

AD-A098 955

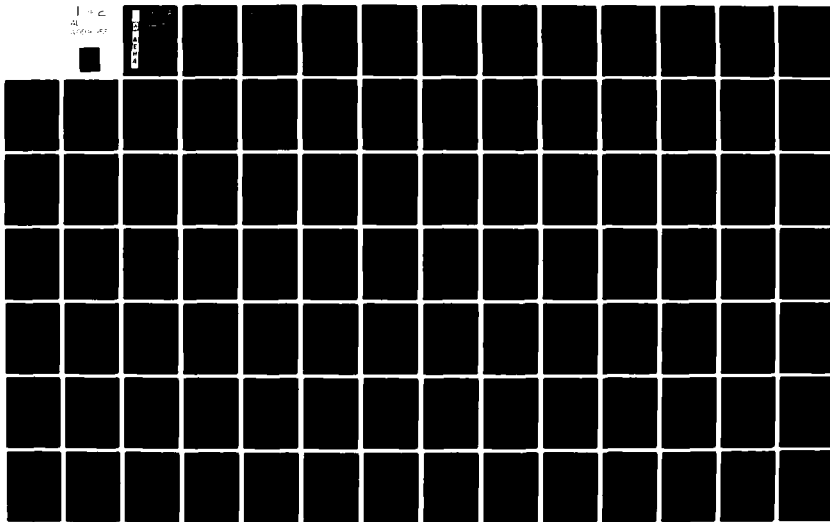
ARMY ENVIRONMENTAL HYGIENE AGENCY ABERDEEN PROVING GR--ETC F/0 6/18
LASER HAZARDS BIBLIOGRAPHY - NOVEMBER 1980.(U)
NOV 80 D H SLINEY, N KRIAL, L D RILEY

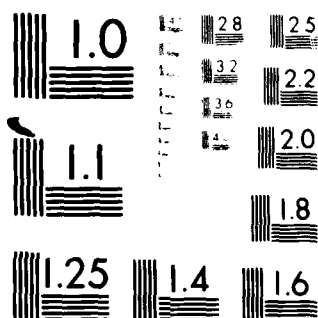
UNCLASSIFIED

NL

1-2
AL
10/10/80

10/10/80





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

LEVEL ^{III}

774751

2



**UNITED STATES ARMY
ENVIRONMENTAL HYGIENE
AGENCY**

ABERDEEN PROVING GROUND, MD 21010

AD A098955

**A
E
H
A**

LASER HAZARDS BIBLIOGRAPHY
NOVEMBER 1980

**DTIC
ELECTE
MAY 15 1981
S E D**

Approved for public release; distribution unlimited.

81 5 14 098

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO. AD-A098	3. RECIPIENT'S CATALOG NUMBER 955
4. TITLE (and Subtitle) LASER HAZARDS BIBLIOGRAPHY - NOVEMBER 1980.		5. TYPE OF REPORT & PERIOD COVERED 19th edition
7. AUTHOR(s) David H. Sliney, Nicholas Krial and Linda D. Riley		8. CONTRACT OR GRANT NUMBER(s) 11 Apr 84
9. PERFORMING ORGANIZATION NAME AND ADDRESS USA Environmental Hygiene Agency Aberdeen Proving Ground, MD 21010		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 12 186
11. CONTROLLING OFFICE NAME AND ADDRESS Commander USA Environmental Hygiene Agency Aberdeen Proving Ground, MD 21010		12. REPORT DATE
14. MONITORING AGENCY NAME & ADDRESS (If different from Controlling Office)		13. NUMBER OF PAGES 183
		15. SECURITY CLASS. (of this report) UNCLASSIFIED
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES (This bibliography supersedes: Laser Hazards Bibliography - October 1979.)		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Lasers Skin Hazards Eye Hazards Infrared Radiation Ultraviolet Radiation		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The Laser Hazards Bibliography consists of 2,453 references in the open literature broken into subject categories which relate to: general biological effects, the eye, the skin, laser safety, laser propagation in the atmosphere, and laser measurements.		

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

938150



DEPARTMENT OF THE ARMY
U. S. ARMY ENVIRONMENTAL HYGIENE AGENCY
ABERDEEN PROVING GROUND, MARYLAND 21010

REPLY TO
ATTENTION OF

HSE-RL/WP

LASER HAZARDS BIBLIOGRAPHY - NOVEMBER 1980

1. The following bibliography was prepared in the interest of providing a source of references for those interested in the biological effects and the evaluation of hazards associated with laser equipment. It was compiled from the open literature reviewed on a continuing basis by personnel of the Laser-Microwave Division of this Agency.

2. This is the tenth edition of "Laser Hazards Bibliography." The last revision was dated October 1979. The 2,453 references are divided into groups as shown in the Table of Contents.

Accession For	
NTIS GRA&I	☒
DTIC TAB	☐
Unannounced	☐
Justification	
By	
Distribution/	
Availability Codes	
Avail and/or	
Dist	Special
A	

Laser Hazards Bibliography

CONTENTS

	Page
I. Introduction.....	1
A. General.....	1
B. Laser Applications in Medicine & Biology.....	7
II. Bioeffects-General.....	17
III. Skin Effects.....	28
IV. Eye Effects.....	39
A. Laser Effects Upon the Eye.....	39
B. Non-laser Optical Radiation Effects Upon the Eye.....	76
C. Physical Properties of the Eye.....	108
V. Laser Safety.....	128
VI. Atmospheric Attenuation of Laser Beams.....	151
VII. Measurements.....	169

OFTEN USED REFERENCES

A. Laser Safety Standards and Regulations.....	180
B. Rationale of Laser Exposure Limits.....	180
C. Optical Radiation Hazards - General Reviews.....	181
D. Retinal Burns from Lasers.....	181
E. Corneal Injury.....	182
F. Skin Injury.....	182
G. General Texts.....	183

Laser Hazards Bibliography

I. INTRODUCTION

A. General.

1. Allen, L., and Jones, D. G. C., Principles of Gas Lasers, Plenum Press, NY (1967).
2. Allen, L., et al., An improved intra-cavity reflecting element for gas laser Q control, J Sci Instr, 1: 133-135 (February 1968).
3. Anderson, J. D., and Harris, E. L., Gasdynamic laser 2 years later, Las Foc, 32-34 (May 1972).
4. Anonymous, Lasers and Light, Readings from Scientific American, San Francisco, W. H. Freeman and Company (1969).
5. Anonymous, Holography, Lancet, 1: 519 (9 March 1968).
6. Ashburn, E. V., Lengyel, B. A., and Merry, R. W., et al., Bibliography of the open literature on lasers, J Opt Soc Am, 53: (May 1963), 54: 135-142 (January 1964), 55: 1040-1045 (August 1965), 56: 263-267 (February 1966).
7. Baldwin, W. R., et al., Observation of laser standing wave patterns to determine refractive status, Am J Opt, 45: 143-151 (March 1968).
8. Basov, N. G., Semiconductor lasers, Science, 149: 821-827 (20 August 1965).
9. Birnbaum, George, Optical Masers, NY, Academic Press, 306 pp. (1964).
10. Bloembergen, N., Lasers: a renaissance in optics research, Am Sci, 63(1): 16-22 (January-February 1975).
11. Borland, R. G., Lasers and some of their applications, Proc R Soc Med, 66(9): 841-842 (September 1973).
12. Boyer, K., Laser initiated fusion - key experiments looming, Astronautics and Aeronautics (1973).
13. Brewster, J. L., Stimulated emission from CdS at ultra-high current density electron beam pumping, Appl Phys Letters, 13(11): 385-387 (December 1968).
14. Brotherton, M., Masers and Lasers, NY, McGraw-Hill, 201 (1964).
15. Burkhalter, J. H., Material effects of laser radiation and basic interaction phenomena, Fed Proc, 24: S-31 - S-34 (1965).

Laser Hazards Bibliography

16. Carroll, J. M., The Story of The Laser, New York Dutton (1964).
17. Carome, E. F., Moeller, L. E., and Clark, N. A., Intense ruby laser induced acoustic impulses in liquids, J Acoust Soc Am, 40(6): 1462-66 (1966).
18. Cason, C., Dezenberg, G. J., and Huff, R. J., Operation of a cold-cathode electron-beam-controlled CO₂ laser oscillator at 1-3 atm, Appl Phys Letters, 23(2): (July 1973).
19. Charschan, S. S., Lasers in industry, NY, Van Nostrand Reinhold Co. (1972).
20. Commission Internationale de L'Eclairage, International Lighting Vocabulary, 3: 51, Bureau Central de la CIE, Paris (1970).
21. Considine, P. S., Effects of Coherence on imaging systems, J Opt Soc Am, 56: 1001-1009 (1966).
22. Coogan, P. S., et al., Lasers: their technical, biologic, and air force implications, Aeromed Rev, 3: 1-17 (May 1968).
23. Cremer, C., Considerations on a laser-scanning microscope with high resolution and depth of field, Microsc Acta, 81(1): 31-44 (1978).
24. Cutler, C. Chaplain, Coherent light, Internat Sci & Tech, 54-62 (September 1963).
25. Dabby, F. W. and Paek, Un-Chul, High-intensity laser-induced vaporization and explosion of solid material, IEEE J of Quantum Elect, QE-8(2): 106-111 (February 1972).
26. Davidovits, P., and Egger, M. D., Scanning laser microscope, Nature (London), 223: 831 (23 August 1969).
27. DeMaria, A. J., Glenn, W. H., and Mack, M. E., Ultrafast laser pulses, Phys Today, 19-26 (July 1971).
28. Dezenberg, G. J., Roy, E. L., and McKnight, W. B., Performance of high-voltage axially pulsed CO₂ lasers, IEEE J Quantum Elect, QE-8(2): (February 1972).
29. Duguay, M. A., and Hansen, J. W., Compression of pulses from a mode-locked He-Ne laser, Appl Phys Letters, 14(1): 14-15 (January 1969).
30. Dworkin, L., Coryell, L., Birge, W. A., and Wangle, R. J., Tactical optical communications set, AMSEL-NL-RM-1, Opt Eng, 13(5): 401-408 (September-October 1974).

Laser Hazards Bibliography

31. Eaglesfield, C. C., Laser Light, NY, St Martins Press (1967).
32. Feigen, L., et al., A method for detecting and measuring frequency of surface vibrations using a helium-neon laser, Rev Sci Instr 40: 381-382 (February 1969).
33. Fishlock, D., A Guide to the Laser, NY, American Elsevier Publishing Company (1967).
34. French, M. J., Angus, J. C., and Walton, A. G., Laser beam frequency spectroscopy, Science, 163: 345-351 (24 January 1969).
35. Garbor, D., Holography 1948-1971, Science, 177: 299-313 (28 July 1972).
36. Garrett, C. G. B., Gas Lasers, NY, McGraw-Hill (1967).
37. Gilson, C. G., Lasers, Med and Biol Illus, 15, Suppl: 51-56 (April 1965).
38. Goldman, L., et al., Investigative studies with quartz rods for high energy laser transmission, Med Res Eng, 6: 12-17 (1967).
39. Grojean, E. R., Sousa, J. A., Roach J. F., Wynee, E. F., and Nakashima, M., Remote pollution probing by laser-induced luminescence techniques, Opt Engr, 17: 139-142 (1978).
40. Harding, D., C., et al., Laser schlieren optical system for analyzing ultrasonic fields, Biomed Sci Instr, 4: 223-230 (1968).
41. Hardway, G. A., Lasers in metalworking and electronic industries, Arch Environ Health, 20: 188-192 (February 1970).
42. Heavens, O. S., Optical Masers, NY, John Wiley & Sons (1963).
43. Heavens, O. S., Lasers-basic principles and future potential, Phys Med Biol, 14: 151 (January 1969).
44. Hofmann, C., Plewig, G., and Braun-Falco, O., Unusual adverse effects of oral photochemotherapy (puva-therapy) in psoriasis, Hautarzt, 28(11): 583-588 (1977).
45. Holmes, S., Klugman, A., and Kraatz, P., Copper mirror surfaces for high power infrared lasers, Appl Opt, 12(8): 1743-1745 (August 1973).
46. Inaba, H., and Kobayasi, T., Laser-raman radar for chemical analysis of polluted air, Nature (London), 224: 170-172 (11 October 1969).

Laser Hazards Bibliography

47. Jenkins, F. A., and White, H. E., Fundamentals of optics, NY, McGraw-Hill Company (1957).
48. Kast, S., and Cason, C., Performance comparison of pulsed discharge and e-beam controlled CO₂ lasers, J Appl Phys, 44(4): 1631-1637 (April 1973).
49. Kauffman, J. M., Laser dye structures and symposium, App Opt 19(20): 3431-3437, 1980.
50. Kimbel, H. J., and Mandel, L., Spatial coherence of laser output far below threshold, J Opt Soc Am, 63(12): 1550-1552 (December 1973).
51. Klein, H. A., Masers and Lasers, NY, Lipponcott (1963).
52. Kressel, H., Lockwood, H. F., Ladany, I., and Ettenberg, M., Heterojunction laser diodes for room temperature operation, Opt Eng, 13(5): 416-422 (September-October 1974).
53. Kruse, P. W., McGlauchlin, L. D., and McQuistan, R. B., Elements of infrared technology, J. Wiley & Sons, NY (1962).
54. Lax, B., Semiconductor lasers, Science, 141(3587): 1247-1255 (27 September 1963).
55. Lengyel, B. A., Introduction to Laser Physics, NY, J. Wiley & Sons (1966).
56. Lengyel, B. A., Lasers, NY, J. Wiley & Sons (1962).
57. Linford, G. L., and Hill, L. W., ND: YAG Long Lasers, Appl Opt, 13(6): 1387-1394 (June 1974).
58. Lytel, A., ABC's of Lasers and Masers, Indianapolis, Howard W. Sams & Co. (1963).
59. Marcatili, E. A. J., Optical subpicosecond gate, Appl Opt, 19(9): 1468-1476 (1980).
60. Marling, J. B., Hawley, J. G., Liston, E. M., and Grant, W. B., Lasing characteristics of seventeen visible-wavelength dyes using a coaxial-flashlamp-pumped laser, Appl Opt, 13(10): 2317-2390 (October 1974).
61. Masters, J. I., More power to the laser-with q switching, Electronics, 38: 91-95 (18 October 1965).
62. McGowan, J. W., Lasers, NATO-AGARD Report No. LS-79, pp 3-1 to 3-12 (1975).

Laser Hazards Bibliography

63. Merkelo, H., Mar, T., Singhal, G. S., and Govind, J., Mode-locked lasers: measurements of very fast radiative decay in fluorescent systems, *Science*, 164: 301-302 (18 April 1969).
64. Meyer-Arendt, J. R., Efficiency and limitations of lasers as weapons, *Am J Opt*, 45: 188-191 (March 1968).
65. Murray, E. R., Remote measurement of gases using differential absorption LIDAR, *Opt Engr*, 17: 30-38 (1978).
66. Pike, C. A., *Lasers and Masers*, Indianapolis, Howard W. Sams & Co. (1967).
67. Pimentel, G. C., Chemical lasers, *Sci Am*, 214: 32-39 (April 1966).
68. Pitha, C. A., Laser damage: a selected literature survey, L. G. Hanscom Field, Bedford, MA, Air Force Cambridge Research Laboratories (February 1967).
69. Pressley, R. J., *Handbook of Lasers*, Cleveland, Chemical Rubber Co. (1971).
70. Proctor, T. D., A laser technique for the measurement of aerosols, *J Sci Instr*, 2: 631-635 (1968).
71. Pugh, E. R., Wallace, J., Jacob, J. H., Northam, D. B., and Daugherty, J. D., Optical quality of pulsed electron-beam sustained lasers, *Appl Opt*, 13(11): 2512-1516 (November 1974).
72. Ready, J. F., Effects due to absorption of laser radiation, *J Opt Soc Am*, 53: 514 (April 1963).
73. Reid, F., Shewchun, J., Garside, B. K., and Ballik, E. A., Point monitoring of ambient concentrations of atmospheric gases using tunable lasers, *Opt Engr*, 17: 56-62 (1978).
74. Rentzepis, P. M., Lasers in Chemistry, *Photochem Photobiol*, 8: 579-588 (December 1968).
75. Rentzepis, P. M., Ultrafast Processes, *Science*, 169(3942): 239-247 (17 July 1970).
76. Robertson, K. D., Laser by a dam site, *Las Foc*, 7: 45-46 (October 1971).
77. Rockwell, R. J., Jr., Characteristics of laser radiation and laser instrumentation, *Arch Environ Health*, 18(3): 394-405 (March 1969).

Laser Hazards Bibliography

78. Rockwell, R. J., Jr., Developments in laser instrumentation and calibration, Arch Environ Health, 20: 149-155 (February 1970).
79. Ross, D., Lasers, Light Amplifiers, and Oscillators, NY, Academic Press (1969).
80. Rottier, P. B., Baart De La Faille, H., MED-action spectra in polymorphic light eruption and in porphyria compared with model normal spectra, Acta Derm Venereol [Suppl] (Stokh), 55(77): 3-34 (1977).
81. Schawlow, A. L., Advances in optical masers, Sci Am, 209(1): 34-35 (July 1963).
82. Schawlow, A. L., Lasers, Int Ophth Clin, 6: 241-251 (1966).
83. Schawlow, A. L., Lasers, Science, 149(3679): 13-21 (2 July 1965).
84. Schawlow, A. L., Optical masers, Sci Am, 204: (June 1961).
85. Schleusener, S. A., A gas laser aerosol detection and sizing instrument, J Air Pollut Contr Assn, 19: 40-42 (January 1969).
86. Schleusener, S. A., Automatic high speed particle sizing using a gas laser, Rev Sci Instr, 39: 1916-1919 (December 1968).
87. Schruben, J. S., Analysis of rotationally symmetric reflectors for illuminating systems, J Opt Soc Am, 64(1): 55-59 (January 1974).
88. Schwartz, L. W., Argon laser iridotomy in the treatment of patients with primary angle-closure or pupillary block glaucoma: a clinicopathologic study, Ophth, 85(3): 294-309 (1978).
89. Seiner, H. J., The Commercial Development and Application of Laser Technology, Hobbs, Dorman & Company, Inc., NY (1965).
90. Siegman, A. E., An Introduction to Lasers and Masers, NY, McGraw Hill (1971).
91. Sinclair, D. C., Lens design for laser systems, J Opt Soc Am, 64(3): 314-316 (March 1974).
92. Sinclair, D. C., and Bell, W. E., Gas Laser Technology, NY, Holt, Rinehart, and Winston (1969).
93. Smith, R. C., The laser. A completely new light source, Med & Biol, 12: 246-252 (1962).
94. Smith, R. G., Tunable lasers, Ann NY Acad Sci (February 10, 1969).

Laser Hazards Bibliography

95. Smith, W. V., and Sorokin, P. P., The Laser, NY, McGraw Hill, 498 (1966).
96. Stroke, G. W., An Introduction to Coherent Optics and Holography, NY, Academic Press (1969).
97. Stone, J., and Burrus, C. A., Neodymium-doped fiber lasers: room temperature cw operation with an injection laser pump, Appl Opt, 13(5): 1256-1258 (June 1974).
98. Taboada, J., and Altschuler, B. R., Rectangular grid fringe pattern for topographic applications, Appl Opt, 15(3): 597-599 (March 1976).
99. Tanner, L. H., A study of fringe clarity in laser interferometry and holography, J Sci Instr, 1: 517-522 (May 1968).
100. Townes, C. H., Production of coherent radiation by atoms and molecules, Science, 149(3686): 831-840 (20 August 1965).
101. Troup, G. J., Masers and Lasers, NY, J. Wiley & Sons (1963).
102. Watson, R., Laser - a bright light for the Army, Army Information Digest, 18: 32-39 (April 1963).
103. Wenzel, R. G., and Arnold, G. P., A double-discharge-initiated HF laser, IEEE J of Quantum Electr, QE-8(1): 26-27 (January 1972).
104. Wurtman, R. J., The effects of light on the human body, Sci Am (July 1975).

B. Laser Applications in Medicine & Biology.

1. Akopian, V. S., Optical laser interventions on the anterior portion of the eye, Vestn Oftalmol, (4): 29-35, (1978).
2. Anonymous, PIR-1 instrument for measuring the divergence of laser radiation, Sov J Quantum Electron, 8: 552 (1978).
3. Anonymous, Use of various types of quantum generators in retinal diseases, Oftalmol Zh, 33(5): 323-324 (1978).
4. Anonymous, Extended use of the laser, Medical Times, 94: 268a-269a (September 1966).
5. Anonymous, Lasers in medicine and biology, Canad Med Assn J, 101: 172-173 (9 August 1969).

Laser Hazards Bibliography

6. Anonymous, Ruby laser photocoagulation of early diabetic neovascular retinopathy, *Med J Aust*, 1: 1238- (20 June 1970).
7. Arfors, K. E., et al., Biolaser endothelial trauma as a means of quantifying platelet activity in vivo, *Nature (London)*, 218: 887-888 (1 June 1968).
8. Auth, D. C., Lam, V. T. Y., Mohr, R. W., Silverstein, F. E., and Rubin, C. E., A high-power gastric photocoagulator for fiberoptic endoscopy, *IEEE Trans, BME-23*(2): 129-135 (1976).
9. Avetisov, E. S., Urmacher, L. S., Shapiro, E. Sh., and Anikina, E. V., Device for the Study of "Retinal" visual acuity, *Vestn Oftalmol*, (2): 50-52 (March-April 1975) (English abstract, Russian).
10. Babayan, R., Laser and wound healing, *Zentrabl Chir*, 102(20): 124-150 (1977) (English abstract, German).
11. Bach, J. L., The amazing laser, medicine's newest research tool, *New Phys*, 13: 178-180 (June 1964).
12. Baily, N. A., Further developments in the use of holographic methods for the storage of roentgenographic images, *Invest Radiol*, 7: 118-123 (March-April 1972).
13. Becker, H. C., et al., Laser light diffraction, and reconstruction of medical radioautographic images: a pilot study, *IEEE Trans Biomed Eng*, 15: 186-195 (July 1968).
14. Bellina, J. H., Carbon dioxide laser in gynecology, *Obstet Gynecol Annu*, 6: 371-391 (1977).
15. Berler, D. K., Expectations and limitations of laser photocoagulation, *Southern Med J*, 60: 1272-1276 (December 1967).
16. Berler, D. K., Lasers in ophthalmology, *AM Fam Phys*, 9: 118-123 (May 1974).
17. Bol'shunov, A. V., Laser coagulation of newly formed corneal vessels under clinical conditions, *Vestn Oftalmol*, (2): 22-26 (1978).
18. Brancato, R., Burlumachi, R., Pratesi, R., and Vanni, V., Tunable lasers in ophthalmology, *Ophthalmologica*, 171(2): 146-156 (1975).
19. Chance, B., McCray, J. A., and Bunkenburg, J., Fast spectrophotometry measurement of H⁺ changes in chromatium chromatophores activated by a liquid dye laser, *Nature (London)*, 225: 705-708 (21 February 1970).

Laser Hazards Bibliography

20. Calkins, J. L., et al., Holographic recording of a retina using a continuous wave laser, *Invest Ophth*, 9: 458-462 (June 1970).
21. Crane, H. D., and Steel, C. M., Accurate three-dimensional eyetracker, *App Opt*, 17(5): 691-705 (1978).
22. Danilova, I. N., and Kamenetskaia, T. M., Use of lasers in medicine, *Vopr Kurortol Fizioter Lech Fiz Kult*, 3: 78-82 (1977).
23. Delaney, W. V., Jr., et al., Anterior chamber angle recess, *Am J Ophth*, 69: 1016-1019 (June 1970).
24. Dwyer, R. M., Haverback, B. J., Bass, M., and Cherlow, J., Laser induced hemostasis in the canine stomachs. Use of a flexible fiberoptic delivery system, *JAMA*, 231(5): 486-489 (February 1975).
25. Edgerton, M. T., et al., Coherent light (laser) in biomedical research, *Plast Reconstr Surg*, 43: 269-276 (March 1969).
26. Eichler, J., and Lenz H., Laser applications in medicine and biology: a bibliography, *App Opt*, 16(1): 27-45 (1977).
27. Eichler, J., A laser endoscope with direct beam coupling, *Endoscopy*, 10(2): 115-118 (1978).
28. Fankhauser, F., Zypen, E., van der, Bebie, H., Behandlung des chronischen einfachen glaucoms durch den laserstrahl., *Dtsch. Med. Wschr*. 104: 1393-1394, (1979).
29. Fechner, P. U., Laser-coagulation of ruptured fixation suture after lens implantation, *J Am Intraocul Implant Soc*, 4(2): 54 (1978).
30. Feke, G. T., Laser Doppler measurements of blood velocity in human retinal vessels, *J Opt Soc Am*, 68(4): 526-531 (1978).
31. Feleppa, E., Holography and its application to medical physics, *Phys Med Biol*, 15: 185 (January 1970).
32. Filippo, J. R., Electronic guidance devices for the blind, *J Am Opt Assn*, 41: 79-81 (January 1970).
33. Flocks, M., Present and future status of laser photocoagulation, *Int Ophth Clin*, 6: 387-390 (1966).
34. Fox, J. L., The use of radiation as a surgical light knife, *J Surg Res*, 9: 199-205 (April 1969).

Laser Hazards Bibliography

35. Geisbe, H., Possibilities for the use of laser rays in therapy, *Med Welt*, 48: 2881-2883 (2 December 1967).
36. Goldmann, H., Examination of the fundus of the Cataractous Eye, *Am J Ophth*, 73: 309-320 (March 1972).
37. Goldman, J. R., and Meyer, R., Transmission of laser beams through various transparent rods for biomedical applications, *Nature*, 205(4974): 892-894 (27 February 1965).
38. Goldman, L., and Rockwell, R. J., *Lasers in Medicine*, NY, Gordon and Breach (1971).
39. Goldman, L., et al., CO₂ laser surgery of cancer of man, *Laser J* (January-February 1971).
40. Goldman, L., et al., Laser surgery in dermatology - the practitioners interest in current investigative studies, *Cutan Med Prac*, 5(5): 571-575 (May 1969).
41. Goldman, L., et al., The laser in marillofacial surgery, *Arch Surg*, 96 (March 1968).
42. Goldman, L., The physician and the laser: a review of facts, *Hosp Trib*, 39: 9 (4 December 1967).
43. Goldman, L., Treatment of basal cell epithelioma by laser radiation, *J Am Med Assn*, 89: 773-775 (7 September 1964).
44. Goldman, L., and Johnson, J., Laser treatment of basal cell epithelioma injected with magnetic iron particles, *Arch Dermatol*, 110: 751-752 (November 1974).
45. Goldman, L., Rockwell, R. J., Jr., Fox, S. H., and Fidler, J., Opt aspects of laser surgical instrumentation, *Opt Eng*, 12(5): 176-179 (September-October 1974).
46. Gonzales, R., et al., Rapid control of massive hemorrhage by laser radiation, *Surg Gynec Obstet*, 131: 198-200 (August 1970).
47. Goodale, R. L., et al., Rapid endoscopic control of bleeding gastric erosions by laser radiation, *Arch Surg Chicago*, 101: 211-214 (August 1970).
48. Gordon, T. E., et al., Laser welding of prostheses - an initial report, *J Prosth Dent*, 24: 472-476 (October 1970).
49. Green, D. G., and Cohen, M., Laser interferometry in the evaluation of potential macular function in the presence of opacities in the ocular media, *Trans Am Acad Ophth Otolaryngol*, 75: 629-637 (May-June 1971).

Laser Hazards Bibliography

50. Green, D. G., Testing the vision of cataract patients by means of laser-generated interference fringes, *Science*, 168: 1240-1242 (5 June 1970).
51. Green, D. G., Frueh, B. R., and Shapiro, J. M., Corneal thickness measured by interferometry, *J Opt Soc Am*, 65(2): 119-123 (February 1975).
52. Green, D. M., The possible use of holograms in biological photography, *J Biol Photogr Assn*, 37: 56-59 (January 1969).
53. Gstalder, et al., Laser interferometry in corneal opacification. Preoperative visual potential estimation, *Arch Ophth*, 87: 269-274 (May 1972).
54. Harding-Barlow, I., Quantitative laser microprobe analysis, in *Laser Applications in Medicine and Biology* (Ed., M. L. Wolbarsht), Plenum Press, NY, 2: (1974).
55. Heavner, J. E., A laser system for stimulating spinal neuron receptive fields, *Brain Res*, 152(2): 348-352 (1978).
56. Henderson, B. M., et al., The laser in pediatric surgery, *J Ped Surg*, 3: 263-270 (April 1968).
57. Hennessy, R. T., and Leibowitz, H., Subjective measurement of accommodation with laser light, *J Opt Soc Am*, 60: 1700-1701 (December 1970).
58. Hillenkamp, F., Unsold, E., Kauffman, R., and Nitsche, R., Laser microprobe mass analysis of organic materials, *Nature*, 256(5513): 119-120 (10 July 1975).
59. Hillenkamp, F., Hutzler, P., and Kinder, J., Coherent and quasi-coherent optical methods in biology and medicine, *Ann NY Acad Sci*, 267: 216-221 (1976).
60. Hinkley, E. D., et al., Detection of air pollutants with tunable diode lasers, *Science*, 171: 635-639 (19 February 1971).
61. Hochheimer, B. F., Lasers in Ophthalmology in *Laser Applications in Medicine and Biology* (Ed., M. L. Wolbarsht), Plenum Press, NY, 2: (1974).
62. Hoge, F. E., Swift, R. N., and Frederick, E. B., Water Depth Measurement Using an Airborne Pulsed Neon Laser System, *Appl Opt*, 19(6): 871-883 (1980).
63. Horwitz, N. H., An instrument for aligning patient-positioning lasers, *Med Phys*, 5(2): 164-166 (1978).

Laser Hazards Bibliography

64. Ingelstam, E., and Ragnarsson, S. I., Eye refraction examined by aid of speckle pattern produced by coherent light, *Vis Res*, Pergamon Press, 12: 411-420 (1972).
65. Kaplan, I., Sharon, U., and Ger, R., The carbon dioxide laser in clinical surgery, in *Laser Applications in Medicine and Biology* (Ed., M. L. Wolbarsht), Plenum Press, NY, 2: (1974).
66. Kelley, J. S., Use of the argon aiming beam in visual function testing, *Ann Ophthalmol*, 10(12): 1687-1689 (1978).
67. Keifhabee, P., Endoscopic neodymium-yag laser irradiation for control of bleeding acute and chronic ulcers, *Langebecks Arch Chir*, 347: 367-371 (1978).
68. Ketcham, A. S., Hoyer, R. C., and Riggle, G. C., A surgeon's appraisal of the laser, *Surg Clin N Am*, 47: 1249-1263 (October 1967).
69. Ketcham, A. S., Hoyer, R. C., and Riggle, G. C., The laser: its role in cancer, *Progr Clin Cancer*, 4: 109-117 (1970).
70. Ketcham, A. S., and Minton, J. P., Laser radiation as a clinical tool in cancer therapy, *Fed Proc*, 24: S-159 - S-160 (1965).
71. Khanna, S. M., and Tonndorf, J., Tympanic membrane vibrations in cats studied by time-averaged holography, *J Acoust Soc Am*, 51: 1904-1920 (June 1972).
72. Kiefhaber, P., Endoscopical control of massive gastrointestinal hemorrhage by irradiation with a high-power Nd-YAG laser, *Prog Surg*, 15: 140-155 (1977).
73. Klemp, P. F., A laser back pointer, *Phys Med Biol*, 22(5): 1007-1010 (1977).
74. Kompa, K. L., [Infrared photochemistry with lasers?], *Z Naturforsch [B]*, 27: 89-94 (February 1972) (German).
75. Krasnov, M. M., Q-switched laser goniotomy, *Arch Ophth* 92(1): 37-41 (July 1974).
76. Krasnov, M. M., Laser microsurgery of the eye, *Vestn Oftalmol*, 1: 3-11 (1973).
77. Landers, M. B., Wolbarsht, M. L., and Shaw H. F., The current status of laser uses in ophthalmology, *Ann NY Acad Sci*, 267: 230-246 (1976).

