would compensate for the lack of lungs. The conclusions reached were not uniform, some investigators accepting both skin and bucco-pharynx with more or less of the œsophagus as sharing with something like equal importance in the respiration, others concluding that the skin is no more efficient in respiration in lungless salamanders than in those with lungs. Some examinations of Plethodon along these lines was in progress but ceased when the paper of Seelye ('06) on the Circulatory System of Desmognathus came to hand for the points already dealt with showed that the conditions in Plethodon would be but a repetition of those in Desmognathus: and would lead to the same conclusion, namely that as an organ of respiration the skin is much more important in lungless than in lunged salamanders. The same paper also gives a sufficient review of the question and its literature so all that will be attempted here is to bring forward three additional pieces of evidence in support of the above conclusion.

First, as noted in the paper itself the value of the cutaneous capillary network for respiration will depend upon the permeability of the membrane through which diffusion must take place. The fact that this membrane is the epidermis and not the entire skin renders exact experimentation impossible. Nevertheless the experiments performed by Seelye indicate that the entire skin of lungless forms is much more permeable than that of those with lungs and it would be strange to urge that the difference in the cutis accounts for this for it is the lungless forms that have the thicker cutis. This point of structure is, according to Seelye, the only one of general distinction between the skins of the two types in question; a conclusion that it is hard to understand unless it is due to the presence of two European forms with lungs among those examined. A more trustworthy comparison would be one between forms that live in the same environment and in the case of Plethodon this is possible, for small specimens of *Amblystoma punctatum* and of *Diemyctylus viridescens* in its terrestrial stage of life are occasionally found along with *Plethodon cinereus*. The skins of specimens so found and of adult Plethodons of about the same length were examined all being submitted to the same procedure, *viz.* the entire animal was fixed in Zenker's fluid with the usual after treatment, then from similar regions of head, trunk, and tail, pieces from dorsal, ventral, and lateral aspects were sectioned perpendicularly to the surface. The only considerable and constant difference in the epidermis is one of thickness. To estimate this correctly several measurements in micra were made from each piece of skin and these were averaged. Finally the figures thus obtained for each of the areas investigated were averaged to obtain a figure that would fairly