A. O. A. Educational Scheme.

By W. G. KETT, F.S.M.C.

Chairman A.O.A. Educational Committee.

The particular duty imposed on the A.O.A. Educational Committee by the last Conference was the preparation of a scheme for the education and training of optometrists in Australia. This task, difficult enough under the most favourable circumstances, has been rendered somewhat more arduous by the decision of Conference to leave the appointment of the members of the committee to the various States. This has led to serious loss of time and it is hoped that this indiscretion will not be repeated at Brisbane. The early meeting of Conference also reduces the time available by nearly three months, hence all that can be done is to present an outline scheme for consideration of the committee, prior to its presentation to Conference in August.

PRELIMINARY CONSIDERATIONS.

In the preparation of an educational scheme for an embryo profession such as optometry there are two parties to be considered. On the one hand, there is the great bulk of optometrists on whose support we are so dependent for the successful introduction and maintenance of new standards of education, and on the other, the new men who will enter optometry in the immediate future. The education of the optometrist of the future must differ greatly from that of the past, and for that reason moderation in our aims must be exercised, but, at the same time, ample provision must be made for a steady elevation of our standards.

Again, while several Australian States have optometry laws, we have not yet reached the technical schools or universities, and hence much that will be required in a minimum educational standard will be dependent on increased facilities for teaching and training.

Lastly, the desirability of a uniform standard throughout the Commonwealth is essential. We have seen the consequences of varying standards in U.S.A., and in a place like Australia, reciprocity is very desirable.

OPTOMETRY AND MECHANICAL OPTICS

There are two essential aspects of the educational question which we must not confuse and for which we must make ample provision, namely the education of optometrists and the education and training of optical mechanics. Now it is necessary to fully realise, that whereas a thorough knowledge of practical optics is essential to the optometrist, a knowledge of optometry is not essential to the prac-

tical optician. We will, therefore, endeavour to construct a course of practical instruction which will suffice for both optometrist and optician, the only difference being in the time required to complete the course.

PRELIMINARY EDUCATION.

The standard of preliminary education required by those desiring to enter optometry in the future has been laid down by the A.O.A., as that required by the various State Universities for matriculation and entrance to the various faculties, particularly medicine or science. This is essential. If optometry to-day can be called a profession then we must admit that our members are the least educated body of professional men in society to-day. All the ills and disabilities that optometry suffers to-day are due to this very fact, that as a body we are comparatively uneducated in the general, as well as the technical, sense. We must be frank and honest if we are to clearly understand our position and improve it.

The Conference decision referred to above needs to be amplified by the specification of the compulsory subjects required to be taken in obtaining a pass, and as our first definite proposal we will state—

- (1) That all candidates for optometry shall be required to pass the matriculation or leaving certificate examinations or whatever examination corresponds thereto in the various States, in the following subjects: Mathematics including Arithmetic, Algebra, Geometry, and Trigonometry; Physics, English, Latin, French or German.

Having passed such a qualifying examination the student comes well prepared for the study of optometry, which can be adequately arranged as no cramping limitations are necessary owing to defective preliminary education. This point cannot be too energetically urged nor its importance overestimated.

THE TIME REQUIRED.

It is reasonably certain that the required educational standard will not be attained before the age of 18 years and also by common consent agreed that 21 should be the minimum age of qualification, therefore even under the most favourable method of instruction three years should be considered a minimum time for completion of the course. A more reasonable period, however, would be four years. This would per-

mit of the student gaining practical experience of an efficient kind, while still under supervision. A general indication of how the work may be divided would be as follows:—

First Year.—General and Practical Optics, with laboratory work.

Second Year.—The theory and practical use of optical instruments, with practical shop work in the making of lenses and correction and adjustment of optical instruments.

Third Year.—Anatomy and Physiology, Physiological Optics, Theoretical and Practical Sight-testing.

Fourth Year.—Objective Methods of Refraction, Phorometry, Perimetry, Keratometry, etc.

The above is but an outline which will be filled in and fully defined when the suggested syllabus is placed before our readers next month.

Before presenting the A.O.A. scheme in the detailed form of a syllabus, we will briefly discuss the existing courses in Optometry and Practical Optics.

COURSES IN PRACTICAL OPTICS.

Apart from the meagre provision in existing Optometry courses, there are only two courses in Practical Optics worth considering. The first of these is the Optical School of the Grand Duchy of Saxony, founded by the State Ministry of that Duchy in 1918, and the second, the French Institute of Theoretical and Applied Optics, founded by the Ministers of Public Instruction and Commerce in August, 1920. With these may be mentioned the Imperial College of Science and Technology and Northampton Institute in London, although they cannot be said to efficiently cater for the requirements of the optical craft.

It will be observed from the dates of foundation of the German and French schools of Practical Optics that they are of post-war origin and the thoroughness with which the curricula have been compiled shews clearly that those responsible for technical education have not been slow to lay to heart the lessons of the past. The writer has before him the complete syllabi of the German and French schools and will reproduce as briefly as possible the detailed curriculum of each to shew the ground covered.

The Optical School of the Grand Duchy of Saxony is a State institute in close association with the Carl Zeiss Institution of Jena. The constitution and regulations are set out with characteristic thoroughness and detail. While these are of great interest to the educationalist they do not warrant reproduction here. The time required for completion of the course is one year.

DETAILED CURRICULUM

of

Optical School of Grand Duchy of Saxony.

The subjects of instruction are the following:

SPECTACLES AS AN OPTICAL INSTRUMENT.

(a) The Theory of Spectacles.

1. The eye as an optical instrument; optical structure of the eye; the production of the image in the eye; the circumscription of rays in the eye; perspective; field of view; the optical faults of the eye system; direct and indirect vision; angular resolution and width perception.

2. The eye at rest and the spectacles; the axially symmetric ametropic eye; the position of its distant and near points; correction by spectacle lenses; the influence of the distance of the spectacle lenses; the astigmatic eye and its correction.

3. The eye in motion and spectacles; the distance cones and surfaces of sharp definition; astigmatism of oblique pencils and conditions of correction; the anastigmatic field of view and its position relatively to the distance cone; distortion spherical and chromatic defects of the spectacle lenses; alteration of space perception by the spectacle lenses.

4. Binocular vision through spectacles; the alterations of the angles of elevation and turning by the spectacle lens in astigmatism and anisometropia; the prismatic lens; bi-focal lens.

5. Aids to weak eyes; ordinary magnifying glasses and reading glasses; magnifiers; telescope spectacles; telescope magnifiers.

APPLICATION OF WHAT HAS BEEN TAUGHT.

1. The spectacle lens and the making of same; the raw materials; bi-periscopic, meniscus conchoidal, plano-cylindrical; spherocylindrical and toric lenses; cataract spectacles for couched eyes, and special aids to vision; double lenses, cemented, melted, and ground in one piece; testing of lenses in respect to veins and strains; testing of worked surfaces; ascertaining the curvature; ascertaining the optical effect; testing the character of the image; centring and decentring; ascertaining the prism effect of decentred lenses; edging of the lenses; the new standards; splitting, cutting and grinding; fixing the lenses in the frame and to the mount; boring, drilling, snapping in and cementing.

2. Frames and mounts; the raw materials and their use; the various forms and kinds of spectacles and pince nez; holders, lorgnettes and eye-glasses.

(Continued in next issue.)