

The Low Vision Timeline: An Interactive History

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This paper presents an edited, timeline chronology of the important developments in the field of low vision. The history of any discipline is inherently worth recording, although we recognize that what is history to one person may be trivia to another. To help preserve the history of low vision we have developed a timeline of events we consider to be significant in the development of the field. Since our viewpoint may well be limited in scope, or at odds with the views of others, we have chosen to present the timeline as an interactive document. The timeline is brought to each International Conference on Low Vision where an opportunity is provided for attendees to edit the timeline. The current timeline was edited following the Vision 2002 conference in Sweden and again following the Vision 2005 Conference in London. It has been further edited following the Vision 2008 conference held in Montreal, Canada. We will continue this process at the 2011 conference in Kuala Lumpur, Malaysia. In the interim we offer the timeline as an open access document in the hopes that it will provide historical information and an expanded opportunity for input. Those seeking to add information or contest the inclusion of items may do so by emailing detailed comments to the corresponding authors (addresses are supplied at the end of this document). Please include source documentation or URL addresses where appropriate. Thank you. We hope you find this document informative and thought provoking.

Before Common Era

c 6000 BCE

Earliest known manufactured mirrors (polished obsidian glass) from the Anatolian Civilization (Turkey)

c 3000-2800 BCE

Earliest evidence of a cosmetic, artificial eye found near “The Burnt City” in the Sistan Desert (Iran)

c 2575-2551 BCE

Earliest known front and rear surface polished rock crystal lenses (found in Egyptian statues)

Common Era

c 325-1453

Byzantine Empire organized ‘state’ aid for the blind including specially trained guides

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1260

King Louis IX of France established the Hospice des XV-XX in Paris to shelter blind people, most blinded by acts of war during the Crusades. They were allowed to beg in Paris; all other beggars were expelled.

c 1270

Marco Polo discovers elderly Chinese people using magnifying glasses for reading

1637

First magnifying aid for visual defects attributed to René Descartes in 1637 “who described a solid glass cone with a plano front surface and a concave back surface.”

1745

Jacques Daviel, from Marseille, removes the lens from dozens of adult patients with cataracts, most with success.

1760

Charles Bonnet describes Charles Bonnet Syndrome

1781

First charity specifically benefiting the partially sighted when the York Emanuel Charity (England) was established granting annuities to ministers, their wives, widows, or children, blind, nearly blind, or “idiotic”

1784

Valentin Haüy opens first school for the blind in Paris

1791

School for the blind (i.e. serving only blind children) opens in Liverpool, England

1805

The Norwich Asylum and School for the Blind was founded by Mr. Thomas Tawell a wealthy iron merchant. Mr. Tawell, who had been blind, partially recovered his sight and opened the school in Norwich, England

1808

In Amsterdam the School for the Blind (currently Royal Visio) was founded and funded by the Freemasonry in Amsterdam.

1829

Louis Braille publishes his invention of embossed dot code (Braille)

1843

German ophthalmologist Heinrich Kuechler argued for need to standardize vision tests and produced three charts to avoid memorization

1850

Amsterdam separately counts the number of inhabitants with impaired vision.

1851

Hermann von Helmholtz invents the ophthalmoscope

1854

Eduard von Jaeger published a set of reading samples to document functional vision noted in size as Jaeger numbers

1862

Herman Snellen (1834–1908), publishes his “Optotypes”; the first visual acuity chart

1885

The Spectacle Mission Society founded in London, England by Dr. Edward Waring with the mission of providing free spectacles for the poor and aged

1887

Anne Sullivan, a partially sighted graduate of Perkins Institute for the Blind, begins teaching Helen Keller

1889

Edmund Landolt proposed the Landolt “C” a symbol that has only one element of detail and varies in its orientation

1892

Special school for children with impaired vision was founded in Amsterdam

1893

Elementary Education (Blind and Deaf Children) Act by British Parliament defined “blind” as “too blind to read the ordinary school books used by children”

1897

Charles Prentice invents the typoscope

1907

First issue of *Outlook for the Blind* published [later the *New Outlook for the Blind* and, now *Journal of Visual Impairment and Blindness*]

