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Nothing new under the sun:

Reading my comments on the green flash on pages 69-70 of the October issue, Jon Darius of the National Museum of Science and Industry, London, called my attention to a 1958 book by D. J. K. O'Connell, S.J., of the Vatican Observatory entitled "The Green Flash and Other Low Sun Phenomena". A bit abashedly I then discovered a complete photocopy of the 200 page volume in our own Optometry Library less than a one minute walk down two floors from my own office on the university campus. Furthermore, an original copy is in the Physics and Astronomy Library only two blocks away.

The book is replete with photographs, 80 in color, of the green rim, the red rim, sunrise, sunset, the setting moon, a setting planet, and experimental variations of photographic techniques. A four-page history of prior observations and research starts with the archaeological evidence and references to the green color of the rising sun in ancient Egyptian writings as indicative of the Egyptians' early familiarity with the green flash so easily seen in the clear skies of Egypt.

The bibliography lists 313 references, excluding about 200 previously listed by other major writers on the topic but not cited here, or which merely mentioned observation of the green flash without helpful details.

H.W H.

The views of Cotton Mather (1663-1728):

The early eighteenth century 410 page manuscript entitled "The Angel of Bethesda" by Cotton Mather seems to be the only large inclusive medical work of the entire American colonial period. Long forgotten in the archives of the American Antiquarian Society, the manuscript was not published until 1972 by the Society itself under Mather's originally proposed title and the editorship of Gordon W. Jones, M.D.

The Reverend Cotton Mather was a brilliant member of a prominent Boston family of several prolific authors. He was an intensely religious and widely read person with a pronounced interest in science, which he helped to popularize in his extensive writings. Though many clergymen of his time served also as physicians, Mather, despite his great medical interest, did not practice any medicine. To the annoyance of some of the physicians, however, he often tried to influence the type of treatment that a doctor gave.

The identity of Bethesda in the title of the manuscript is certainly based on the biblical account (John 5, 2-5) of the angel who from time to time would come down and disturb the water in the pool at the Bethesda building in Jerusalem. The first of the waiting crowds of sick people to enter the disturbed water would then be cured of whatever ailment he or she had.

One of the 66 capsulae or chapters, No. XXXII, is entitled The Oculist. With the permission of the American Antiquarian Society it is totally reproduced here from its 1972 book, as follows:

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CAP. XXXII. The *Oculist*.

considering,  
Diseases of the *Eye*,  
Especially, Blindness.

THE EYE! An Astonishing *Organ*! Can any thing in the World be shown so *Curious*? Our Excellent Ray<sup>1</sup> very truly saith, *Not the Least Curiosity can be added unto it!* What a Just Remark do all Examiners of this *Organ*, as well as our *Derham*,<sup>2</sup> unavoidably and Immediately make upon it, *None less than an Infinite God could contrive and order and provide such a thing!* *Sturmius*<sup>3</sup> could not imagine it possible for any Man who survey'd the *Eye*, to abandon himself unto *Speculative Atheism*. Tis a most æqual Sentence passed by Dr *Cheine*,<sup>4</sup> *He certainly deserves not to Enjoy the Blessings of his Ey-sight, whose Mind is so depraved, as not to acknowledge the Bounty and Wisdome of the Author of his Nature, in the ravishing Structure of this noble Organ.* Tis impossible for me to go any further without Entreating my Reader to join with me, that we may together *Lift up our Eyes* unto our God, with our Acknowledgments. O Thou glorious *Maker of the EYE: With what Astonishments is thy Power and Wisdome and Goodness to be adored! Certainly the GOD that made the Eye must Himself see me, and all the Works of His Hands. Oh! May I always behave myself as having His Eye upon me!*

The Diseases whereto this Tender *Organ* is obnoxious, are, how many! And some of them, how very *Grievous*!

