

October, 2000

CURRICULUM VITAE

Richard W. Bowen
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EDUCATION

Ph.D. Columbia University, 1975
(Psychology)
M.A. Columbia University, 1970
(Psychology)
B.A. Case Western Reserve University, 1968
(Psychology)

POSITIONS

Professor of Psychology,
Loyola University Chicago, 1985 to present.

Perception Graduate Program Director, 1996 to 2000.

Adjunct Professor in the Parmly Hearing Institute,
Loyola University Chicago, 1991 to present.

Assistant and Associate Professor of Psychology,
Loyola University Chicago, 1975 to 1985.

Research Associate, Department of Psychology,
Columbia University, Fall, 1980.

Visiting Scholar, Department of Ophthalmology and Visual
Sciences, Pritzker School of Medicine,
The University of Chicago, 1977 to 1992.

RESEARCH AREAS

Perceptual processing in dyslexia
Human vision and visual perception.
Graphic literacy and analysis

PROFESSIONAL ACTIVITIES

Member, Visual Sciences B Study Section, National Institutes of Health, Bethesda, Maryland. Term: July 1, 1983 - June 30, 1987.

Guest Reviewer for Visual Sciences B Study Section, National Institutes of Health, Bethesda, Maryland, October, 1982, March and June, 1983.

Reviewer for the Sensory Systems Program, National Science Foundation.

Reviewer for the U.S. Army Research Office, Department of the Army.

Reviewer for the following research journals :

Color Research and Application	Journal of the Optical Society of America A
Clinical Vision Sciences	Perception
Investigative Ophthalmology and Visual Science	Perception and Psychophysics
Journal of Experimental Psychology: Human Perception and Performance	Spatial Vision
	Vision Research

Member of the Association for Research In Vision and Ophthalmology, the Optical Society of America and the Psychonomic Society.

PUBLICATIONS

BOOK

Bowen, R. W. Graph It! How to Make, Read, and Interpret Graphs. Englewood Cliffs, N. J.: Prentice Hall, Inc., 1992.

RESEARCH PUBLICATIONS

1. **Bowen, R. W.**, Pola, J. and Matin, L. Visual persistence: Effects of flash luminance, duration and energy. Vision Research 14, 295-303, 1974.
2. Matin, L. and **Bowen, R. W.** Measuring the duration of perception. Perception and Psychophysics 20, 66-76, 1976.
3. **Bowen, R. W.**, Pokorny, J. and Cacciato, D. Metacontrast masking depends on luminance transients. Vision Research 17, 971-975, 1977.

RESEARCH PUBLICATIONS (continued)

4. **Bowen, R. W.**, Lindsey, D. T. and Smith, V. C. Chromatic two-pulse resolution with and without luminance transients. *Journal of the Optical Society of America* 65, 1501-1507, 1977.
5. **Bowen, R. W.** and Pokorny, J. Target edge sharpness and temporal brightness enhancement. *Vision Research* 18, 1691-1695, 1978.
6. Pokorny, J., **Bowen, R. W.**, Lindsey, D. T. and Smith, V.C. Duration thresholds for chromatic stimuli. *Journal of the Optical Society of America* 69, 103-106, 1979.
7. **Bowen, R. W.** and Nissen, M. J. Luminance, not brightness, determines temporal brightness enhancement with chromatic stimuli. *Journal of the Optical Society of America* 69, 581-584, 1979.
8. **Bowen, R. W.** and Markell, K. A. Temporal brightness enhancement studied with a large sample of observers: Evidence for individual differences in brightness perception. *Perception and Psychophysics* 27, 465-467, 1980.
9. **Bowen, R. W.**, Pokorny, J. and Smith, V. C. Isolating colour vision mechanisms with hue substitution. *Nature* 285, 440, 1980.
10. **Bowen, R. W.**, Markell, K. A. and Schoon, C. M. Two-pulse discrimination and rapid light adaptation: Complex effects on temporal resolution and a new visual temporal illusion. *Journal of the Optical Society of America* 70, 1453-1458, 1980.
11. **Bowen, R. W.** Latencies for chromatic and achromatic visual mechanisms. *Vision Research* 21, 1457-1466, 1981.
12. **Bowen, R. W.**, Sekuler, R., Owsley, C. J. and Markell, K. A. Individual differences in brightness perception. *Perception and Psychophysics* 30, 587-593, 1981.
13. **Bowen, R. W.** and Hood, D. C. Improvements in visual performance following a pulsed field of light: A test of the equivalent background principle. *Journal of the Optical Society of America* 73, 1551-1556, 1983.
14. Smith, V. C., **Bowen, R. W.** and Pokorny, J. Threshold temporal integration of chromatic stimuli. *Vision Research* 24, 653-660, 1984.
15. **Bowen, R. W.** Temporal brightness enhancement: Studies of individual differences. *Perception and Psychophysics* 27, 465-476, 1984.

