curvature is about 15.70–19.63 mm (this provides for about a 2.5–4.5 diopter increase over the distance vision power). The third zone's radius of curvature is about 30.02 mm. The radius of curvature of the third zone differs from that of the central zone, both of which provide for distance vision, in order to correct for what is referred to in the field as spherical aberration such that rays passing through the central and third zones are coincident in aqueous.

If the radii of curvature of the central and third zones are the same, light which passes through the lens further from the center of the lens, i.e., through the third zone, will focus at a point closer to the anterior or front of the eye in contrast to the rays of light which pass through the lens through the central zone. This phenomenon is known as spherical aberration and prevents the patient from having sharp distance vision over a broad range of pupil sizes which will vary depending upon the amount of light. In order to correct for this effect, the radius of curvature of the third zone of the lenses of the present invention have been adjusted to a value different from that of the central zone so that the rays of light passing through the central zone and the third zone are coincident in aqueous.

FIGS. **1** and **2** illustrate a preferred embodiment of the present invention. FIG. **1** shows the anterior face of a single piece intraocular lens comprising an optic and two haptics. The anterior face of the optic is comprised of three zones to provide for bifocal vision. The first zone (**1**) is a central zone for the provision of distance vision. It is about 1.8 millimeters in diameter. The second zone (**2**) is an annulus with an inside diameter of 1.8 mm and an outside diameter of 3.0 mm for the provision of near vision. The third zone (**3**) surrounds the second zone and extends from the outer diameter of the second zone to the edge of the optic for the provision of distance vision.

FIG. 2 represents a cross sectional view of the optic of FIG. **1** and shows the radii of curvature of the zones. The central zone (**1**) has a radius of curvature of about 28.54 mm for the provision of distance vision. The second zone has a radius of curvature of 17.44 mm for the provision of near vision (for about a 3.5 diopter increase over the distance vision power). The third zone (**3**) has a radius of curvature of about 30.02 mm for provision of distance vision. The radius of curvature for the third zone has been adjusted to correct for spherical aberration making light rays passing through the central and third zones coincident in aqueous. The posterior surface of the optic (**4**) has a radius of curvature to provide for additional power so that the total distance vision power of the lens is from about 5 to about 35 diopters and the total near vision power is 7.5–39.5 diopters. Within these ranges, the near vision power is greater than the distance vision power by 2.5–4.5 diopters.

The lenses of the present invention can be used to replace the natural lens of the eye by a skilled clinician. The natural lens is most usually removed from the elderly upon their development of cataracts.

The present invention, having been fully described, is only limited as set forth in the following claims.

We claim:

1. A bifocal intraocular lens made of PMMA, having an optic portion comprising a central zone with a radius of curvature of about 28.54 mm, a second zone surrounding said central zone having a radius of curvature of about 15.70 mm–19.63 mm, and a third zone surrounding said second zone having a radius of curvature of about 30.2 mm.

2. A bifocal intraocular lens having an optic portion comprising a central zone comprising means for the provision of distance vision, having a diameter of about 1.8 mm, a second zone comprising means for the provision of near vision, surrounding the central zone, with an inside diameter of about 1.8 mm and an for the provision of distance vision, which extends outside diameter of about 3.0 mm, and a third zone comprising means from the outer diameter of the second zone to the edge of the optic, the radii of curvature of the third zone differing from that of the central zone to correct for spherical aberration such that images formed by the central and third zones are coincident in aqueous.

3. The lens of claim **2** wherein the second zone has a 2.5 –4.5 diopter power increase over the central and third zones.

4. The lens of claim **2** wherein the radius of curvature of the central zone is about 28.54 mm, the radius of curvature of the second zone is about 15.70 mm–19.63 mm, and the radius of curvature of the third zone is about 30.03 mm.

5. The lens of claim **4** wherein the radius of curvature of the second zone is about 17.44 mm.

6. The lens of claim **2** wherein the optic is biconvex.

7. The lens of claim **2** wherein the optic is comprises of a material selected from the group consisting of soft acrylates, hydrogels, silicones, polycarbonates, and PMMA.

8. The lens of claim **7** wherein the topic comprises PMMA.

9. The lens of claim **7** wherein the topic comprises soft acrylates.

10. A method for providing bifocal vision which comprises, selecting an intraocular lens having an optic portion comprising a central zone comprising means for the provision of distance vision, having a diameter of about 1.8 mm, a second zone comprising means for the provision of near vision, surrounding the central zone, with an inside diameter of about 1.8 mm and an outside diameter at about 3.0 mm, and a third zone comprising means for the provision of distance vision, which extends from the outer diameter of the second zone to the edge of the optic, the radii of curvature of the third zone differing from that of the central zone to correct for spherical aberration such that images formed by the central and third zones are coincident in aqueous, and implanting said lens into the eye of a patient.

11. The method of claim **10** wherein said selecting step includes selecting a lens wherein the second zone has a 2.4–4.5 diopter power increase over the central and third zones.

12. The method of claim **10** wherein said selecting step includes selecting a lens wherein the radius of curvature of the central zone is about 28.54 mm, the radius of curvature of the second zone is about 15.70 mm–19.63 mm, and the radius of curvature of the third zone is about 30.02 mm.

13. The method of claim **12** wherein said selecting step includes selecting a lens wherein the radius of curvature of the second zone is about 17.44 mm.

14. The method of claim **12** wherein said selecting step includes selecting a lens wherein the lens is biconvex.

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