You that have your *Eyes* continued unto you, *Easy*, and *Lively*, be humbly Thankful to the Glorious God, and Thankfully admire His *Mercy* and His *Patience*. And while you deprecate and escape a Diseased Eye, be sure as much to deprecate and avoid the *Moral*

*Diseases of the Eye.* Reckon an *Envious Eye*, to be one that has the *Chrystallin Humour* in it, poisoned. Reckon an *Haughty Eye*, to be a Distorted one. Reckon an *Unchast Eye* to be an Inflamed one. An *Eye* that *Covets* what it sees, reckon that it has *Dirt* thrown into it. An *Aim* at low and base *Ends* in what we do is a *Squinting Eye*. Be studious of a *Pittiful Eye*, that shall *affect your Heart* when Miserable Objects are before you; A *Bountiful Eye*, that shall be on the *Look-out* for Objects which you may do good unto. Employ your *Eye* on the *Book* which will feed it well. Have your *Eye* in the Season of it, on a CHRIST at His *Table*, *Evidently sett forth as crucified before it* there. Above all, make it your Study to reach unto that Attainment; *My Eyes are Ever towards the Lord*.

But if you find any Distempers beginning to fall into your *Eyes*, now *Look Backward*, and with a *Sorrowful Reflection*, mourn for the *Moral Diseases of the Eye*, which you may find yourself to have been guilty of.

Yea, The *Sins* of the *Eye* have been so many, that if our *Eye* were a *Fountain of Tears*, and if *Rivers of Water* should run down our *Eyes*, all were too little to bewayl them. Here the *First Sin* came in, *She SAW*;—And Then!—Alas, the Rest.

How Many, and how Heinous are the Faults, which the *Lust of the Eye* does involve us in! Man, Lett thy *Distempered Eyes* lead thee to the Bewayling of them.

*Lord, How much have my Eyes been the Portholes of Wickedness! How often has Death gott into my Soul by these Windows!*

Man is furnished with *Tears* above any *Animal*. And many Distempers of the *Eyes*, are attended with, and productive of, an Immoderate Flowing of them. The Occasion which our *Sins* have given for our *Weeping Bitterly*, are now to come into Contemplation and Operation with us. It was an Ancient Problem, *Cur Deus oculos Fletus esse Instrumentum voluit?* And the Answer to it, was; *Ut quo Sordes Peccatorum hauriuntur, Eodem per Lacrymas deluantur*. Why must our *Eyes* be a Spring for our *Tears*? The *Sins* which defile us enter there. The *Tears of Repentance*, which are of use in washing away the *Defilements*, are properly to be expected there.

I remember, *Tympius*<sup>5</sup> has an odd Quæstion; *Why the Eyes are the Last Things that are Quickened with us, and the First Things that are decayed?* It is answered, *Ut quo majus est ipsorum periculum. Eo minus sit nocendi Spacium*. It seems, our *Danger* of Hurt from our *Eyes*, being so great, the *Time* for them to do it, must be the Less. My Friend, It will be well, if *Distempers* falling into thy *Eyes*, may

præserve thee, from the Hurt, which those *Inletts of Sin* often bring in to the sinful Children of Men. There was a famous Dispute before King *Alphonsus*,<sup>6</sup> on that Problem, *What was the Best Thing to Sharpen the Sight*. An Humoursome Gentleman maintained it, for *Envy*. To Employ, or to Suffer, such a *Sharp Sight*, Reader, Thou wilt not be ambitious of it.

SPECTACLES!<sup>7</sup>—Mankind is prodigiously Inexcusable in that the Name of the *First Inventor* is entirely Lost: That Statues of *Corinthian Brass*<sup>8</sup> have not Immortalized it.—But indeed, it is fitt that none but the Glorious God, should be considered in the Grant of so vast a Benefit. *Lord!* What would have generally become of us *after Fifty* (and many of us *Before!*) if such *Glasses* of a *Modern Invention* had not Supplied our Necessities? Christian, very often, when thou art going to putt on thy *Spectacles* (or use thy *Hand-glasses*) Lift up thine *Eyes* unto the Glorious God, and lett thy *Heart* form some Acknowledgement of this Importance; *Great God, For this Blessing to the World, I give Thanks unto thee!* Or, O SAVIOUR of Men, *How graciously hast thou favoured us.*

§ Præservatives of the *Eyesight*.

§ Have you never seen a very Common Plant, call'd, *Eye-bright*?<sup>9</sup> It forever sais to the *Eye* that looks upon it; *Make use of me, and I will do thee Good and not Hurt, all the Days of thy Life.*

A plain *Eye-bright* Water constantly or frequently used, will continue to the *Eye-sight* a *Brightness* to be wondered at!