Laser Hazards Bibliography

78. Leasure, S., and Wyatt, R. E., Floquet Theory of the Interaction of a Molecule with a Laser Field, Techniques and an Application, Opt Engin, 19(1): 46-56 (1980).
79. Leibowitz, H. W., and Hennessy, R. T., The laser optometer and some implications for behavioral research, Am Psycol, 30(3): 349-352 (March 1975).
80. L'Esperance, F. A., Jr., Photocoagulation delivery systems for continuous-wave lasers, Brit J Ophth, 53: 310-322 (May 1969).
81. Levy, M. R., Reisler, H., Mangir, M. S., and Wittig, C., Infrared Laser Photolysis of Polyatomic Molecules: A Powerful Technique for Studying Elementary Processes in the Gas Phase, Opt Engin, 19 (1): 29-37 (1980).
82. Little, H. L., Complications of argon laser retinal photocoagulation: a five year study, Int Ophthalmol Clin, 16(4): 145 (1976).
83. McDonald, P. R., and Tasman, W., Treatment of peripheral breaks: comparison of cryosurgery, diathermy, laser and xenon photocoagulator, Int Ophth Clin, 7: 451-457 (1967).
84. Mendelson, J. A., The surgeon and the laser, Surg Gynec Obstet, 1: 116-117 (July 1967).
85. Mester, E., et al., Lasers in clinical practice, Acta Chir Acad Sci Hung, 9: 349-357 (1968).
86. Minton, J. P., et al., Pulsed laser energy in the management of multiple pulmonary metastases, J Thorac Cardiovasc Surg, 54: 707-713 (November 1967).
87. Mohon, N., and Rodemann, A., Laser speckle for determining ametropia and accommodation response of the eye, Appl Opt, 12(4): 783-787 (April 1973).
88. Mullaney, P. F., and VanDilla, M. A., Laser photometers for measurement of low-angle light scattering and fluorescence of cells, Phys Med Biol, 15: 190 (January 1970).
89. Mullaney, P. F., Steinkamp, J. A., Crissman, H. A., Cram, L. S., Crowell, J. M., Salzman, G. C., and Martin, J. C., Laser flow microphotometry for rapid analysis and storing of mammalian cells, Ann NY Acad Sci, 267: 176-181 (1976).
90. Mullaney, P. F., Steinkamp, J. A., Crissman, H. A., Cram, L. S., and Holm, D. M., Laser flow microphotometers for rapid analysis and sorting of

Laser Hazards Bibliography

individual mammalian cells, in *Laser Applications in Medicine and Biology* (Ed., M. L. Wolbarsht), Plenum Press, NY, 2: (1974).

91. Mulvaney, W. P., et al., The laser beam in urology, *J Urol*, 99: 112-115 (January 1968).

92. Mumma, M. J., Kostiuik, T., and Buhl, D., A 10 um Laser Heterodyne Spectrometer for Remote Detection of Trace Gases, *Opt Engin*, 17(1): 50-55 (1978).

93. Nunn, W. M., and Litwin, M., The laser in medicine and biology; an appraisal, *Mil Med*, 134: 591-596 (August 1969).

94. Powell, T., Laser applications in anesthetic research, *J Anaesth*, 39: 751-755 (September 1967).

95. Pratesi, R., and Sacchi, C. A. (Editors), *Lasers in Photomedicine and Photobiology*, Springer Series in Optical Sciences Pringer-Verlag Berlin, Heidelberg, New York, Volume 22.

96. Preston, J. D., Laser fusion of selected dental casting alloys, *J Dent Res*, 54(2): 232-238 (March-April 1975).

97. Razygrin, B. A., Design characteristics of a light-scalpel type of laser apparatus, *Nov Med Tekh*, 1: 18-22 (1977) (English abstract, Russian).

98. Redman, J. D., Medical applications of holographic visual displays, *J Sci Instr*, 2: 651-652 (August 1969).

99. Redman, J. D., et al., Three-dimensional x-ray pictures, *J Physiol (London)*, 202: 16 (May 1969).

100. Reiser, C., and Steinfeld, J. I., Energy Deposition in Molecules Resulting from Multiple Infrared Photon Absorption, *Opt Engin*, 19(1): 2-10 (1980).

101. Riggle, G. C., Hoyer, R. C., and Ketcham, A. S., Laser effects on normal and tumor tissue, *Laser Applications in Medicine and Biology* (Ed., M. L. Wolbarsht), Plenum Press, NY, 35-36 (1971).

102. Rosan, R. C., Brech, F., and Glick, D., Current problems in laser microprobe analysis, *Fed Proc*, 24: S-126 - S-128 (1965).

103. Rosen, A. N., Fundus holography through a wide-angle contact lens, *Invest Ophth*, 12(10): 786-788 (October 1973).

104. Rounds, D. E., Olson, R. S., and Booker, J., Measurement of the cell migration index with a He-Ne laser, *Ann NY Acad Sci*, 267: 152-159 (1976).

Laser Hazards Bibliography

105. Rounds, D. E., Opel, W., and Olson, R. S., The potential use of laser energy in the management of malaria, *Biochem Biophys Res Commun*, 32: 616-623 (August 1968).
106. Russell, J. R., Stevens, M., and Boone, M. L., In vivo microscopic holography, *Phys Med Biol*, 15: 191-192 (January 1970).
107. Sandlin, R., et al., Application of laser interferometry to physiological studies of excitable tissues, *Nature (London)*, 217: 575- 576 (10 February 1968).
108. Schachar, R. A., Experimental destruction of cataractous lenses by laser, *Surg Forum*, 24: 506-508 (1973).
109. Schellhas, H. F., Laser surgery in gynecology, *Surg Clin North Am*, 58(1): 151-166 (1978).
110. Schwarz, H. J., and Hora, H., Laser interaction and related plasma phenomena, Plenum Press, NY, 2: (1972).
111. Shuttleworth, E., et al., Three-dimensional x-ray images using holographic techniques, *Br J Radiol*, 44: 901 (November 1971).
112. Siler, V. E., The present status of laser in medicine, *Postgrad Med*, 46: 82-86 (August 1969).
113. Squassabia, A. B., Laser radiation in biology, *Recent Progr Med (Roma)*, 42: 465-489 (May 1967).
114. Squassabia, A. B., Laser radiation in medicine, preliminary trials on animals and humans, *Recent Progr Med (Roma)* 42: 553-572 (June 1967).
115. Stahle, J., et al., The laser as a tool in inner surgery, *Acta Otolaryngol (Stockh)*, 73: 27-37 (January 1972).
116. Steigler, G., Laser treatment of the anterior segment of the eye with the new glaucoma research laser, *Klin Monatsbl Augenheilkd*, 169(6): 677 (1976).
117. Stellar, S., The carbon dioxide laser in experimental and clinical surgery for neoplasms, *Panminerva Med*, 16(1-2): 32-36 (January-February 1974).
118. Stellar, S., Polanyi, T. G., and Bredemeier, H. C., Lasers in surgery, in *Laser Applications in Medicine and Biology* (Ed., M. L. Wolbarsht), Plenum Press, NY, 2: (1974).

Laser Hazards Bibliography

119. Stern, R. H., Dentistry and the Laser, in Laser Applications in Medicine and Biology (Ed., M. L. Wolbarsht), Plenum Press, NY, 1: 91-124 (1971).
120. Stern, R. H., Dentistry and the Laser, in Laser Applications in Medicine and Biology (Ed., M. L. Wolbarsht), Plenum Press, NY, 2: 361-388 (1974).
121. Stroke, G. W., Holography and its applications, Phys Med Biol, 14: 330 (April 1969).
122. Tomlinson, J., Ultrasonic holography, Brit J Radiol, 43: 227-228 (March 1970).
123. Tonndorf, J., and Khanna, S. M., Submicroscopic displacement amplitudes of the tympanic membrane measured by a laser interferometer, J Acoust Soc Am, 44: 1546-1554 (December 1968).
124. Tsunenari, S., Watanabe, S., Takahama, K., and Kanda, M., A method to determine the corneal turbidity by the application of laser, Jap J Legal Med, 25: 373-375 and 25(6): 419-424 (1971).
125. Vaughn, C. W., Transoral laryngeal surgery using the CO₂ laser: laboratory experiments and clinical experience, Laryngoscope, 88(9Pt1): 1399-1420 (1978).
126. Vaughan, K. D., and Laing, R. A., Holography of the Eye, in Laser Applications in Medicine and Biology (Ed., M. L. Wolbarsht), Plenum Press, NY, 2: (1974).
127. Waitman, A. M., Spica, I., Chrysanthou, C. P., and Stenger, R. J., Fiberoptic-coupled argon laser in the control of experimentally produced gastric bleeding, Gastrointestinal Endoscopy, 22(2): 79-81 (1975).
128. Wear, J. O., et al., The laser and its biomedical application, Southern Med J, 62: 588-592 (May 1969).
129. West, D. C., Positional control of laser photocoagulator lesions near the fovea, Brit J Ophth, 52: 939 (December 1968).
130. Wheeler, C. B., Laser iridectomy, Phys Med Biol, 22(6): 1115-1135 (1977).
131. Wiggins, R. L., Vaughan, K. K., and Friedmann, G. B., Fundus Camera Holography of Retinal Microvasculature, Arch Ophth, 88: 75-79 (July 1972).
132. Williams, G. T., Ballard, R. L., and Hall, M. G., Mechanical movement of the insect heart recorded with a continuous laser beam, Nature (London), 220: 1241-1242 (21 December 1968).

Laser Hazards Bibliography

133. Wolbarsht, M. L. (Ed.), Laser Applications in Medicine and Biology, Plenum Press, NY (Vol 1 and 2 in 1974).
134. Wolbarsht, M. L., Ophthalmic uses of lasers, in (Sacchi, et. al., eds), "Lasers in Biology and Medicine", Plenum Press, New York (1980).
135. Wolbarscht, M. L., and Landers, M. B. III, Lasers in Ophthalmology: the path from Theory to Application, Appl Opt, 18(10): 1518-1525 (1979).
136. Wolbarsht, M. L., and Landers, M. B. III, The rationale of photocoagulation therapy for proliferative diabetic retinopathy: A review and a model, Ophthalmic Surv, 11(4): 236-245 (1980).
137. Zeitler, E., and Wolbarsht, M. L., Laser characteristics that might be useful in biology, in Laser Applications in Medicine and Biology (Ed., M. L. Wolbarsht), Plenum Press, NY, 1: 1-18 (1971).
138. Zivi, S. M., et al., Chest motion visualized by holographic interferometry, Med Res Eng, 9: 5-7 (June 1970).
139. Zweng, H. C., Laser photocoagulation and retinal angiography, Mosby, NY (1969).
140. Zweng, H. C., Lasers in ophthalmology, Laser Applications in Medicine and Biology (Ed., M. L. Wolbarsht), Plenum Press, NY, 1: 239-254 (1971).
141. Zweng, H. C., Central vein obstruction: results of argon laser photocoagulation therapy, Ann Ophthalmol, 10(10): 1355-1358 (1978).

II. BIOEFFECTS-GENERAL.

1. Baba, K., Selective injury of mitochondria with janus green B and ruby laser light - enzyme morphological and ultrastructural study, Acta Path Jap, 20: 59-78 (February 1970).
2. Babayan, R., and Farthman, E., Laser and wound healing, Zentralbl Chir, 102(20): 1247-1250 (1977).
3. Bard, D. S., et al., Immunologic studies of inbred rats after exposure of normal and neoplastic tissues to laser energy or electrocautery, Am J Surg, 116: 807-812 (December 1968).
4. Barnes, F. S., Biological damage resulting from thermal pulses, in Laser Applications in Medicine and Biology (Ed., M. L. Wolbarsht), Plenum Press, NY, 2: 205-222 (1974).

Laser Hazards Bibliography

5. Barnes, F. S., Ju, C., Lauridson, J. R., and McGibbon, A. L., Characteristics of biological damage by lasers, Northeast Electronics Research and Engineering Meeting Record (IEEE), 8: 164-165 (1966).
6. Basov, N. G., Gromov, V. V., Markin, Ye., P., Orayerskiy, A. N., Pleshanov, P. G., and Rulberg, R. A., The effect of laser radiation on human blood plasma, Kvantovaya Elektronika, 1(9): 2098-2099 (September 1974).
7. Berns, M. W., Floyd, A. D., and Olnuki, Y., Chromosome lesions produced with an argon laser microbeam without dye sensitization, Science, 171: 903-905 (March 1971).
8. Berns, M. W., Olson, R. S., Rounds, D. E., and Matsul, S., Enzyme inactivation with ultraviolet laser energy (2650 Å), Science, 169: 1215-1217 (18 September 1970).
9. Berns, M. W., Microbeams, in Laser Applications in Medicine and Biology (Ed., M. L. Wolbarsht), Plenum Press, NY, 2: 1-40 (1974).
10. Berns, M. W., et al., Modification of nucleolar expression following laser micro-irradiation of chromosomes, Exp Cell Res, 60: 133-138 (April 1970).
11. Berns, M. W., Olson, R. S., and Rounds, D. E., In vitro production of chromosomal lesions with an argon laser microbeam, Nature (London), 221: 74-75 (January 1969).
12. Berns, M. W., Ratner, J. B., Meredith, S., and Witter, M., Current laser microirradiation studies, Ann NY Acad Sci, 267: 160-175 (1976).
13. Berns, M. W., Rounds, D. E., and Olson, R. S., Effects of laser micro-irradiation on chromosomes, Exp Cell Res, 56: 292-298 (August 1969).
14. Berns, M. W., and Olson, R. S., Argon laser micro-irradiation of nucleoli, J Cell Biol, 43: 621-626 (December 1969).
15. Berns, M. W., The laser microbeam as a probe for chromatin structure and function, Methods Cell Biol, 18: 277-294 (1978).
16. Bickford, E. D., Biological effects of full-spectrum lighting, Ocular Effects of Nonionizing Radiation, Proc. SPIE 229, 2-6, 1980.
17. Borodiuk, N. R., Longitudinal light scattering effect, Biofizika, 23(4): 723-725 (1978).
18. Carome, E. F., Laser-induced acoustic breakage of tobacco mosaic virus, Nature (London) 221: 660-661 (15 February 1969).

Laser Hazards Bibliography

19. Chiou, W. C., Optical characteristics of laser safety devices, US Army Aeromed Res Lab, Ft Rucker, AL, Report USAARL-77-17 (June 1977).
20. Chung, C. M., and Kong, Y. F., No evidence of lactase deficiency related to phototherapy of jaundiced children, N Engl J Med, 295(26): 1483-1484 (1977).
21. Cleworth, D., and Edman, K. A., Laser diffraction studies on single skeletal muscle fibers, Science, 163: 296-298 (17 January 1969).
22. Cohen, E., et al., Effects of laser irradiation on some serologic properties of human gamma globulin, Life Sci, 7: 569-581 (15 June 1968).
23. Connor, W. G., Method for gantry angle repositioning of rotating teletherapy equipment, Med Phys 2(5): 278-9 (1975).
24. Corber, G. A., and Nicholson, W., Comparative kinetic behavior of the photoinduced EPR signal observed in whole cells and cell free preparations of rhodospirillum rubrum, Arch Biochem, 137: 75-83 (March 1970).
25. Corth R., Biological effects of artificial illumination, Occular Effects of Nonionizing Radiation, Proc. SPIE 229: 7-10, 1980.
26. Crocket, P. W., Biological effects of laser radiation: a bibliography with abstracts, Report for 1964 - Jan 1978, NTIS 391 812, Springfield, VA, supersedes NTIS/PS-77/0028 (1978).
27. Cox, H. L., Jr., New method for exposing mammalian cells to intense laser radiation using the evanescent fields created in optical waveguides, Med Phys, 5(4): 274-279 (1978).
28. Derlemenko, L. I., Dynamics of temperature changes in tissues during laser irradiation, Biofizika, 23(3): 556-558 (1978).
29. Derr, V. E., Klein, E., and Fine, S., Free radical occurrence in some laser-irradiated biologic materials, Fed Proc, 24: S-99 - S-103 (1965).
30. Deschaux, R., et al., Action of the ruby laser on bacteria, C R Soc Biol (Paris), 162: 1376-1379 (8 February 1969).
31. Drew, J. H., Mariage, K., Bayle, V. V., Bazraszewski, E., and McNammara, J. M., Phototherapy: short and long-term complications, Arch Dis Child, 51(6): 454-458 (1976).
32. Earle, K. M., Garner, F. M., Kraner, K. L., McKnight, W. B., and Dearman, J. R., Some effects of neodymium laser radiation upon the head of dogs, Mil Med, 132(1) AD648204 (February 1967).

Laser Hazards Bibliography

33. Earle, K. M., Carpenter, S., Roessmann, U., Ross, M. A., Hayes, J. R., and Zeitler, E., Central nervous system effects of laser radiation, Fed Proc, 24: S-129 - S-139 (1965).
34. Edlow, J., Fine, S., Vawter, G. F., Jockin, H., and Klein, E., Laser irradiation: effect on rat embryo and fetus in utero, Life Sci, 4(5): 615-623 (1965).
35. Eichler, J., Measurement on the depth of penetration of light (0.35 - 1.0 u) in tissue, Radiat Environ Biophys, 14(3): 239-242 (1977).
36. Ellinger, M. S., King, D. R., and McKinnell, R. G., Androgenetic haploid development produced by ruby laser irradiation of anuran ova, Radiat Res, 62(1): 117-122 (April 1975).
37. Fine, S., and Hansen, W. P., Optical second harmonic generation in biological systems, Appl Opt, 10(10): 2350-2353 (October 1971).
38. Fine, S., Maiman, T. H., Klein, E., and Scott, R. E., Biological effects of high peak power radiation, Life Sci, 3: 269-222 (1964).
39. Fine, S., and Klein, E., Effects of pulsed laser irradiation of the forehead of mice, Life Sci, 3: 19-207 (1964).
40. Fine, S., and Klein, E., Biological effects of laser radiation, in Advances in Biological and Medical Physics, Academic Press, NY, 10: 149-225 (1965).
41. Fine, S., Klein, E., Novak, W., Scott, R. E., Laor, Y., Simpson, L., Crissey, J., Donogue, J., and Derr, V. E., Interaction of laser radiation with biologic systems. I. Studies on interaction with tissues, Fed Proc, 24 (Suppl 14): S-35 - S-45 (January-February 1965).
42. Fine, S., et al., Laser irradiation of biological systems, IEEE Spectrum, 81-95 (April 1964).
43. Fine, S., Focal hepatic injury and repair produced by laser radiation. Pathologic and biophysical studies, Am J Path, 52: 155-176 (January 1968).
44. Flint, G., Laser induced acoustic effects, Las Foc Mag (August 1967).
45. Foord, R., et al., Determination of diffusion coefficients of haemocyanin at low concentration by intensity fluctuation spectroscopy of scattered laser light, Nature (London), 227: 242-245 (18 July 1970).

Laser Hazards Bibliography

46. Ford, N. C., Jr., Lee, W., and Karase, F. E., Laser light scattering by poly-alpha-amino acid solutions, *J Chem Phys*, 50(7): 3098-3099 (April 1969).
47. Fox, J. L., Green, R. C., and Hayes, J. R., Recent developments in biologic effects of laser radiation, *Med Ann District of Columbia*, 34: 353-356 (August 1965).
48. Fox, J. L., Hayes, J. R., Stein, M. N., Green, R. C., and Paanen, R., Experimental cranial and vascular studies of the effects of pulsed and continuous wave laser radiation, *J of Neurosurgery*, 27: 126-137 (August 1967).
49. Fox, J. L., et al., Effects of radiation on the central nervous system. II. The intracranial explosion, *J Neurol Neurosurg Psychiat*, 31: 43-49 (February 1968).
50. Furumoto, K., et al., Medical and dental use of lasers. I. Effects of lasers on hard tissue, *Nippon Acta Radiol*, 28: 229-239 (June 1968).
51. Gill, D., et al., Resonance raman scattering of laser radiation by vibrational modes of carotenoid pigment molecules in intact plant tissues, *Nature (London)*, 227: 743-744 (15 August 1970).
52. Goldman, L., et al., Effects of laser impacts on teeth, *J Am Dental Assn*, 70: 601-606 (March 1965).
53. Goldman, L., Laser treatment of cancer, *Progr Clin Cancer*, 3: 205-220 (1967).
54. Goldman, L., et al., Investigative studies with the laser in the treatment of basal cell epitheliomas, *Southern Med J*, 61: 735-742 (July 1968).
55. Goldman, L., et al., Preliminary investigation of fat embolization from pulsed ruby laser impacts of bone, *Nature*, 221(5178): 361-363 (25 January 1969).
56. Goldstein, S. F., Irradiation of sperm tails by laser microbeam, *J Exp Biol*, 51: 431-444 (November 1969).
57. Gorden, T. E., et al., Laser blockage or delay of cell division at prophase in human leucocyte cultures, *J Dent Res*, 47: 171 (February 1968).
58. Griffen, J. L., et al., Laser microscope irradiation of physarum polycephalum: dynamic and ultrastructural effects, *J Cell Biol*, 40: 108-119 (January 1969).

Laser Hazards Bibliography

59. Gromisch, D. S., Lopez, R., Cole, H. S., and Cooperman, J. M., Light (phototherapy)-induced deficiency in the neonate, *J Pediatr*, 90(1): 118-122 (1977).
60. Grosman, Z., et al., Phase contrast observation on influence of ruby laser-radiation on living cells, *Folia Biol (Praha)* 15: 204-208 (1969) and *Folia Biol (Krakow)*, 17: 205-208 (1969).
61. Hadley, M. E., Functional significance of vertebrate integumental pigmentation, *Am Zoologist*, 12: 63-76 (1972).
62. Hall, R. R., The healing of tissues incised by a carbon-dioxide laser, *Br J Surg*, 58: 222-225 (March 1971).
63. Halldorsson, T., and Langerholm, J., Thermodynamic Analysis of Laser Irradiation of Biological Tissue, *Appl Opt*, 17(24): 3948-3958 (1978).
64. Hamrick, P. E., and Cleary, S. F., Breakage of tobacco mosaic virus by acoustic transients: a hydrodynamical model, *J Acoust Soc Am*, 45(1): 1-6 (January 1969).
65. Hamrick, P. E., and Cleary, S. F., Laser-induced acoustic breakage of tobacco mosaic virus, *Nature (London)* 220: 909-910 (30 November 1968).
66. Hansen, W. P., Fine, S., Peacock, G. R., and Klein, E., Focusing of laser light by target surfaces and effects on initial temperature conditions, *NEREM Record*, TPM-2 (1965).
67. Hasegawa, K., et al., Photosensitized bleaching of beta-carotene with light at 632.8 nm from a continuous-wave gas laser, *Photochem Photobiol*, 9: 165-169 (February 1969).
68. Hayes, J. R., Fox, J. L., and Stein, M. N., The effects of laser irradiation on the central nervous system. I. preliminary studies, *J Neuropath Exper Neurol*, 26(2): 250-258 (April 1967).
69. Hildreth, W. W., Laser-activated electron transport in a *Chlamydomonas* mutant, *Plant Physiol*, 43: 303-312 (March 1968).
70. Hogberg, L., et al., Effect of high power ruby laser irradiation on peripheral nerve, *Acta Soc Med Upsal*, 72: 106-119 (1967).
71. Hogberg, L., et al., The transmission of a high-power ruby laser beam through bone, *Acta Soc Med Upsal*, 72: 223-228 (1967).
72. Hoye, R. C., et al., Potentiation of laser oncolysis with pretreatment x-irradiation, *Radiat Res*, 32: 112-116 (September 1967).

Laser Hazards Bibliography

73. Hoyer, R. C., et al., Laser destruction of experimental tumors: state of the art and protection of personnel, *Am Ind Hyg Assn J*, 29: 173-180 (March-April 1968).
74. Hoyer, R. C., Riggle, G. C., and Ketcham, A. S., Effects of neodymium laser on normal liver and Vx2 carcinoma transplanted into the liver of experimental animals, *J Nat Cancer Inst*, 41: 1071-1082 (November 1968).
75. Huff, L., and Deshazer, L. G., Laser saturation of optical transitions in a starch component: the amylose - iodine - iodide complex, *Photochem Photobiol*, 11: 93-97 (February 1970).
76. Igleman, J. M., and Rotte, T., Effects of laser radiation on tyrosinase, *Fed Proc*, 24: S-94 - S-96 (1965).
77. Igleman, J. M., et al., Exposure of enzymes to laser radiation, *Ann NY Acad Sci*, 122: 790-801 (28 May 1965).
78. Jamieson, C. W., Litwin, M. S., Longo, S. E., et al., Enhancement of melanoma cell culture growth rate by ruby laser radiation, *Life Sci*, 8: 101-106 (15 January 1969).
79. Janisch, W., et al., Effect of laser beams on the exposed cerebrum of experimental animals, *Zbi Allg Path*, 110: 458-464 (1967).
80. Janovski, M., and Jirsova, V., Various pitfalls of phototherapy, *Gesk Pediatr*, 31(6): 337-338 (1976).
81. Jesionowski, M., Investigations on the effect of laser radiation on the dental pulp in rabbits, *Pol Med J*, 9: 468-474 (1970).
82. Keleman, G., et al., Laser induced ear damage, *Arch Otolaryng* (Chicago), 86: 603-609 (December 1967).
83. Kinnersly, T., et al., Laser effects on tissues and materials related to dentistry, *J Am Dental Assn*, 70: 593-600 (March 1965).
84. Klein, E., Fine, S., Ambrus, J., Cohen, E., Neter, E., Ambrus, C., Bardos, T., and Lyman, R., Interaction of laser radiation with biologic systems. III. Studies on biologic systems in vitro, *Fed Proc*, 24: S-104 - S-110 (1965).
85. Klein, E., Fine, S., Laor, Y., Simpson, L., Ambrus, J., Richter, W., Smith, G. K., and Aaronson, C., Interaction of laser radiation with biologic systems. II. Experimental tumors, *Fed Proc*, 24: S-143 - S-149 (1965).
86. Klein, E., Hazards of the laser, *Hosp Prac*, 2(5) (May 1967).

Laser Hazards Bibliography

87. Kolar, J., et al., Some effects of laser upon the bones, *Experientia*, 25: 365-366 (15 April 1969).
88. Landers, M. B., The current status on laser usage in ophthalmology, *Ann NY Acad Sci*, 267: 230-46 (1976).
89. Langerhole, J., Moving phase transitions in laser-irradiated biological tissue, *Appl Opt*, 18(13): 2286-2293 (1979).
90. Leheta, F., and Garish, W., Coagulation and resection of bloodvessels with the argon Laser, *Fortschritte der Medizin*, 93(13): 653-657 (8 May 1975).
91. Levine, N. S., Salisbury, R. E., Peterson, H. D., and Pruitt, B. A., Clinical evaluation of the carbon dioxide laser for burn wound excisions: a comparison of the laser scalpel and electrocautery, *J Trauma*, 15(9): 800-807 (1975).
92. Litwin, M. S., and Glew, D. H., The biological effects of laser radiation, *J Am Med Assn*, 187: 842-847 (14 March 1964).
93. Lobene, R. R. and Fine, S., Interaction of laser radiation with oral hard tissues, *J Prosth Den*, 16(3): 589-597 (May-June 1966).
94. Lobene, R. R., et al., Interaction of carbon dioxide laser radiation with enamel and dentin, *J Den Res*, 47: 311-317 (March-April 1968).
95. Longini, R. L., and Zdrojowski, R., A note on the backscattering of light by living tissue, *IEEE Trans Biomed Engin*, BME-15: 4-10 (January 1968).
96. Madden, J. E., et al., Studies in the management of the contaminated wound. IV. Resistance to infection of surgical wounds made by knife, electrosurgery, and laser, *Am J Surg*, 119: 222-224 (March 1970).
97. Malt, R. A., Effects of laser radiation on subcellular components, *Fed Proc*, 24: S-122 - S-125 (1965).
98. Mannerberg, F., Kantola, S., and Scheinin, A., Laser-induced effects on tooth structure. III. Single pulse impacts on surface enamel as observed in shadowed replicas, *Acta Odont Scand*, 27: 467-476 (October 1969).
99. McCartney, A. J., A consideration of the biological effects of laser, *Mil Med*, 130(11): 1069-1077 (November 1965).
100. McKinnell, R. H., et al., Laser ablation of maternal chromosomes in eggs of *Rana pipiens*, *Z Zellforsch*, 93: 30-35 (1969).

Laser Hazards Bibliography

101. Meistrich, M. L., Fork, R. L., and Jean, M., Phototropism in phycomyces as investigated by focused laser radiation, *Science*, 169: 370-371 (24 July 1970).
102. Mester, E., et al., Laser beam effect on the growth of the Ehrlich ascites tumor, *Arch Geschwulstforsch*, 32: 201-206 (1968).
103. Mester, E., The effect of low laser radiation repeatedly administered over a longer period on the skin and inner organs of mice, *Radiol Radiother*, 10: 371-378 (1969) (German).
104. Meyer, R. A., Light scattering from biological cells: dependence of backscatter radiation on membrane thickness and refractive index, *Appl Opt*, 18: 585-592 (March 1979).
105. Moore, W., Jr., Biological Aspects of Laser Radiation, A Review of Hazards, US Department of Health, Education, and Welfare, Bureau of Radiological Health, Rockville, MD (January 1969).
106. Morein, G., Bone growth alterations resulting from CO₂ laser beam to the epiphyseal growth plates. An experimental study in rabbits, *Acta Orthop Scand*, 49(3): 244-248 (1978).
107. Moreno, G., et al., Partial cell irradiation by ultraviolet and visible light: conventional and laser sources, *Int Rev Exp Path*, 7: 99-137 (1969).
108. Mullins, F., et al., Liver resection with the continuous wave carbon dioxide laser: some experimental observations, *Am Surg*, 34: 717-722 (October 1968).
109. Ognev, B. V., Vishnevskii, A. A., Jr., Troitskii, R. A., Karpenko, O. M., and Razygrin, B. A., The action of Nd lasers on the parenchyma of the testis, *Bull Exp Biol Med*, 77(2): 186-7 (August 1974).
110. Parsons, R. L., et al., Carcinoma of the penis treated by the ruby laser, *J Urol*, 100: 38-39 (July 1968).
111. Paul, J. S., et al., Laser-induced changes in DNA synthesis and embryonic development in sea urchins, *Exp Cell Res*, 60: 166-174 (May 1970).
112. Poyton, H. G., The effects of radiation on teeth, *Oral Surg*, 26: 639-646 (November 1968).
113. Rajaraman, R., and Kamra, O. P., A reconsideration of the properties of a pulsed ruby laser in relation to microsurgery, *Photochem Photobiol*, 11: 121-129 (February 1970).