RESEARCH PUBLICATIONS (continued)

16. **Bowen, R. W.** Consistency of individual differences in brightness perception. *Perception and Psychophysics* 40, 159-163, 1986.
17. **Bowen, R. W.**, Mallow, J. V. and Harder, P. H. Some properties of the double flash illusion. *Journal of the Optical Society of America A* 4, 746-755, 1987.
18. **Bowen, R. W.** Two pulses seen as three flashes: A superposition analysis. *Vision Research* 29, 409-417, 1989.
19. **Bowen, R. W.**, Pokorny, J. and Smith, V. C. Sawtooth contrast sensitivity: Decrements have the edge. *Vision Research* 29, 1501-1509, 1989.
20. **Bowen, R. W.**, Pokorny, J., Smith, V.C. and Fowler, M. Sawtooth contrast sensitivity: Effects of mean illuminance and low temporal frequencies. *Vision Research* 32, 1239-1248, 1992.
21. **Bowen, R. W.** and Wilson, H. R. A two-process analysis of pattern masking. *Vision Research* 34, 645-657, 1994.
22. **Bowen, R. W.** Isolation and interaction of ON and OFF pathways in human vision: Pattern polarity effects on contrast discrimination. *Vision Research* 17, 2479-2490, 1995.
23. **Bowen, R. W.** Isolation and interaction of ON and OFF pathways in human vision: Contrast discrimination at pattern offset. *Vision Research* 37, 185-198, 1997.
24. **Bowen, R. W.** and de Ridder, H. Dynamic contrast perception assessed by pattern masking. *Journal of the Optical Society of America A* 15, 570-578, 1998.
25. **Bowen, R. W.** "Pattern masking reveals ON and OFF pathway function." in *Vision Science and Its Applications*, O.S.A. Technical Digest (Optical Society of America, Washington, D.C., 1998), pp. 112-115.
26. **Bowen, R. W.**, Wright, B. A., and Zecker, S. G. "Dyslexic observers show a backward time shift in masking of patterns of low spatial frequency." in *Vision Science and Its Applications*, O.S.A. Technical Digest (Optical Society of America, Washington, D.C., 1999), pp. 161-164.
27. Wright, B. A., **Bowen, R.W.** and Zecker, S. G. Nonlinguistic perceptual deficits associated with reading and language disorders. *Current Opinion in Neurobiology* 10, 482-486, 2000.

OTHER PUBLICATIONS AND PRODUCTIONS

BOOK

Bowen, Rich and Fay, Dick Hot Dog Chicago: A Native's Dining Guide. (Chicago Review Press, Chicago, 1983) Trade paperback, 180 pages.

VIDEO PRODUCTION

Red Hot Chicago, a 26-minute television program written and produced by **Rich Bowen** and Dick Fay (Loyola University of Chicago) and Richard Christian and Gregory Gantner (The Program Company, Chicago, Illinois). Copyright, 1985. Winner of a Gold Camera Award at the 1985 Industrial Film Festival and two 1985 Cindy Awards from the Association of Visual Communicators. Aired on WTTW-TV, Chicago, April 16, 1986 and March 7, 1987 and October 15, 1989.

PUBLICATIONS

1. "**Doctor Eye**" A vision scientist views Chicago's restaurants. Optics News 6, 75-76, 1980.
2. **Bowen, Rich** and Fay, Dick. Chicago's Top Dogs Chicago Tribune Sunday Magazine, p. 19 (cover story), June 19, 1983.
3. **Bowen, Rich** and Fay, Dick. The big feed. Chicago, p. 112-115 & 131, February 1987.