1908

London County Council (U.K.) initiates the Myope School for children with low vision

National Society to Prevent Blindness (U.S.A.) founded

Moritz von Rohr, employed by Carl Zeiss, designed telescopic lens to correct high myopia

1909

The Blind Social Aid and Literary Union founded in London to “facilitate the employment of the blind and partially blind by giving publicity to their capacity and needs, and for the encouragement of social intercourse”

1910

M. Von Rodgin publishes paper on telescopic and microscopic spectacles

1913

Edward Allen, Director of Perkins Institute, opens first U.S. low vision class for children;

Robert Irwin advocated teaching children in “conservation of vision” classes in Cleveland, Ohio

1914

C.H. Usher publishes on the inheritance of retinitis pigmentosa

The Colne Society (Germany) founded a School Clinic where 588 children with “defective sight” were taught

1915

Concept of sight-saving, suggesting vision may be lost if used by low vision people developed by the National Society for the Prevention of Blindness

1916

Olin Burritt, president of the American Association of Instructors of the Blind attacks use of aprons and high collars to prevent low vision children from using their eyes

Clear Type Publishing Company, founded by Robert Irwin, produce series of books in 36 point font.

1917

Rose Anna Leir, of Bristol, England, bequeathed a sum of money, the income of which was to be given primarily to “poor soldiers, native of Bristol, blinded or partially blinded during the “Great War 1914-18” (endowment disbanded in 1930 as there “were no suitable cases”)

1922

P. Baunshwig reports on using prisms to aid cases of hemianopsia

1924

AFB begins supplying telescopic lenses and referring to eye-care practitioners

1928

The Guild of Blind Gardeners (founded in 1900 in London) changes its name to the Guild for Promoting Gardening amongst the Blind and Partially Blind

1930

Ophthalmologists report use of vision does not further harm vision of people who are partially sighted

First publication of “Sight Saving Review”

Dr. H.J. Howard notes that to the “estimate of six million blind in the world should be added the much larger group with vision so seriously defective as to be handicapped vocationally, and threatened with ultimate loss of sight”

1932

Marius von Senden publishes *Space and Sight*, attempts and failure of recovery of vision in patients who had cataracts removed when blindness occurred early in life. “I see something but I don’t know what.”

1934

Report of the Committee of Inquiry into problems relating to partially-sighted children, London, U.K.

American Medical Association defines “legal blindness”

1935

William Feinbloom publishes “Introduction to the principles and practice of sub-normal vision correction” in *Journal of the American Optometric Association*

1936

Randolph Shepard Act passed in the United States enabling individuals classified as legally blind to operate vending facilities on federal property

1938

William Feinbloom reports on 500 low vision cases in *the American Journal of Optometry and Archives of the American Academy of Optometry*

Fredericka Bertram initiates first itinerant program for partially seeing children in U.S.

1940

Manual on the Use of the Standard Classification of Causes of Blindness published by the American Foundation for the Blind and the National Society for the Prevention of Blindness

1942

American Optometric Association Department of Visual Adaptation and Rehabilitation opens

Alfred Kestenbaum, M.D. develops the microlens First glaucoma detection program in U.S. by National Society to Prevent Blindness

1947

American Printing House for the Blind begins regular publication of large print books

1948

Veterans Administration opens blind rehabilitation center at Hines, Illinois

1949

“More people are blinded by definition than by any other cause.” statement by Lloyd Greenwood, a totally blind veteran and first executive director of the Blinded Veterans Association in *BVA Bulletin*

1952

International Council for Education of the Visually Handicapped (now International Council for Education of the Visually Impaired; ICEVI) formed

1953

First low vision clinics at the Industrial Home for the Blind (IHB; now Helen Keller Services for the Blind) and New York Association for the Blind (nicknamed “The Lighthouse”, now Lighthouse International) open. The Lighthouse service was under the clinical direction of Gerald Fonda, M.D. while the service at IHB was under George Hellinger, O.D.