Laser Hazards Bibliography

114. Rajamaran, R., and Kamra, O. P., Ultrastructural changes in *Ulva lactuca linnaeus* after exposure to ruby or neodymium laser radiation: a preliminary report, *J Ultrastruct Res*, 29: 430-437 (December 1969).

115. Revusky, S. H., Some Effects of Ruby Laser Irradiation on Rat Performance, US Army Med Res Lab, Report No. 759 (16 November 1967).

116. Robertson, J. L., et al., Cellular effects from microbeam irradiation of *basidiobolus ranarum* with a laser, *Mycologia*, 62: 227-233 (March-April 1970).

117. Rounds, D. E., Effects of laser radiation on cell cultures, *Fed Proc*, 24: S-116 - S-121 (1965).

118. Rounds, D. E., Laser radiation of tissue cultures, *Ann NY Acad Sci*, 122: 713-720 (1965).

119. Rounds, D. E., and Olsen, R. S., Photoactivation of smooth muscle with the ruby laser, USAF School of Aerospace Medicine, Brooks AF Base, TX, Report SAM-TR-67-66 (August 1967).

120. Rounds, D. E., et al., The effect of the laser on cellular respiration, *Z Zellforsch*, 87: 193-198 (1968).

121. Scheinin, A., et al., Laser-induced effects of tooth structure 1. Crater production with a CO₂ laser, *Acta Odont Scand*, 27: 173-179 (May 1969).

122. Schreiber, G., Oswald, H., Danz, M., Freund, E., and Stupendhau, G., CO₂-laser effects on peripheral medullated nerves, *Z Exp Chir*, 7(1): 2-8 (1974) (English abstract, German).

123. Seibert, M., et al., Relations between the laser-induced oxidations of the high and low potential cytochromes of chromatium d, *Biochem Biophys Acta*, 205: 220-231 (1970).

124. Shear, C. R., Muscle damage and regeneration after exposure to incandescent and fluorescent illumination, *Exp Neurology*, 35: 233-238 (1972).

125. Smithwick, G. A., and Kent, P. R., Bibliography of Biological and/or Biomedical Effects of Laser Radiation, Groten Conn, US Naval Submarine Med Center, page 12 (AD 481463) (26 January 1966).

126. Squassabia, A., et al. Observations on the in vitro irradiation of cells with a laser microbeam, *Radiobiol Radiator Fis Med*, 22: 65-76 (March-April 1967).

Laser Hazards Bibliography

127. Stellar, S., et al., Carbon dioxide laser for excision of burn eschars, *Lancet*, 1: 945 (8 May 1971).
128. Stepanov, B. I., Regulation of the functional activity of human cells with laser radiation, *Dokl Akad Nauk SSSR*, 236(4): 1007-1010 (1977) (Russian).
129. Stern, L., The current status of phototherapy, *Birth Defects*, 12(2): 1-2 (1976).
130. Stern, R. H., et al., Laser effects on vital dental pulps, *Brit Dent J*, 127: 26-28 (1 July 1969).
131. Storb, R., et al., An electron microscopy study of vitally stained single cells irradiated with a ruby laser, *J Cell Biol*, 31: 11-29 (October 1966).
132. Tanaka, Y., Effect of the ruby laser microbeam on mitochondria of KB cells supravitaly stained by pinacyanol, *J Cell Biol*, 41: 424-430 (May 1969).
133. Taylor, H. A., and Ebbers, R. W., Effect of Pulsed Laser Radiation on Discriminative Avoidance Behavior, Holloman Air Force Base, NM, Air Force Systems Command (AD 650086) (3 November 1966).
134. Tomberg, V. T., Nonthermal biological effects of laser beams, *Nature*, 204: 868-870 (1964).
135. Tomson, S. H., Tumor destruction due to acridine orange photoactivation by argon laser, *Ann NY Acad Sci*, 267: 191-197 (1976).
136. Tsou, K. C., et al., A cytochemical approach to ruby laser microsurgery: Preliminary study in tissue culture and rabbit eye, *Surg Forum*, 20: 487-488 (1969).
137. Tsvetkova, G. M., Savchenko, L. V., and Razygrin, B. A., Dynamics of morphological changes of tissues of the ear concha of a rabbit under the effect of laser rays, *Vestn Dermatol Venerol*, 0(6): 43-46 (June 1974) (English abstract, Russian).
138. Urazaev, A. M., Optical properties of tissues and organs in relation to laser rays with a wavelength of 632.8 and 488 nm, *Biull Eksp Biol Med*, 85(5): 537-539 (1978).
139. Urazalin, Zh. B., Effect of monochromatic red light on mandibular fracture healing, *Stomatologiya*, 57(5): 5-9 (1978).

Laser Hazards Bibliography

140. Van Pelt, W. F., Payne, W. R., and Peterson, R. W., A review of selected bioeffects thresholds for various spectral ranges of light, US Department of Health, Education, and Welfare, Bureau of Radiological Health - DHEW Publication (FDA) 74-8010, Rockville, MD, 60 pp. (June 1973).
141. Wang, R. J., Lethal effects of "daylight" fluorescent light on human cells in tissue-culture medium, *Photochem Photobiol*, 21: 373-375 (1975).
142. Weiss, C., Jr., et al., Activation kinetics of photosynthetic oxygen evolution under 20-40 nanosecond laser flashes, *Photochem Photobiol*, 11: 495-501 (June 1970).
143. Wurtman, R. J., and Cardinali, D. P., The effects of light on man, *Birth Defects*, 12(2): 100-113 (1976).
144. Wilpizeski, G., et al., Longterm consequences of vestibular ablation by laser in a monkey, *Laryngoscope*, 84: 273-80 (February 1974).
145. Witt, P. N., Behavioral consequences of laser lesions in the central nervous system of *araneus diadematus*, *Cl Am Zool*, 9: 121-131 (February 1969).
146. Yamada, E., Some structural features of the fovea centralis, *Arch Opth*, 82: 151-159 (August 1969).
147. Zubkova, S. M., Mechanism of biological effect of helium-neon laser irradiation, *Biol Nauki*, (7): 30-37 (1978).
148. Zubkova, S. M., State of the mitochondria and nuclear chromatin in cerebral nerve cortex nerve cells during laser irradiation, *Vopr Med Khim*, (3): 326-330 (1978).

III. SKIN EFFECTS.

1. Anders, A., Lamprecht, H., Schaefer, H., and Zacharias, H., The use of dye lasers for spectroscopic investigation and photodynamic therapy of human skin, *Arch Derm Res*, 255: 211-214 (1976).
2. Apfelberg, D. B., Argon laser treatment of cutaneous vascular abnormalities: progress report, *Ann Plast Surg*, 1(1): 14-18 (1978).
3. Arakelian, L. A., Experimental irradiation of human cadaver skin with a pulse laser ray, *Izv Akad Navk SSSR*, (2): 239-244 (1978).
4. Arakelian, L. A., Discrimination of an electrocution mark from a laser mark, *Sud Med Ekspert*, 21(3): 50 (1978).

Laser Hazards Bibliography

5. Arakelian, L. A., Laser lesions of a cadaver and textile fabrics (an experimental study), *Sud Med Ekspert*, 20(2): 9-15 (1977).
6. Arakelian, L. A., Experimental injury of living piglets by pulsed laser irradiation, *Izv Akad Nauk SSSR [Biol]* (4): 582-588 (1977).
7. Baer, R. L., and Harber, L. C., Light sensitivity in biologic systems. Phototoxicity and photoallergy related to visible light, *Fed Proc*, 24: S-15 - S-21 (1965).
8. Barkovskii, V. S., Reaction of vessels of the microcirculatory bed of subcutaneous tissue to exposure to an argon laser beam, *Biull Eksp Biol Med*, 85(6): 670-673 (1978).
9. Barth, J., Hoffman, C., and Fickweiler, E., Studies in the photohemolytic effects of drugs and industrial substances, *Dermatol Monatsschr*, 163(8): 613-618 (1977).
10. Ben-Bassat, M., A study of the ultrastructural features of the cut margin of skin and mucous membrane specimens excised by carbon dioxide laser, *J Surg Res*, 21(2): 77 (1976).
11. Black, H. S., and Chan, J. T., Experimental ultraviolet light-carcinogenesis, *Photochem and Photobiol*, 26: 183-199 (1977).
12. Blum, H. F., Physiologic effects of sunlight on man, *Physiol Rev*, 25: 483-530 (1945).
13. Bodecker, V., Rudolph, M., and Grotelushen, B., Measurement of the intensity distribution of YAG laser radiation in tissue, *Biomed Tech (Stuttg)*, 19(4): 160-162 (August 1974) (English abstract).
14. Bozduganor, A., et al., Histological and histochemical examinations of the skin after irradiation by ruby laser, *Radiobiol Radiother (Berl)* 14: 703-10, (1973).
15. Brownell, A. S., Hysell, D. K., and Parr, W. H., Millisecond Exposure of Porcine Skin to Simulated CO₂ Laser Radiation, USAMRL Report 953, US Army Medical Research Laboratory, Fort Knox, KY (22 October 1971).
16. Brownell, A. S., Parr, W. H., and Dedrick, R. S., CO₂ Laser Induced Skin Lesions, USAMRL Report 769, US Army Medical Research Laboratory, Fort Knox, KY (1968).
17. Brownell, A. S., Parr, W. H., and Hysell, D. K., Skin and carbon dioxide laser radiation, *Arch Environ Health*, 18: 437-442 (March 1969).

Laser Hazards Bibliography

18. Brownell, A. S., et al., Threshold Lesions Induced in Porcine Skin by CO₂ Laser Radiation, Report 732 by the US Army Medical Research Laboratory, Fort Knox, KY, 9 (7 June 1967).
19. Buettner, K., Effects of extreme heat and cold on human skin. Numerical analysis and pilot experiments on penetrating flash radiation effects, J Appl Physiol, 5: 207 (1952).
20. Buettner, K., Thermal radiation and the reflection properties of human skin, Strahlentherapie, 58: 345-360 (1937).
21. Carney, S. A., Lawrence, J. C., and Ricketts, C. R., The effect of light from a ruby laser on the metabolism of skin in tissue culture, Biochem Biophys Acta, 148: 525-530 (28 November 1967).
22. Chedekel, M. R., Post, P. W., Deibel, R. M., and Kalus, M., Photodestruction of pheomelanin, Photochem Photobiol, 26: 651-653 (1977).
23. Clark, C., Vinegar, R., and Hardy, J., Goniometer spectrometer for the measurement of diffuse reflectance and transmittance of skin in the infrared spectral region, J Opt Soc Am, 43: 993-998 (1953).
24. Clayman, L., Healing of continuous-wave and rapid superpulsed, carbon dioxide, laser induced bone defects, J Oral Surg, 36(12): 932-937 (1978).
25. Davies, J. M., Skin simulants for studies of protection against intense thermal radiation, Rev Sci Instr, 41: 1040-1049 (July 1970).
26. Davis, T. P., The Heating of Skin by Radiant Energy, Temperature, Its Measurement and Control in Science and Industry, 3: 149-169, Herzfeld, C. M., and Hardy, J. D., (eds), Reinhold Publishing Corporation, NY (1963).
27. Derksen, W. L., Bracciaventi, J., and Mixter, G. Jr., Burns to Skin by Millisecond Light Pulses, DASA Report 1532, US Naval Applied Science Laboratory, Brooklyn, NY (AD 607388) (July 1964).
28. Derksen, W. L., Monahan, T. I., and Delhery, G. P., The Temperature Associated with Radiant Energy Skin Burns. Temperature, Its Measurement and Control in Science and Industry, 3: 171-175, Herzfeld, C. M., and Hardy, J. D., (eds) Reinhold Publishing Corporation, NY (1963).
29. Ehlers, G., et al., [Oncogenic effect of ruby laser radiation] Med Klin 68: 1229-38 (21 September 1972) (English abstract, German).
30. Fine, S., Klein, E., Farber, S., Scott, R. E., Roz, A., and Seed, R. E., In vivo effects of laser radiation of the skin of the syrian hamster, J Invest Derm, 40: 123 (1963).

Laser Hazards Bibliography

31. Fine, S., Klein, E., Novak, W., Scott, R. E., Laor, Y., Simpson, L., Crissey, J., Donoghue, J., and Derr, V. E., Interaction of laser radiation with biologic systems. I. Studies on interaction with tissue, Fed Proc, 24: S-35 - S-45 (1965).

32. Forsythe, W. E., and Christison, F., The absorption of radiation from different sources by water and body tissues, J Opt Soc Am, Vol 20, 693 (1930).

33. Freeman, R. G., Data on the action spectrum for ultraviolet carcinogenesis, J Nat Cancer Instit, 55(5): 1119-1121 (1975).

34. Friedrich, G. G., Jr., Kaufman, R. H., Lynch, P. G., and Woodruff, D., Vulvar histology after neutral red photoinactivation of herpes simplex virus, Obstet Gynecol, 48(5): 564-570 (1976).

35. Gamaleia, N. F., Treatment of skin tumors with a pulse laser, Vopr Onkol, 24(1): 76-81 (1978) (English abstract, Russian).

36. Goldman, L., Effects of new laser systems on the skin, Arch Dermatol, 108: 385-90 (September 1973).

37. Goldman, L., A status report on laser, Contemporary Surg, 3(2): 18-24 (August 1973).

38. Goldman, L., Fradint, D. W., Bloembergent, N., and Richfield, D. F., Studies in laser safety of new high-output systems, 1. Picosecond Impacts, Opt Laser Tech, 11-13 (February 1973).

39. Goldman, L., et al., Replica microscopy and scanning electron microscopy of laser impacts on the skin, J Invest Derm, 52: 18-24 (January 1969).

40. Goldman, L., Comparison of the biomedical effects of the exposure of human tissues to low and high energy lasers, Ann NY Acad Sci, 122: 802-831 (May 1965).

41. Goldman, L., Dermatologic manifestations of laser radiation, Fed Proc, 24: S-92 - S-93 (1965).

42. Goldman, L., The skin, Arch Environ Health, 18: 434-436 (March 1969).

43. Goldman, L., Rockwell, R. J., and Richfield, D., Long-term laser exposure of a senile freckle, Arch Environ Health, 22: 401-403 (March 1971).

44. Goldman, L., Abraham, N., and Rutti, W., Some recent developments in laser interaction with the skin of man, Electronic Product Radiation and the

Laser Hazards Bibliography

Health Physicist BRH/DEP 70-26, 292-304, US Department of Health Education, and Welfare, Bureau of Radiological Health, Rockville, MD (October 1970).

45. Goldman, L. et al., Radiation from a q-switched ruby laser effect of repeated impacts of power output of 10 megawatts on a tattoo of man, *J Invest Derm*, 44(1): 69-71 (1966).

46. Goldman, L., and Richfield, D. F., The effect of repeated exposures to laser beams, *Acta Dermato-Venerologica*, 44: 264-268 (1964).

47. Goldman, L., et al., The biomedical aspects of lasers, *Am Med Assn*, 188: 302-306 (20 April 1964).

48. Goldman, L., Hornby, P., and Long, C., Effects of the laser on the skin (in three issues), *J Invest Derm*, 40-42 (1962-1964).

49. Green, A. E. S., Findley, G. B., Klenk, K. F., Wilson, W. M., and Mo, T., The ultraviolet dose dependence of non-melanoma skin cancer incidence, *Photochem & Photobiol*, 24: 353-362 (1976).

50. Greene, L. C., and Hardy, J. D., Adaptation to thermal pain in the skin, *Applied Physiology*, 17: 693-696 (1962).

51. Harber, L. C., Bickers, D. R., Epstein, J. H., Pathak, M. A., and Urbach, F., Report on ultraviolet light sources, *Arch Dermatol*, 109(6): 833-839 (June 1974).

52. Hardy, J. D., Pain following step increase in skin temperature, *The Skin Senses*, 444-456, D. R. Kenshalo (ed), Charles C. Thomas, Springfield, IL (1968).

53. Hardy, J. D., and Bard, P., Body temperature regulation, *Med Physiol*, 13th ed. V. B. Mountcastle (ed.), St Louis, MO, C. V. Mosby Co. (1974).

54. Hardy, J. D., Hammel, H. T., and Murgatroyd, D., Spectral transmittance and reflectance of excised human skin, *J Appl Physiol*, 9: 257 (1956).

55. Hardy, J. D., Jacobs, I., and Meixner, M. D., Thresholds of pain and reflex contractions as related to noxious stimulation, *Applied Physiology*, 5(12): 725-739 (1953).

56. Hardy, J. D., and Oppel, T. W., Studies in temperature sensation. III. The sensitivity of the body to heat and the spatial summation of the end organ responses, *J Clin Invest*, 16: 533 (1937).

Laser Hazards Bibliography

57. Hardy, J. D., Wolff, H. G., and Goodell, H., Pain Reactions and Sensations, Hafner Publishing, Co., NY (1962).
58. Helwig, E. B., Jones, W. A., Hayes, J. R., and Zeitler, E. H., Anatomic and histochemical changes in skin after laser irradiation, Fed Proc, 24: S-83 - S-91 (1965).
59. Hendler, E., Hardy, J. D., and Murgatroyd, D., Skin heating and temperature sensation produced by infrared and microwave irradiation, Temperature, Its Measurement and Control in Science and Industry, 3: 211-230, C. M. Herzfeld and J. D. Hardy (eds) Reinhold Publishing Corporation, NY (1963).
60. Henriques, F. C., Jr., Studies of thermal injuries, V. The predictability and the significance of thermally induced rate processes leading to irreversible epidermal injury, Am J Path, 23: 489-502 (1947).
61. Henriques, F. C., Jr., and Moritz, A. R., Studies of thermal injury I. The conduction of heat to and through skin and the temperatures attained therein. A theoretical and an experimental investigation, Am J Path, 23: 531-549 (1947).
62. Hensel, H., Physiologie der thermoreception, Ergebnisse der Physiologie, 47: 165-368 (1952).
63. Herndon, J. H., Jr., and Freeman, R. G., Human disease associated with exposure to light, Annu Rev Med, 27: 77-87 (1976).
64. Jacquez, J. A., Huss, J., McKeenan, W., Dimitroff, J. M., and Kuppenheim, H. F., Spectral reflectance of human skin in the region 0.7 - 2.6 m, J Appl Physiol, 8: 297-299 (November 1955).
65. Jacquez, J. A., Kuppenheim, H. F., Dimitroff, J. M., McKeenan, W., and Huss, J., Spectral reflectance of human skin in the region 235-700 nm, J Appl Physiol, 8: 212-214 (September 1955).
66. Kenshalo, D. R., Improved method for the psychophysical study of the temperature sense, Rev Sci Instr, 34: 883-886 (August 1963).
67. Klein, E., Injurious effects of laser radiation on mammals, Proceedings of the First Conference on Laser Safety, G. Flint (ed) 35-48, Martin Company, Orlando, FL (1966).
68. Klein, E., et al., Laser irradiation of the skin, J Invest Derm, 43: 565-570 (December 1964).
69. Kochevar, I. E., Photoallergic responses to chemicals, Photochem Photobiol, 30: 437-442 (1979).

Laser Hazards Bibliography

70. Kroy, W., Halldorsson, T., and Langerholm, J., Laser coagulation: practical advice from a theoretical viewpoint, *Appl Opt*, 19(1): 6-8 (1980).
71. Krylov, O. A., Effect of low energy helium neon laser on the course of an infectious inflammatory process, *Vopr Kurortol Fizioter Lech Fiz Kult*, (3): 63-68 (1978).
72. Kuhns, J. G., Hayes, J., Stein, M., and Helwig, E. B., Laser injury to skin, *Lab Invest*, 17: 1-13 (July 1967) (:D 657880).
73. Lagunova, I. G., Savchenko, E. D., Likovetckaya, L. L., Garvei, N. N., Shamaeva, G. G., and Klimov, A. D., [Biological effect of lasers on the skin (preliminary report)] *Med Radiol (Mosk)*, 16: 38-42 (September 1971) (Rus) *MeditSinkaya Radiologiya*, Moskva.
74. Langerholm, J., Moving phase transition in laser-irradiated biological tissue, *Appl Opt*, 18(13): 2286-2292 (1979).
75. Laor, Y., et al., Pathology of internal viscera following laser irradiation, *Am J Med Sci*, 257: 242-252 (April 1969).
76. Laor, Y., et al., The pathology of laser irradiation of the skin and body wall of the mouse, *Am J Path*, 47(4): 643-663 (October 1965).
77. Laub, D. R., Yules, R. B., Arras, M., Murray, D. E., Crowley, L., and Chase, R. A., Preliminary histopathological observation of q-switched ruby laser radiation of dermal tattoo pigment in man, *J Surg Res*, 8: 220-224 (May 1968).
78. Lawrence, J. C., In vitro studies of skin after irradiation by a ruby laser, *Brit J Plast Surg*, 20: 257-262 (1967).
79. Lawrence, J. C., Effect of ruby laser on white guinea-pig skin in tissue culture, *Non-Ionizing Rad*, 1(1): 18-20 (1969).
80. Lehmann, J. F., Brunner, G. D., and Stow, R. W., Pain threshold measurements after therapeutic application of ultrasound, microwaves and infrared, *Arch Phys Med and Rehab*, 39: (1958).
81. Litwin, M. S., Fine, S., Klein, E., and Fine B. S., Burn injury after CO₂ laser irritation, *Arch Surg (Chicago)*, 98: 219-222 (February 1969).
82. Martin, H. F., and Manning, J. W., Rapid thermal cutaneous stimulation: peripheral nerve responses, *Brain Res*, 16: 524-526 (1969).
83. McDonagh, A. F., Palma, L. A., and Lightner, D. A., Blue light and bilirubin excretion, *Science*, 208: 145-151 (1980).

Laser Hazards Bibliography

84. McDonald, C. J., et al., The effect of laser radiation on the mammalian epidermal melanocyte, *J Invest Derm*, 45: 110-113 (August 1965).
85. Mendelson, J. A., Cook, N. D., and Dearman, J. R., Evaluation of the Mechanism of Some Physical Effects of Lasers on Tissue, US Army, Edgewood Arsenal, MD, 41 (AD 487372) (August 1966).
86. Mendelson, J. A., and Ackerman, N. B., Studies of biologically significant forces following laser irradiation, *Fed Proc*, 24: S-111 - S-115 (1965).
87. Mester, E., Laser treatment of cumarin-induced skin necrosis, *Acta Chir Acad Sci Hung*, 18(2): 141-148 (1977).
88. Mester, E., The effect of repeatedly applied electrocoagulator and laser radiation upon the skin of mice, *Z Exp Chir*, 5: 127-132 (1972) (German).
89. Mester, E., The effect of laser radiation on hair growth of the mouse, *Radiol Radiother*, 9: 621-624 (1968) (German).
90. Mester, E., Current studies on the effect of laser beams on wound healing - immunologic effect, *Z Exp Chir*, 10(5): 301-306 (1977) (English abstract, German).
91. Mester, E., Baksy, E., Koreneyi-Both, A., Kovaks, I., and Spizy, T., Clinical electron optic and enzyme-histochemical studies on the effect of laser irradiation on wound healing, *Langenbecks Arch Chir Suppl*, 261-265 (1974) (English abstract, German).
92. Mester, E., Korenyi-Both, T., Spizy, T., Scher, A., and Varga, L., Latest studies on the effect of laser beams on wound healing (clinical and electrophotopic experiences), *Z Exp Chir*, 7(1): 9-17 (1974) (English abstract, German).
93. Mester, E., Stimulation of wound healing by means of laser rays, Part III - Investigation of the effect on immune competent cells, *Acta Chir Acad Sci Hung*, 19(2): 163-170 (1978).
94. Meyer, R. A., Walker, R. E., and Mountcastle, V. B., A laser stimulator for the study of cutaneous thermal and pain sensations, *IEEE Trans*, BME-23(1): 54-60 (1976).
95. Minton, J. P., et al., Quantitation of tissue destruction by a 1000 joule pulsed neodymium laser, *Surg Forum*, 17: 121-122 (1966).
96. Minton, J. P., Tissue destruction by laser energy, its management and prevention, *J Trauma*, 6: 262-267 (March 1966).

Laser Hazards Bibliography

97. Moller, H., Testing of light dermatoses, *Lakartidningen*, 73(44): 3787-3788 (1976).
98. Moritz, A. R., Studies of thermal injury, III, *Am J Path*, 23(6): 927- (November 1947).
99. Moritz, A. R., and Henriques, F. C., Jr., Studies of thermal injury II. The relative importance of time and surface temperature in the causation of cutaneous burns, *Am J Path*, 23: 695- (1947).
100. Niebauer, G., Mischer, P. and Formanek, I., Light-sensitive dermatoses in children, *Mod Probl Paediatr*, 20: 86-101 (1976).
101. Novak, W. B., Fine, S., Klein, E., Hergenrother, K., and Hansen, W. P., On the use of thermocouples for temperature measurement during laser irradiation, *Life Sci*, 3: 1475-1481 (1964).
102. Ozaki, Y, and Wurtman, R. J., Spectral power distribution of eight sources affects growth and development of rats, *Photochem Photobiol*, 29: 339-341 (1979).
103. Parr, W. H., Skin Lesion Threshold Values for Laser Radiation as Compared With Safety Standards, Report 813, US Army Medical Research Laboratory, Fort Knox, KY (AD 688871) (24 February 1969).
104. Parish, J. A., Anderson, R. R., Ying, C. I., and Pathak, M. A., Cutaneous effects of pulsed nitrogen gas laser irradiation, *J Invest Dermatol*, 67(5): 603-608 (1976).
105. Parshad, R., Sanford, K. K., Jones, G. M., Price, F. M., and Taylor, W. G., Oxygen and light effects on chromosomal aberrations in mouse cells in vitro, *Exp Cell Res* 104 (1977).
106. Parshad, R., Sanford, K., Taylor, W. G., Tarone, R. T., Jones, M., and Baeck, A. E., Effect of intensity and wavelength of fluorescent light on chromosome damage in cultured mouse cells, *Photochem Photobiol*, 19: 971-984 (1975).
107. Peterson, S. P., and Berns, M. W., Effect of Psoralen and near UV on vertebrate cells in culture: comparison of laser with standard lamp, *Photochem and Photobiol*, 27: 367-370 (1978).
108. Proctor, P., McGinnes, J., and Corry, P., A hypothesis on the preferential destruction of melanized tissues, *J Theor Biol* 48: 19-22 (1974).
109. Radermacker, E. H., Moirfalise, A., Mornchen, H., Maier, R. D., and Bigalki, K. H., The bronze-baby-syndrome: a complication of phototherapy, *Klin Paediatr*, 189(5): 379-384 (1977).

Laser Hazards Bibliography

110. Ramsay, C. A., Long wave ultraviolet radiation sensitivity induced by oxytetracycline - a case report, *Clin Exp Dermatol*, 2(3): 255-258 (1977).
111. Ritter, E. J., et al., The chicken comb and wattle as experimental model for investigative argon laser therapy of angiomas, *Acta Dermatovener (Stockholm)*, 49: 304-308 (1969).
112. Rockwell, R. J., Jr., et al. Optical characteristics of tissues, *Phys Med Biol*, 14: 332 (April 1969).
113. Rockwell, R. J., Jr. and Goldman, L., Research on Human Skin Laser Damage Threshold, Final Report, Contract F41609-72-C-0007, USAF School of Aerospace Med, Brooks AF Base, TX, prepared by Dept of Dermatology and Laser Lab Med Center, Univ of Cincinnati (June 1974).
114. Roth, M. M. M., Therapy of human photosensitivity, *Photochem Photobiol*, 22: 302-303 (1975).
115. Schmidt, R. H., Williams, R. C., Ham, W. R., Brooks, J. W., and Evans, E. I., Experimental production of flash burns, *Surg*, 36: 1163- (1954).
116. Setlow, R. B., The wavelengths in sunlight effective in producing skin cancer: a theoretical analysis, *Proc Nat Acad Sci USA*, 71(9): 3363-3366 (1974).
117. Shakhmeister, I. A., Valtseva, I. A., Shekhter, A. B., Yakounin, G. A., and Novikova, A. N., Biological reaction of the organism to the effects on the skin of laser rays, *Vestn Dermatol Venerol*, (12): 7-12 (December 1974) (English abstract, Russian).
118. Sheline, G. E., Alpen, E. L., Kuhl, P. R., and Ahokas, A. J., Effects of high intensity radiant energy on skin. I. Type of injury and its relation to energy delivery rate, *Arch Path*, 55: 265 (1953).
119. Solomon, H., et al., Histopathology of the laser treatment of port wine lesions, *J Invest Derm*, 50(2): 141-146 (February 1968).
120. Song, Pill-soon, and Tapley, K. J., Jr., Photochemistry and Photobiology of Psoralens (review article), *Photochem Photobiol*, 29: 1177-1197 (1979).
121. Stoll, A. M., and Green, L. C., Relationship between pain and tissue damage due to thermal radiation, *J App Phys*, 14: 373-382 (1959).
122. Stolwijk, J. A. J., Infrared radiation and thermal heat stress, *Nonionizing Radiation*, Proc ACGIH Topical Symposium 11/26-28/1979, pp 172-174.

Laser Hazards Bibliography

123. Stratton, K., Pathak, M. A., and Fine, S., ESR studies of melanin containing tissues after laser irradiation, NEREM Record RPM-2 (1965).
124. Strickland, P. T., Burns, F. J., and Albert, R. E., Induction of skin tumors in the rat by single exposure to ultraviolet radiation, Photochem Photobiol, 30: 683-688 (1979).
125. Takata, A. N., Zaneveld, A., and Richter, W., Laser-induced thermal damage of skin, USAF School of Aerospace Medicine, Brooks AF Base, TX, Report SAM-TR-77-38, 1-157 (December 1977).
126. Thorington, L., Actinic effects of light and biological implications, Photochem Photobiol, 32: 117-129 (1980).
127. Tsyganova, N. V., Changes in mast cells in the loose subcutaneous connective tissue after laser irradiation, Biul Eksp Biol, 76(29): 1407 (1973) and Eksp Khir Anest, 17: 13 (1972).
128. Urbach, F. (ed), The biologic effects of ultraviolet radiation, Pergamon Press, NY (1969).
129. Urbach, F., Forbes, P. D., Davies, R. E., and Berger, D., Cutaneous photobiology. Past, present and future, J Inv Dermatol, 67(1): 209-224 (1976).
130. Urbach, F., and Wolbarsht, M. L., Occupational skin hazards from ultraviolet (UV) exposures, Occular Effects of Nonionizing Radition, Proc SPIE 229: 21-35, 1980.
131. Urbach, M. D., Occupational skin hazards from ultraviolet exposures, Nonionizing Radiation, Proc ACGIH Topical Symposium 11/26-28/1979, pp 146-156.
132. van der Leun, J. C., On the action spectrum of ultraviolet erythema, in Research Progress in Organic, Biological and Medicinal Chemistry, Vol 3, Part II, North-Holland Publishing Co., Amsterdam-London (1972).
133. Vasilieva, N. N., Adverse effects of lasers on the skin and subcutaneous tissues, Vestn Dermatol Venerol, (3): 13-16 (1978).
134. Webb, P., Pain limited heat exposures, Temperature, Its Measurement and Control in Science and Industry, 3: 245-250, C. M. Herzfeld and J. D. Hardy (eds), Reinhold Publishing Corporation, NY (1963).
135. Williams, J. P. G., Carter, S. D., Pavkov, K. L., and Boatman, J. B., Investigations of Laser Skin Hazards, Contract No. F41609-70-C-0024, USAF School of Aerospace Medicine, Brooks AF Base, TX (13 March 1971).