TEXTBOOK ANCILLARY

Bowen, R. W. Revised material in Test Bank to accompany In Search of the Human Mind by R. J. Sternberg (Harcourt Brace College Publishers, Ft. Worth, 1997).

GRAPH PRODUCTION

Created all of the graphs of data (70 total) appearing in the 13th Edition of Hilgard's Introduction to Psychology by R. L. Atkinson, R. C. Atkinson, E. E. Smith, D. J. Bem and S. Nolen-Hoeksema (Harcourt Brace College Publishers, Ft. Worth, 2000).

PAPER PRESENTATIONS AND PUBLISHED ABSTRACTS

1. Matin, L., Matin, E. and **Bowen, R. W.** Relative visual direction of two flashes presented at times or intensities during a voluntary saccade-- retinal constraints on the operation of extraretinal signals. Presented at the meeting of the Eastern Psychological Association, New York, New York, April, 1971.
2. **Bowen, R. W.** and Nevin, J. A. Discrimination and generalization with an alternative response. **Proceedings of the American Psychological Association 6**, 681-682, 1971. Published manuscript of a paper presented at the meeting of the American Psychological Association, Washington, D. C., August, 1971.
3. **Bowen, R. W.**, Pola, J. and Matin, L. The influence on visual persistence of flash duration and luminance. Presented at the meeting of the Association for Research in Vision and Ophthalmology, Sarasota, Florida, April, 1972.
4. **Bowen, R. W.**, Pola, J. and Matin, L. Visual persistence: Effects of flash luminance, duration and energy. **American Journal of Optometry 49**, 982, 1972. Abstract of a paper presented at the meeting of the American Academy of Optometry, New York, New York, December, 1972.
5. **Bowen, R. W.** Temporal characteristics of the visual response to single flashes of light. Presented at the meeting of the Eastern Psychological Association, Philadelphia, Pennsylvania, April, 1974.
6. **Bowen, R. W.** Temporal processing of single visual responses. Presented at the meeting of the Association for Research in Vision and Ophthalmology, Sarasota, Florida, April, 1976.
7. **Bowen, R. W.** and Pokorny, J. Metacontrast masking with hue substitution. Presented at the meeting of the Association for Research in Vision and Ophthalmology, Sarasota, Florida, April, 1976.
8. **Bowen, R. W.**, Lindsey, D. T. and Smith, V. C. Wavelength effects on temporal resolution. Presented at the meeting of the Association for Research in Vision and Ophthalmology, Sarasota, Florida, April, 1977.
9. Cacciato, D. and **Bowen, R. W.** The effects of spatial contrast upon visual detection in a backward masking paradigm. Presented at the meeting of the Midwestern Psychological Association, Chicago, Illinois, May, 1977.
10. Pokorny, J., **Bowen, R. W.** and Lindsey, D. T. Duration thresholds for chromatic stimuli. **Journal of the Optical Society of America 67**, 1380, 1977. Abstract of a paper presented at the meeting of the Optical Society of America, Toronto, Ontario, Canada, October, 1977.

PAPER PRESENTATIONS AND PUBLISHED ABSTRACTS (continued)