1954

First exhibition of low vision aids organized for International Congress of Ophthalmologists

1955

Berthold Lowenfeld publishes on psychological problems of low vision children.

First use in a publication of the term “low vision” by Gerald Fonda, M.D. (Optical Journal and Review of Optometry); based upon discussions between Eleanor Faye, M.D. and Fonda.

1956

Louise Sloan, Ph.D. and A. Habel publish method for rating and prescribing low vision aids.

Subnormal Vision Clinic established at the Maryland Workshop for the Blind.

1957

Industrial Home for the Blind reports on its optical aids service. This report defined the basic model for what has become the standard low vision service

Richard Hoover, M.D. presents functional definitions of blindness.

C. Atkinson reports in *Lancet* on what was probably the first newspaper for the partially sighted.

Optical Aids Clinics win U.S. government approval as component of vocational rehabilitation program.

1958

American Optometric Association establishes Committee on Vision Care of the Aging

1959

American Optometric Association establishes Committee on Aid to the Partially Sighted

Howard Lewis, O.D. reports on survey of institutions serving the “partially blind”

Louise Sloan first introduces standardized visual acuity charts with M notation

1960

First graduate of Orientation and Mobility (peripatology) program at Boston College

William Ludlam, O.D. reports on the contact lens telescope

1961

Gerald Fonda evaluates telescopic spectacles for mobility

Subnormal Vision Aids recognized as subsection of Section on Contact Lenses (American Academy of Optometry)

1962

First use of preferential looking techniques to assess visual acuity in infants by Fantz, Ordy, & Udelf

1963

Gregory and Wallace report on a rare case of sight restoration following prolonged vision loss

1964

Natalie Barraga publishes study on increased visual behavior of children and advocates sight utilization rather than sight saving

First low vision clinic opened at Juntendo University in Tokyo, Japan.

1965

Gerald Fonda publishes *Management of the Patient with Subnormal Vision*

1966

Conference on Aid to the Visually Limited held in the U.S.

1967

American Foundation for the Blind sponsors “Geriatric Blindness Conference”

1968

Organization for Social and Technical Information report notes overwhelming need for ophthalmic and optometric cooperation in vision rehabilitation

1969

Samuel Genensky, Ph.D. and colleagues at Rand Corporation (Santa Monica, California) report on their development of closed circuit television.

1970

Barraga’s *Visual Efficiency Scale and Teacher’s Guide* published by APH

Loyal Apple and Marianne May publish paper entitled *Distance Vision and Perceptual Training*

Office of Education sponsors first national conference on low vision and mobility

National Accreditation Council publishes standards for production of reading materials

Robert Korb publishes on preparing the visually handicapped driver

Eleanor Faye, M.D. publishes *The Low Vision Patient: Clinical Experience with Adults and Children*

The Fundamental Law of the Disabled approved in Japan.

1971

White House Conference on Aging noted the need for expanded use of low vision optical aids (among other needs)

1972

Low Vision Diplomate program established within American Academy of Optometry first diplomate awarded in 1973

Western Michigan University (U.S.A.) offers first required low vision course as part of orientation & mobility program

Low Vision Clinical Society founded in United States

Survey by National Society for the Prevention of Blindness identified 114 low vision facilities

1973

Rehabilitation Services Administration sponsors low vision conference: “Services of the Decade of the 70s”

Elliot Berson, M.D. and colleagues introduce the “Pocketscope” night vision aid

Bertold Lowenfeld publishes *The Visually Handicapped Child in School*

First itinerant service for children “integrated” into mainstream schools in Australia

1974

Audrey Smith, a mobility instructor, demonstrates value of vision stimulation for mobility instruction with children

John Gill, Ph.D. publishes first register of research on visual impairment

American Foundation for the Blind forms Ad Hoc Advisory Committee on Low Vision Services to outline components of viable low vision services

Ray Kurzweil founds Kurzweil Computer Products leading to the development of omni-font character recognition and (in 1976) the first production reading machine for the blind (purchased by musician Stevie Wonder)

1975

Low Vision Division formed within the American Association of Workers for the Blind