Inwardly, an *Eye-bright* Tea, has Efficacy.

*Manlius* was by a Dream directed unto the Use of *Eybright* for a Defluxion on his *Eyes*, and found a Cure by it.

§ *Ask now the Fowls*<sup>10</sup> of the *Air*, and they shall tell thee. The *Swallows* will carry thee to the *Celandine*.<sup>11</sup> Feeble *Eyes*, will not find a greater Friend, in the whole *Vegetable Kingdom*. Drop the Juice of it into the *Eyes*. It may be diluted with *Fair-Water*.<sup>12</sup>

§ A Lye, made of the, *Vine-branches*, has been by some counted the most noble and potent *Eye-Water* in the World.

§ Take a Little *Coperas*<sup>13</sup> and *Bole-Armenick*<sup>14</sup> finely powdered, and putt it into a Convenient Quantity of Water. (If the Mixture be too sharp for the *Eyes*, increase the Quantity of the Water.) 'Tis a notable *Eye-Water*. It preserves and strengthens the Sight, unto Admiration.

§ Take *Eye-bright*, three Drams; *Mace*,<sup>15</sup> one Dram; and make a Fine Powder.

§ *Montagnana*<sup>16</sup> sais, "I have seen decrepit old Men, almost

blind, which have been restored unto their *Entire Sight*, by the Help of this Powder."

Take half a Spoonful before Meals, in a glass of Sack.

§ *Raw Oysters* Eaten Three or Four Every Morning for some time, have a Strange Vertue, to Restore an Impaired *Eysight*. Some struck *Stone-blind*, with the Lightning have been Strangely Recovered by this Remedy.

§ This Powder has done great Cures, in *Dimness of Sight*, and *Rheums*<sup>17</sup> in the Eyes.

Take Powder of *Eye-bright*, one Ounce: *Fennel-seed*<sup>18</sup> in Powder, half an Ounce: double-refined *Sugar*, two Ounces. These Powders, well sifted, are to be Mixed: (and kept in a Dry Place) are to be taken, as much as may ly on a Shilling, as often as you please.

§ Sir *William Temple*<sup>19</sup> sais, *Betony* often putt up the Nostrils, has præserv'd the *Eyes*, to a great Age.

§ A Syrup of *Betony-Water*, and *Honey*; A Spoonful taken two or three times a day, is a mighty Strengtheners of the *Ey-sight*.

§ Some very Decay'd and Aged *Eyes*, have been Strangely recovered, with *Fennel-Water*. The Internal Use of the *Fennel* at the same time, has added unto the Efficacy of the *Collyrium*.<sup>20</sup>

§ Even *Cataracts* in the Eye have been cured, by the Internal Use of *Millipedes*.

§ Here's a famous *Eye-water*. My Lady *Fitz-hardings*.<sup>21</sup> Take three Spoonfuls of white *Rose Water*; as much *Eye-bright Water*; and as much sifted white *Sugar-Candy*, as may ly upon a Three-pence; and the same Quantity of fine *Aloes* sifted, and putt to the Water, and shake them together. A Few drops of This, at going to Bed.

§ Sometimes, a Distemper of *Sore Eyes*, even with painful and grievous Inflammations, comes upon People; yea, becomes a Little Epidemical; or at least so, that very many together are troubled with it. In this Case, there are several *Poultis's*, which being applied unto the *Eyes*, have had Notable Successes. A Poultis of *White-bread* and *Milk* is one of them. A Poultis of *White-Beans* and *Milk*, is another of them. A Poultis, of a *Rotten Apple* is another. *Blisters* drawn in the Nape of the Neck, have been of Good Consequence.

But the Best Thing that I know, is a Lotion, of *Saccharum Saturni*,<sup>22</sup> three or four Grains, dissolved in an Ounce or two of *Rose-Water*. Add, Powder of *Tutty*,<sup>23</sup> the same Quantity. If the Inflammation be very Violent, add three or four Grains of *Camphire*.