Laser Hazards Bibliography

136. Willis, I., Kligman, A., and Epstein, J., Effects of long ultraviolet rays on human skin: photoprotective or photaugmentative, *J Invest Dermat*, 59(6): 416-420 (1972).
137. Yamamoto, H., Okabe, H., Ooya, K., Hanakoa, S., Ohta, S., and Kataoka, K., Laser effect on vital oral tissues: a preliminary investigation, *J Oral Pathol*, 1(6): 256-264 (1972).
138. Yules, R. B., Laub, D. R., Honey, R., Vassiliadis, A., and Crowley, L., The effect of q-switched ruby laser radiation on dermal tattoo pigment in man, *Arch Surg*, 95: 179-180 (August 1967).
139. Zadorozhnyi, B. A., Safronov, B. G., and Diuba, V. M., Morphological and histochemical changes in the skin under the influence of low-power gas lasers, *Vestn Dermatol Venerol*, (8): 34-39 (1976) (English abstract, Russian).

IV. EYE EFFECTS.

A. Laser Effects Upon the Eye.

1. Adams, D. O., Beatrice, E. S., and Bedell, R. B., Fine structural effects of extremely low levels of laser irradiation upon the retina, *Lab Invest*, 26(4): 469 (1972).
2. Adams, D. O., Lund, D. J., and Shawluk, P. D., The nature of chorioretinal lesions produced by the gallium arsenide laser, *Invest Ophth*, 13: 471-475 (June 1974).
3. Adams, D. O., Beatrice, E. S., and Bedell, R. B., Retina: ultrastructural alterations produced by extremely low levels of coherent radiation, *Science*, 177: 58-60 (July 1972).
4. Allen, R. G., Retinal thermal injury, *Ocular Effects of Nonionizing Radiation*, *Proc SPIE* 229: 81-86, 1980.
5. Allen, R. G., Retinal thermal injury, *Nonionizing Radiation*, *Proc ACGIH Topical Symposium* 11/26-28/1979, pp 162-168.
6. Allwood, M. J., and Nicholson, A. N., Transient changes in the electroretinogram and optic tract discharges following laser irradiation, *J Physiol G B*, 87(2): 31 (1966).
7. Amar, L., On the generation of elastic waves in the eye irradiated by a laser beam, *Bibl Ophth*, 72: 414-416 (1967).

Laser Hazards Bibliography

8. Amar, L., Bruma, M., Desvignes, P. L., Leblanc, M., Perdriel, B., and Velghe, M., Detection d'ondes elastiques (ultrasonores) sur l'os occipital, induites par impulsions laser dans l'oeil d'un lapin, Comptes Rendus Acad de Sci, 259: 3653-3655 (16 November 1964).
9. Anonymous, Accidental laser exposure, US Atomic Energy Commission, Health and Safety Information, 322: (15 December 1972).
10. Ansell, P. L., and Marshall, J., Laser induced phagocytosis in the pigment epithelium of the hunter dystrophic rat, Brit J Ophthalmol, 60(12): 819-828 (1976).
11. Aoki, A., Experimental studies on ruby laser photocoagulation in the retina of pigmented rabbits, Part IV, scanning electron microscopic findings in the retina immediately after photocoagulation, Acta Soc Ophth Jpn, 78(9): 780-791 (10 September 1974) (English abstract).
12. Apollonio, A., et al., On an accident with a laser beam, Minerva Fisiconuci, 14: 182-185 (October-December 1970).
13. Arentsen, J. J., Rodrigues, M. M., and Laibson, P. R., Histopathologic changes after thermokeratoplasty for keratoconus, Inv Ophthal and Vis Sci, 16(1): 32-38 (1977).
14. Armstrong, C. E., Eye injuries in some modern radiation environments, J Am Opt Assn, 41(1): 55-62 (January 1970).
15. Asmus, J., and Malin, A. H., Entoptic phenomena with continuous wave lasers, Am J Opt, 47: 18-23 (January 1970).
16. Auth, D. C., Lam, V. T. Y., Mohr, R. W., Silverstein, F. E., and Rubin, C. E., A high power gastric photocoagulator for fiberoptic endoscopy, IEEE Trans Biomed Eng, BME-23(2): 129-135 (1974).
17. Avdeev, P. S., Experimental determination of maximum permissible exposure to laser radiation of 1.54 μ m wavelength, Sov J Quantum Electron, 8: 137-139 (1978).
18. Bahte, H., and Rassow, B., Lesions of the rabbit cornea produced by laser light, Albrecht von Graefes Arch Klin Ophthalmol, 203(1): 57-66 (1977) (English abstract, German).
19. Bailey, N. A., Noell, W. K., Relative biological effectiveness of various qualities of radiation as determined by the electroretinogram, Radn Rsch, 9: 459-460 (1958).
20. Banyard, R. D., Noyori, K. S., Campbell, C. J., and Marg, E., Retinal effects of ruby laser photocoagulation, Arch Ophth, 85: 107-110 (January 1971).

Laser Hazards Bibliography

21. Baumann, H., Investigations on laser coagulated rat eyes by fluorescence angiography and microscopy, *Albrecht von Graefes Arch Klin Ophthalmol*, 193: 245 (1975).
22. Baumann, H., Regression of corneal neovascularization by laser treatment, *Albrecht von Graefes Arch Klin Ophthalmol*, 204(1): 45-55 (1977) (English abstract, German).
23. Beatrice, E. S., and Frisch, G. D., Retinal laser damage thresholds as a function of image diameter, *Arch Environ Health*, 27: 322-326 (November 1973).
24. Beatrice, E. S., and Lund, D. J., Characteristics of damage produced by non-circular retinal laser radiation, Institute Report No. 31, Letterman Army Institute of Research, Presidio of San Francisco, CA (AD-AD35 878/8ST) (October 1976).
25. Beatrice, E. S., and Stuck, B. E., Ocular effects of Laser Radiation: Cornea and Anterior Chamber, NATO-AGARD Publication No. LS-79, pp 5-1 and 5-5 (1975).
26. Beatrice, E. S., Randolph, D. I., Zwick, H., Stuck, B. E., and Lund, D. J., Laser hazards: biomedical threshold level investigations, *Mil Med*, 141(11): 889-892 (1977).
27. Beatrice, E. S., and Velez, S., Laser safety bioeffects research: histopathology of retinal effects, *SPIE Proceedings, Visual Simulation*, Vol 162, 103-106 (1978).
28. Bebie, H., Fankhauser, F., Lotmar, W., and Roulier, A., Theoretical estimate of the temperature within irradiated retinal vessels, *Acta Ophth*, 52: 13-36 (1974).
29. Beckman, H., Rota, A., Barraco, R., Sugar, H. S., and Gaynes, E., Limbectomy, keratectomies, and keratostomies performed with a rapid-pulsed carbon dioxide laser, *Am J Ophth*, 71(6): 1277-1283 (June 1971).
30. Behrendt, T., Therapeutic vascular occlusions in diabetic retinopathy. Argon laser photocoagulation, *Arch Ophth*, 87: 629-633 (June 1972).
31. Berezin, Yv. D., Experimental determination of the maximum permissible exposure to picosecond laser pulses of 1.06 μ wavelength, *Sov J Quantum Electron*, 8: 446-449 (1978).
32. Berezina, S. P., Effect of laser radiation on the eye, *Biol Nauki*, 11: 46-49 (1971).

Laser Hazards Bibliography

33. Bergqvist, T., Kleman, B., and Tengroth, B., Laser irradiance levels for retinal lesion, *Acta Ophth*, 43: 331-349 (1965).
34. Bergqvist, T., Kleman, B., and Tengroth, B., Retinal lesions produced by q-switched lasers, *Acta Ophth*, 44: 853-863 (1966).
35. Berler, D. K., Expectations and limitations of laser photocoagulation, *Southern Med J*, 60: 1272-1276 (December 1967).
36. Berler, D. K., A study of 150 eyes treated with the ruby laser, *Am J Ophth*, 64: 114-116 (July 1967).
37. Birch, C. J., Defective colour vision in diabetic retinopathy before and after laser photocoagulation, *Mod Probl Ophthalmol*, 19: 326-329 (1978).
38. Birngruber, R., Gabel, V. P., Wallow, I. H. L., and Hillenkamp, F., Ruby laser examinations of threshold values on the retina, *Ber Dtsch Ophth Ges*, 73: 367-374 (1975) (German).
39. Birngruber, R., Fundus reflectometry: a step towards optimization of the retinal photocoagulation, *Mod Probl Ophthalmol*, 18: 383 (1977).
40. Birngruber, R., Hillenkampf, F., Stefani, F. H., and Gabel, V. P., Q-switched ruby laser damage of the rabbit eye lense, *Adv Ophthalmol*, 34: 158 (1977).
41. Blabla, J., and John, J., The saturation effect in retina measured by means of he-ne laser, *Am J Ophth*, 62: 659-663 (October 1966).
42. Blancard, P., Sorato, M., Blonk, K., Iris, L., and Kiotet, S., A propos d'une photocoagulation maculaire par laser, accidentelle, *Ann Oculist*, 198: 263-264 (March 1965).
43. Bonney, H., and Gaasterland, D. J., Low energy, Q-switched ruby laser iridotomies in *Macaca mulatta*, *Invest Ophth and Vis Sci*, 18: 278-287 (1979).
44. Borland, R. G., Brennan, D. J., Marshall, J., and Viveash, J. P., The role of fluorescein angiography in the detection of laser-induced damage to the retina: A threshold study for Q-switched neodymium and ruby lasers, *Exp Eye Res*, 27: 471-493 (1978).
45. Borland, R. G., Brennan, D. H., and Nicholson, A. N., Threshold levels for damage of the cornea following irradiation by a continuous wave carbon dioxide (10.6 micron) laser, *Nature (London)*, 234: 151-152 (19 November 1971).

Laser Hazards Bibliography

46. Borwein, B., Sanwal, M., Medeiros, J. A., and McGowan, J. W., Scanning electron microscopy of normal and lased rabbit retina, *Canadian J. Ophthalmol*, 11(4): 309-321 (1976).
47. Borwein, B., Sanwal, M., Medeiros, J. A., and McGowan, J. W., Scanning electron microscopy of normal and lased rabbit pigment epithelium, *Inv Ophthal and Vis Sci*, 16(8): 700-710 (1977).
48. Brennan, D. H., Occulal complications of industrial lasers, *Proc R Soc Med*, 69(1): 64-5 (1976).
49. Bresnick, G. H., Lund, D. J., Landers, M. B., Powell, J. O., Chester, J. E., and Carver, C., Ocular hazards of q-switched erbium laser, *Electronic Product Radiation and the Health Physicist BRH/DEP 70-26*, 305-316, US Department of Health, Education, and Welfare, Bureau of Radiological Health, Rockville, MD (October 1970).
50. Bresnick, G. H., Frisch, G. D., Powell, J. O., Landers, M. B., Holst, G. C., and Dallas, A. G., Ocular effects of argon laser radiation I. Retinal damage threshold studies, *Invest Ophth*, 9: 901-910 (November 1970).
51. Butman, A. B., Gudakobich, P., Kobay, P. N., and Cemehos, A. N., Experimental studies of the action of reflected laser radiation on the organ of vision, *Voen Med Zh*, (3): 53-55 (March 1975) (Russian).
52. Cain, C. P., and Welch, A. J., Measured and predicted laser-induced temperature rises in the rabbit fundus, *Invest Ophth*, 13(1): 60-70 (1974).
53. Cain, C. P., and Welsh, A. J., Dynamic spatio-temporal temperature measurements in laser irradiated rabbit eyes, *AFOSR-TR-72-2015*, Tech Report No. 138 (September 1972).
54. Cain, C. P., Sewell, V. L., and Welch, A. J., Potential measurements in the retinas of live rabbits, *IEEE, Catalog No. 73 CHO 719-5-SWIECO* (April 1973).
55. Campbell, C. J., Noyori, K. S., Rittler, M. C., and Koester, C. J., Clinical use of the laser retinal photocoagulator, *Fed Proc*, 24: S-71- S-72 (1965).
56. Campbell, C. J., et al., The effects of lasers on the eye, *Ann NY Acad Sci*, 168: 627-633 (10 February 1969).
57. Campbell, C. J., Noyori, D. K., Rittler, M. C. and Koester, C. J., Intraocular temperature changes produced by laser coagulation, *Acta Ophth, Suppl 76*: 22-31 (1963).

Laser Hazards Bibliography

58. Campbell, C. J., Rittler, M. C., and Koester, C. J., Laser photocoagulation of the retina, *Trans Am Acad Ophth Otolaryng*, 70: 939-943 (November-December 1966).
59. Campbell, C. J., and Rittler, M. C., Lasers in ophthalmology, *NY J Med*, 68: 1974-1976 (15 July 1968).
60. Campbell, C. J., Rittler, M. C., Swope, C. H. and Doester, C. J., Ocular effects produced by experimental lasers. I. Q-switched ruby laser, *Am J Ophth*, 69: 549-570 (September 1968).
61. Campbell, C. J., Rittler, M. C., Bredemeier, H., and Wallace, R. A., Ocular effects produced by experimental lasers. I. Carbon dioxide laser, *Am J Ophth*, 66: 604-614 (1968).
62. Campbell, C. J., Rittler, M. C., Innis, R. E., and Shiner, W. H., Ocular effects produced by experimental lasers. III. Neodymium laser, *Am J Ophth*, 66: 614-632 (1968).
63. Campbell, C. J., Rittler, M. C., and Swope, C. H., The ocular effects produced by experimental lasers. IV. The argon laser, *Am J Ophth*, 67: 671-681 (May 1969).
64. Campbell, C. J., Rittler, M. C., and Koester, C. J., Photocoagulation of the retina, *Int Ophth Clin*, 6: 293-318 (Summer 1966).
65. Campbell, C. J., Selected ocular effects from an experimental neodymium laser, *Trans Am Ophth Soc*, 66: 636-672 (1968).
66. Campbell, C. J., Rittler, M. C., Noyori, K. S., Swope, C. H., and Koester, C. J., The threshold of the retina to damage by laser energy, *Arch Ophth*, 76: 437-442 (1966).
67. Chang, H. C., and Dedrick, K. G., On corneal damage thresholds for CO₂ laser radiation, *Appl Opt*, 8: 826-827 (April 1969).
68. Clarke, A. M., Blue light exposure and long-term deficits in visual function, *Ocular Effects of Nonionizing Radiation*, *Proc SPIE* 229: 47-50, 1980.
69. Clarke, A. M., Ocular hazards from lasers and other optical sources, *Crit Rev Environ Control*, 1(3): 307-339 (November 1970).
70. Clarke, A. M., Geeraets, J., and Ham, T., Jr., An equilibrium thermal model for retinal injury, *Appl Opt*, 8: 1051-1054 (May 1969).
71. Clarke, A. M., Ham, W. T., Jr., Geeraets, W. J., Williams, R. C., and Mueller, H. A., Laser effects on the eye, *Arch Environ Health* (November 1969).

Laser Hazards Bibliography

72. Cleary, S. F., and Hamrick, R. E., Laser-induced acoustic transients in the mammalian eye, *J Acoust Soc Am*, 46: 1037-1044 (October 1969).
73. Cleary, S. F., and Hamrick, P. E., Laser-induced retinal damage, *Non-Ionizing Rad*, 2(1): 1-46 (March 1971).
74. Connolly, J. S., Zuclich, J. A., Nawroki, A. D., Hemstreet, H. W., and Sanders, V. E., Research on the ocular effects of laser radiation, Report TI-75-0561-02, Contract F41609-73-C-0017, Project 6301, Task 00, Techn Inc, San Antonio, TX, Life Sci Div 401650 (February 1975).
75. Constantinides, G., Detachment of the retina after panphotocoagulation, *Bull Soc Ophthalmol Fr*, 77(1): 51-52 (1977) (French).
76. Coop, H. V., How close to the fovea? *Trans Ophthalmol Soc NZ*, 30: 27-28 (1978).
77. Cooper, B., Najac, H. W., Shamos, M. H., Breitfeller, J. M., and Jacobson, J. H., Use of optical fibers for determination of irradiance at the retinal plane, *Acta Ophth (Suppl)*, 76: 51-58 (1963).
78. Curtin, T. L., and Boyden, D. G., Reflected laser beam causing accidental burn of retina, *Am J Ophth*, 65: 188-189 (February 1968).
79. Dannheim, F., Lesions of the anterior segment of the eye by lasers of different wavelengths, *Adv Ophthalmol*, 34: 169 (1977).
80. Dannheim, F., Rassow, B., Laser lesions of the anterior segment of the rabbit eye: studies of cornea, iris, lens and sclera using argon, ruby and YAG laser, *Albrecht von Graefes Arch Klin Ophthalmol*, 205(3): 175-205 (1978) (English abstract, German).
81. Davies, J. M., Flash blinding of cats with a laser beam, *Appl Opt*, 8: 2147 (1969).
82. Davis, T. P., and Mautner, W. J., Helium Neon Laser Effect on the Eye, Report C106-59223, EG&G Inc., Santa Monica Division, Los Angeles, CA (April 1969).
83. Davis, T. P., In vivo temperature measurement, *Acta Ophth (Suppl)*, 76: 41-50 (1963).
84. Dawson, W. W., and Barris, M. C., Cortical responses evoked by laser speckle, *Invest Ophthalmol*, 17: 1209-1212 (1978).
85. Desvignes, P. L., Amar, L., Bruma, M., and Velghe, M., On the generation of ultrasonic waves and formation of bullae in the vitreous of a human eye by laser impulse irradiation, *C R Acad Sci*, 259: 1588-1591 (1964).

Laser Hazards Bibliography

86. Dunskey, I. L., and Lappin, P. W., Evaluation of retinal thresholds for CW laser radiation, *Vis Res*, 11: 733-738 (8 July 1971).
87. Dunskey, I. L., and Egbert, D. E., Corneal damage thresholds for hydrogen fluoride and deuterium fluoride chemical lasers, Report SAM-TR-73-51 USAF School of Aerospace Medicine, Brooks AF Base, TX (December 1973).
88. Ebbers, R. W., Retinal effects of a multiple-pulse laser, *Am Ind Hyg Assoc J*, 35(5): 253-256 (May 1974).
89. Ebbers, R. W., Retinal Effects of Multiple Pulse Gallium Arsenide Laser, USAF School of Aerospace Med, Brooks AF Base, TX, Report SAM-TR-72-25 (November 1972) (DDC No. 753419); also in *Am Ind Hyg Assn J*, 35(5)253.
90. Ebbers, R. W., and Dunskey, I. L., Retinal damage thresholds for multiple pulse lasers, *Aerospace Med*, 44: 317-318 (1973).
91. Ebbers, R. W., and Sears, D., Ocular Effects of a 325 nm ultraviolet laser, *Am J Opt & Physiol Opt*, 52(3): 216-223 (March 1975) (DDC AD A-016-194).
92. Egbert, D. E., and Maher, E. F., Corneal damage thresholds for infrared laser exposure: empirical data, model predictions and safety standards, School Aerospace Med, Brooks AFB, TX (317000), Report SAM-TR-77-29, Project 7757 (December 1977).
93. Elgin, S., Robbins, O., and Canonius, C. R., Threshold for permanent functional and morphological visible damage in human retinas using visible radiation, Final Report: Contract F41609-69-C 0027, The Eye Research Foundation, Bethesda (May 1971).
94. Elington, A. R., and Watts, G. K., Ruby laser transmission and the lens, *Brit J Ophth*, 54(6): 423-427 (June 1970).
95. Fahs, J. H., A Model for the Study of Retinal Damage Due to Laser Radiation, Report 3678, US Army Materiel Command, Picatinny Arsenal, Dover, NJ (AD 668906) (1968).
96. Falskowska, Z., and Kecik, T., Remarks on the clinical application of laser coagulation with the KL 3 coagulator, *Pol Med J*, 6: 1318-1325 (1967).
97. Fankhauser, F., Lotmar, W., and Roulier, A., Dosimetry in photocoagulation, *Arch Ophth*, 85: 610-613 (May 1971).
98. Fankhauser, F., and Lotmar, W., Methods of photocoagulation through the Goldmann contact glass, *Mod Probl Ophth*, 7: 256-272 (1968).

Laser Hazards Bibliography

99. Fankhauser, F., and Lotmar, W., Photocoagulation through the Goldmann contact glass, Arch Ophth, 77: 320-330 (1967).
100. Fankhauser, F., et al., Photocoagulation through the Goldmann contact glass. II. An apparatus using a quasi-continuous laser source, Arch Ophth (Chicago), 79: 674-683 (June 1968).
101. Fankhauser, F., et al., Photocoagulation through the Goldmann contact glass. III. Clinical experience with an apparatus using a quasi-continuous laser source, Arch Ophth (Chicago), 79: 684-696 (June 1968).
102. Fankhauser, F., and Lotmar, W., Danger of radiation damage to the eyes, especially laser radiation, Z Angew Phys, 6: 521-524 (available in translation) (AD 818828) (1966).
103. Fankhauser, F., Lotmar, W., and Roulier, A., Photocoagulation through the Goldmann contact glass. V. Further experience with a quasi-continuous ruby laser source: long-term observations of clinical efficiency, Arch Ophth, 85: 154-162 (February 1971).
104. Fankhauser, F., and Lotmar, W., Photocoagulation of the retina with a quasi-continuous ruby laser, Appl Opt, 7: 377-378 (February 1968).
105. Fankhauser, F., Physical and biological effects of laser radiation, Klin Monatsbl Augenheilkd, 170(2): 219 (1977).
106. Fankhauser, F., Van Der Zypen, E., and Bebie, H., Morphological studies about the efficiency of laser beams upon the structures of the angle of the anterior chamber, Int Ophthal, 1,2: 109-122 (1979).
107. Farrer, D. N., Graham, E. S., Ham, W. T., Jr., Geeraets, W. J., Williams, R. C., Mueller, H. A., Cleary, S. F., and Clarke, A. M., The effect of threshold macular lesions and subthreshold macular exposures on visual acuity in the rhesus monkey, Am Ind Hyg Assn J, 31(2): 198-205 (March-April 1970).
108. Felstead, E. B., and Cobbold, R. S., Analog solution of laser retinal coagulation, Med Elec Biol Eng, 3: 145-155 (April 1965).
109. Fine, S., et al., Corneal injury threshold to carbon dioxide laser irradiation, Am J Ophth, 66: 1-15 (July 1968).
110. Fine, B. S., Berkow, J. W., and Fine, S., Corneal calcification, Science, 162: 129-130 (4 October 1968).
111. Fine, B. S., Fine, S., Peacock, G. R., Geeraets, W. J., and Klein, E., Preliminary observations on ocular effects of high-power continuous CO₂ laser irradiation, Am J Ophth, 64: 209-222 (August 1967).

Laser Hazards Bibliography

112. Fine, B. S., and Geeraets, W. J., Observations on early pathologic effects of photic injury to the rabbit retina, *Acta Ophth*, 43: 684-691 (1965).
113. Fine, S. L., Subretinal neovascularization developing after prophylactic argon laser photocoagulation of atrophic macular scars, *Am J Ophthalmol*, 82(3): 352-7 (1976).
114. Fisher, M. M., and Weiss, K., Laser photolysis of retinal and its protonated and unprotonated n-butylamine Schiff Base, *Photochem Photobiol*, 20: 423-432 (1974).
115. Flocks, M., and Zweng, H. C., Laser coagulation of ocular tissues, *Arch Ophth (Chicago)*, 72: 604-611 (November 1974).
116. Flocks, M., *Laser Photocoagulation*, Boston, Little Brown (1966).
117. Fox, J. L. Use of laser radiation, *Surg Neurol*, 9(2): 76-77 (1978).
118. Francois, J., et al., Retinal photocoagulation (xenon arc and lasers), *Ann Ophth*, 3: 1201-8 (November 1971).
119. Francois, J., DeLay, J. J., Cambie, E., Hausseus, M., and Victoria-Troncoso, V., Neovascularization after argon laser photocoagulation of macular lesions, *Am J Ophth*, 79(2): 206-210 (February 1975).
120. Francois, J., Electrophysiological studies before and after argon-laser photocoagulation in diabetic retinopathy, *Ophthalmologica*, 176(3): 133-144 (1977).
121. Frank, R. N., Argon laser photocoagulation and subretinal neovascularization, *Ophth Surg*, 5(2): 56-64 (Summer 1974).
122. Frank, R. N., Visual fields and electroretinography following extensive photocoagulation, *Arch Ophth*, 93(8): 591-598 (August 1975).
123. Frank, R. N., Neovascularization after laser coagulation of macular lesions, *Am J Ophth*, 80(1): 161-163 (July 1975).
124. Fraunfelder, F. T., and Viernstein, L. J., Intraocular pressure variation during xenon and ruby laser photocoagulation, *Am J Ophth*, 71: 1261-1266 (June 1971).
125. Frisch, G. D., Shawaluk, P. D., and Adams, D. O., Remote nerve fibre bundle alterations in the retina as caused by argon laser photocoagulation, *Nature*, 248: 433-435 (March 1974).

Laser Hazards Bibliography

126. Frisch, G. D., Beatrice, E. S., and Holsen, R. C., Comparative study of argon and ruby retinal damage thresholds, *Invest Ophth*, 10: 911-919 (November 1971).
127. Frisch, G. D., Retinal laser irradiation diameter estimation, *Appl Opt*, 11: 939 (1972).
128. Fu, H., Immediate fundus complications after retinal scatter photocoagulation. I. Clinical picture and pathogenesis, *Ophthalm Surg* 7(1): 88-89 (1976).
129. Gabel, V. P., Birngruber, R., Hillenkamp, F., Wallow, I. H. L., and Schmolke, W., Über die Lichtabsorption am Augenhintergrund, *Ber Dtsch Ophthalmol Ges*, 73: 362-367 (1973).
130. Gallagher, J. T., and MacKenzie, W. F., Retinal subthreshold laser exposures: cumulative effect, USAF School of Aerospace Medicine, Brooks AF Base, TX, Report SAM-TR-74-39 (September 1974).
131. Gallagher, J. T., Corneal Curvature Changes due to Exposure to a Carbon Dioxide Laser: A preliminary report, USAF School of Aerospace Med, Brooks AF Base, TX, Report SAM-TR-75-44 (December 1975) (DDC AD A-020-987).
132. Gallagher, J. T., and Laudieri, P. C., Hazard Evaluation of a Gallium Arsenide Diode Array Laser, USAF School of Aerospace Med, Brooks AF Base, TX, Report SAM-TR-73-19 (1973) (DDC No. AD762277).
133. Ganichenko, I. N., Ruby and neodymium laser coagulation in macular ruptures of the retina, *Oftalmol Zh*, 33(5): 325-330 (1978).
134. Geeraets, W. J., Noah, V. B., and Clarke, A. E., The effect of pulsed ruby laser on retinal pigment epithelium in vitro, *Acta Ophth (Kbh)*, 49: 856-865 (1971).
135. Geeraets, W. J., Radiation effects on the eye, *Sight Sav Rev*, 39(4): 181-196 (1969-1970).
136. Geeraets, W. J., Retinal injury by ruby and neodymium laser, *Acta Ophth*, 45: 846-851 (1967).
137. Geeraets, W. J., Retinal Injury From Laser and Light Exposure, *Laser Eye Effects* (H. G. Sperling, ed), Armed Forces - National Research Council Committee on Vision, Washington, DC, 20-56 (1968).
138. Geeraets, W. J., Some aspects of laser coagulation, *Int Ophth Clin*, 6: 263-273 (1966).

Laser Hazards Bibliography

139. Geeraets, W. J., Research data applicable to clinical light coagulation, *Int Ophth Clin*, 1: 907-938 (1961).
140. Geeraets, W. J., Burkhart, J., and Guerry, D., Enzyme activity in the coagulated retina: a means of studying thermal conduction as a function of exposure time, *Acta Ophth (Suppl)*, 76: 79-93 (1963).
141. Geeraets, W. J., Ghosh, M., and Guerry, D., III, The effect of high intensity light on choroidal circulation, *Am J Ophth*, 54(2): 277-282 (1962).
142. Geeraets, W. J., Fine, S. B., and Fine, S., Ocular injury from CO₂ laser irradiation, *Acta Ophth (Kobenshavn)*, 47: 80-92 (1969).
143. Geeraets, W. J., Ham, W. T., Williams, R. C., Mueller, H. A., Burkhart, J., Guerry, D., III, and Vos, J. J., Laser versus light coagulator: a funduscopy and histologic study of chorioretinal as a function of exposure time, *Fed Proc*, 24: S-48 - S-61 (1965).
144. Geeraets, W. J., and Ridgeway, D., Retinal damage from high intensity light, *Acta Ophth (Suppl)*, 76: 109-112 (1963).
145. Geeraets, W. J., Williams, R. C., Chan, G., Ham, W. T., Guerry, D., and Schmidt, F. H., The loss of light energy in retina and choroid, *Arch Ophth*, 64: 606-615 (1960).
146. Geeraets, W. J., Williams, R. G., Chosh, M., Ham, W. T., Jr., Guerry, D., Schmidt, F., and Ruffin, R., Light reflectance from the ocular fundus, *Arch Ophth*, 69: 612-617 (1963).
147. Geeraets, W. J., Geeraets, R., and Goldman, A. I., Electromagnetic radiation damage to the retina, *Albrecht von Graefes Arch Klin Ophthalmol*, 200(3): 263-278 (1976).
148. Gibbons, W. D., Threshold damage evaluation of long-term exposures to argon laser radiation, USAF School of Aerospace Med, Brooks AF Base, TX, Report SAM-TR-74-29 (August 1974).
149. Gibbons, W. D., Retinal burn thresholds for exposure to a frequency doubled neodymium laser, USAF School of Aerospace Med, Brooks AF Base, TX, Report SAM-TR-73-45 (1973).
150. Gibbons, W. D., and Allen, R. G., Evaluation of Retinal Damage produced by Long-Term Exposure to Laser Radiation, USAF School of Aerospace Med, Brooks AF Base, TX, Report SAM-TR-75-11 (January 1975) (DDC AD A-008-769).
151. Gibbons, W. D., and Allen, R. G., Retinal damage from long-term exposure to laser radiation, *Invest Ophthalmol & Vis Sci*, 16(6): 521-29 (1977).

Laser Hazards Bibliography

152. Gibbons, W. D., and Egbert, D. E., Ocular damage thresholds for repetitive pulsed argon laser exposure, USAF School of Aerospace Med, Brooks AF Base, TX, Report SAM-TR-74-1 (February 1974).

153. Gibbons, W. D., Schmidt, R. E., and Allen, R. G., Histopathology of retinal lesions produced by long-term laser exposure, Aviat Space Environ Med, 48(8): 708-711 (1977).

154. Gibbons, W. D., and Allen, R. G., Retinal damage from suprathreshold Q-switched laser exposure, Health Physics, 35: 461-469 (1978).

155. Gibson, G. L. M., Retinal damage from repeated subthreshold exposures using a ruby laser photocoagulator, SAM-TR-70-59, USAF School of Aerospace Medicine, Brooks AF Base, TX (October 1970) (AD 715210).

156. Goldman, A. I., Carpenter, R. L., and Karches, G. J., Effects on rabbit eyes of repeated exposures to near-threshold doses of He-Ne laser irradiation, Hlth Phys, 19(2): 346 (1970).