American Academy of Ophthalmology forms Low Vision Section

Edwin Mehr, O.D. and Alan Freid, O.D. publish *Low Vision Care*

Krister Inde and Örjan Bäckman publish *Visual Training with Optical Aids*

Eleanor Faye, M.D. and Clare Hood publish *Clinical Low Vision*

Veterans Administration sponsors Low Vision Mobility Conference at Kalamazoo, Michigan

American Association of Workers for the Blind, American Foundation for the Blind, & Blinded Veterans Association propose U.S. House of Representatives coverage of low vision services in a national health insurance program or improvement of Medicare. Proposal not enacted

1976

Francis Koestler publishes *The Unseen Minority*
Judith Holcomb, O.D. and Gregory Goodrich, Ph.D. demonstrate eccentric viewing techniques can be learned by patients with ARM

Health and Safety Associates sponsor National Conference on Telescopic Devices and Driving

Ian Bailey, O.D. and Jan Lovie, O.D. propose new design standard (logMAR) for visual acuity charts

American Medical Association and American Association of Motor Vehicle Administrators sponsor conference on telescopic devices and driving

Large print calculators become available

American Academy of Ophthalmology establishes ad hoc low vision committee

U.S. legislation provides funding to establish training programs for low vision personnel

First low vision therapist degree training program, taught by Örjan Bäckman, opens at Stockholm Institute of Education, Sweden (became Masters Degree level in 2004)

1977

The American Foundation for the Blind conducts and publishes a survey of low vision clinics

Low Vision Section established as a separate section within American Academy of Optometry

Rehabilitation Services Administration sponsors "Sensory Deficits and Aids Workshop"

National Eye Institute (U.S.A.) sponsors conference on use of low vision

1978

Low Vision Conference sponsored by University of Uppsalla, Sweden

Low Vision Section established within American Academy of Ophthalmology

Geoffrey Arden proposes contrast sensitivity testing in cases of visual disturbance

1979

Michael Tobin, Ph.D. and colleagues publish *Look and Think* and teachers handbook in England

Council of Citizens with Low Vision chartered, Grand Rapids, MI, Samuel Genensky, president (now Council of Citizens with Low Vision International)

1980

First "Low Vision Ahead" Conference sponsored by Association for the Blind, Melbourne, Australia

Robert Dee Quillman writes the *Low Vision Training Manual*, published by Western Michigan Univ.

National Society to Prevent Blindness publishes *Vision Problems in the U.S.*

Michael Marmor, M.D. and colleagues develop the Wide Angle Mobility Light (WAML)

Framingham Eye Study Monograph published

1981

World Health Organization sponsors "The Use of Residual Vision by Visually Disabled Persons"

National Center for Health Statistics publish report *Prevalence of Selected Impairments: U.S.*

National Accreditation Council establishes standards for low vision services

In a letter to the New England Journal of Medicine DeWitt Stetten, M.D. reports his difficulty, after developing age-related maculopathy, in finding low vision services even at the National Eye Institute

1982

George Timberlake, Ph.D. and colleagues report on retinal localization of scotoma by Scanning Laser Ophthalmoscopy (SLO)

The Electrical Council and the Partially Sighted Society of London report on lighting and low vision

Olga Overbury, Ph.D. and colleagues report on the psychodynamics of low vision

James Maron, O.D. and Ian Bailey, O.D. report on visual factors and mobility performance

Sally Mangold, Ed.D. publishes teacher's guide to education of visually impaired to children

Jan Lovie-Kitchin, O.D. and colleagues in Australia publish *Senile Macular Degeneration*

North American Conference on Visually Handicapped Infants and Preschool Children held

1983

Rehabilitation Optometry Journal (Journal of Vision Rehabilitation) founded by Randall Jose, O.D. & he edits *Understanding Low Vision* published by AFB

Anne Corn, Ed.D. publishes three dimensional model of visual functioning

Vision Research: A National Plan: 1983-87 by the National Eye Institute, includes Panel on Low Vision

United States Commission on Civil Rights publishes "Attitudes toward the handicapped"

Steven Whittaker, O.D., Gale Watson and colleagues develop the Pepper Test of reading skills

Low Vision Masters degree in vision rehabilitation first offered by Pennsylvania College of Optometry

1984

Ian Bailey, O.D. and Amanda Hall, Ph.D. publish the U. C. Berkeley preferential looking test for infants.