11. **Bowen, R. W.** and Nissen, M. J. Temporal brightness enhancement with chromatic stimuli. **Investigative Ophthalmology and Visual Science, Supp. 17**, 258, 1978. Abstract of a paper presented at the meeting of the Association for Research in Vision and Ophthalmology, Sarasota, Florida, May, 1978.
12. **Bowen, R. W.** and Schoon, C. M. Complex variation in temporal resolution during transient light adaptation. **Journal of the Optical Society of America 68**, 1438, 1978. Abstract of a paper presented at the meeting of the Optical Society of America, San Francisco, California, November, 1978.
13. **Bowen, R. W.**, Markell, K. A., Pappageorge, V. and Alfano, F. Temporal resolution during transient light and dark adaptation. **Investigative Ophthalmology and Visual Science, Supp. 18**, 248-249, 1979. Abstract of a paper presented at the meeting of the Association for Research in Vision and Ophthalmology, Sarasota, Florida, May, 1979.
14. **Bowen, R. W.** and Markell, K. A. Brightness for the masses: A large-sample study of the Broca-Sulzer effect. Presented at the meeting of the Psychonomic Society, Phoenix, Arizona, November, 1979.
15. **Bowen, R. W.**, Markell, K. A. and Frankle, M. Latencies for chromatic and achromatic visual mechanisms. Presented at the Optical Society of America Topical Meeting on Recent Advances in Vision, Sarasota, Florida, May, 1980.
16. **Bowen, R. W.** and Daskovsky, M. Offset latency for chromatic stimuli: Effects of luminance and duration. **Journal of the Optical Society of America 70**, 1574, 1980. Abstract of a paper presented at the meeting of the Optical Society of America, Chicago, Illinois, October, 1980.
17. Markell, K. A. and **Bowen, R. W.** One pulse or two? Some properties of a new temporal illusion. **Journal of the Optical Society of America 70**, 1597, 1980. Abstract of a paper presented at the meeting of the Optical Society of America, Chicago, Illinois, October, 1980.
18. **Bowen, R. W.**, Daskovsky, M. and Pfenninger, J. A. Apparent motion in hue substitution. **Investigative Ophthalmology and Visual Science, Supp. 20**, 53, 1981. Abstract of a paper presented at the meeting of the Association for Research in Vision and Ophthalmology, Sarasota, Florida, April, 1981.
19. **Bowen, R. W.**, Sekuler, R. and Owsley, C. J. Individual differences in brightness perception. **Journal of the Optical Society of America 71**, 1572, 1981. Abstract of a paper presented at the meeting of the Optical Society of America, Orlando, Florida, 1981.

PAPER PRESENTATIONS AND PUBLISHES ABSTRACTS (continued)

20. **Bowen, R. W.** Differences in brightness discrimination: Effects of pulse asynchrony and practice. *Journal of the Optical Society of America* 72, 1774, 1982. Abstract of a paper presented at the meeting of the Optical Society of America, Tucson, Arizona, October, 1982.
21. Smith, V. C., **Bowen, R. W.** and Pokorny, J. Threshold temporal integration of chromatic stimuli. ***Investigative Ophthalmology and Visual Science, Supp. 24***, 205, 1983. Abstract of a paper presented at the meeting of the Association for Research in Vision and Ophthalmology, Sarasota, Florida, April, 1983.
22. **Bowen, R. W.** Qualitative individual differences in brightness perception. ***Investigative Ophthalmology and Visual Science, Supp. 25***, 296, 1984. Abstract of a paper presented at the meeting of the Association for Research in Vision and Ophthalmology, Sarasota, Florida, April, 1984.
23. Mallow, J. V., **Bowen, R. W.** and Harder, P. J. Harmonic oscillator-like resonance in the temporal response of the human visual system. Paper presented at the meeting of the American Physical Society, Atlanta, Georgia, January, 1986.
24. **Bowen, R. W.**, Clingerman, S., Domanico, R. and Eliot, B. Individual differences in the perception of the double flash illusion. ***Investigative Ophthalmology and Visual Science, Supp. 27***, 72, 1986. Abstract of a paper presented at the meeting of the Association for Research in Vision and Ophthalmology, Sarasota, Florida, April, 1986.
25. **Bowen, R. W.** Two pulses seen as three flashes. ***Investigative Ophthalmology and Visual Science, Supp. 28***, 356, 1987. Abstract of a paper presented at the meeting of the Association for Research in Vision and Ophthalmology, Sarasota, Florida, May, 1987.
26. **Bowen, R. W.**, Pokorny, J. and Smith, V. C. Sawtooth contrast sensitivity: Decrements have the edge. Paper presented at the meeting of the Optical Society of America, Santa Clara, California, November, 1988.
27. **Bowen, R. W.** and Serio, S. Suprathreshold response to increment and decrement pulses. ***Investigative Ophthalmology and Visual Sciences, Supp 30***, 487, 1989. Abstract of a paper presented at the meeting of the Association for Research in Vision and Ophthalmology, Sarasota, Florida, May, 1989.
28. **Bowen, R. W.**, Pokorny, J. and Smith, V. C. Sawtooth contrast sensitivity and light adaptation. ***Investigative Ophthalmology and Visual Science, Supp. 31***, 329, 1990. Abstract of a paper presented at the Association for Research in Vision and Ophthalmology, Sarasota, Florida, May, 1990.

