The balloon shown was a small sausage-shaped "Piladex" india-rubber balloon constricted into three equal parts by narrow bands of strapping. When inflated with air one of the sections will expand before the other two, if the supply tap is then turned off; the air enclosed in the balloons must be of the same pressure, for they connect quite freely, but the feeling of tension is markedly higher in the balloon with the thin distended walls, than in the other two thicker walled, less distended balloons.

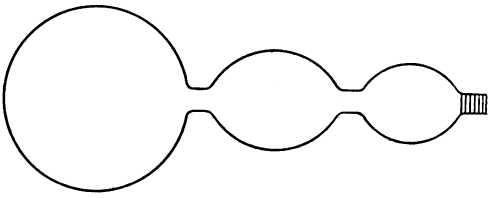

Diagram of the balloons. In the largest the walls are thin and feel tense; in the smaller the walls are thicker and feel soft.

Mr. GREEVES pointed out that an increase in the volume of the eyeball, accompanying a rise of intra-ocular pressure, could be easily demonstrated. Koster, in his experiments, took measurements of plaster casts of eyes which had been subjected to various degrees of pressure, and found definite increase in volume associated with increased intra-ocular pressure. Schulten obtained similar results by another method. He connected the eye with a pressure bottle and thus raised the pressure by known amounts, measuring the amount of fluid which flowed into the eye each time. Having lowered the pressure bottle again by the same amounts and measured the quantity which flowed out of the eye, he took the mean of the inflow and outflow as the increase in volume. He (the speaker) had done some experiments with fresh pig's eyes and got similar results. He put the eye in a bottle filled with saline and fitted with a rubber stopper, through which was passed a tube measured off in cubic millimetres as well as a hypodermic needle connected both with the eye inside the bottle and with a pressure bottle outside. Changes in the volume of the eye could thus be read off in cubic millimetres. With a pig's eye of average size, and taking the normal intra-ocular pressure as 25 mm. of mercury, the increase in size was 1 c.mm. per millimetre of mercury rise of pressure. For the first 10 mm. of rise of pressure above the normal the rate of increase in volume remained the same,

but thereafter it gradually became less. These results proved that the eyeball was not a rigid case, and that the increase in volume corresponding with even a slight rise of intra-ocular pressure was quite a measurable one.

Professor STARLING, in reply, said he thought that one of the most interesting contributions to the discussion was the little toy which Mr. Rayner Batten had demonstrated. But it had nothing to do with the immediate question, because the point brought forward by Mr. Priestley Smith and himself as to the influence of lateral pressure could only apply to moving fluids; in the case shown, however, the fluid was stationary. If one tested the pressure of that air by the manometer one would find it the same everywhere; whereas if it were taken by the fingers, as in the ordinary clinical method, or by a tonometer, the pressure in the big balloon seemed much higher than in the little one; and that showed the kind of fallacy to which one was exposed. Dr. Thomson Henderson stated that the easiest path from the capillaries to Schlemm's canal was by the connective tissue, without going into the interior of the eyeball at all. He deduced that from the anatomy; but it should be possible to prove the point experimentally. After all, these deductions from anatomy were not worth very much; they could only indicate where one must try experiments; one must not reason from anatomical considerations as against experiments. He was not himself an ardent advocate of filtration; it was not a personal question whether intra-ocular fluid was produced by filtration or by secretion by the cells of the ciliary processes; but he felt that it was a necessary condition of science that one must take the easy explanations before one should say one could not explain it. The filtration idea must not be given up until it was found the facts would not fit in with it. If the filtration hypothesis were true, the production of intra-ocular fluid should be proportional to the blood-pressure in the capillaries. And that was found to be so. He had shown that there must be a further condition; the pressure in the capillaries must be at least 30 mm. higher than the intra-ocular pressure. That was a point which might be investigated, because the difference of pressure between the capillaries and the intra-ocular fluid was conditioned by the fact that the blood in the capillaries contained protein, and it required a difference of 30 mm. between these two points, so that the protein might be filtered free from the plasma. The protein of the animal could be reduced by half by bleeding, and then only half the difference would be required to keep