Guidelines for the Production of Materials in Large Type (L. Gardner, Ed.D. & A. Corn, Ed.D.) published by the Nat. Soc. for the Prevention of Blindness

John Gill, Ph.D. publishes first *International Survey of Aids for the Visually Disabled*

Arthur Ginsberg, Ph.D. publishes first practical, clinical test of contrast sensitivity function

Microcomputers become widely used aids for people who are visually impaired

Dennis Kelleher, Ed.D. publishes a personal view of driving with bioptics

David Reagan, Ph.D. and colleagues publish low contrast letter acuity chart

Royal National Institute for the Blind publishes demographics of visually disabled population in U.K.

Laurence Gardner and Anne Corn's position paper, *Low Vision: Topics of Concern*, is adopted by the Division on Visual Handicaps of the Council for Exceptional Children

1985

Corinne Kirchner publishes the resource guide *Data on Blindness and Visual Impairment in the U.S.*

Gordon Legge, Ph.D. publishes first two in a series of articles demonstrating tractability of studying low vision reading with rigorous psychophysical methods

National Society to Prevent Blindness survey showing that blindness and blindness prevention are the third most important health concern of Americans

1986

Asilomar International Low Vision Conference in California sponsored by AFB

Low Vision Conference held in Waterloo, Canada (University of Waterloo)

Alfred Rosenbloom publishes *Vision and Aging: General and Clinical Perspectives*

Geraldine T. Scholl's *Foundations of Education for Blind and Visually Handicapped Children and Youth* is published

1987

Low Vision and Aging Conference, Washington, D.C.

1988

International Low Vision Conference, Beverly Hills, California, sponsored by AFB and Department of Veterans Affairs

First publication of *Integracion* a journal on visual impairment and blindness by O.N.C.E., in Madrid.

Low Vision Research Group (LVRG) forms

1989

LOVNET (Low-Vision Research Network) founded by G.E. Legge and D.H. Parish

1990

Americans with Disabilities Act signed into law
AIDS and Low Vision Convenience, San Francisco, California sponsored by AFB

International Conference, "Low Vision Ahead II" sponsored by Association for the Blind, Melbourne

1991

World Health Organization sponsors conference on "Prevention of Blindness and Remediation of Low Vision in Children", in Gambia

Paul Freeman, O.D. and Randy Jose, O.D. publish *The Art and Practice of Low Vision*

Low Vision Diplomate Program for medical doctors established, National Rehabilitation Center for the Disabled in Tokorozawa, Japan.

1992

Division 7, AER, publishes Body of Knowledge, Standards of Practice, & Ethics for Low Vision Therapists

The World Health Organization holds a Consultation on the Management of Low Vision in Children in Bangkok, Thailand

1993

The International Low Vision Conference held in Groningen, The Netherlands, sponsored by Visio and the University of Groningen

First planning meeting held to form International Society for Low-vision Research and Rehabilitation (ISLRR)

The American Academy of Ophthalmology establishes the Shared Interest Group for Low Vision

1994

National Eye Institute Low Vision Panel notes "legal blindness" is "an old-fashioned concept, rooted in the premise that vision much below normal is useless"

Visionics dispenses head-mounted video low vision enhancement system (LVES) developed by Robert Massof, Ph.D.

Pan American Health Organization sponsor "Low Vision Regional Plan for Latin America" in Bogotá

MNREAD reading acuity chart published by Lighthouse International

1995

Joint Commission on Allied Health Personnel in Ophthalmology publish criteria for subspecialty "Assisting in Low Vision"

Classification of the degree of disability reformed in Japan adding degree of visual field loss to degree of visual acuity loss.