157. Goldman, A. I., Carpenter, R. L., and Karches, G. J., Chronic effects of low level helium-neon laser irradiation, Electronic Product Radiation and the Health Physicist BRH/DEP 70-26, 317-327, US Department of Health, Education, and Welfare, Bureau of Radiological Health, Rockville, MD (October 1970).

158. Goldman, A. I., Ham, W. T., Jr., and Mueller, H. A., Mechanisms of retinal damage resulting from the exposure of Rhesus monkeys to ultrashort laser pulses, Exp Eye Res, 21(5): 457-469 (1975).

159. Goldman, A. I., Ham, W. T., Jr., and Mueller, H. A., Ocular damage thresholds and mechanisms for ultrashort pulses of both visible and infrared laser radiation in the rhesus monkey, Exp Eye Res, 24: 45-46 (1977).

160. Graham, E. S., Farrer, D. N., Mark, R. G., Fields, T. A., Behavioral Assessment of Visual Functioning Immediately After Exposure of the Eye to a Laser, USAF Report ARL-TR-70-9 (AD 707871) (9 May 1970).

161. Granier, R., and Kellershohn, C., Ocular effects of laser light, Arch Mal Prof, 29: 389-401 (July-August 1968).

162. Gullberg, K., Hartman, B., Kock, E., and Tengroth, B., Carbon dioxide laser hazards to the eye, Nature, 215: 857-858 (19 August 1967).

163. Hallman, V. L., Perkins, E. S., Watts, G. K., and Wheeler, C. B., Laser irradiation of the anterior segment of the eye. I. rabbit eyes, Exp Eye Res, 7: 481-486 (October 1968).

Laser Hazards Bibliography

164. Hallman, V. L., Perkins, G. K., Watts, and Wheeler, C. B., Laser irradiation of the anterior segment of the eye. II. monkey eyes, *Exp Eye Res*, 8: 1-4 (January 1969).

165. Ham W. T., Jr., The nature of retinal radiation damage, dependence on wavelength, power level and exposure time, *Vis Res*, (1980) in press.

166. Ham, W. T., Jr., Mueller, H. A., and Sliney, D. H., Retinal sensitivity to damage from short wavelength light, *Nature*, 260 (5547): 153-155 (1976).

167. Ham, W. T., Mueller, H. A., and Ruffolo, J. J., Retinal effects of blue light exposure, *Proc Spie* 229: 229-07 (1980).

168. Ham, W. T., Jr., Mueller, H. A., Ruffolo, J. J., and Clarke, A. M., Sensitivity of the retina to radiation damage as a function of wavelength, *Photochem Photobiol*, 29: 735-743 (1978).

169. Ham, W. T., Mueller, H. A., and Ruffolo, J. J., Retinal effects of blue light exposure, *Ocular Effects of Nonionizing Radiation*, *Proc SPIE* 229: 46-50, 1980.

170. Ham, W. T., Jr., Williams, R. C., Geeraets, W. J., Ruffin, R. S., and Mueller, H. A., Optical masers (lasers), *Acta Ophth (Suppl)*, 76: 73-77:60-78 (1963).

171. Ham, W. T., Jr., Mueller, H. A., Goldman, A. I., Newman, B. E., Holland, L. M., and Kuwabara, T., Ocular hazard from picosecond pulses of Nd: YAG laser radiation, *Science*, 185: 362-363 (26 July 1974).

172. Ham, W. T., Jr., Ocular effects of laser radiation on mammals, *Proceedings of the First Conference on Laser Safety* (G. Flint, ed), 5-18, Martin Company, Orlando, FL (1966).

173. Ham, W. T., Geeraets, W. J., Williams, R. C., Guerry, D., and Mueller, H. A., Laser radiation protection, *Proceedings of the First International Congress of Radiation Protection*, 933-943, Pergamon Press, NY (1968).

174. Ham, W. T., Jr., Geeraets, W. J., Mueller, H. A., Williams, R. C., Clarke, A. M., and Cleary, S. F., Retinal burn thresholds for the helium-neon laser in the rhesus monkey, *Arch Ophth*, 84: 797-809 (December 1970).

175. Ham, W. T., Jr., Laser hazards and control in industry, *Ind Hyg Found Trans Bull*, 41: 36-45 (1967).

176. Ham, W. T., Jr., Clarke, A. M., Geeraets, W. J., Cleary, S. F., Mueller, H. A., and Williams, R. C., The eye problem in laser safety, *Arch Environ Health*, 20: 156-160 (February 1970).

Laser Hazards Bibliography

177. Ham, W. T. Jr., Williams, R. C., Geeraets, W. J., Ruffin, R. S., and Mueller, H. A., Optical masers (lasers), *Acta Ophth (Suppl)* 76: 60-78 (1963).
178. Ham, W. T., Jr., Williams, R. C., Mueller, H. A., Ruffin, R. S., Schmidt, F. H., Clarke, A. M., and Geeraets, W. J., Ocular Effects of Laser Radiation, Departments of Biophysics and Ophthalmology, Medical College of Virginia, Report DASA-1574 of Defense Atomic Support Agency, Washington, DC (AD 451905) (1964).
179. Ham, W. T., Jr., Williams, R. C., Mueller, H. A., Ruffin, R. S., Schmidt, R. H., Clarke, A. M., Vos, J. J., and Geeraets, W. J., Ocular effects of laser radiation, *Acta Ophth*, 43: 390-409 (1965).
180. Ham, W. T., Jr., Williams, R. C., Mueller, H. A., Guerry, D., Clarke, A. M., and Geeraets, W. J., Effects of laser radiation on the mammalian eye, *Trans NY Acad Sci*, 28: 517-526 (February 1966).
181. Ham, W. T., Jr., Mueller, H. A., and Sliney, D. H., Retinal sensitivity to damage from short wavelength light, *Nature*, 260(5547): 153-155 (11 March 1976).
182. Ham, W. T., Jr., Ocular research and the radiation act, *Laser Focus*, 5: 28 (1969).
183. Ham, W. T., Ruffolo, J. J., Mueller, H. A., Clarke, A. M., and Moon, M. E., Histologic analysis of photochemical lesions produced in Rhesus retina by short wavelength light, *Invest Ophthalmol*, 17: 1229-1235 (1978).
184. Ham, W. T., Mueller, H. A., Ruffolo, J. J., and Clarke, A. M., Sensitivity of the retina to radiation damage as a function of wavelength, *Photochem Photobiol*, 29: 735-743 (October 1978).
185. Hamadani, S. M., and Magyar, G., Relative luminous efficiencies of the eye for near-ir and -uv laser light, *J Opt Soc Am*, 62(6): 830-831 (June 1972).
186. Hammond, L. R., Mandell, M. S., and Welsh, A. J., A method for determining the threshold of laser damage to functional vision, *J Bioeng*, 1: 21-24 (1976).
187. Hansen, W. P., Feigen, L., and Fine, S., A worst-case analysis of continuous wave he-ne laser hazards to the eye, *Appl Opt*, 6: 1973-1975 (1967).
188. Hansen, W. P., and Fine, S., Melanin granule models for pulsed laser induced retinal injury, *Appl Opt*, 7: 155-159 (January 1968).

Laser Hazards Bibliography

189. Hattori, Y., et al., Reflected laser beam causing accidental burn of the macula, *Folia Ophth (Jap)*, 22: 137-140 (March 1971).
190. Haut, J., Limon, S., Chermet, M., and Baltazis, S., Possible complications of photocoagulations by argon laser. Discussion of a case, *Bull Soc Ophth France*, 75(4): 368-373 (1975) (French).
191. Haut, J., Bernard, J. A., and Lemon, S., Photocoagulation maculaire accidentelle par laser industriel, *Bulletin de Societes D'Ophthalmologie de France*, 74(5-6): 569-572 (1974).
192. Havener, W. H., Technical aspects of laser coagulation, *Am J Ophth*, 58: 38-41 (1964).
193. Hayes, J. R., and Wolbarsht, M. L., Models in pathology mechanisms of action of laser energy with biological tissues, *Laser Applications in Med and Biol* (Ed., M. L. Wolbarsht), Plenum Press, NY, 255-274 (1971).
194. Hayes, J. R., and Wolbarsht, M. L., Thermal model for retinal damage induced by pulsed lasers, *Aerospace Med*, 39: 474-480 (May 1968).
195. Hempel, F. G., Rabbit visual potentials after laser photocoagulation, *Invest Ophth*, 10(9): 639-649 (September 1971).
196. Henke, H. E., Accidental laser coagulation of the central fovea, *Ophthalmologica*, 171(1): 15-25 (1975).
197. Hochgesand, P., et al., The retinal threshold energy of a short laser impulse, *Albrecht von Graefes Arch Klin Ophthomol*, 188: 183-95 (19 October 1973).
198. Hu, C. L., and Barnes, F. S., The thermal-chemical damage in biological material under laser irradiation, *IEEE Trans Biomed Eng*, 17: 220-229 (July 1970).
199. Huber, G. K., Long term observations after irradiation of the iris by the argon laser, *Klin Monatsbl Augenheilkd*, 172(4): 436-437 (1978).
200. Ingram, H. V., The laser ophthalmoscope, *Bibl Ophth*, 72: 358-367 (1967).
201. Ingram, H. V., A laser ophthalmoscope for retinal phototherapy, *Brit Med J*, 5438: 823-827 (March 1965).
202. Ingram, H. V., The laser ophthalmoscope coagulator, a preliminary report, *Trans Ophth Soc United Kingdom*, 84: 453-467 (1964).

Laser Hazards Bibliography

203. Iwaszkiewica-Bilikiewiczowa, B., Photocoagulation with argon laser: changes in anterior chamber and vitreous body. Personal clinical and experimental experiences, *Pol Tyg Lek*, 32(39): 1521-1523 (1977) (Polish).
204. Jacobson, J. H., and McLean, Accidental laser retinal burns, *Arch Ophth*, 74: 882 (1965).
205. Jacobson, J. H., Najac, H. W., Cooper, B., Investigation of the Effects of Ruby Laser Radiation on Ocular Tissue, Report R-1815, US Army Frankford Arsenal, Philadelphia, PA (AD 638917) (June 1966).
206. Jones, A. E., and McCartney, A. J., Ruby laser effects on the monkey eye, *Invest Ophth*, 5: 474-483 (1966).
207. Jones, A. E., Fairchild, D. C., and Spyropoulos, P., Laser Radiation Effects on the Morphology and Function of Ocular Tissue, Report 12047-TDR2, Honeywell Inc., Research Department, St Paul, MN (1968).
208. Jones, A. E., and Fairchild, D. O., Laser Radiation Effects on the Morphology and Function of Ocular Tissue, Report 12047-TDR1, Honeywell Inc., Research Department, St Paul, MN (AD 661094) (August 1967).
209. Jones, A. E., and McCartney, A. J., Ruby Laser Effects on Ocular Structures, Report 653, US Army Medical Research Laboratory, Fort Knox, KY, 10 (7 January 1966).
210. Kapany, N. S., Unterleitner, F. C., Peabody, R. R., and L'Esperance, F. A., Jr., Green laser photocoagulator using fibre optics, *Arch Ophth*, 88: 80-84 (July 1972).
211. Kapany, N. S., Pepper, N. A., Zweng, H. C., et al., Retinal photocoagulation by lasers, *Nature*, 199: 146-149 (July 1963).
212. Kapany, N. S., Silbertrust, N., and Peppers, N. A., Laser retinal photocoagulator, *Appl Opt*, 4: 517-522 (1965).
213. Kelik, T., Modulated-pulse neodymium-laser coagulator, *Klin Oczna*, 47(6): 251 (1977).
214. Kent, P. R., Spencer, J. A., Smithwick, G. A., and Zglobicki, L., Laser-induced pathology of the rabbit retina-comparison of three radiation wavelengths, *Am J Opt*, 46: 847-854 (November 1969).
215. Khurl, C. H., Argon laser induced glaucoma in rabbits, *J Med Liban*, 27(5): 567-574 (1974).
216. Kidwell, T. P., Priebe, L. A., and Welsh, A. J., The measurement of ocular transmittance and irradiation distribution in argon laser irradiated rabbit eyes, *Invest Ophthalmol*, 15(8): 668-671 (1976).

Laser Hazards Bibliography

217. King, R. G., and Geeraets, W. J., The effect of q-switched ruby laser on retinal pigment epithelium in vitro, *Acta Ophth*, 46: 617-631 (1968).
218. Kinoshita, A., Beckman, H., and Sugar, H. S., Intraocular pressure alteration following ruby laser irradiation of the iris, *Arch Ophth*, 87: 688-692 (June 1972).
219. Klang, G., Measurement and studies of the fluorescence of human lens in vivo, *Acta Ophth Suppl*, 31: 1-152 (1948).
220. Kohtiao, A., Resnick, I., Newton, J., and Schwell, H. A., Threshold lesions in rabbit retinas exposed to pulsed ruby laser radiation, *Am J Ophth*, 62: 664-669 (October 1966).
221. Kohtiao, A., Newton, J., Schwell, H., and Resnick, I., Hazards and physiological effects of laser radiation, *Ann NY Acad Sci*, 122: 777-779 (28 March 1965).
222. Kohtiao, A., Resnick, I., Newton, J., and Schwell, H., Temperature rise and photocoagulation of rabbit retinas exposed to the CW laser, *Am J Ophth*, 62: 524-528 (September 1966).
223. Komarova, A. A., Clinical physiological characteristics of the state of the nervous system in person servicing optical quantum generators, *Gig Tr Prof Zabol*, 2: 8-12 (1976).
224. Komarova, A. A., Mozherenkov, V. P., Skatskaia, G. K., Chemnyi, A. B., and Pivoravov, N. M., Action of reflected laser radiation on the eye, *Vestn Oftalmol*, 1: 46-50 (1978) (Russian).
225. Koozekanani, S. H., Lubow, M., Bailin, L., Lee, M., and Lac, M., Effect of argon laser on proteolytic enzymes within the bovine vitreous, *Ann Ophth*, 7: 765-768 (June 1975).
226. Krasnov, M. M., et al., Hydrodynamic compression waves following irradiation of the eye with laser, *Vestn Oftalmol*, 0(4): 19-22 (July-August 1974).
227. Krasnov, M. M., Laser phakopuncture in the treatment of soft cataracts, *Br J Ophth*, 59(2): 96-98 (1975).
228. Krasnov, M. M., Klat, A., Naumidi, L. P., and Saprykin, P. I., Changes of temperature of the iris in laser and xenon photocoagulation, *Vestn Oftalmol*, (6): 62-66 (November-December 1974) (English abstract, Russian).
229. Krasnov, M. M., Electron microscopic study of the fundus oculi in laser coagulation, *Vestn Oftalmol*, 2: 9 (1973).

Laser Hazards Bibliography

230. Krasnov, M. M., Comparative evaluation of the damaging effect of a Q-switched ruby laser and argon lasers on the filtration apparatus, *Vestn Oftalmol*, (3): 22-30 (1978).
231. Landers, M. B., The laser eye hazard, *Survey Opth*, 14: 338-341 (January 1970).
232. Landers, M. B., Kreiger, A., and Neidlinger, R., Ocular hazards of lasers, *Las Foc*, 4(21): 40-41 (November 1968).
233. Lappin, P. W., Assessment of ocular damage thresholds for laser radiation, *Am J Opt*, 48: 600-606 (July 1971).
234. Lappin, P. W., and Coogan, P. S., Relative sensitivity of various areas of the retina to laser radiation, *Arch Opth* (Chicago), 84: 350-254 (September 1970).
235. Lappin, P. W., Ocular damage thresholds for the helium-neon laser, *Arch Environ Health* (Chicago), 20: 177-183 (February 1970).
236. Lappin, P. W., Retinal irradiances from the He-Ne CW laser, *Am J Opt*, 45: 279-291 (May 1968).
237. Lappin, P. W., and Coogan, P. S., Histologic evaluation of ophthalmoscopically subvisible retinal laser exposures, *Invest Opth*, 9: 537-542 (1970).
238. Lawwill, T., Effects of prolonged exposure of rabbit retina to low-intensity light, *Invest Opth*, 12: 45-51 (1973).
239. Lawwill, T., Crockett, S., and Currier, G., Retinal damage secondary to chronic light exposure thresholds and mechanisms, *Docum Opthal*, 44(2): 379-402 (1977).
240. Lawwill, T., Crockett, S., and Currier, G., Functional and histological measures of retinal damage in chronic light exposure, *Docum Opthal Proc Series*, 15: 285-295.
241. Lawwill, T., Crockett, S., and Currier, G., Retinal damage secondary to chronic light exposure, *Opthal Res*, 9: 351-356 (1977).
242. Lawwill, T., The ERG and its correlation with damage caused by chronic exposure to light, *Docum Opthal Proc Series* 2, Xth Iscerg Symposium, Los Angeles, 20-23 August 1972.
243. Lawwill, T., Electrophysiological effects associated with ocular lesions produced by intense light, *Vis Res*, (1980) in press.

Laser Hazards Bibliography

244. Lawwill, T., Crockett, S., and Currier, G., Functional and histological measures of retinal damage in chronic light exposure, *Docum Ophthal (Proc Series)*, 15: 285-295 (1977).

245. Leibowitz, H. M., and Berkow, J. W., Band keratopathy after ocular exposure to visible laser radiation, *Am J Ophth*, 76(4): 468-470 (October 1973).

246. Leibowitz, H. M., and Peacock, G. R., The retinal pigment epithelium. Radiation thresholds associated with the q-switched ruby laser, *Arch Ophth*, 82: 332-338 (September 1969).

247. Leibowitz, H. M., and Peacock, G. R., Corneal injury produced by carbon dioxide laser radiation, *Arch Ophth*, 81: 712-721 (May 1969).

248. Leibowitz, H. M., and Luzzio, A. J., Laser-induced cataract. Clinical observations, *Arch Ophth (Chicago)*, 83: 608-612 (May 1970).

249. Lerche, W., and Beeger, R., Electron microscopy findings in the pigment epithelium of the rabbit retina following laser treatment, *Ber Dtsch Ophth Ges*, 72: 216-223 (1974) (German).

250. Lerche, W., Light and electron microscopy studies on the effect of argon laser beams on the pigment epithelium of the human retina, *Albrecht von Graefes Arch Klin Ophth*, 187: 215-228 (1973).

251. Lerche, W., Beeger, R., and Rassow, R., Electron microscopic observations on the effect of laser beams on the retina of the rabbit, *Albrecht von Graefes Arch Klin Ophthalmol*, 205(2): 81-99 (1978).

252. L'Esperance, F. A., Clinical photocoagulation with the krypton laser, *Arch Ophth*, 87: 693-700 (June 1972).

253. L'Esperance, F. A., Jr., The treatment of ophthalmic vascular disease by argon laser photocoagulation, *Trans Am Acad Ophth Soc*, 73: 1077-1096 (November-December 1969).

254. L'Esperance, F. A., Jr., An ophthalmic argon laser photocoagulation system: design, construction, and laboratory investigations, *Trans Am Ophth Clinics*, 66: 827-994.

255. L'Esperance, F. A., Jr., A xenon arc versus laser photocoagulation, *Int Ophth Clinics*, 6: 335-350 (1966).

256. L'Esperance, F. A., Jr., The ocular histopathologic effect of krypton and argon laser radiation, *Am J Ophth*, 68: 263-273 (August 1969).

Laser Hazards Bibliography

257. L'Esperance, F. A., Jr., and Kelly, G. R., The threshold of the retina to damage by argon laser radiation, *Arch Opth*, 81: 583-588 (April 1969).
258. L'Esperance, F. A., Jr., Clinical photocoagulation with the frequency-doubled neodymium yttrium-aluminum-garnet laser, *Am J Opth*, 71(3): 631-638 (March 1971).
259. L'Esperance, F. A., Jr., Effect of laser radiation on retinal vascular anomalies, *Int Opth Clin*, 6: 351-358 (1966).
260. L'Esperance, F. A., Jr., Clinical comparison of xenon-arc and laser photocoagulation of retinal lesions, *Arch Opth*, 75: 61-67 (January 1966).
261. L'Esperance, F. A., Jr., The effects of laser radiation on the retinal vasculature; animal and clinical studies, *Arch Opth*, 74: 752-759 (December 1965).
262. Leuenberger, A., Results of laser-light coagulation, *Ophthalmologica*, 156: 346-349 (1968).
263. Leuenberger, P. M., Biological effect of laser-photo-coagulation on the retina, *Klin Monatsbl Augenheilkd*, 170(2): 228 (1977).
264. Liman, S., Haut, J., and Salvodeli, M., Brulure chorio-retinienne par le laser a l'argon, *Arch Opht (Paris)* 33: 593-604 (1973).
265. Limon, S., et al., Chorio-retinal burn caused by the argon laser, Optic and electron microscopic study, *Arch Opth (Paris)*, 33: 593-604 (August-September 1973).
266. Linnik, L. A., et al., Gas (HeNe, Ar) lasers, the effect of their radiation on eye tissue and prospects for their use in ophthalmology, *Oftalmol Zh*, 26: 422-426 (1971).
267. Linnik, L. A., and Tolstoshev, A. B., The neodymium laser, the effect of its radiation on eye tissues in comparison with the ruby laser, *Oftalmol Zh*, 26: 581-585 (1971).
268. Linnik, L. A., Treatment of central dystrophy of the retina using the subthreshold energy of a ruby laser, *Oftalmol Zh*, 33(3): 163-167 (1978).
269. Lotmar, W., Fankhauser, F., and Roulier, A., Photocoagulation through the Goldman contact glass, *Arch Opth*, 82: 314-319 (September 1969).
270. Lund, D. J., Adams, D. O., and Carver, C., Occular hazard of the gallium arsenide laser, Institute Report No. 30, Letterman Army Institute of Research, Presidio of San Francisco, CA.

Laser Hazards Bibliography

271. Lund, D. J., and Beatrice, E. S., Ocular hazards of short pulse laser irradiation, *Health Physics*, 36(1): 7-11 (1979).
272. Lund, D. J., Bresnick, G. H., Landers, M. B., Powell, J. O., Chester, J. E., and Carver, C., Ocular hazards of the q-switched erbium laser, *Invest Ophth*, 9: 463-470 (June 1970).
273. Lund, O. E., Wallow, I. H. L. Hillenkamp, F., Birngruber, R., and Gabel, V. P., Zur experimentellen laser-einwirkung am auge (Experimental laser effects on the eye), *Ber Dtsch Ophthalmol Ges*, 73: 360-362 (1975).
274. MacDonald, J. E., and Light, A., Photocoagulation of Iris and Retina, *Arch Ophth*, 60: 384-392 (1958).
275. MacKeen, D., Fine, S., Aaron, A., and Fine, B. S., Preventable hazard at UV wavelengths, *Las Foc*, 7(4): 29 (April 1971).
276. MacKeen, D., Fine, S., and Fine, B. S., Production of cataracts in rabbits with the ultraviolet laser, *Ophth Res*, 5: 317-324 (1973).
277. MacKeen, D., et al., Anterior chamber measurements on CO₂ laser corneal irradiation, *Invest Ophth*, 9: 366-371 (May 1970).
278. Makous, W. L., and Gould, J. D., Effects of lasers on the human eye, *IBM J Res Develop*, 12: 257 (1968).
279. Mainster, M. A., Corneal thermal response to CO₂ laser, *Appl Opt*, 9: 665 (1970).
280. Mainster, M. A., Ophthalmic applications of infrared lasers - thermal considerations, *Invest Ophth & Vis Sci*, 18(4): 414-420 (1979).
281. Manson, N., Smart, D., and Ingram, H. V., Laser ophthalmoscope and coherent light, *Brit J Ophth*, 52: 441-449 (June 1968).
282. Mark, R. G., Graham, E. S., Farrer, D. N., and Fields, T. A., Behavioral assessment of visual functioning immediately after exposure of the eye to a laser, *AFL-TR-70-9 (AD 707871)* (May 1970).
283. Marshall, J., Laser damage to ocular tissues, *Proc R Soc Med*, 66(9): 842-844 (September 1973).
284. Marshall, J., Hamilton, A. M., and Bird, A. C., Histopathology of ruby and argon laser lesions in monkey and human retina. A comparative study, *Br J Ophth*, 59(1): 610-630 (1975).
285. Marshall, J., and Mellerio, J., Pathological development of retinal laser photocoagulations, *Exp Eye Res*, 6: 303-308 (1967).

Laser Hazards Bibliography

286. Marshall, J., Fankhauser, F., Lotmar, W., and Roullet, A., Pathology of short pulse retinal photocoagulations using the Goldman contact lens, *Albrecht von Graefes Arch klin exp Opth*, 182: 154-169 (1971).

287. Marshall, J., Thermal and mechanical mechanisms in laser damage to the retina, *Invest Opth*, 9: 97-115 (1970).

288. Marshall, J., and Mellerio, J., Disappearance of retino-epithelial scar tissue from ruby laser photocoagulations, *Exp Eye Res*, 12: 173-174 (September 1971).

289. Marshall, J., Hamilton, A. M., and Bird, A. C., Intra-retinal absorption of argon laser irradiation in human and monkey retinae, *Experientia*, 30: 335-337 (1974).

290. Marshall, J., Acid phosphatase activity in the retinal pigment epithelium, *Vis Res*, 10: 821-824 (1970).

291. Marshall, J., and Mellerio, J., Histology of retinal lesions produced with q-switched lasers, *Exp Eye Res*, 7: 225-230 (April 1968).

292. Marshall, J., and Mellerio, J., Histology of the formation of retinal laser lesions, *Exp Eye Res*, 6: 4-9 (January 1967).

293. Marshall, J., and Mellerio, J., Laser irradiation of retinal tissue, *Brit Med Bull*, 26: 156-160 (May 1970).

294. Marshall, J., Eye hazards associated with lasers, *Ann Occup Hyg*, 21(1): 69-77 (1978).

295. McDonald, P. R., et al., Treatment of peripheral breaks: comparison of cryosurgery, diathermy, laser, and xenon photocoagulator, *Int Opth Clin*, 7: 451-457 (1967).

296. McGinness, J., and Proctor, P., The importance of the fact that melanin is black, *J Theor Biol*, 39: 677-678 (1973).

297. McGowan, J. W., Borwein, B., Madeiros, J. A., and Sanwal, M., Laser induced damage in the eye study of energy deposition in the retina, Report: The University of Western Ontario, Contract No. 3A161102B71P 03 for the US Army Medical Research and Development Command (June 1976).

298. McNair, J., Fraunfelder, F., et al., Acute pressure changes and possible secondary tissue changes due to laser or xenon photocoagulation, *Am J Opth*, 77: 13-18 (January 1974).

299. McPherson, A., et al., Fundoscopic and histopathologic changes following experimental coagulation by various methods, *Bibl Opth*, 72: 398-413 (1967).

Laser Hazards Bibliography

300. Mellerio, J., Is there a hazard in laser photocoagulation? *Brit Med J*, 5489: 719 (19 March 1969).
301. Mellerio, J., The thermal nature of retinal laser photocoagulation, *J Exp Eye Res*, 5: 242-248 (October 1966).
302. Mellerio, J., Lasers and the eye, *Ann Occ Hyg, Laser Safety Suppl*: 31-41 (1967).
303. Mellerio, J., Laser light and its effect on the retina, *Trans Opth Soc*, 87: 335-343 (1967).
304. Miasnikov, A. P., Gudakovski, I. U. P., Berezin, I. U. D., Komiagin, K. G., and Muratov, V. R., Effect on the cornea of CO₂ pulse laser radiation, *Voen Med Zh*, 3: 63-64 (1978).
305. Mikesell, G. W., Jr., Corneal temperatures of normal and laser-injured corneas in the Dutch belted rabbit, *Am J Optom Physiol Opt*, 55(2): 108-115 (1978).
306. Milton, M., et al., Ophthalmic implications of laser radiation, *Bull Soc d'Ophthal France*, 64: 766-768 (October 1964).
307. Moisseiev, J., and Bartov, E., Laser radiation absorbed by the retinal pigment epithelium, *Am J Ophthalmol*, 89(4): 607-608 (1980).
308. Moon, M. E., Clarke, A. M., Ruffalo, J. J., Jr., and Mueller, H. A., Visual performance in the Rhesus monkey after exposure to blue light, *Vision Research*, 18: 1573-1577 (1978).
309. Mueller, H. A., and Ham, W. T., Jr., The ocular effects of single pulses of 10.6 μ m and 2.5-3.0 μ m Q-switched laser radiation, Report to the Los Alamos Scientific Laboratory, L-Division (1976).
310. Najac, H., Cooper, B., Jacobson, J. H., Shamos, M. H., and Breitfeller, M., Direct thermocouple measurements of temperature rise and heat conduction in the rabbit retina, *Invest Ophth*, 2: 32-36 (1963).
311. Nash, J. P., Corneal damage following focal laser intervention, *Exp Eye Res*, 26(6): 641-650 (1978).
312. Newell, F. W., Radiant energy and the eye, *Ind and Traumatic Ophth* (Keeny, A. H., Kuhn, H. S., MacDonald, R., Newell, F. W., Novak, J. F., Ryan, R. W., and Zimmerman, L. E., eds), 158-187, C. V. Mosby Company, St Louis (1964).
313. Nicholson, A. N., and Allwood, M. J., Laser lesions: changes in retinal excitability, *Nature*, 210: 637-638 (1966).

Laser Hazards Bibliography

314. Noell, W. K., Effects of environmental lighting and dietary vitamin A on the vulnerability of the retina to light damage, *Photochem Photobiol*, 29: 717-723 (1979).
315. Noyari, K. S., Campbell, C. J., Rittler, M. C., and Koester, C. J., Ocular thermal effects produced by photocoagulation, *Arch Ophth*, 70: 817-822 (December 1963).
316. Noyari, K. S., Campbell, C. J., Rittler, M. C., and Koester, C. J., The characteristics of experimental laser coagulations of the retina, *Arch Ophth*, 72: 254-263, (August 1964).
317. Ognev, B. V., et al., Changes in the brain and eyes under the effects of laser beams, *Biull Eksp Biol Med*, 13: 103-105 (February 1972).
318. Ognev, B. V., Experimental study of the action of a laser ray on the sex organs, *Nov Med Tekh*, 1: 57-63 (1977) (English abstract, Russian).
319. Ognev, B. V., The influence of laser beams on intracranial structures following experimental irradiation of the eyes, *Vestn Oftalmol*, 3: 69 (1972).
320. Okisaka, S., Kwabara, T., and Aiello, L., The effects of laser photocoagulation in the retinal capillaries, *Am J Ophth*, 80(4): 315-321 (1975).
321. Osipov, G. I., and Piatin, M. M., Laser ray lesion of the eye, *Vestn Oftalmol*, 1: 50-51 (February 1978) (Russian).
322. Parr, W. H., and Fisher, R. S., Aberrant corneal epithelial cells produced by ruby laser irradiation, *Invest Ophth*, 6: 356-363 (August 1967).
323. Patz, A., Maumenee, A. E., and Ryan, S. J., Argon laser photocoagulation. Advantages and limitations, *Trans Am Acad Ophth Otolaryngol*, 75: 565-579 (May-June 1971).
324. Patz, A., Schatz, Ryan, S. J., Berkow, J. W., and Lazarus, M. G., Argon laser photocoagulation for treatment of advanced diabetic retinopathy, *Trans Am Acad Ophth Otolaryngol*, 76(4): 984-989 (July-August 1972).
325. Peabody, R. R., Rose, H., Zweng, H. C., Peppers, N. A., and Vassiliadis, A., Threshold damage from CO₂ lasers, *Arch Ophth*, 82: 105-107 (July 1969).
326. Peabody, R. R., Zweng, H. C., and Little, H. L., Treatment of persistent central serous retinopathy, *Arch Ophth*, 79: 166-169 (February 1968).