PAPER PRESENTATIONS AND PUBLISHED ABSTRACTS (continued)

29. **Bowen, R. W.** and Wilson, H. R. Spatial phase effects in pattern masking. **Optics and Photonics News 1**, A62. Abstract of a paper presented at the meeting of the Optical Society of America, Boston, Massachusetts, November, 1990.
30. **Bowen, R. W.** and Wilson, H. R. Retinal and cortical processes in pattern masking. **Investigative Ophthalmology and Visual Science 33**, No. 4, 1256, 1992. Abstract of a paper presented at the meeting of the Association for Research in Vision and Ophthalmology, Sarasota, Florida, May, 1992.
31. **Bowen, R. W.** and Wilson, H. R. Pattern masking: retinal and cortical processes. **Journal of the Optical Society of America A, Technical Digest Series 23**, 147, 1992. Abstract of a paper presented at the meeting of the Optical Society of America, Albuquerque, New Mexico, September, 1992.
32. **Bowen, R. W.** and Cotten, J. C. The dipper and the bumper: Pattern polarity effects in contrast discrimination. **Investigative Ophthalmology and Visual Science 34**, No. 4, 708, 1993. Abstract of a paper presented at the meeting of the Association for Research in Vision and Ophthalmology, Sarasota, Florida, May, 1993.
33. **Bowen, R. W.**, Ross, S. A. and Hoffman, L. A. Contrast discrimination at pattern offset. **Investigative Ophthalmology and Visual Science 35**, No. 4, 1900, 1994. Abstract of a paper presented at the meeting of the Association for Research in Vision and Ophthalmology, Sarasota, Florida, May, 1994.
33. **Bowen, R. W.** Contrast discrimination by ON and OFF pathways. **Perception 23**, Supp. 2., 1994. Abstract of a paper presented at the 17th European Conference on Visual Perception, Eindhoven, The Netherlands, September, 1994.
34. **Bowen, R. W.** Functional significance of ON and OFF pathways. **Investigative Ophthalmology and Visual Science 36**, No 4, 904, 1995. Abstract of a paper presented at the meeting of the Association for Research in Vision and Ophthalmology, Ft. Lauderdale, Florida, May, 1995.
35. **Bowen, R. W.** ON and OFF pathways: Ideas about the functions served by pathway interaction. Invited keynote address for a Workshop on "Functional significance of ON and OFF pathways" at the meeting of the Optical Society of America, Portland, Oregon, October, 1995.
36. **Bowen, R. W.** and de Ridder, H. Dynamic pattern masking. **Investigative Ophthalmology and Visual Science 37**, No. 3, s521, 1996. Abstract of a paper presented at the meeting of the Association for Research in Vision and Ophthalmology, Ft. Lauderdale, Florida, April, 1996.

PAPER PRESENTATIONS AND PUBLISHED ABSTRACTS (continued)

37. **Bowen, R. W.** and de Ridder, H. Dynamic contrast perception assessed by pattern masking. **Perception** **25**, Supp. 24, 1996. Paper presented at the 19th European Conference on Visual Perception, Strasbourg, France, September, 1996.

38. **Bowen, R. W.**, Laine, M. M. and Mc Kernon, W. L. Step responses to patterns of high and low spatial frequency. *Investigative Ophthalmology and Visual Science*, 38, No. 4, Part 1, S629. Abstract of a paper presented at the meeting of the Association for Research in Vision and Ophthalmology, Ft. Lauderdale. Fla., May, 1997.

39. **Bowen, R. W.** Pattern masking experiments reveal ON and OFF pathway function. Presented at the Vision Science and Its Applications Topical Meeting of the Optical Society of America, Santa Fe, N.M. , February, 1998.

40. **Bowen, R. W.** , Woods, T., Nussbaum, K. And Mckernon, W. Polarity asymmetries in pattern masking of the blob, the GOB, and the D6. **Investigative Ophthalmology and Visual Science** **39**, No. 4, Part 1, S1039, 1998. Abstract of a paper presented at the meeting of the Association for Research in Vision and Ophthalmology (ARVO), Ft. Lauderdale. Fla., May, 1998.