1996

International Society for Low-vision Research and Rehabilitation (ISLRR) officially incorporated in Amsterdam

First publication of *Journal of Videology* (later to become *Visual Impairment Research*)

Vision 96, (ISLRR) International Low Vision Conference sponsored by O.N.C.E. held in Madrid, Spain

The World Health Organization holds a Consultation on the Management of Low Vision in the Elderly, Madrid, Spain

1997

AER adopts low vision certification examination & standards; 1st Low Vision Therapists certified

First Low Vision Education Day seminar held in conjunction with American Academy of Ophthalmology

Leonardo da Vinci Programme: Education and Training in Low Vision for Professionals.

Funded by the Social Programme of the European Union to develop a program of training and education for professionals who work in the field of low vision.

Eurosight 98, European (ISLRR) conference: Varese, Italy

1999

Vision 99 (ISLRR) International Low Vision Conference, sponsored by Lighthouse International, New York National Eye Institute's (U.S.A.) National Eye Health Education Program on Low Vision launched.

Vision 2020 Initiative: The Right to Sight announced by the World Health Organization and the International Agency for the Prevention of Blindness

First publication of *Visual Impairment Research* (VIR) official journal for the International Society for Low-vision Research and Rehabilitation

2000

ISLRR Eurosight-2000—The 4th European Low Vision Conference, Veldhoven, the Netherlands

Academy for Certification of Vision Rehabilitation and Education Professionals (ACVREP) is established

2001

BiOptic Driving Network established www.biopticdriving.org

31 States issue driver licenses to select low vision individuals who use BiOptic telescopic lens systems. Collectively over 4,000 such drivers in the United States

Massof and Lidoff publish *Issues in Low Vision Rehabilitation: Service Delivery, Policy, and Funding*

The Leonardo da Vinci Programme: Education and Training in Low Vision for Professionals with a group of low vision experts from five European nations develop a programme of training and education for professionals who work in the field of low vision.

2002

Vision 2002 (ISLRR) International Low Vision Conference, sponsored by Sahlgrenska University Hospital & Goteborg University: Gothenburg, Sweden

ISLRR Eurosight-2002, Stresa, Italy

Medicare publishes Program Memorandum defining visual rehabilitation services that cannot automatically be denied coverage by local carriers

First experimental electronic retinal implant prosthesis surgically implanted by Mark Humayun, MD at Johns Hopkins

2003

Vision Connection.org internet portal launched jointly by Lighthouse International and the Royal National Institute of the Blind

Michael May, blind for 40 years regains vision, after corneal and limbal stem cell transplant (as chronicled in the book *Crashing Through* by Robert Kurson)

Low Vision Resource Center, Hong Kong established to distribute low cost devices to developing countries

2004

Biopic Driving Conference, London

International Low Vision Symposium, Hong Kong Oslo Workshop "Toward a Reduction in the Global Impact of Low Vision", Norway, sponsored by Lighthouse International and ISLRR

Janet Sunness and colleagues report on the use of functional magnetic resonance imaging (fMRI) to study reorganization of visual cortex in a person with macular degeneration

2005

Vision 2005 (ISLRR) International Low Vision Conference, sponsored by Royal National Institute of the Blind, London

Oslo Workshop Document (ISLRR) endorsed by key organizations including World Blind Union, Lions

World Services for the Blind, International Council for Education of the Visually Impaired

2006

Center for Medicare and Medicaid Services initiates low vision demonstration project in New York City (6 Burroughs), Atlanta, Kansas, New Hampshire, North Carolina, and Washington State

World Sight Day theme of Low Vision

Global Campaign on Education for All Children with Visual Impairment begun (http://www.icevi.org/efa/efa_world_conference.html)

The World Health Organization (WHO) estimates there are 153 million people worldwide with uncorrected refractive errors. When added to the estimated 161 million people with other forms of impaired vision, the total world population of people with impaired vision is estimated to be 314 million.

2008

Vision 2008 (ISLRR) International Low Vision Conference, Montreal, sponsored by École d'Optométrie, Université de Montréal and Institut Nazareth & Louis-Braille

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