

General.—The Research Association has again kept in touch with the tanneries by regular periodical visits, by the testing of leather and liquors, and by investigating problems in connection with leather which arise in the shoe-factories. This constant contact with leather-manufacture and its use in shoe-factories has been of great benefit to both industries.

SHOE RESEARCH ASSOCIATION

Advisory Committee.—Messrs. W. Denby, P. E. Edwards, W. S. Livingstone, O. I. McDonald, and R. L. Andrew.

The complicated and ingenious machines used by the shoe industry are outstanding evidence of what can be achieved when the results of research work are applied to an industry. The machines are accepted, sometimes in spite of opposition by sceptical persons.

The application of the results of research to an industry implies two things—firstly that there are results to apply, and secondly that the industry is willing to apply them. Spectacular results may not always be achieved, but if the industry maintains not only its interest in research, but also its confidence in the application of the results, then eventually success will be achieved. The results achieved by the New Zealand Shoe Research during the year have maintained and increased the interest of the manufacturers in research and the results of the application of the findings have been of great benefit to the industry. Although nothing spectacular has been achieved, steady progress has been obtained during the year.

Quality of Sole Leather.—Up to the present, quality in sole leather has had to be measured by the shoe-manufacturer in terms of the thickness of the leather. As has been shown in the report of the Leather Research Association, the real quality may not be directly proportional to its thickness. Hence if the theory that quality in sole leather may be assessed in terms of hide substance per unit volume can be related to actual wear values, then a great step forward has been made.

Shoe Comfort.—In these days of high-pressure salesmanship it is sometimes very difficult to distinguish between features which are based purely on a phase of selling value and those which are based on the actual facts of shoe comfort. During the year results have been obtained which show that the foot cannot distinguish between, or that it very easily adapts itself to, differences in the flexibility of the sole. This is especially the case with a lady's fashion shoe, in which the height of the heel precludes the flexing of the sole to any marked extent. The foot can distinguish between a light- and a heavy-weight shoe and between a flexible and less flexible upper. These features are more important for shoe comfort than the flexibility of the soles. Factors affecting the flexibility of shoes have been investigated and the principles involved have been applied to actual shoe-manufacture during the year.

Factory Lighting.—In the last annual report reference was made not only to the importance of efficient lighting, but to the effect of colour schemes to enhance the effect of lighting. The beneficial effects of painting the walls a pastel shade and the benches another colour, &c., have been obtained in several factories. From the workers' point of view, if eyestrain is to be minimized, every method of improving lighting should be used. For example, windows require to be periodically cleaned, lamp bulbs and shades kept free from dust and dirt, the actual lights must be in the proper place to give the necessary illumination at the point of work, shadows must be minimized and glare eliminated. Great strides in these directions have been made in the last two years in the shoe-factories in New Zealand, but there is still room for improvement.

Drying.—At various stages some of the components of the shoe have to be treated with water or some other solvent to bring them into a suitable condition for working. This implies that water or the solvent has to be removed when the process for which they were so used has been completed. This treating with the solvent ensures better-workmanship and so is necessary, though sometimes it is not efficiently carried out. If the