Laser Hazards Bibliography

327. Peacock, G. R., Surface temperature as a parameter in estimating laser injury thresholds, Report No. 733 of the US Army Medical Research Laboratory, Fort Knox, KY, 25 (8 June 1967).

328. Peacock, G. R., Near infrared lasers: safety calculations, Report No. 761 of the US Army Medical Research Laboratory, Fort Knox, KY, 18 pp. (26 December 1967).

329. Peppers, N. A., and Hammond, A. H., Laser damage thresholds for ocular tissues, *Am Ind Hyg Assn J*, 30: 218-225 (May-June 1969).

330. Peppers, N. A., Vassiliadis, A., Dedrick, K. G., Chang, R., Peabody, R. R., Rose, H., and Zweng, H. C., Corneal damage thresholds for CO₂ laser radiation, *Appl Opt*, 8: 377 (1969).

331. Perkins, E. S., Laser iridotomy, *Brit Med J*, 1: 580-581 (6 June 1970).

332. Peyman, G. A., and Bok, D., Peroxidase diffusion in the normal and laser-coagulated primate retina, *Invest Ophth*, 11(1): 35-45 (1972).

333. Peyman, G. A., Studies on intravitreal blood vessels II. Effectiveness of xenon arc and argon laser photocoagulation in the blood vessel closure, *Invest Ophthalmol*, 13: 441 (1974).

334. Pitts, D. G., The human ultraviolet action spectrum, *Am J Opt Physiol Opt*, 51: 946-960 (December 1974).

335. Polhamus, G. D., and Welch, A. J., Effect of pre-exposure fundus temperature on threshold lesion temperatures in the laser-irradiated rabbit retina, *Invest Ophthalmol*, 14(7): 562-565 (1975).

336. Polhamus, G. D., and Welsh, A. J., Effect of Pre-Exposure Fundus Temperature on Threshold Lesion Temperatures in the Laser-Irradiated Rabbit Retina, Univ of Texas, Engr Sci Bldg, ENS 610, Austin, TX (1976).

337. Polhamus, G. D., and Welsh, A. J., Threshold lesion temperatures in argon laser-irradiated rabbit eyes, *J Heat Transfer (Trans ASME)*, 97: 457-462 (August 1975).

338. Pomerantzeff, O., Hamada, S., Donovan, R. H., Mukai, N., and Scheppens, C. L., Clinical importance of wavelengths in photocoagulation, *Trans Am Acad Ophth Otolaryngol*, 75: 557-568 (May-June 1971).

339. Pomerantzeff, O., Studies in photocoagulation, *Brit J Ophth*, 48: 311-317 (1964).

Laser Hazards Bibliography

340. Powell, J. O., Bresnick, G. H., Yanoff, M., Frisch, G. D., and Chester, J. E., Ocular effects of Argon laser radiation. II. Histopathology of chorioretinal lesions, *Am J Ophth*, 71(6): 1267-1276 (June 1971).

341. Powell, J. O., Tso, M. O. M., and Wallow, I. H., Recovery of the retina from argon laser radiation: clinical and light microscopic evaluation, *Ann Ophth*, 6(10): 1003-1006, 1009-1012 (October 1974).

342. Priebe, L. A., and Welch, A. J., Changes in the rabbit electroretinogram c-wave following ruby laser insult, *Aerospace Med* 44(2): 1246-1250 (November 1973).

343. Priebe, L. A., Cain, C. P., and Welch, A. J., Temperature rise required for production of minimal lesions in the macaca mulatta retina, *Am J Ophth*, 79(3): 405-413 (March 1975).

344. Priebe, L. A., and Welsh, A. J., The measurement of threshold temperatures in the ocular fundus for laser-induced visible lesions, Texas Univ Electr Res Ctr (AD403 789), Report TR-180, Contract F44620-71-C-0091, Project 4751 (February 1976).

345. Rathkey, A. S., Accidental laser burn of the macula, *AMA Arch Ophth*, 74(3): 346-348 (September 1965).

346. Rauhut, D., Light and electron microscopic studies of neodymium laser injuries in rabbits, *Ber Dtsch Ophthalmol Ges*, 74: 407 (1977).

347. Ring, H. G., Xenon photocoagulation and the retinal vasculature, *Arch Ophth*, 91: 389-393 (May 1974).

348. Robbins, D. O., Functional assessment of laser radiation, Joint AMRDC-AMC Laser Safety Team, Frankfort Arsenal, Phila, PA, Report-contract No. DAAA 25-71-C-0497 (August 1974).

349. Robbins, D. O., Zwick, H., and Holst, G. C., Functional assessment of laser exposures in awake, task-oriented Rhesus monkeys, *Mod Probl Ophth*, 13: 284-290 (1974).

350. Robbins, D. O., Zwick, H., and Holst, G. C., A method for producing foveal retinal exposures in an awake, task-oriented, Rhesus monkey, *Behav Res Meth & Instr*, 5(6): 457-461 (1973).

351. Rosan, R. C., Flocks, M., Vassiliadis, A., Rose, H. W., Peabody, R. P., and Hammond, A., Pathology of monkey retina following irradiation with an argon laser, *Arch Ophth*, 81: 84-88 (January 1969).

352. Rose, W. H., Factors determining laser lesions, *Int Ophthalmol Clin*, 6: 253 (1966).

Laser Hazards Bibliography

353. Rowe, K., and Rockwell, R. J., Investigation of Ocular Hazard from Lasers in Human Subjects, U of Cincinnati, Contract No. F41609-69-C-0052 (May 1972).
354. Rysa, P., and Sarvaranta, J., Corneal temperature in man and rabbit. Observations made by using an infra-red camera and a cold chamber, *Acta Ophth*, 52: 810-816 (1974).
355. Sakata, H., and Choshi Kanji, Studies on scotoma in xenon arc photocoagulation and argon laser photocoagulation, *Acta Soc Ophth Jpn*, 78(12): 1442-1448 (10 December 1974) (English abstract).
356. Santos, R., deBuen, S., and Abraham, R. K., Chorioretinal lesions produced by laser on monkeys and rabbits, *Am J Ophth*, 61: 230-240 (February 1966).
357. Savin, B. M., Covach, P. I., and Kolchin, E. E., Role of nonlinear optical effects in the process of photoreception of laser radiation, *Dokl Akad Nauk SSSR*, 221(1): 255-256 (March-April 1975).
358. Schmidt, R. F., Taboda, J., and Butcher, W. I., Suprathreshold retinal damage due to single 6 picosecond 1060 nm laser light pulses, *Aviat Space, Environ Med*, 50(8): 788-791 (1979).
359. Selitskaya, T. I., and Tepliakova, N. L., Effect of laser radiation on the organ of sight, *Voyenno-Meditsinskiy Zhurnal (Moscow)*, 9: 66-67 (1979).
360. Sidley, N. A., Sperling, A. G., and Fowlks, W. L., The effects of high-intensity radiant stimulation of varying wavelengths and durations on retinal sensitivity, Honeywell, Inc, St Paul, MN (AD170 187), Report 1549-TDR 2, Contract DA49-193MD2457 (July 1965).
361. Simakov, Yu. G., et al., Change in the lead content of lenses damaged by laser radiation, *Biofizika*, 15: 554-556 (May-June 1970).
362. Simakov, Yu. G., et al., Decrease in the calcium content of crystalline lenses injured by laser radiation, *Dokl Akad Nauk SSSR*, 188: 1387-1389 (21 October 1969).
363. Simakov, Yu. G., Lenticular changes induced by laser radiation, *Zh Obshch Biol*, 31: 353 (1970).
364. Simakov, Yu. G., Influence of laser radiation on the lipid content in the lens of the rana temporaria frog, *Izv Akad Nauk SSSR Biol*, 4: 609 (1970).

Laser Hazards Bibliography

365. Skeen, C. H., Bruce, W. R., Tips, J. H., Jr., Smith, M. G., and Garza, G. G., Ocular effects of repetitive laser pulses, Technology, Inc., San Antonio, TX, USAF Contract F41609-71-C-0018 (30 June 1972) (AD 746795).
366. Skeen, C. H., Bruce, W. R., Tips, J. H., Jr., Smith, M. G., and Garza, C. G., Ocular effects of near infrared laser radiation for safety criteria, USAF Contract No. F41609-71-C-0016, Technology, Inc., San Antonio, TX (June 1972) (AD 746793).
367. Sliney, D. H., The development of laser safety criteria-biological considerations, Laser Applications in Medicine and Biology (Ed., M. L. Wolbarsht), Plenum Press, NY, 163-238 (1971).
368. Smart, D., Manson, N., Marshall, J., and Mellerio, J., New ocular hazard of mode locking in CW lasers, Nature, 227: 1149-1150 (12 September 1970).
369. Smart, D., Lasers and the eye, New Sci, 570-572 (27 May 1965).
370. Smart, D., Ingram, H., and Manson, N., Lasers and ultrasonics, Brit Med J, 1: 859-860 (2 April 1966).
371. Smith, R. S., and Stein, M. N., Ocular hazards of transcleral laser radiation. I. Spectral reflection and transmission of the sclera, choroid and retina, Am J Ophth, 66: 21-31 (July 1968).
372. Smith, R. S., and Stein, M. N., Ocular hazards of transcleral laser radiation. II. Intraocular injury produced by ruby and neodymium lasers, Am J Ophth, 67: 100-110 (January 1969).
373. Snyder, W. B., Laser coagulation of the anterior segment. 1, experimental laser iridotomy, Arch Ophth, 77: 93-98 (January 1967).
374. Spalter, H. F., Laser coagulation of retinal inflammatory disease, Int Ophth Clinics, 6: 359-378 (1966).
375. Spalter, H. F., Photocoagulation of central serous retinopathy, Arch Ophth, 79: 247-253 (1968).
376. Spencer, D. J., and Dunskey, I. L., Preliminary corneal damage threshold studies with HF-DF chemical lasers, USAF Report No. SAMSO-TR-73-215 (July 1973).
377. Sperling, H. G., Deficits in visual performance after long-term light exposure, Ocular Effects on nonionizing Radiation, Proc SPIE 229: 63-70, 1980.

Laser Hazards Bibliography

378. Sperling, H. G., in "The Effects of Constant Light on Visual Processes," (Edit Theodore P. Williams and B. N. Baker) p 195-213, Plenum Publishing Corp., New York (1980).
379. Sperling, H. G. (Ed), Laser Eye Effects, Armed Forces-NRC Committee on Vision, 89 (April 1968).
380. Sperling, H. G., Laser functional effects, in Laser Eye Effects (Sperling, H. G., ed), 57-74, Armed Forces - National Research Council Committee on Vision, Washington, DC (1968).
381. Sperling, H. G., Preface and recommendations, in Laser Eye Effects (Sperling, H. G., ed), 1-3, Armed Forces - National Research Council Committee on Vision, Washington, DC (1968).
382. Stefani, F. H., Birngruber, R., Hillenkamp, F., and Gabel, V. P., Q-switched ruby laser induced damage of the adult rabbit lens capsule, Albrecht von Graefes Arch Klin Ophthalmol, 206(1): 49-55 (1978).
383. Stefani, F. H., Birngruber, R., and Hillenkamp, F., Lens injuries due to ruby laser giant pulses, Ber Dtsch Ophthalmol Ges, 74: 403 (1977).
384. Stein, M., and Elgin, S., Measurements of retinal image for laser radiation on Rhesus monkeys, USAF Contr F41609-68-C0038, Eye Research Foundation of Bethesda (February 1970).
385. Stockhausen, M., Walther, G., and Hochgesand, P., Zur Frage der Schwellenenergie fur Augenschadigungen durch kurze laser impulse, Int Arch Arbeitmed, 29: 340-346 (1972).
386. Stuck, B. E., Lund, D. J., and Beatrice, E. S., Occular effects of laser radiation from 1.06 to 2.06 μ m, Occular Effects of Nonionizing Radiation, Proc SPIE 229: 116-120, 1980.
387. Sutton, G. W., Rose, V. E., and LaNier, M. E., Environmental contaminants from laser use, Arch Environ Health, 20: 201 (February 1970).
388. Taboada, J., and Ebberts, R. W., Ocular tissue damage due to ultrashort 1060-nm light pulses from a mode-locked Nd:glass laser, Appl Opt, 14: 1759-1761 (August 1975).
389. Takata, A. N., Goldfinch, L., Hinds, J. K., Kuan, L. P., Thomopoulos, N., and Weigandt, A., Thermal Model of Laser-Induced Eye Damage, Final TR IITRI J-TR-74-6324, Engr Mech Div, IIT Res Institute, 10 W 35th St, Chicago, IL (DDC AD A-017-201).
390. Taleff, M., et al., Laser coagulation of the retina using the argon laser, Am J Ophth, 67: 666-670 (May 1969).

Laser Hazards Bibliography

391. Tengroth, B., The hazardous effects of laser radiation on the eye, *Ophthalmologica*, (Basel) Suppl, 338-343 (1969).
392. Tengroth, B., The laser and its use in retinal surgery, *Acta Ophth Suppl*, 84: 135-141 (1966).
393. Tengroth, B., Karlberg, B., Bergqvist, T., and Adehed, T., Laser action on the human eye, *Acta Ophth*, 41: 595-603 (1963).
394. Tengroth, B., The hazardous effects of laser radiation on the eye, 3rd Congress Europ Soc Ophthmol Amsterdam *Ophthalmologica Additamentum AD*, 158: 338-342 (1969).
395. Tengroth, B., Laser calculation risks and advantages, *Trans Ophth Soc*, 86: (1966).
396. Tengroth, B., Effects on the retina of the ruby laser, *Acta Ophth*, 42: 931-932 (1964).
397. Ticho, U., Argon laser trabeculotomies in primates: evaluation by histological and perfusion studies, *Invest Ophth Vis Sci*, 17(7): 667-674 (1978).
398. Troitskif, R. A., and Bepecia, C. P., Effects of high power laser radiation on the eyes, *Vestn Oftalmol*, (1): 73 (January-February 1975) (Russian).
399. Tso, M. O. M., and Fine, B. S., Repair and late degeneration of the primate foveola after injury by argon laser, *Invest Ophthalmol Vis Sci*, 18(5): 447-461 (1979).
400. Tso, M. O. M., Wallow, I. H. L., Powell, J. O., and Zimmerman, L. E., Recovery of the rod and cone cells after photic injury, *Trans Am Acad Ophth and Oto*, 76: 1247-62 (1972).
401. Tso, M. O. M., Wallow, I. H. L., and Powell, J. O., Differential susceptibility of rod and cone cells to argon laser, *Arch Ophth*, 89: 228-234 (March 1973).
402. Unger, W. G., et al., The response of the rabbit eye to laser radiation of the iris, *Exp Eye Res*, 19(4): 367-377 (October 1974).
403. Unger, W. G., Response of the human eye to laser irradiation of the iris, *Br J Ophthalmol*, 61(2): 148 (1977).
404. Unger, W. G., Postaglandin and neurogenically mediated ocular response of laser irradiation of the rabbit iris, *Exp Eye Res*, 25(3): 209-220 (1977).

Laser Hazards Bibliography

405. Unger, W. G., Effect of unilateral sympathectomy on the ocular response of the rabbit eye to laser irradiation of the iris, *Trans Ophthalmol Soc UK*, 97(4): 674-678 (1977).
406. Usov, N. I., Change in the DNA content of the nuclei of retinal ganglial cells after the action of optical quantum generator radiation, *Oftalmol Zh*, 33(1): 59-62 (1978) (Russian).
407. Van Der Zypen, E., Fankhauser, F., and Bebie, H., On the effects of different laser energy sources upon the iris of the pigmented and the albino rabbit, *Int Ophth*, 1: 39-48 (1978).
408. Van Der Zypen, E., The effects of a new type of laser on fixed tissue of the angle of the anterior chamber in the monkey eye, *Klin Monatsbl Augenheilkd*, 172(4): 436-437 (1978).
409. Vasilenko, L. S., Chetbotaev, V. P., and Troitskii, Y. V., Visual observation of infrared laser emission, *Soviet Physics, J Exp Theor Phys*, 21: 513-514 (1965).
410. Vassiliadis, A., Ocular damage from laser radiation, *Laser Applications in Medicine and Biology* (Ed., M. L. Wolbarsht), Plenum Press, NY, 125-162 (1971).
411. Vassiliadis, A., Rosan, R. C., and Zweng, R. C., Research on Ocular Laser Thresholds, SRI Report No. 7191, Stanford Research Institute, Menlo Park, CA (AD 700422) (August 1969).
412. Vassiliadis, A., Zweng, H. C., and Dedrick, K. G., Ocular Laser Threshold Investigations, SRI Report No. 8209, Stanford Research Institute, Menlo Park, CA (January 1971).
413. Vassiliadis, A., Rosan, R. C., Peabody, R. R., Zweng, H. C., and Honey, R. C., Investigations of Retinal Damage Using a Q-Switched Ruby Laser, Stanford Research Institute, Menlo Park, CA (AD 489376) (August 1966).
414. Vassiliadis, A., et al., Investigations of Laser Damage to Ocular Tissues, Stanford Research Institute, Menlo Park, CA, 90 (March 1968).
415. Vassiliadis, A., et al., Investigations of Laser Damage to Ocular Tissues, Stanford Research Institute, Menlo Park, CA, 33 (April-31 August 1967).
416. Vassiliadis, A., Zweng, H. C., Peppers, N. A., Peabody, R. R., and Honey, R. C., Thresholds of laser eye hazards, *Arch Environ Health*, 20: 161-170 (February 1970).

Laser Hazards Bibliography

417. Vassiliadis, A., Peppers, N. A., Peabody, R. R., Rosan, R. C., Zweng, H. C., Flocks, M., and Honey, R. C., Investigations of Laser Damage to Ocular Tissues, Stanford Research Institute, Menlo Park, CA (March 1970).
418. Vidal, R. F., Experimental retinal vascular photocoagulation with the argon laser. Optic microscopic study of the results in rabbits and humans, Arch Ophthalmol, 37(4): 295 (1977).
419. Volkov, V. V., Selection of the generator for photocoagulation of the fundus oculi, Oftalmol Zh, 33(5): 330-333 (1978).
420. Vos, J. J., Ham, W. T., and Geeraets, W. J., What is the functional damage threshold for retinal burn? 39-53, in Loss of Vision from High Intensity Light, Advisory Group for Aerospace Research and Development (NATO), Paris, AGARD-CP11 (1966).
421. Vos, J. J., Heat-damage to the retina by lasers and photocoagulators, Ophthalmologia, (Basel) 151: 652-654 (1966).
422. Vos, J. J., Some Considerations on Eye Hazards With Lasers, Institute for Perception RVO-TNO, Soesterberg, National Council for Applied Research in the Netherlands, Report IZF 1966-4, 23 pp. (AD 800156) (1966).
423. Walkenbach, J. E., Determination of retinal lesion threshold energies of pulse repetition ND-3: YAG laser in the Rhesus monkey, M. S. Thesis, Virginia Commonwealth University, Richmond, VA (June 1972).
424. Wallow, I. H., Gabel, V. P., Birngruder, R., and Hillenkamp, F., Clinical and histological studies following argon laser effect on the retina. Histopathological evaluation of laser injuries for the assessment of a functional injury threshold for laser, Ber Dtsch Ophth Ges, 73: 374-386 (1975).
425. Wallow, I. H. L., Gabel, V. P., Birngruder, R., and Hillenkamp, F., Klinische und histologische untersuchungen nach argon-laserinwirkung auf die netzhaut - die histopathologische auswertung von laserlasionen als mittel zur abschatzung einer funktionellen laser-schadigungsschwelle, Ber Dtsch, Ophthalmol, 73: 360-362 (1975).
426. Wallow, I. H. L., Lund, O. E., and Gabel, V. P., A comparison of retinal argon laser lesions in man and in cynomolgus monkey, Albrecht V. Graefes Arch Klin Exp Ophthalm, 189: 159-164 (1974).
427. Watts, G. K., Ruby laser transmission and the lens, Brit J Ophth, 54: 423 (1970).
428. Watts, G. K., Retinal hazards during laser irradiation of the iris, Br J Ophth, 55: 60-67 (January 1971).

Laser Hazards Bibliography

429. Watts, G. K., Ruby laser damage and pigmentation of the iris, *Exp Eye Res*, 8: 470-476 (October 1969).
430. Watts, G. K., Argon laser irradiation of the iris, *Non-ioniz Radiat*, 1: 155 (1970).
431. Watzke, R. C., and Moore, R. T., Ruby laser photocoagulation of the papillomacular bundle. An experimental study, *Arch Opth*, 87: 684-687 (June 1972).
432. Weidenthal, D., Plotkin, J., and Moore, R. T., A fluorescein study of fundus photocoagulation in the rabbit, *Arch Opth*, 76: 716-717 (1966).
433. Weingeist, T. A., Argon laser photocoagulation of the human retina. 1. Histopathologic correlation of chorioretinal lesions in the region of the maculopapillary bundle, *Invest Opth*, 13(2): 1024-1032 (December 1974).
434. Welch, A. J., Temperature Rise in Fundus exposed to Laser Radiation, Report SAM-TR-75-32 (August 1975) (DDC AD A-014-819).
435. Welch, A. J., and Cain, C. P., Measured and predicted laser induced temperature rise in the rabbit fundus, *Invest Opth*, 13(1): 60-70 (1974).
436. Welch, A. J., and Priebe, A., Changes in the rabbit electroretinogram c-wave following ruby laser insult, *Aerospace Med*, 44(11): 1246-1250 (1973).
437. Welch, A. J., Priebe, L. A., Polhamus, G. D., and Mistry, G. D., Model of Thermal Injury Based on Temperature Rise in Fundus Exposed to Laser Radiation; for: USAF School of Aerospace Med, AFSC, Brooks AF Base, TX; by: Biomed Engr Lab, Electronics Res Center, Univ of Texas, Austin, TX, Report Contract F41609-74-C-0025 (August 1975).
438. West, D. C., Positional control of laser photocoagulator lesions near the fovea, *Brit J Opth*, 52: 938-939 (December 1968).
439. Wheeler, C. B., Calculation of the retinal temperature distribution resulting from laser irradiation of the eye. I. Continuous lasers, *Phys Med Biol*, 21(4): 616-630 (1976).
440. Wiggins, R. L., Vaughn, D., and Friedmann, G. B., Fundus camera holography of retinal microvasculature, *Arch Opth*, 88: 72-79 (July 1972).
441. Winburn, D. C., Biological damage threshold studies, fast-pulse laser studies at Los Alamos Scientific Laboratory--an overview, *Electro-Optical Syst Des*, 9(11): 19-22 (November 1977).

Laser Hazards Bibliography

442. Wise, G. N., Campbell, C. J., Wendler, P. F., and Rittler, M. C., Photocoagulation of vascular lesions of the macula, *Am J Ophth*, 66: 452-459 (1968).
443. Wissler, E. H., An Analysis of Choriorretinal Thermal Response to Intense Light Exposure, *IEEE Trans on Bio-Med Engr*, BME-23 (3): 207-215 (1976).
444. Wolbarsht, M. L., Decrement in visual acuity from laser lesions in the fovea, *Aerospace Med*, 37(12): 1250-1252 (December 1966).
445. Wolbarsht, M. L., Fligsten, K. E., and Hayes, J. R., Retina pathology of neodymium and ruby laser burns, *Science*, 150: 1453-1454 (10 December 1965).
446. Wolbarsht, M. L., and Landers, III, M. B., Laser exposures in the maculas of human volunteers, I. CW HeNe, CW Argon, Pulsed Ruby Laser Measurements, Technical Report: ONR Contract N00014-67-A-0251-0011, 1-24 (December 1972).
447. Wolbarsht, M. A., Orr, M. A., Yamanashi, B. S., Zigler, J. S., and Matheson, I. B. C., The origin of cataracts in the lens from infrared laser radiation, Ann Progress Rept Contract No. DAMD17-74-C-4133, Duke Univ Eye Ctr, Durham, NC, available Springfield, VA, Natl Tech Info Service (AD-A046 165) (1977).
448. Wolbarsht, M. L. and Landers, M. B., Lasers in ophthalmology: the path from theory to application, *Appl Opt*, 18: 1518-1526 (1979).
449. Wolter, J. R., and Moorman, L. T., Early effects of photocoagulation of nerve fiber layer of human retina, *Arch Ophth*, 76: 385-390 (September 1966).
450. Yanoff, M., Histopathology of Argon Laser Induced Retinal Lesions, School of Medicine, University of Pennsylvania (August 1970) (AD 710406).
451. Yanoff, M., Landers, M. B., and Bresnick, G. H., Technique for flat-mount retinal pigment epithelial preparations, *Ann Ophth*, 2: 475 (1970).
452. Yarczower, M., Wolbarsht, M. L., Galloway, W. D., Fligsten, K. E., and Malcom, R., Visual acuity in a stump-tail macaque, *Science*, 152: 1392-1393 (June 1966).
453. Yew, D. T., and Chan, Y. W., The effect of laser on the developing and adult rodent retinas and brains, *Anat Anz*, 142(3): 209-212 (1977).

Laser Hazards Bibliography

454. Yoneya, S., Specificity of photocoagulated retinal lesions by xenon and lasers. A histopathological study, *Nippon Ganka Gakkai Zasshi*, 81(7): 829-843 (1977) (English abstract, Japanese).
455. Zaret, M. M., Ocular hazards of laser radiation, *Int Ophthalmol Clin*, 6: 285 (1966).
456. Zaret, M. M., Ocular Exposure to Q-Switched Laser irradiation, Wright-Patterson AFB, OH, USAF Avionics Laboratory, 58 pp. (AD 483970) (April 1966).
457. Zaret, M. M., The laser hazard, *Arch Environ Health*, 10: 629-630 (1965).
458. Zaret, M. M., Safeguarding lasers, *Nat Saf News*, 91(2): 22-25, 78 (1965).
459. Zaret, M. M., Analysis of factors of laser radiation producing retinal damage, *Fed Proc*, 24: S-62 - S-64 (1965).
460. Zaret, M. M., Ripps, H., Siegel, I. M., and Breinin, G. M., Laser photocoagulation of the eye, *Arch Opth*, 69: 97-104 (1963).
461. Zaret, M. M., Breinin, G. M., Schmidt, H., Ripps, H., and Siegel, I. M., Ocular lesions produced by an optical maser (laser), *Science*, 134: (10 November 1961).
462. Zaret, M. M., Breinin, G. M., Schmidt, H., Ripps, H., and Siegel, I., Photocoagulation Produced by a Coherent Light Source, Department of Ophthalmology, New York University Medical Center, Rome Air Development Center, Technical Note 61-64, Griffiss Air Force Base, NY (AD 264393) (1961).
463. Zhokov, V. P., Syngaevskaya, V. A., Ignatyeva, O. C., and Cinenko, G. F., Biochemical Shifts in Eye Tissues Following Laser Irradiation, *Oftalmologicheskii Zhurnal (Odessa)*, 26: 273-278 (1971).
464. Zuclich, J. A., Cumulative effects of near-UV induced corneal damage, *Health Physics*, 38: 833-838 (1980).
465. Zuclich, J. A., Tredici, T. J., Mikesell, G. W., Gibbons, W. D., and Schmidt, R. E., Miles Device: Ocular Hazard Evaluation, Report SAM-TR-80-2, USAF School of Aerospace Medicine (AFSC), Brooks AFB, TX (1980).
466. Zuclich, J., Ocular effects of ultraviolet laser radiation, USAF School of Aerospace Med, Brooks AF Base, TX, Report SAM-TR-74-32 (1974).
467. Zuclich, J. A., Hazards to the eye from UV, Ocular Effects of Nonionizing Radiation, *Proc ACGIH, Topical Symposium 11/26-28/79*, pp 130-144.

Laser Hazards Bibliography

468. Zuclich, J. A., and Connolly, J. A., Ocular Damage Induced by Near-Ultraviolet Laser Radiation, USAF School of Aerospace Med, AF Systems Command, by: Technology Inc., Life Science Div, 8531 N New Braunfels Ave, San Antonio, TX, Contract F41609-73-C-0017.
469. Zuclich, J. A., and Connolly, J. A., Ocular damage induced by near-ultraviolet laser radiation, Invest Ophth, 15(9): 760-764 (1976).
470. Zuclich, J. A., and Kurtin, W. E., Oxygen dependence of near-UV induced corneal damage, Photochem Photobiol, 25: 133-135 (1977).
471. Zuclich, J. A., Yates, J. T., Nowroki, A. D., Bowie, W. H., and Lemberger, R. F., Research on the ocular effects of laser radiation, Techn, Inc, San Antonio, TX, Life Sci Div (AD401650), Report TI-77-0561-03, Contract F41609-73-C-0017, Project 7757, Task 02 (August 1977).
472. Zuchich, I. A., and Taboada, J., Ocular hazard from uv laser exhibiting self-mode-locking, Appl Opt, 17: 1482-1484 (15 May 1978).
473. Zweng, H. C., Little, H. L., and Hammond, A. H., Complications of argon laser photocoagulation, Trans Am Acad Ophth Otolaryngol, 78: 195-204 (March-April 1974).
474. Zweng, H. C., Accidental q-switched laser lesion of human macula, Arch Ophth (Chicago), 78: 596-599 (November 1967).
475. Zweng, H. C., Lasers in Ophthalmology in Lasers in Medicine and Biology (Ed., M. L. Wolbarsht), Plenum Press, NY, 1: 239-253 (1971).
476. Zweng, H. C., Little, H. L., and Peabody, R. R., Argon laser photocoagulation of diabetic retinopathy, Arch Ophth, 86: 395-400 (1971).
477. Zweng, H. C., Paris, G. L., Vassiliadis, A., Rose, H., and Hayes, J., Laser photocoagulation of the iris, Arch Ophth, 84: 193-199 (August 1970).
478. Zweng, H. C., Vassiliadis, A., Peppers, N. A., Peabody, R. R., and Honey, R. C., Thresholds of laser eye hazards, Ind Hyg Found Trans Bull, 42: 75-85 (1968).
479. Zweng, H. C., Rosan, R. C., Peabody, R. R., Shuman, R. M., Vassiliadis, A., and Honey, R. C., Experimental q-switched ruby laser retinal damage, Arch Ophth, 78: 634-640 (November 1967).
480. Zweng, H. C., Laser ocular photocoagulation, General Pract, 39: 94-95 (February 1969).