41. **Bowen, R. W.**, Wright, B. A. and Zecker, S. G. Dyslexic observers show a backward time shift in masking patterns of low spatial frequency. Presented at the Vision Science and Its Applications Topical Meeting of the Optical Society of America, Santa Fe, N.M. , February, 1999.

42. **Bowen, R. W.**, Wright, B. A. , Zecker, S. G. and Rudden, D. Temporal pattern masking function in dyslexic and normal observers. **Investigative Ophthalmology and Visual Science**, **40**, No. 4, S33, 1999. Abstract of a paper presented at the meeting of the Association for Research in Vision and Ophthalmology (ARVO), Ft. Lauderdale. Fla., May, 1999.

43. **Bowen, R. W.** and Rose, B.A. Spatial-frequency dependence of pattern detection and discrimination before and after pattern mask onset. Abstract of a paper presented at the meeting of the Association for Research in Vision and Ophthalmology, Ft. Lauderdale, Florida, May, 2000.

INVITED COLLOQUIA

"Hue and Luminance Channels in Human Vision" Department of Psychology, University of Toledo, February 4, 1977.

"Color and Luminance Channels in Human Vision" Department of Ophthalmology, Pritzker School of Medicine, The University of Chicago, February 16, 1977.

"Color Perception: Isolating Hue Channels in Human Vision" Committee on Cognition and Communication, Department of Behavioral Sciences, The University of Chicago, March 15, 1978.

"Hue Substitution and Visual Mechanisms" Department of Psychology, Columbia University, May 7, 1979.

"Isolating Color Vision Mechanisms with Hue Substitution" College of Optometry, State University of New York, September 24, 1980.

"Individual Differences in Brightness Perception" "Stray Light" Seminar, Department of Psychology, Northwestern University, April 15, 1982.

"Probing ON and OFF Pathways in Human Visual Processing" Visual Neuroscience Seminar, Department of Ophthalmology and Visual Sciences, University of Illinois Chicago, School of Medicine, November 16, 1992

"Function and interaction of the ON and OFF pathways" Istituto di Neurofisiologia del CNR, Universita di Pisa, Pisa, Italy, October 17, 1995.

"ON and OFF pathway function studied with pattern masking" Visual Science Seminar, Department of Ophthalmology and Visual Science, The University of Chicago, January 23, 1997.

"Psychophysical properties of the ON and OFF pathways" Smith-Kettlewell Eye Research Institute, San Francisco, California, October 10, 1997

"Psychophysical manifestations of ON and OFF pathway activity" Biomedical Engineering Department, Technological Institute, Northwestern University, April 23, 1998.

EXTRAMURAL GRANT SUPPORT

National Institute of Mental Health Predoctoral Fellowship, Columbia University, 1969-1973.

National Science Foundation Grant No. 395-00-125, "Undergraduate Scientific Instructional Equipment", \$8600, Co-principal Investigator (with Dr. Richard Fay), October 1, 1976 - September 30, 1978.

National Eye Institute Grant EY 02704-01, "Temporal and Spatial Factors in Color Vision", \$53,919, December 1, 1978 - November 31, 1981. (Award declined in order to accept NSF funding.)

National Science Foundation Grant No. BNS 78 17779, "Temporal and Spatial Factors in Human Color Vision", \$86,765, November 1, 1978 - April 30, 1982.

National Science Foundation Grant No. BNS 81 11366, "Temporal and Spatial Factors in Human Color Vision", \$91,260, October 1, 1981 - March 31, 1985.

COURSES TAUGHT

Undergraduate:

General Psychology
General Psychology (Honors)
Research Methods
The Psychology and Biology of Perception
Laboratory in Physiological Psychology
Laboratory in Sensation and Perception
Laboratory in Vision
"A Critique of Modern Behaviorism" (Psychology Seminar)

Undergraduate (Loyola University Rome Center only):

Development Psychology
Abnormal Psychology
Psychology of Personality

Graduate:

Sensory Processes
Theories of Complex Perception
Experimental General Psychology