## The Oculist

159

### The Sad Case of Total Blindness.

Very Grievous is the Hand of an *Holy* and *Righteous* God, [O *Sufferer, Still Confess Him so!*] upon those among the Children of Men, who are making these Lamentations, *The Light of my Eyes is gone from me. And, He hath brought me into Darkness and not into Light. And, Lord, Thou hast Laid me in Darkness.*

But, *My Friend in the Dark*, Thou mayst *See Cause* to be Thankful for the Senses that are yett left unto thee. Tis a Remarkable Instance and Effect of the Divine Compassion unto Mankind. Tho many have been born *Blind*, and many have been born *Deaf*, yett it was never known that any one was born *Both* of these. They must soon have perished, if they *had*. Tho' thou canst not *See*, still thou canst Hear, And be Thankful for *That!*

One Cannot well without Astonishment Consider; the Strange Performances of Some that have been *Totally Blind*; Especially, when they have been so from their *Nativity*, or their Early *Infancy*! How Strangely what has been *Defective* in One Sense, has been Supplied in another! The Glorious God in such Things takes Pleasure to convince us, *That HE is the Doer of all the Good that is done by the Children of Men, and can do by whom He Pleases!* *Blind Men* have been famous *Preachers*, yea, famous *Writers*, in the Church of God. But tho' many have *done wondrously* this way, Thou Master *William Jameson*,<sup>24</sup> Professor of History in the Renowned University of *Glasgow*, hast Excelled them all! This wonderful Man, tho' *Born Blind*, what Books has he written, in the *Latin* as well as the *English* Tongue: *Books* which none but one of a vast Reading ever could have written: *Books* which discover him an uncommon Critic, in the *Oriental*, as well as the *Latin* and *Græcian* Languages; and a most intimate Acquaintance with Antiquities; *Books* wherein many Mistakes of our greatest and most *Gigantic* Literators, are with a most nice Erudition refuted and corrected!—Every Page of this my dear Friends late, *Spicilegia Antiquitatum*, gives me an Amazement in the Perusal of it. *Since the World began, it has not been heard that any man that was born blind has performed such things as these!*

Tis probable the Person that has these things Readd unto him, does not propose any such *Attainments* and *Atchievements*. However, *I will show unto him a More Excellent Way!*

My Friend; Thou mayst Come to *See Him who is invisible*, in thy Realizing Apprehensions of a Glorious God.

Thou mayst come to have a deep *Insight* into the *Mystery of CHRIST*, and those Things which the *Angels desire to look into*.

Thou mayst come to have a *True Sight* of thy *Own Heart*, and notably discover the *Mystery of Iniquity* working there.

Thou mayst come to see, the *Evidence of Things not seen*, in thy *Faith* of what is in the *Invisible World*, and of the *Things which are not seen and are Eternal*.

Thine *Eyes* may be so *opened*, as to see *Wondrous Things* in the Law of thy God.

If thou dost arrive to such a *Sight* as this, thou mayst Esteem it an *Abundant Compensation* for thy Want of that *Bodily Sight*, which might have been abused, if thou hadst Enjoyed it, so as to carry thee away from the *Best of Objects*.

*My Blind Friend*, what are the *Best Objects* which thou hast lost the *Sight* of? The *Old Persian Physician* who commonly is quoted as an *Arabian*, under the Name of *Razis*,<sup>25</sup> (tho' his true Name was *Mehemmed*, Son of *Zekeriah*) when he was grown *Blind* with Old Age, would not accept the Operation of a *Quack*, who pretended and offered a Cure for him; And when his Friends urged it, he still refused it, and gave this Reason for his Refusal; *I have Seen the World so long, that I desire to see no more of it!* O *Christian*, Lett not a *Mahometan* go beyond thee, in *Mortification*. *Cicero* reports it, even of his Brother-pagan, *Democritus*: That he comforted himself, under the Loss of his *Eysight*, With this; That if he was not able to distinguish *Black* from *White*, yett he could readily Distinguish *Good* from *Evil*, *Right* from *Wrong*. O *Christian*, Thou hast yett *Greater Consolations*.

And thou mayst comfortably wait for that *Resurrection from the Dead*, wherein thou shalt see for thyself, and thine *Eyes behold*, thy *Living REDEEMER*.

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The superscript numbers in the reproduced text refer to Dr. Jones's editorial notes in another part of the book not included here. The superscript 7 at SPECTACLES, for example, refers to the editor's comments on the prior history of spectacles. The superscript 8 in the same paragraph refers to an explanation that Corinthian Brass was an alloy of gold, silver, and copper.

