefficient of friction of the substance—the velocity v is given by

$$v = \frac{R\,T\,.\,1000}{1000\,P\,.\,n} \text{ cms. per sec.}$$

The quantity of dissolved substance passing the plane of lower concentration in 1 sec. is found from the number of molecules lying between that plane and a parallel plane v cms. distant.

The number of milligram molecules in the volume (v ccs.) is $v \times n = N$.

$$N = \frac{R\,.\,T}{P}$$

N is called the diffusion coefficient.

The friction coefficients of substances of non-conducting solutions are found from the diffusion coefficient. According to a calculation made by Euler the friction of a gram-molecule is approximately proportional to the square root of the molecular weight of the dissolved substance. If we apply this method to calculate the molecular weight of the four colloids examined by Graham, we have:

Gum Arabic	= 1750
Tannic Acid	= 2730
Egg Albumen	= 7420
Caramel	= 13,200

These determinations shew that there is a continuous gradation in the size of the dissolved particles from that of the ordinary crystalloidal molecule to that of particles visible in the microscope.

XI. General Conclusions.

Theoretically, colloidal solutions give a most substantial confirmation of the molecular theory of matter. We may trace particles of various sizes, from those of coarse suspensions to those of large molecular weights, and finally to those small molecules of true crystalloidal solutions. Not only have we good evidence, optically, of this gradation in the size of the particles in various solutions, but other phenomena shown by