estimated at 15,000, or, otherwise, this molecule is about 1,000 times as weighty as is the molecule of water. I say in the neighbourhood of these figures, for no two samples yield identically the same results. It seemed impossible to think of building up experimentally such hugely complex bodies.

Next it was found that these molecules are, as I may express it, conglomerates. Hemoglobin, for example, can be split up into an iron containing protein, hæmatin, and an iron-free, globulin; and in the Seventies and Eighties a material advance was made in the study of the products of splitting up the molecules by the action of acids and of the digestive ferments. The peptones and albumoses so obtained were found to be less complex. In the Nineties Kossel discovered a group of proteins, the simplest so far obtained—namely the protones—bodies allied to the peptones, whose molecules are much simpler. Thus Sturin obtained from the sturgeon is

C	H	N	O
36	69	19	7

Only yesterday my colleague Professor Ruttan showed me a fat formed from the hydrocarbon C_{33} H_{66} which he had built up in the laboratory; so here it will be seen that we are within the limits of possible synthesis. Kossel showed that these can be broken down into yet simpler bodies of the *amino-acid group*, Histidin, Arginin and Lysin, C_6 H_9 N_3 O_2, etc. In fact, the researches of Curtius, Hofmeister and Emil Fischer have demonstrated that the proteins in general are composed of these amino-acids—that they are compound molecules composed of these amino-acids joined in series. I do not wish to enter too deeply into what is a difficult subject to grasp. I will only say that the amino-acids are compounds of carbon, hydrogen, nitrogen and oxygen that have the structure of fatty acids,—bodies of the butyric and acetic acid group—to which nitrogen-containing *amine* molecules (of NH_2) have become linked, giving them the remarkable property of being at the same time basic as well as acid, so that they can enter into combination at one and the same time with acids and bases. It is this particular property that would seem to be at the bottom of their striking characteristic of forming huge compound molecules. Thus, suppose we regard them as bricks, having at one end an acid affinity which will attract and attach a basic body, and at the other a basic affinity which will attract and combine with an acid body, it will be seen how thereby it is possible to build compound molecules formed of long chains of these amino-acids. And proteins are bodies of this nature.

This is no longer a matter of theory. The long-continued studies of