Mather's comment on spectacles for those "of us after fifty" suggests that he was over 50 at the time he wrote the paragraph. This would date the authorship between 1713 and 1728.

The address of the American Antiquarian Society, incidentally, is 185 Salisbury Street, Worcester, Massachusetts, 01609-1634, U.S.A. The book is still in print and is available from the University Press of Virginia. The original manuscript resides in the Society's Department of Manuscripts. Membership in the Society is by election, but all qualified readers have access to the Society's collections whether or not they are members.

#### Southall effects preserved:

The following paragraphs of a letter of May 1, 1988, describe the permanent disposition of the remaining files and shelves of office material left by the late Professor James P. C. Southall. The letter is from Mrs. Abbot (Roberta) Southall, daughter-in-law of the professor, to Mr. Michael Plunkett, Curator of Manuscripts, Albermar Library, University of Virginia, Charlottesville, Virginia.

When my son, Thomas Southall, who is Curator of Photographs at the Amon Carter Museum in Fort Worth, Texas, was with me last week, he talked by telephone with Robert Hull regarding the disposition of papers left by his grandfather, James P. C. Southall, who graduated from the University of Virginia in 1891 with a B.A. degree (M.A. 1893) and had a distinguished career in physics, retiring from Columbia University in 1940 as Professor Emeritus. Mr. Hull said we should address all correspondence to you.

I am delighted to know that the University will serve as repository for these papers. My children and I would impose no restrictions on their use other than to request that we retain disposal rights.

Copies of correspondence with Professor Henry W. Hofstetter, Rudy Professor Emeritus of Optometry at Indiana University, are enclosed, including his letter to Mrs. Maria Dablemont at the International Library Archives and Museum of Optometry, Inc., in St. Louis. My son talked by phone with Mrs. Dablemont, who is interested in the material. We would like Mrs. Dablemont



and other members of the International Library to have full access to these materials and to receive either the originals or copies of all scientific-related materials. Mrs. Dablemont is retiring from the Library on June 3. After that, the person to contact will be Linda Draper.

I also enclose a rough inventory of the materials at hand and, in lieu of biographical notes on Professor Southall, copy of an article prepared by Professor Hofstetter in 1986 for the Newsletter of the Optometric Historical Society.

As my son probably told Mr. Hull, I am in the process of selling my house, which is why this matter has come to a head at this time. If current negotiations go through, I shall be moving early in July and shall then arrange for the movers to pack and ship the materials to you. Included with the papers will be books which Professor Southall either wrote himself or owned and annotated. Of course if you can and wish to arrange for packing and shipment at an earlier date, that would be fine.

I think this arrangement is exactly as Professor Southall would have wanted it and I thank you so much for making it possible.

#### "History of Australian optometry":

This must surely be the optometric history book of the year, if not of all time. To me it comes as something of a surprise even though I had met author Charles Wright eighteen years ago and learned then that he was an ardent buff of optometric history. I also learned then that he was a very scientific and scholarly optometrist, a truly artistic and productive craftsman, an expressive and perceptive admirer of the accomplishments of his fellows, one who assumed fully his perennial responsibilities as a public citizen and professional councilor, and at the same time a person who in his personal modesty could delight his colleagues with his banquet-speech humor. How could he also have the inclination and time to write this outstanding tome of 245 large double-column pages plus xxiv prefatory pages, including 46 photographs mostly of early groups (with every individual identified!)? "Pure and persistent devotion" is his wife Dorothy's explanation.

Wrapped in a jacket that colorfully illustrates a turn-of-the-century optometrist in action, the book could well grace any library or reception room as a conversation piece as well as entice one to open it. Upon opening it one finds that the reading of virtually any paragraph at random is as fascinating as a letter

from home. The author, Charles Wright, writes in first person and about people whose efforts and doings bore upon the events and trends of Australian optometry, especially during the last 100 years. His discourse comfortably utilizes his direct personal acquaintance with so many of the mentioned historical personnel as well as conversations with older optometrists, including his own father, who could be induced to reminisce about their predecessors. Further, through the accumulated correspondence in his own and his father's files and the archives of the National Library of the Australian Optometrical Association he was able to document the chronology and tone of each reported skirmish, maneuver, progressive movement, or setback. Though certainly biased by the fact that he himself is an optometrist and that his resources were mainly optometric, the author clearly exercises intense objectivity in his perceptions and even alerts his readers to comments that may be a bit partisan.