Laser Hazards Bibliography

481. Zweng, H. C., Clinical ocular laser coagulation, *Inter Ophth Clinics*, 6: 319-334 (1966).
482. Zweng, H. C., Little, H. L., and Peabody, R. R., Further observations on argon laser photocoagulation of diabetic retinopathy, *Trans Am Acad Ophth Otolaryngol*, 76(4): 990-1004 (July-August 1972).
483. Zweng, H. C., Flocks, M., and Peabody, R., Histology of human ocular laser coagulation, *Arch Ophth*, 76: 11-15 (2 July 1966).
484. Zweng, H. C., and Flocks, M., Clinical experiences with laser photocoagulation, *Fed Proc*, 24: S-65 - S-70 (1965).
485. Zweng, H. C., Flocks, M., Kapany, N. S., Silbertrust, N., and Peppers, N. A., Experimental laser photocoagulation, *Am J Ophth*, 58(3): 353-362 (September 1964).
486. Zwick, H., Bedell, R. B., and Bloom, K., Spectral and visual deficits associated with laser irradiation, *Mod Probl Ophth*, 13: 299-306 (1974).
487. Zwick, H., and Holst, G. C., Experimental alteration of the red cone photoreceptor process, *Mod Probl Ophth*, 17: 257-263 (1976).
488. Zwick, H., and Robbins, D. O., Is the rhesus protanomalous? *Mod Probl Ophth*, 19: 238-242 (1978).
489. Zwick, H., and Beatrice, E. S., Long-term changes in spectral sensitivity after low-level laser (514 nm) exposure, *Mod Probl Ophth*, 19: 319-325 (1978).
490. Zwick, H., Low level laser light effects, *SPIE*, 162: 112-118 (1978).
491. Zwick, H., Stuck, B. E., and Beatrice, E. S., Low-level laser effects on rhesus visual function, *Ocular Effects of Nonionizing Radiation*, *Proc SPIE* 229: 55-61, 1980.

B. Non-laser Optical Radiation Effects Upon The Eye.

1. Adrian, W., Everson, R. W., and Schmidt, I., Protection against photic damage in retinitis pigmentosa, *Adv Exp Med Biol*, 77: 233-247 (1977).
2. Agarwal, L. P., and Malik, S. R. K., Solar retinitis, *Br J Ophth*, 43: 366-370 (1959).

Laser Hazards Bibliography

3. Allen, R. G., Research on ocular effects produced by Thermal Radiation, Report for USAF-SAM by Technology, Inc., Life Science Div, San Antonio, TX (July 1967).
4. Allen, R. G., Bruce, W. R., Kay, K. R., Morrison, L. K., Neish, R. A., Polaski, C. A., and Richards, R. A., Research on Ocular Effects Produced by Thermal Radiation, Final Report AF41 (609) - 3099, Brooks AF Base, TX (AD 659146) (1967).
5. Allen, R. C. Jr., and Richey, E. O., Eclipse burns in humans and laboratory threshold measurements in rabbits, Tech Doc Rept No. SAM-TR-66-45, USAF School of Aerospace Medicine, Brooks AFP, TX (May 1966).
6. Anderson, K. V., Coyle, F. P., and O'Steen, W. K., Retinal degeneration produced by low intensity colored light, Exp Neurol, 35: 233-238 (1972).
7. Anderson, S. G., and Kolder, H., Infrared radiant energy and oscillations of the corneoretinal potential in man, Invest Ophthalmol, 5: 242-247 (1966).
8. Anderson, K. V., and O'Steen, W. K., The origin of spontaneous, rhythmic potentials in the visual system of rats, Exp Neurology, 34: 446-454 (1970).
9. Anderson, K. V., Lemmon, V., and Rosing, H. S., Response properties of cells in the dorsal lateral geniculate nucleus of the albino rat, Photochem Photobiol, 29: 731-733 (1979).
10. Anderson, K. V., and O'Steen, W. K., Black-white and pattern discrimination in rats without photoreceptors, Physiology and Behavior, 12: 633-637 (1974).
11. Anderson, K. V., and O'Steen, W. K., Altered response latencies on visual discrimination tasks in rats with damaged retinas, J of Neurosci Resch, 3: 143-152 (1977).
12. Arehart-Treichel, J., School lights and problem pupils, Science News, 105: 258-259 (20 April 1974).
13. Aschkinass, E., Spectrobolometrische untersuchungen uber die durchlassigkeit der augenmedien fur rote and ultrarote strahlen, Zeitschr Psychol Physiol Sinnesorg, 11: 44 (1896).
14. Ashton, W. L., Light-induced eye abnormalities in turkeys and the turkey blindness syndrome, Res Vet Sci, 14: 42-46 (January 1973).

Laser Hazards Bibliography

15. Azar, P., and Howard, V., Temporary visual loss secondary to simulator bomb blast, case report, *Milit Med*, 141(5): 340 (1976).
16. Bachem, A., Ophthalmic ultraviolet action spectra, *Am J Ophth*, 41: 969-975 (1956).
17. Bakker, A., Uber die bedeutung der regenbogenhaut fur die entstehung des infrarotstars, *Arch F. Ophth*, 139: 677-703 (1938).
18. Bakker, A., Vergleichende untersuchungen uber das verhalten der linse und der hornhaut gegenuber infraroten, *Arch F Ophth*, 141: 180 (1939).
19. Barron, R. D., Occupational injuries to the eye resulting from exposure to the electromagnetic spectrum, *Med Ser J Canada*, 3: 487-500 (1960).
20. Barthelmess, G. A., and Borneff, J., Uber die genebliche Schadigung der Augenlinse durch warmestrahlung, *Arch F Ophth*, 160: 641-652 (1959).
21. Bartleson, C. J., Retinal burns from intense light sources, *Am Ind Hyg Assn J*, 29: 415-424 (1968).
22. Basinger, S., Hoffman, R., and Mathes, M., Photoreceptor shedding is initiated by light in the frog retina, *Science*, 194: 1074-1076 (1976).
23. Beatrice, E. S., *Ocular Effects of Radiation: Cornea*, NATO-AGARD Publication No. LS-79, pp 6-1 to 6-4 (1975).
24. Benkwith, K. B., Retinal hemorrhage as seen in an atomic-bomb casualty, *Am J Ophth*, 29: 799-801 (1946).
25. Bennett, M. H., Visual-deficit following long-term continuous light exposure, *Exp Neurol*, 38: 80-89 (January 1973).
26. Berens, C., and McAlpine, P. T., Solar ketatoconjunctivitis associated with amblyopia, *Am J Ophth*, 27: 227-231 (1944).
27. Bernat, R., and Hryniewiecki, L., Contribution to the study of changes in hydrosoluble proteins from the crystalline lens in cataract by infrared rays, *Acta Physiol Polon*, 10: 663-665 (1959).
28. Bernstein, H. N., Curtis, J., Earl, F. L., and Kuwabara, T., Phototoxic corneal and lens opacities, *Arch Ophthalmol*, 83: 336-348 (1970).
29. Berson, E. L., Experimental and therapeutic aspects of photic damage to the retina, *Invest Ophth*, 12(1): 35-44 (January 1973).

Laser Hazards Bibliography

30. Bhupathy, K., Sethupathy, R., Pildes, R. S., and Constantaras, A. A., Electoretinography in neonates treated with phototherapy, *Pediatrics*, 61(2): 189-192 (1978).
31. Birch, D. G., and Jacobs, G. H., The effects of prolonged dark exposure on visual thresholds in young and adult rats, *Invest Ophth & Vis Sci*, 18(7): 752-756 (1979).
32. Birch-Hirschfeld, A., Uber Sonnenblendung des Auges, *Ber Deutsch Ophth Gesellsch*, 38: 241-252 (1912).
33. Birch-Hirshfeld, A., Die wirkung der ultra-violetten strahlen auf das auge, *Von Graefes Arch Ophth*, 58: 468-562 (1904).
34. Blest, A. D., Kao, L., and Powell, K., Photoreceptor membrane breakdown in the spider *Dinopsis*: the fate of rhabdomere products, *Cell & Tissue Res*, 195: 425-444 (1978).
35. Borkman, R. F., Balrymple, A., and Lerman, S., Ultraviolet action spectrum for fluorogen production in the ocular lens, *Photochem and Photobiol*, 26(2): 129-132 (1977).
36. Borkman, R. F., and Lerman, S., Evidence for a free radical mechanism in aging and uv-irradiated ocular lenses, *Exp Eye Res*, 25: 303-309 (1977).
37. Borkman, R. F., and Lerman, S., Fluorescence spectra of tryptophan residues in human and bovine lens proteins, *Exp Eye Res*, 26: 705-713 (November 1977).
38. Borkman, R. F., Tassin, J. D., and Lerman, S., Fluorescence lifetimes of ocular lens chromophores, *Photochem Photobiol*, 31: 519-521 (1980).
39. Borley, W. E., McAlister, A. W., III, and Lower, R. A., Central Macular Chorioretinitis in US Naval Personnel, *US Navy Med Bull*, 45: 511-516 (1945).
40. Borneff, J., Uber die warmestrahlung besonders in glashutten, *Arch Hyg Bakt*, 143: 241-261 (1959).
41. Bourassa, C. M., and Wirtschafter, J. D., Mechanism of Binocular increase of discomfort to high luminance, *Nature*, 212: 1803-1504 (December 1966).
42. Boynton, R. M., Corwin, T. R., and Sternheim, C., Visibility losses produced by flash adaptation, *Ill Eng*, 58: 541-550 (1963).

Laser Hazards Bibliography

43. Brecher, G. A., Physiological effects of high levels of illumination, Trans 33rd Ann Meeting Ind Hyg Found Am, 42: 67-74 (1968).

44. Bredemeyer, H. G., Wiegmann, O. A., Bredemeyer, A., and Blackwell, H. R., Radiation Thresholds for Chorioretinal Burns, Institute for Research in Vision and Department of Ophthalmology, Ohio State University, Columbus, OH, Air Force Technical Documentary Report No. AMRL-TDR-63-71 (July 1963) (AD 416652).

45. Brookman, K. E., and Mills, K. S., Changes in oxygen uptake of the frog cornea induced by ultraviolet radiation, Am J Optom and Physiol Opt, 51(5): 299-302 (1974).

46. Buettner, K., and Rose, H. W., Eye hazards from an atomic bomb, Sight-Saving Rev, 23: 194-197 (1953).

47. Burden, E. M., Yates, C. M., Reading, H. W., Bitensky, L., and Chayen, J., Investigation into the structural integrity of lysosomes in the normal and dystrophic rat retina, Exp Eye Res, 12: 159-165 (1971).

48. Buschke, W., Friedenwald, J. S., and Moses, S. G., Effects of ultraviolet irradiation on corneal epithelium: mitosis, nuclear fragmentation, post-traumatic cell movements, loss of tissue cohesion, J Cell Comp Physiol, 26: 147-164 (1945).

49. Byrnes, V. A., Flash blindness and chorioretinal burns produced by atomic flash, J Am Med Assn, 168: 778-779 (1958).

50. Byrnes, V. A., Brown, D. V. L., Rose, H. W., and Cibis, P. A., Chorioretinal burns produced by atomic flash, Arch Ophth, 53: 351-364 (1955).

51. Byrnes, V. A., Brown, D. V. L., Rose, H. W., and Cibis, P. A., Ocular Effects of Thermal Radiation from Atomic Detonation -- Flash-Blindness and Chorioretinal Burns, School of Aviation Medicine, Randolph Field, TX (AD 633876) (1955).

52. Byrnes, V. A., Brown, D. V. L., Rose, H. W., and Cibis, P. A., Chorioretinal lesions due to thermal radiation from the atomic bomb, Arch Ophth, 55: 909-914 (1956).

53. Cavanaugh, C. R., Elgin, S., and Robbins, D. O., Thresholds for damage to the human retina by white light, Exp Eye Res, 19: 543-548 (1974).

54. Cavanaugh, D. R., Elgin, S., and Robbins, D. O., Thresholds for damage to the human retina by white light, Exp Eye Res, 19: (1974).

Laser Hazards Bibliography

55. Chan, G., Berry, E. R., and Geeraets, W. J., Alterations of soluble retinal proteins due to thermal injury, *Acta Ophth, Suppl* 76: 101-107 (1963).
56. Chisum, G., Flashblindness recovery following exposure to constant energy adaptive flashes, *Aerospace Medicine*, 44: 407-413 (1973).
57. Chisum, G., Recent research in flashblindness with human subjects, US Army Natick Laboratory, Flashblindness Symposium (November 1967).
58. Chisum, G., and Hill, J. H., Flashblindness: the effect of preflash adaptation and pupil size, *Aerospace Medicine*, 38: 395-399 (1967).
59. Chisum G., Hill, J. H., and Smith, F. K., Flashblindness recovery time following exposure to high-intensity short-duration flashes, *Aerospace Medical Research Dept., US Naval Air Development Center, Report No. NADC-MA-6142* (November 1960).
60. Chisum, G., and Morway, P.E., Flashblindness following double flash exposures, *Aerospace Medicine*, 45(9): 1013-1016 (1974).
61. Churchman, A. T., Physiologic effects of high light levels, *Electronics and Power* (January 1971).
62. Clark, B., Johnson, M. L., and Dreher, R. E., The effects of sunlight on dark adaptation, *Am J Ophth*, 29: 828-836 (1946).
63. Clarke, A. M., The hazards of viewing intense optical sources, *Survey of Ophthalmol*, 18(2): 140-143 (1973).
64. Clarke, A. M., and Behrendt, T., Solar retinitis and pupillary reaction, *Am J Ophth*, 73(5): 700-703 (May 1972).
65. Cogan, D. G., and Kinsey, V. E., Action spectrum of keratitis produced by ultraviolet radiation, *Arch Ophth*, 77: 670-677 (1967).
66. Cogan, D. G., Martin, S. F., Kimura, S. J., and Ikui, H., Ophthalmologic survey of atomic bomb survivors in Japan, *Trans Am Ophth Soc*, 48: 62-87 (1949).
67. Cogan, D. G., Donaldson, D. D., and Reese, A. B., Clinical pathological characteristics of radiation cataract, *Arch Ophth*, 47: 55 (January 1952).
68. Cogan, D. G., Lesions of the eye from radiant energy, *Am Med Assn*, 142(3): 145-151 (1950).
69. Cogan, D. G., Ocular effects of radiation, *Arch Ind Hlth*, 20: 293-296 (1959).

Laser Hazards Bibliography

70. Cogan, D. G., On viewing the eclipse, *Arch Ophth*, 69: 690 (1963).
71. Cogan, D. G., Filter for viewing, *Arch Ophth*, 70: 138 (1963).
72. Combs, G. F., Jr., and Scott, M. L., Nutritional interrelationships of vitamin E and selenium, *Bioscience*, 27(7): 467-473 (1977).
73. Cooper, G. F., and Robson, J. G., The yellow colour of the lens of man and other primates, *J Physiol*, 203: 411-417 (1969).
74. Cordes, F. C., A Type of foveo-macular retinitis observed in the US Navy, *Am J Ophth*, 27: 803-815 (1944).
75. Cordes, F. C., Eclipse retinitis, *Am J Ophth*, 31: 101-103 (1948).
76. Cordon, D. N., and Stewart, J. B., Prediction of light-induced transient thermal response of the retina, *Bull Math Biol*, 39: 607-615 (1977).
77. Cowan, R. D., Calculation of Retinal Dose Due to Visible Radiation From Nuclear Explosions, Report LA-3204, Los Alamos Scientific Laboratory, University of California, Los Alamos, NM (6 October 1964).
78. Craik, K. J. W., On the effects of looking at the sun, *The Nature of Psychology* (Ed., S. L. Sherwood), Cambridge University Press, Cambridge, 98-101 (1966).
79. Critchett, A., Meeting of the ophthalmology section (glass blower's cataract), *Ophth Rev*, 33: 28-30 (1914).
80. Curtin, V. T., and Norton, E. W. D., Early pathological changes of photocoagulation in the human retina, *Arch Ophth*, 69: 744-751 (1963).
81. Cushman, W. H., Effect of flash field size on flashblindness in a aircraft cockpit, *Aerospace Medicine*, 42(6): 630-634 (1971).
82. Czerny, V., *Wien Acad D Wissenschafts*, 56: 409 (1867).
83. Dalla Bernardina, Beghini, G., and Zamboni, G., Focal seizures triggered by intermittent light stimulation, *Riv Neurol*, 47(2): 183-190 (1977).
84. Davies, J. M., and Randolph, D. T. (eds), *Proceedings of the US Army Natick Laboratories Flash Blindness Symposium, Armed Forces - National Research Council Committee on Vision*, Washington, DC, 264 (1967).
85. Dawson, W. W., The thermal excitation of afferent neurones in the mammalian cornea and iris, *Temperature, Its Measurement and Control in*

Laser Hazards Bibliography

Science and Industry, 3: 199-210, Herzfeld, C. M., and Hardy, J. D. (eds), Reinhold Publishing Corporation, NY (1963).

86. Dawson, W. W., and Herron, W. L., Retinal illumination during indirect ophthalmoscopy: subsequent dark adaptation, Invest Ophth, 9: 99 (1970).

87. De Guillebon, H., Pfister, R., Govignon, J., Pomerantzell, O., and Schepens, C. L., Corneal temperature measurements during retinal photocoagulation, Arch Ophth, 85: 712-717 (June 1971).

88. DelMelle, M., An investigation of retinal as a source of singlet oxygen, Photochem Photobiol, 27: 731-734 (1978).

89. DelMelle, M., Retinal sensitized photodynamic damage to liposomes, Photochem Photobiol, 28: 357-360 (1978).

90. DelMelle, M., Possible implication of photooxidation reactions in retinal photo damage, Photochem Photobiol, 29: 713-16 (1979).

91. Delori, F. C., Pomerantzeff, O., and Mainster, M. A., Light levels in ophthalmic diagnostic instruments, Occular Effects of Nonionizing Radiation, Proc SPIE 229: 155-160, 1980.

92. Demott, D. W., and Davis, T. P., Irradiance thresholds for chorioretinal lesions, Arch Ophth, (Chicago) 62: 653-656 (1959).

93. Deutschman, F., Ueber die Blendung der Netzhaut durch direkten Sonnenlicht, Arch F Ophth, 28: 241 (1882).

94. Dewan, E. M., Menkin, M. F., and Rock, J., Effect of photic stimulation on the human menstrual cycle, Photochem Photobiol, 27: 581-585 (1978).

95. Dias, J. F., Eye disease from natural and man-made radiation, J Int Coll Surg, 43: 505-513 (May 1965).

96. Dingle, J. T., Studies in the mode of action of excess vitamin A, Biochem J, 79: 509-512 (1961).

97. Dobson, V., Phototherapy and retinal damage, Invest Ophth, 15(8): 595-598 (1976).

98. Duke-Elder, W. S., and Duke-Elder, P. M., A histological study on the action of short-waved light upon the eye with a note on inclusion bodies, Brit J Ophth, 13: 1-37 (1929).

Laser Hazards Bibliography

99. Duke-Elder, S., Textbook of Ophthalmology, Vol VI, Injuries, C. V. Mosby, St Louis (1972).
100. Duke-Elder, W. S., The pathological action of light upon the eye. Part II (cont). Action upon the lens: theory of the genesis of cataract, Lancet, 1: 1250-1254 (1926).
101. Dunn, K. L., Cataracts from infrared rays (glass worker's cataracts), Arch Ind Hyg Occ Med, 1: 166-180 (1950).
102. Eccles, J. C., and Flynn, A. J., Experimental photo-retinitis, Med J Australia, 1: 339-342 (1944).
103. Egyed, M. N., Singer, L., Eilat, A., and Shlosberg, A., Eye lesions in ducklings fed ammi majus seeds, Zbl Vet Med A, 22: 764-771 (1975).
104. Eigner, E. H., Self-induced solar retinitis, Am J Ophth, 61: 1546-1547 (1966).
105. Elgin, S., Robbins, D. O., and Cavonius, C. R., Threshold for Permanent Functional and Morphological Visible Damage in Human Retinas Using Visible Radiation, The Eye Research Foundation of Bethesda, USAF Contr F41609-69-C-0027 (May 1971).
106. Ewald, R. A., and Ritchey, C. L., Sun gazing as the cause of foveomacular retinitis, Am J Ophth 70(4): 491-497 (October 1970).
107. Feeney, L., and Berman, E., Oxygen toxicity: membrane damage by free radicals, Invest Ophthalmol, 15(10): 789-792 (1976).
108. Fell, H. B., Dingle, J. T., and Webb, M., Studies on the mode of action of excess vitamin A, Biochem J, 83: 63-69 (1962).
109. Felstead, E. B., and Cobbold, R. S., Analog solution of laser retinal coagulation, Med Electron Biol Engr, 3: 145-155 (1965).
110. Fischer, R. P., and Moorrees, H. G., Camp eyes, und Sonnenblendung, Ophthalmologica, 114: 10-15 (1947).
111. Fischer, F. P., Vermeulen, D., and Eymers, J. G., Uber die Zur Schädigung des Auges notige Minimalquantitat von ultravioletten und infrarottem licht, Arch Augenheilk, 109: 462-467 (1936).
112. Flynn, J. A. F., Retinal burns after sun's eclipse, Trans Ophth Soc Australia, 20: 90-96 (April 1959).
113. Flynn, J. A. F., Photo-retinitis in anti-aircraft lookouts, Med J Australia, 400-401 (1942).

Laser Hazards Bibliography

114. Flynn, J. A. F., Eclipse blindness - Prevention is better than cure, *Trans Opth Soc Australia*, 12: 7-14 (1952).
115. Flynn, J. A. F., Watching an eclipse of the sun, *Med J Australia*, 1: 85-87 (1960).
116. Franke, W., Radiation techniques applied to radiation cataracts, *Arch fuer Gewerbepathol und Gewerbehyg*, 16: 539 (1958).
117. Franke, W., and Harms, H. H., Grauer Star durch Warmestrahlung in der Zementindustrie, *Arbeitmedizin Sozialmedizin Arbeitshygiene*, 331 (November 1972).
118. Fraunfelder, F. T., and Hanna, C., Spheroidal degeneration of cornea and conjunctiva, *Am J Opth*, 76(1): 41-50 (July 1973).
119. Fridovich, I., Oxygen is toxic! *Bioscience*, 27(7): 462-466 (1977).
120. Friedenwald, J. S., Burchke, W., Crowell, J., and Hollaender, A., Effects of ultraviolet irradiation on the corneal epithelium, *J Cell Comp Physiol*, 32: 161-173 (October 1948).
121. Friedman, E., and Kuwabara, T., The retinal pigment epithelium. IV. The damaging effects of radiant energy, *Arch Opth*, 87: 265-279 (1968).
122. Fry, G. A., and Miller, N. D., Visual recovery from brief exposures to very high luminance levels, Report No. SAM-TDR-64-36, USAF/School Aerospace Medicine, Brooks, AFB, TX (August 1964).
123. Fugate, J. M., Physiological basis for discomfort glare, *Am J Opth*, 32: 377-387 (1957).
124. Fuller, D. G., Severe solar maculopathy associated with the use of lysergic acid diethylamide (LSD), *Am J Opth*, 81(4): 413-416 (1976).
125. Fuller, D., Machemer, R., and Knighton, R., Retinal damage produced by intraocular fiber optic light, *Am J Ophthalmol*, 85: 519-537 (1978).
126. Geeraets, W. J., Nooney, T. W., Svoboda, J. R., and Ching, F. C., Solar retinopathy following the eclipse of March 7, 1970, *MCV Quarterly*, 6(1): 3-7 (1970).
127. Geeraets, W. J., and Nooney, T. W., Observations following high intensity white light exposure to the retina, *Am J of Optom & Arch Amer Acad Optom*, 50: 405-412 (May 1973).
128. Geeraets, W. J., and Clarke, A. M., Corneal phototherapy, *Photochem & Photobiol*, 24: 1 (1976).

Laser Hazards Bibliography

129. Geeraets, W. J., and Clarke, A. M., Phototherapy of the cornea: some aspects to be considered, *Ophthalmologica* (Basel), 172(6): 449-455 (1976).
130. Geeraets, W. J., Burkhart, J., and Guerry, D. III., Enzyme activity in the coagulated retina: A means of studying thermal conduction as a function of exposure time, *Acta Ophth*, (Suppl) 76, 73-77:79-93 (1963).
131. Geeraets, W. J., and Ridgeway, D., Retinal damage from high intensity light, *Acta Ophth*, (Suppl) 76, 73-77:109-112 (1963).
132. Geeraets, W. J., Williams, R. C., Ham, W. T., and Guerry, D. III., Rate of Blood Flow and its effect on chorioretinal burns, *Arch Ophth*, 68:58 (1962).
133. Gerathewohl, S. J., and Strughold, H., Motoric responses of the eyes when exposed to light flashes of high intensities and short durations, *J Aviat Med*, 24: 200-207 (June 1953).
134. Glickstein, M., Brown-Grant, K., and Raisman, G., Light induced retinal degeneration in the rat and its implication for endocrinological investigation, *J Anat*, 111: 515 (1972).
135. Gloor, B. P., Phagocytotische Aktivitat des Pigmentepithels nach Lichtcoagulation, *Albrecht von Graefes Arch Klin Exp Ophth*, 179: 105-117 (1969). (Phagocytic activity of the pigment epithelium following photocoagulation).
136. Goldmann, H., Critical and experimental investigations on the alleged infrared cataract in the rabbit and on the thermal cataract, *Arch Ophth*, 125: 313-402 (1930).
137. Goldmann, H., Experimentelle Untersuchungen uber die Genese des Feuerstaeres; uber Arbeitshyperthermic bei Feuerarbeitern, *Arch F. Ophth*, 128: 648-653 (1932).
138. Goldmann, H., The genesis of the cataract of the glass blower, *Ann D'Ocul*, 172: 13 (January 1935).
139. Goldmann, H., Genesis of heat cataract, *Arch Ophth*, 9: 314 (1933).
140. Goldmann, H., Experimental investigations on the genesis of heat cataract, (3 parts) *Arch Ophth*, 130: 93-179 (1933).
141. Goldmann, H., Kenig, H., and Mader, F., Die Durchlassigkeit der Augelinse fur Infrarot, *Ophth*, 120: 198-205 (1950).

Laser Hazards Bibliography

142. Goncalves, P., The effects of nuclear radiation upon eyes in atomic explosions, *Rev Brazil Opth*, 10: 3321-3329 (1952).
143. Goodson, J. E., Dynamics of an image viewed through a rotating mirror, *J Opt Soc Am*, 69(5): 771-775 (1979).
144. Gorn, R. A., and Kuwabara, T., Retinal damage by visible light a physiologic study, *Arch Opth*, 77: 115-118 (January 1967).
145. Grignolo, A., Orzalesi, A. G., Castellazo, R., and Vittone, R., Retinal damage by visible light in albino rats, *Ophthalmologica*, 157: 43-48 (1969).
146. Grover, D., and Zigman, S., Coloration of human lenses by near ultraviolet photo-oxidized tryptophan, *Exp Eye Res*, 13: 70-76 (1972).
147. Guerry, D., III, Ham, W. T., Jr., Wiesinger, H., Schmidt, F. H., Williams, R. C., Ruffin, R. S., and Shaffer, M. C., Experimental production of flash burns in the rabbit retina, *Trans Am Opth Soc*, 54: 259-273 (1956).
148. Guth, S. K., Brightness relationships for comfortable seeing, *J Opt Soc Am*, 41: 235-244 (1951).
149. Ham, W. T., Jr., Mueller, H. A., and Sliney, D. H., Retinal sensitivity to damage from short wavelength light, *Nature*, 260: 153-155 (1976).
150. Ham, W. T., Mueller, H. A., Williams, R. C., and Geeraets, W. J., Ocular Hazard from viewing the sun unprotected and through various windows and filters, *Appl Opt*, 12(9): 2122-2129 (September 1973).
151. Ham, W. T., Jr., Wiesinger, H., Guerry, D., III, Schmidt, F. H., Williams, R. C., Ruffin, R. S., and Shaffer, M. C., Experimental production of flash burns in the rabbit retina, *Am J Opth*, 43: 711-718 (1957).
152. Ham, W. T., Jr., Wiesinger, H., Schmidt, F. H., Williams, R. C., Ruffin, R. S., Shaffer, M. C., and Guerry, D., Flash burns in the rabbit retina: as a means of evaluating the retinal hazard from nuclear weapons, *Am J Opth*, 46: 700-723 (1958).
153. Ham, W. T., Williams, R. C., Ruffin, R. S., Schmidt, D. H., Mueller, H. A., Guerry, D., III, and Geeraets, W. J., Electronically pulsed light source for the production of retinal burns, *Acta Ophthalmol Suppl*, 76: 73-77:59 (1963).
154. Ham, W. T., Mueller, H. A., Ruffolo, J. J., and Guerry, D. III., Solar retinopathy as a function of wavelength: its significance for protective eyewear, in "Constant Light Upon the Visual Process, Plenum Publishing Corporation, New York, p 319-345 (1980).

Laser Hazards Bibliography

155. Ham, W. T., Ruffolo, J. J., Mueller, H. A., Clarke, A. M., and Moon, M. E., Histologic analysis of photochemical lesions produced in rhesus retina by short-wavelength light, *Invest Ophth Vis Sci*, 17(10): 1029-1035 (1978).
156. Hansson, H. A., A histochemical study of cellular reactions in rat retina transiently damaged by visible light, *Exp Eye Res*, 12: 270-274 (1971).
157. Hansson, H. A., and Sourander, P., A lipid histochemical study of the rat retina damaged by visible light, *Exp Eye Res*, 10: 64-70 (1970).
158. Harwerth, R. S., and Sperling, H. G., Effects of intense visible radiation on the increment threshold spectral sensitivity of the Rhesus monkey eye, *Vis Res*, 15: 1193-1204 (1975).
159. Harwood, D. M., Solar eclipse and vision, *Ann West Med & Surg*, 2: 222-223 (1948).
160. Hatfield, E. M., Eye injuries and the solar eclipse, *Sight Sav Rev*, 79-85 (1970).
161. Healy, J. J., The prevalence of lenticular opacities in the eyes of tinplate millmen, *Brit J Ophth*, 5: 194-210 (1921).
162. Hecht, S., Hendley, C. D., Ross, S., and Richmond, P. M., The effect of exposure to sunlight on night vision, *Am J Ophth*, 31: 1573 (1948).
163. Henkes, H. E., Photoc injury to the retina and the manifestation of acute posterior multifocal placoid pigment epithelium, *Doc Ophthalmol*, 44(1): 113-120 (1977).
164. Henkes, H. E., Light injury to the retina. Manifestation of acute posterior multifocal placoid pigment epitheliopathy, *Klin Monatsbl Augenheilkd*, 170(6): 813-818 (1977).
165. Henry, M. M., Henry, L. M., and Henry, L. M., A possible cause of chronic cystic maculopathy, *Ann Ophthalmol*, 9(4): 455-457 (1977).
166. Heyningen, Ruth van, Experimental studies on cataract, *Inv Ophthal*, 15(9): 685-697 (1976).
167. Hill, C. H., Interrelationships of selenium with other trace elements, *Biophys Biochem Acta*, 34(11): 2096-2100 (1975).
168. Hill, J. H., and Chisum, G. T., Flashblindness protection, *Aerospace Medicine* 33: 958-961 (1962).