Except for parts of the first two of 27 chapters this is not a history book that merely rewrites other history books. These two brief chapters are entitled "Our Forerunners" and "Forerunners of Australian Ophthalmology" and deal primarily with a few significant events in the United Kingdom, Australians' motherland, prior to the turn of this century.

Missing is any discussion of ophthalmic aspects of life during the first of the two centuries following the European settlement of Australia in 1788. It seems likely that among the thousands of assigned personnel, settlers, and convicts of that era there were at least a few opticians, spectaclemakers, spectacle merchants, oculists, or the like who plied their ophthalmic trade in a fashion that may have had some, though probably negligible, impact on later optometric developments. Such history, if recorded anywhere, would of course not be among the resources utilized by Wright.

The following few selected chapter titles provide a clue to the depth and breadth of coverage: Dispensing; Forming Professional Associations; Itinerant and Group Practice; The First Conference; Journals; One Man Secretariat; National Health Victory; Education for Qualification; Research Institutes. The fact that the details are totally Australian does not detract from the book's broad optometric significance. The scenario and milieu are so analogous to those of other optometric nationalities as to suggest that "only the names of the players are different".

To mark Australia's Bicentenary the book was published in 1988 by the Australian Optometrical Association, 204 Drummond Street, Carlton, Victoria 3053, Australia, Telephone (03) 663-6833. The price of the book is 55 Australian dollars, post paid.

H.W H.

### Creator of memorial jewels:

Charles Wright, author of "History of Australian Optometry", exercises his talented craftsmanship not only in restoration of vintage Rolls-Royce motor cars but also in the design and creation of jewels of office and honor. Among them are personal bronze jewels for past national presidents of the Australian Optometrical Association which are worn regularly at formal optometric functions. Other specially designed pieces of art include the Praeclarum H. Barry Collin Research Medal, a bronze portrait head of Professor Barry Cole, and a Jewel of Honour for Professor Gerald Westheimer. Replicas of these and other memorializing creations by Charles Wright are on display in the "Hall of Fame" in the Wright Library of the Australian Optometrical Association.

### Kaleidoscopic facts and fantasies:

Perhaps you think of a kaleidoscope as a simple optical toy which Brewster invented and patented unprofitably in 1816 and which soon acquired explosive popularity only to become merely a child's novelty with the subsequent advent of stereoscopes, movies, television, and other visual attractions. Or perhaps it just reminds you of a graphic ray-tracing exercise in a geometric optics course. If so, you should get the colorful 144 page paperback book "Through the Kaleidoscope" by Cozy Baker, published in 1985 by Beechcliff Books, 100 Severn Ave., Suite 605, Annapolis, Maryland 21403, U.S.A. (\$16.50).

It includes not only a touching biographical commentary on Sir David Brewster, together with his patent and excerpts of later (1873-1874) patents by Charles G. Bush, but also tidbits about numerous other designers, makers, and adapters who have created, and are still creating, kaleidoscopic modifications for fun and sales. An insert invites the reader to join The Brewster Society for "designers, collectors, and lovers of kaleidoscopes" at a \$25.00 annual subscription rate. The address is the same as that of the publisher.

Today's kaleidoscopes vary in price from \$5 to over \$5,000, and dimensions range from pocket penlight size to an instrument of 500 lbs. over 6 ft. high and 10 ft. long. The book includes dozens of illustrations, a bibliography, an index, addresses of more than 50 shops and galleries, a technical glossary, and numerous fantasies described by ardent viewers.

In his patent Brewster stated that the kaleidoscope would be useful "for exhibiting and treating beautiful forms and patterns, of great use in all the ornamental arts". Indeed!

Ultraviolet protection optics:

An historical review of attempts to determine what radiant energy is needed or harmful is a major part of an article entitled "Is Ultraviolet Light Really Harmful;" in the June 1988 issue of Eyecare Business, Vol. 3, No. 6, pp. 54 & 56-57. The author is John M. Young, the head of an engineering consulting firm specializing in ophthalmics. The article leads to no firm conclusion, but it does make evident that the interpretation of ocular radiant effects also has a growing history.

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