Laser Hazards Bibliography

169. Hiller, R., Giacometti, L., and Yuen, K., Sunlight and cataract: an epidemiologic investigation, *Am J Epidemiol*, 105(5): 450-459 (1977).
170. Hirachberg, Jr., Ueber den Star der Glassblaser, *Zentralbl Augenh*, 22: 113 (1898).
171. Hoekstra, W. G., Biochemical function of selenium and its relation to vitamin E, *Fed Proc*, 34(11): 2083-2095 (1975).
172. Hollyfield, J. G., Membrane addition to photoreceptor outer segments: progressive reduction in the stimulatory effect of light with increased temperature, *Invest Ophthalmol Vis Sci*, 18(9): 977-981 (1979).
173. Hollyfield, J. G., and Rayborn, M. E., Photoreceptor outer segment development: light and dark regulate the rate of membrane addition and loss, *Invest Ophth*, 18: 117-132 (February 1979).
174. Hudnell, A. B., Jr., and Chick, E. W., Corneal ultraviolet therapy, *Arch Ophthalmol*, 62: 304-309 (1962).
175. Irvine, S. R., A review of solar retinitis as it may pertain to the armed forces, *Am J Ophth*, 28: 1158-1165 (1948).
176. Jacobson, J. H., Cooper, B., Najac, H. W., and Kohtiao, A., The Effects of Thermal Energy on Anterior Ocular Tissues, AMRL-TDR-63-53, 6570th Aerospace Med Res Lab, Wright-Patterson AF Base, OH (AD 412730) (June 1963).
177. Jacobson, J. H., Cooper, B., and Majac, H. W., Effects of Thermal Energy on Retinal Function, Report AMRL-TDR-62-96, Aerospace Medical Division, Air Force Systems Command, Wright-Patterson AF Base, OH (AD 290808) (1962).
178. Joffe, T. M., Retinal injury due to radiant energy from a motion picture projector, *Sovet Vestn Oftal*, 9: 882-887 (1936).
179. Jones, A. E., Flashblindness experiments with animals: electroretinographic and behavioral studies, US Natick Laboratories, Flashblindness Symposium (AD 697793) (November 1967).
180. Jones, W. L., Allen, W. H., and Parker, J. F., Advanced vision research for extended spaceflight, *Aerospace Med*, 38: 475-478 (1967).
181. Kagan, V. E., Shvedova, A. A., Novikov, K. N., and Kozlov, Y. P., Light induced free radical oxidation of membrane lipids in photoreceptors of frog retina, *Biochem and Biophysics*, 330: 76-79 (1973).
182. Kaitz, M., Protection of the dystrophic retina from susceptibility to light stress, *Invest Ophth*, 15(2): 153-156 (1976).

Laser Hazards Bibliography

183. Kaitz, M., Protection of the dystrophic retina from susceptibility to light stress, *Exp Eye Res*, 26: 699-704 (1978).
184. Kaitz, M., The effect of light on brightness perception in rats with retinal dystrophy, *Invest Ophth*, 15: 153-156 (1976).
185. Kaitz, M., and Auerbach, E., Effect of continuous light exposure on the electroretinogram of albino rats, *Vision Res*, 16: 141-148 (1976).
186. Kaitz, M., and Auerbach, E., Effect of early and late light exposure on the inherited retinal degeneration in rats, *Mod Prob Ophth*, 13: 291-298 (1974).
187. Katz, M. L., Stone, W. L., and Dratz, E. A., Fluorescent pigment in retinal pigment epithelium of antioxidant-deficient rats, *Invest Ophthalmol & Vis Sci*, 112: 1049-1058 (1978).
188. Keatings, G. F., Pearson, J., Simons, J. P., and White, E. E., Radiation Cataracts in Industry; review of literature, discussion of pathogenesis and description of environmental conditions in iron rolling mill, *Arch Ind Hlth*, 12: 538 (1955).
189. Keatinge, G. F., Pearson, J., Simons, J. P., and White, E. E., Radiation cataracts in industry, *Arch Ind Hlth*, 11: 305-314 (1955).
190. Kenshalo, D. R., Comparison of thermal sensitivity of the forehead, lip, conjunctiva, and cornea, *J Appl Physiol*, 15: 987 (1960).
191. Kerr, L. M., and Little, H. L., Foveomacular retinitis, *Arch Ophth*, 76: 498-504 (1966).
192. Kessler, J., Stimulation of the iris muscles of rabbits by solar heat, *Ann Ophth*, 3: 1170-1175 (1971).
193. Khitun, V. A., Korzun, P. A., Shostak, V. I., and Obukhova, Ye. A., Restoration of visual acuity after a bright light flash of short duration, p 169-171 in *Problems of Physiological Optics*, V. G. Samsonova, Editor, NASA Technical publication F-650 (1971).
194. Kidwell, T. P., Priebe, L. A., and Welch, A. J., The measurement of ocular transmittance and irradiation distribution in argon laser irradiated rabbit eyes, *Invest Ophthalmol*, 15(8): 668-671 (1976).
195. Kissen, A. T., Delaney, W. V., and Wachtel, J., The development of chorioretinal lesions produced by photocoagulation, *Am J Ophth*, 52: 487-492 (1961).

Laser Hazards Bibliography

196. Knudtzon, K., The prognosis of scotoma helioclipsum, *Acta Ophthalmologica*, 26: 470-494 (1948).
197. Kohner, E. J., Dollery, C. T., Henkend, P., et al., Exposure to high-intensity light, *Am J Ophth*, 63: 1761 (June 1967).
198. Konig, H., Die blendwirkung monochromatischen liches auf das menschliche auge, *Vis Res*, 10: 875-885 (1970).
199. Krivobok, V. T., L'action des Rayons Infra-rouges sur L'Oeil, *Iksper Med*, 8: 53-55 (1941).
200. Kuck, J. F. R., Jr., Effect of long wave ultraviolet light on the lens. I. Model systems for detecting and measuring effect of the lens in vitro, *Inv Ophthal*, 15(5): 405-407 (1976).
201. Kuhns, H. A., *Eyes and Industry*, Second Edition, 211-227, C. V. Mosby Company, St Louis (1950).
202. Kurtin, W. E., and Zuchlich, J. A., Action spectrum for oxygen-dependent near-ultraviolet induced corneal damage, *Photochem & Photobiol*, 27: 329-333 (1978).
203. Kurzel, R. B., On the nature of the action spectrum for ultraviolet photokeratitis, *Ophthalmic Res*, 10: 312-315 (1978).
204. Kurzel, R. B., Wolbarsht, M. L., and Yamanashi, B. S., Tryptophon exceled slates and cataracts in the human lens, *Nature*, 241: 132-133 (1973).
205. Kurzel, R. B., Wolbarsht, M. L., and Yamanashi, B. S., Spectral studies on normal and cataractous intact human lenses, *Exp Eye Res*, 17: 65-71 (1973).
206. Kurzel, R. B., Wolbarsht, M. L., and Yamanashi, B. S., Ultraviolet radiation effects on the human eye, *Photochem and Photobiol Review*, 2: 133-187 (1977).
207. Kutscher, C. F., Ocular effects of radiant energy, *Trans Am Acad Ophth*, 50: 230 (1946).
208. Kutscher, C. F., Ocular effects of radiant energy, *Ind Med*, 15: 311-316 (1946).
209. Kuwabara, T., and Gorn, R. A., Retinal damage by visible light. An electron microscope study, *Arch Ophth*, 79: 69-78 (January 1968).
210. Kuwabara, T., Retinal recovery from exposure to light, *Am J Ophth*, 70(2): 187-198 (August 1970).

Laser Hazards Bibliography

211. Kuwabara, T., and Funahashi, M., Light effect on the synaptic organ of the rat, *Invest Ophthalmol*, 15(5): 407-411 (1976).
212. Lai, Y., and Jonas, A. M., Age-related and light-associated retinal changes in Fischer rats, *Invest Ophth*, 17: 634-638 (1978).
213. Landers, M. B., The current status on laser usage in ophthalmology, *Ann NY Acad Sci*, 267: 230-246 (1976).
214. Langley, R. K., Mortimer, C. B., and McCulloch, C., The experimental production of cataracts by exposure to heat and light, *Arch Ophth*, 63: 473-488 (1960).
215. Lanum, J., The damaging effects of light on the retina. Empirical findings, theoretical and practical implications, *Surv Ophthalmol*, 22(4): 221-249 (1978).
216. Lauber, J. K., Schutze, J. B., and McGinnis, J., Effects of exposure to continuous light on the eye of the growing chick, *Proc Exp Biol Med*, 106: 871 (1961).
217. Lawwill, T., Effects of Prolonged exposure of rabbit retina to low-intensity light, *Invest Ophth*, 12(1): 45-51 (January 1973).
218. La Vail, M. M., Rod outer segment dist shedding in rat retina, relationship to cyclic lighting, *Science*, 194: 1071-1075 (1976).
219. La Vail, M. M., Survival of some photoreceptor cells in albino rats following long-term exposure to continuous light, *Invest Ophth*, 15(1): 64-70 (January 1976).
220. Lazarua, H. D., and Levedahl, B. H., Effects of radiation on the mammalian eye: a literature survey, US Atomic Energy Commission, Biology and Medicine, TID-3912 (1962).
221. Leach, R. M., Jr., Biochemical function of selenium and its interrelationships with other trace elements and vitamin E, *Symposium*, 34: 2082 (1975).
222. Lebensohn, J. E., Photophobia: mechanism and implications, *Am J Ophth*, 34(9): 1294-1300 (September 1951).
223. Le Grand, Y., Sur la Fluorescence du cristallin, *Comptes Rendus*, 207: 1128-1130 (5 December 1938).
224. Lele, P. P., and Weddell, G., The relationship between neurohistology and corneal sensibility, *Brain*, 79: 119 (1956).

AD-A098 955 ARMY ENVIRONMENTAL HYGIENE AGENCY ABERDEEN PROVING GR--ETC F/G 6/18
LASER HAZARDS BIBLIOGRAPHY - NOVEMBER 1980.(U)
NOV 80 D H SLINNEY, N KRIAL, L D RILEY

AD-A098 955 ARMY ENVIRONMENTAL HYGIENE AGENCY ABERDEEN PROVING GR--ETC F/G 6/18
LASER HAZARDS BIBLIOGRAPHY - NOVEMBER 1980.(U)
NOV 80 D H SLINNEY, N KRIAL, L D RILEY

NL

AD 8
CH 4 G 1, 2

END
DATE
FILMED
6 -8
PTIC



1.0

28

25

3.2

2.2

1.6

2.0

4

1.8



1.1



1.8



1.25

1.4

1.6

MICROCOPY RESOLUTION TEST CHART
1.0 to 4.0 line pairs per millimeter

Laser Hazards Bibliography

225. Lerman, S., and Borkman, R., A method for detecting 8-methoxypsoralen in ocular lens, *Science*, 197: 1287-1288 (1977).
226. Lerman, S., Megaw, J., and Willis, I., The photoreactions of 8-methoxypsoralen with tryptophan and lens protein, *Photo Chem Photobiol* 31: 235-241, 1980.
227. Lerman S., and Borkman, R. F., Photochemistry and lens aging, *Interdisciplinary Topics in Gerontology*, 13: 154-182 (1978).
228. Lerman, S., and Borkman R. Spectroscopic evaluation and classification of the normal aging and cataractous lens, *Ophth Res*, 8: 335-353 (1976).
229. Lerman, S., Jocoy, R., and Borkman, F., Photosensitization of the lens by 8-methoxypsoralen, *Invest Ophth Visual Sci*, 16(11): 1065-1068 (1977).
230. Lieb, W. A., and Geeraets, W. J., Elektromagnetische und Korpuskular-Strahleneffekte am Auge, *Klin Monatsbl F. Augenh*, 134: 769-796 (1959).
231. Lijo, P. J., and Lachmann, R., Small hole due to phototraumatism, *Arch de Oft de Buenos Aires*, 18: 496-505 (1943).
232. Little, D., The effects of strong light upon the eye, *Ophth Rev*, 2: 196-197 (1883).
233. Livingston, P. C., The study of sun glare in Iraq, *Brit J Ophth*, 6: 577-625 (October 1932).
234. Lloyd, R. I., Macular lesions, *Quart Rev Ophth Otolrhinolaryng Bronchoesop*, 6: 109-116 (1951).
235. Lodge, W. O., Eclipse blindness, *Brit Med J*, 3150: 701-702 (1921).
236. Loewenstein, A., and Steel, J., Macular burning and ring scotoma, *Glasgow Med J*, 17: 73-85 (1941).
237. Luckiesh, M., Infrared radiant energy and the eye, *Am J Physiol Opt*, 2: 3-22 (1921).
238. Ludvigh, E., and Kinsey, V. E., Effect of long ultraviolet radiation on the human eye, *Science*, 104: 246-247 (3 September 1946).
239. Lund, D. J., Adams, D. O., and Carver, C., Ocular hazard of the Ga:As laser, *Letterman Army Inst of Res, Presidio of San Francisco, CA, Report LAIR-30, Project 3A762758A824* (October 1976).

Laser Hazards Bibliography

240. MacDonald, J. E., and Light, A., Photocoagulation of iris and retina, Arch Opth, 69: 384-392 (1958).
241. MacDonald, P. R., Evaluation of night vision, Am J Opth, 32: 1535 (1949).
242. Mainster, M. A., White, T. J., Tips, J. H., and Wilson, P. W., Transient thermal behavior in biological systems, Bull Math Biophysics, 32: 303-314 (September 1970).
243. Mainster, M. A., Destructive light adaptation, Ann Opth, 2: 44-49 (1970).
244. Mainster, M. A., White, T. J., and Allen, R. G., Spectral dependence of retinal damage produced by intense light sources, J Opt Soc Am, 60: 264-270 (June 1970).
245. Mainster, M. A., White, T. J., Tips, J. H., and Wilson, P. W., Retinal-temperature increases produced by intense light sources, J Opt Soc Am, 60: 264-270 (1970).
246. Mainster, M. A., Spectral transmittance of intraocular lenses and retinal damage from intense light sources, Am J Ophthalmol, 85(2): 167-170 (1978).
247. Mainster, M. A., Solar retinitis photic maculopathy and the pseudophakic eye, Am Intra-ocular Implant Soc J, 4: 84-89 (1978).
248. Manchester, P. T., and Manchester, P. T., Jr., The blindness of Saint Paul, Arch Opth, 88: 316-321.
249. Marlcor, R. L., Blais, B. R., Preston, F. R., and Boyden, D. G., Foveomacular retinitis, an important problem in military medicine: epidemiology, Invest Opth, 12(1): 5-16 (January 1973).
250. Marshall, C., Walker, A. E., and Livingston, S., Photogenic epilepsy: Parameters of activation, AMA Arch of Neur & Psych, 69: 760-765 (1953).
251. Marshall, J., Hazards to the retina from chronic exposure, Nonionizing Radiation, Proc ACGIH Topical Symposium 11/26-28/1979, pp 158-160.
252. Marshall, J., Mellerio, J., and Palmer, D. A., Damage to pigeon retinae by moderate illumination from fluorescent lamps, Exp Eye Res, 14: 164-169 (1972).

Laser Hazards Bibliography

253. Marshall, J., Mellerio, J., and Palmer, D. A., Damage to pigeon retinas by commercial light sources operating at moderate levels, *Vis Res*, 11: 1198-1199 (1971).
254. Maslenitskaia, P. G., Changes in the lenses of furnace plant workers, *Oftal'mologicheskii Zhurnal*, 22: 128-130 (1967).
255. Mathis, W., and Bourassa, C. M., Fusion and nonfusion as factors in aversion to high luminance, *Vis Res*, 8: 1501-1506 (1968).
256. Matuk, Y., Lou, P., and Parker, J. A., Biosynthesis of proteins by the retina. Inactivation by near-ultraviolet light and the effects of tryptophan, epinephrine and catalase, *Invest Ophth Visual Sci*, 16(12): 1104-1109 (1977).
257. McCulloch, C., Changes at the macula due to solar radiation, *Am J Ophth*, 28: 1115-1132 (1945).
258. McFaul, P. A., Visual prognosis after solar retinopathy, *Brit J Ophth*, 53: 534-541 (1969).
259. McKechnie, N. M., and Johnson, N. F., Light damage to the retina, *Albrecht von Graefes Arch Klin Ophthalmol*, 203(3-4): 283-292 (1977).
260. McNeer, J., Ghosh, M., Geeraets, W. J., Guerry, D., III, Electroretinography after light coagulation, *Acta Ophth, Suppl* 76: 94-100 (1963).
261. McPherson, A., Girard, L. J., and Hall, M., Fundoscopic and histopathologic changes following experimental coagulation by various methods, *Bibl Ophth*, 72: 398-413 (1967).
262. Medvedovskaya, T. P., Data on the condition of the eye in workers at a glass factory, *Hyg and Sanitation* (translation of *Gig Sanit*), 35: 446-447 (January-March 1970).
263. Mehr, E. B., Effects of nuclear weapons on the vision of survivors - a review of the literature, *Am J Opt*, 39: 683-687 (1962).
264. Merte, H. J., Occupational radiation damage to the eye, *Munchen Med Wschr*, 109: 501-504 (1967).
265. Messner, K. H., Maisels, M. J., and Leure Dupree, A. E., Photo-toxicity to the newborn primate retina, *Inv Ophthal and Vis Sci*, 17(2): 178-182 (1978).
266. Meyerhofer, W., Zur Actiologie des grauen staars. Jugendliche katarakten bei Glasmachern, *Klin Monatsbl Augenh*, 24: 49-67 (1886).

Laser Hazards Bibliography

267. Meyer-Schwickerath, G., Light coagulation (translated by S. M. Drance), C. V. Mosby Company, St Louis (1960).
268. Meyer-Schwickerath, G., Lichtkoagulation: eine methode zur behandlung und verhütung der netzhautablosung, Von Graefe's Arch Ophth, 156: 2-34 (1954).
269. Miller, N. D., and White, T. J., Evaluation of nuclear detonations: I. Retinal burns and flashblindness, Final Report Contract AF41(609)-68-G0023, USAF School of Aerospace Medicine, Brooks AF Base, TX, 77-105 (November 1969).
270. Miller, N. D., Positive afterimage as a background luminance, J Opt Soc Am, 56: 1616 (1966).
271. Miller, N. D., Flashblindness and the positive afterimage, US Army Natick Laboratories, Flashblindness Symposium (November 1967).
272. Miller, N. D., Positive afterimage following brief high-intensity flashes, J Opt Soc Am, 56: 802 (1966).
273. Miller, N. D., Visual recovery from brief exposures to high luminance, J Opt Soc Am, 55: 1661 (1965).
274. Muller, H., Experimentelle Untersuchungen uez Schädigungen des Auges durch Ultrazot-Strahlung, Arch F. Ophth, 114: 503-543 (1924).
275. Naidoff, M. A. and Sliney, D. H., Retinal injury from a welding arc, Am J Ophth, 77(5): 663-668 (May 1974).
276. Nail, R. L., Foveomacular retinitis, Mil Med, 136: 575-577 (1971).
277. National Academy of Sciences, The Biological Effects of Atomic Radiation, National Research Council, Washington, DC (1960).
278. Newsome, D. A., Afterimage and pupillary activity following strong light exposure, Vis Res, 11: 275-288 (1971).
279. Newson, W. A., Tredici, T. J., and Bruce, W. R., Fluorescence angiography of chorioretinal burns, Arch Ophth, 78: 753-756 (1967).
280. Noell, W. K., Cellular physiology of the retina, J Opt Soc Am, 53: 36-48 (1963).
281. Noell, W. K., Walker, V. S., Kang, B. S., and Berman, S., Retinal damage by light in rats, Invest Ophth, 5: 450-473 (1966).

Laser Hazards Bibliography

282. Noell, W. K., and Albrecht, R., Irreversible effects of visible light on the retina, role of vitamin A, *Science*, 172: 76-79 (April 1971).
283. Noell, W. K., Delmelle, M. C., and Albrecht, R., Vitamin A deficiency effect on retina: dependence on light, *Science*, 172: 72-75 (April 1971).
284. O'Brien, D. F., Light-regulated permeability of rhodopsin-phospholipid membrane vesicles, *Photochem Photobiol*, 29: 679-685 (1979).
285. Okun, E., and Collins, E. M., Histopathology of experimental photocoagulation of the dog eye, *Am J Ophth*, 54: 3-16 (1962).
286. Olafson, R. P., and O'Steen, W. K., Hormonal influences on photoreceptor damage: the pituitary gland and ovaries, *Invest Ophthalmol*, 15(10): 869-872 (1976).
287. O'Steen, W. K., Shear, C. R., and Anderson, K. V., Retinal damage after prolonged exposure to visible light: a light and electron microscopic study, *Am J Anat* 134: 5-21 (1972).
288. O'Steen W. K., et al., Phagocytosis in the light-damaged albino rat eye: light and electron microscopic study, *Am J Anat* 139: 503-517 (April 1974).
289. O'Steen, W. K., Shear, C. R., and Anderson, K. V., Extraocular muscle degeneration and regeneration after exposure of rats to incandescent radiant energy, *F Cell Sci*, 18: 157-177 (1975).
290. O'Steen, W. K., Anderson, K. V., and Shear, C. R., Photoreceptor degeneration in albino rats: dependency on age, *Invest Ophth*, 13(5): 334-339 (May 1974).
291. O'Steen, W. K., and Karsiolglou, Z. A., Phagocytosis in the light-damaged albino rat eye, light and electron microscopic study, *Am J Anat*, 139(4): 503-512 (April 1974).
292. O'Steen, W. K., and Anderson, K. V., Photoreceptor degeneration after exposure of rats to incandescent illumination, *Z Zellforsch*, 127: 306-313 (1972).
293. O'Steen, W. K., and Kraeer, S. L., Effects of hypophysectomy, pituitary gland homogenates and transplants, and prolactin on photoreceptor destruction, *Invest Ophth Visual Sci*, 16: 940-946 (1977).
294. O'Steen, W. K., Kraer, S. L., and Shear, C. R., Extraocular muscle and Harderian gland degeneration and regeneration after exposure of rats to

Laser Hazards Bibliography

continuous fluorescent illumination, Invest Ophth Visual Sci, 17: 847-856 (1978).

295. O'Steen, W. K., Hormonal and dim light effects in retinal photodamage, Photochem Photobiol, 29: 745-753 (October 1978).

296. O'Steen, W. K., Ovarian steroid effects on light-induced retinal photoreceptor damage, Exp Eye Res, 25: 361-369 (1977).

297. Parnavelas, J. G., Globus, A., and Kaups, P., Changes in lateral geniculate neurons as a result of continuous exposure to light, Nature New Biol, 245: 287-288 (31 November 1973).

298. Parsons, J. H., Some effects of bright light upon the eye, Jama 55: 2027 (1910).

299. Pau, H., Impression of a partial eclipse of the sun on the macula after observation of the sun, Klin Monatsbl Augenheilkd, 171(2): 295-298 (1977).

300. Peckham, R. H., and Harley, R. D., The effect of sunglasses in protecting retinal sensitivity, Am J Ophth, 34(11): 1499-1507 (November 1951).

301. Peckham, R. H., The protection and maintenance of night vision for military personnel, Am J Ophth, 30: 1588 (1947).

302. Penner, R., and McNair, J. N., Eclipse blindness, Am J Ophth, 61: 1452-1457 (1966).

303. Pepperberg, D. R., Lurie, M., Brown, P. K., and Dowling, J. E., Visual adaptation: effects of externally applied retinal on the light-adapted, isolated skate retina, Science, 191: 394-396 (January 1976).

304. Pirie, A., The effect of sunlight on proteins of the lens, Contemporary Ophthalmology, J. G. Bellows, Ed., Northwestern University School of Medicine (1972).

305. Pitts, D. G., and Gibbons, W. D., Corneal light scatter measurements of ultraviolet radiant exposures. Am J Optom, 50: 187-194 (1973).

306. Pitts, D. G., A comparative study of the effects of ultraviolet radiation on the eye, Am J Opt, 47: 535-546 (July 1970).

307. Pitts, D. G., The human ultraviolet action spectrum, Am J Opt S Physiol Opt, 51: 946-960 (December 1974).

Laser Hazards Bibliography

308. Pitts, D. G., The ocular ultraviolet action spectrum and protection criteria, *Health Physics*, 25: 559-566 (1973).

309. Pitts, D. G., and Tredici, T. J., The effects of ultraviolet on the eye, *Am Ind Hyg Assn J*, 32(4): 235-246 (April 1971).

310. Pitts, D. G., Cullen, A. P., and Hacker, P. D., Ocular effects of ultraviolet radiation from 295 to 365 nm, *Inv Ophthal and Vis Sci*, 16(10): 932-939 (1977).

311. Pitts, D. G., Cullen, A. P., Hacker, P. D., and Parr, W. H., Ocular ultraviolet effects from 295 nm to 400 nm in the rabbit eye, Univ of Houston, College of Optometry, TX, Contract CDC-99-74-12, DHEW, NIOSH (October 1977).

312. Pollak, V., A transmission line model for the optical transfer of isotropic scattering media, *IEEE Trans Bio-Med Eng*, BME-17(4): 287-291 (October 1970).

313. Prasad, V. N., Solar retinitis, *The Indian Practitioner*, 19: 809-812 (1966).

314. Randolph, D. I., Electroretinographic and behavioral recovery time of cats to high-intensity photic stimulation, *Proceedings of the US Army Natick Laboratories, Flashblindness Symposium* (November 1967).

315. Rapp, L. M., and Williams, T. P., Damage to the albino rat retina produced by low intensity light, *Invest Ophth*, 12: 45-51 (1973).

316. Ridgeway, A. E. A., Solar retinopathy, *Br Med J*, 3: 212-214 (1967).

317. Ridgeway, D., Three dimensional steady-state temperature distribution about cylinders and discs, *Bull Math Biophys*, 30: 701-713 (December 1968).

318. Ring, H. G., Xenon Photocoagulation and the retinal vasculature, *Arch Ophth*, 91: 389-394 (May 1974).

319. Roberts, B. H., A series of cases of "Glassblower" cataracts occurring in chainmakers, *Brit J Ophth* 5: 210 (1921).

320. Robinson, W. D., On Bottle-maker's cataract, *Brit Med J*, 2: 381 (1907).

321. Robinson, W., Bottle-finishers' cataract, *Brit Med J*, 1: 191-193 (1903).

322. Robinson, W., Glass-workers' cataract, *Ophthalmoscope*, 13: 538-554 (1915).

Laser Hazards Bibliography

323. Roggendau, C., and Wetthauer, A., Euber die durchlassigkeit der brechenden Augenmedien fur langueliges Licht mach unter suchungen am Rindsauge, Klin Monatsbl F. Augenh, 79: 458 (1927).
324. Rose, H. W., Research Study of the Production of Retinal Burns, Final Report, Lockheed Missiles and Space Company, Sunnyvale, California, and published as DASA Report No. 1279, Defense Atomic Support Agency, Washington, DC (AD 281597) (1961).
325. Rose, H. W., Brown, D. V. L., Byrnes, V. A., and Divis, P. A., Human chorioretinal burns from atomic fireballs, Arch Ophth, 55: 205-210 (1956).
326. Rosen, E., Solar retinitis, Brit J Ophth, 32: 23-35 (1948).
327. Rosenblum, R. A., Electroretinographic evaluation of the Bunsen-Roscoe law for the human eye at high energy levels, Invest Ophthal, 10: 904-910 (1971).
328. Roulrier, A., Calculation of the thermal effect generated in the retinal by photocoagulation, Albrecht von Graefes Arch Klin Exp Ophth, 181: 281-189 (1971).
329. Roulrier, A., Calculation of temperature increase in the eye produced by intense light, Bull Math Biophys, 32: 403-427 (1970).
330. Rudeen, P. K., and O'Steen, W. K., The effects of the pineal gland on light-induced retinal photoreceptor damage, Exp Eye Res, 28: 37-44 (1979).
331. Said, F. S., and Weale, R. A., The variation with age of the spectral transmissivity of the living human crystalline lens, Gerontologica, 3: 213-231 (1959).
332. Santos, R., deBuen, S., and Abraham, R. R. K., Chorioretinal lesions produced in monkeys and rabbits, Am J Ophth, 61: 230-240 (1966).
333. Schanz, F., and Stockhausen, K., Zur atiologic des glassmacherestars, Arch F. Ophth, 73: 553 (1910).
334. Schmidt, W., and Butler, W. L., Flavin-mediated photoreactions in artificial systems: a possible model for the blue-light photoreceptor pigment in living systems, Photochem & Photobiol, 24: 71-75 (1976).
335. Shear, C. R., O'Steen, W. K., and Anderson, K. V., Effects of short-term low intensity light on the albino rat retina. An electron microscopic study, Am J Anat, 138(1): 127-132 (September 1973).

Laser Hazards Bibliography

336. Sisson, T. R., Glauser, S. C., Tasman, M. W., and Kuwabara, T., Retinal changes produced by phototherapy, *J Pediat*, 77: 221-227 (1970).
337. Sliney, D. H., and Freasier, B. C., The evaluation of optical radiation hazards, *Appl Opt*, 12: 1-22 (January 1973).
338. Sliney, D. H., The merits of an envelope action spectrum for ultraviolet exposure criteria, *Am Ind Hyg Assn* (October 1972).
339. Sliney, D. H., *Non-ionizing radiation in Industrial Environmental Health: The Worker and the Community* (Ed., E. D. Cralley), Academic Press, NY, 171-241 (1972).
340. Sliney, D. H., Dependence of laser retinal injury hazard upon retinal image size, A lecture sponsored by the Bureau of Radiological Health, Rockville, MD (17 January 1973).
341. Smith, H. E., Actinic macular retinal pigment degeneration, *US Naval Med Bull*, 42: 675-680 (1944).
342. Soll, D. B., and Oh, K. T., Industrial ocular injuries, *Am Fam Physician*, 14(5): 115-124 (1976).
343. Sperling, H. G., Flash blindness as a function of wavelength specificity, *Fed Proc*, 24: S-73 - S-77 (1965).
344. Sperling, H. G., The distribution of blue receptors in primate eyes revealed by spectral photic damage and by histochemical response experiments, *Proc R Soc Lond*, 200: 463-483 (1978).
345. Sperling, H. G., Crawford, M. L. J., and Espinoza, S., Threshold spectral sensitivity of single neurons in the lateral geniculate nucleus and of performing monkeys, *Frontiers in Vis Sci* (1978).
346. Sperling, H. G., and Harwerth, R. S., Red-green cone interactions in the increment-threshold spectral sensitivity of primates, *Science*, 172: 180-184 (April 1971).
347. Sperling, H. G., and Harwerth, R. S., Intense spectral light effects on spectral sensitivity, *Optica Acta*, 19(5): 395-398.
348. Sperling, H. G., and Harwerth, R. S., Red-green cone interactions in the increment-threshold spectral sensitivity of primates, *Mod Prob Opth*, 19: 2-18 (1978).
349. Sperling, H. G., and Johnson, C., Histological findings in the receptor layer of primate retina associated with light induced dichromacy, *Science*, 172: 180-184 (1971).

Laser Hazards Bibliography

350. Sperling, H. G., Jones, A. E., and Dockins, W. S., The Effects of High-Intensity Radiant Stimulation of Varying Wavelengths and Durations on Retinal Sensitivity, St Paul, Honeywell Inc., 1549-FRI, 32 (July 1968).
351. Sperling, H. G., Differences between light-induced lesions of the pigment epithelium and photoreceptors, *Vis Res*, (in press) (1980).
352. Sperling, H. G., Deficits in visual performance after long-term light exposure, *Proc Spie*, 229: 229-07 (1980).
353. Sperling, H. G., Arc ophthalmologists exposing iben patients to dangerous light levels, *Inv Ophthal & Vis Sci* 19(9): 989-990, 1980.
354. Spurney, R. V., and Rosenthal, M. S., Ultraviolet-induced recurrent herpes simplex virus keratitis, *Am J Ophth*, 73(4): 609-611 (April 1972).
355. Stein, P. J., Henkens, R. W., Yamanashi, B. S., and Wolbarsht, M., Studies on brunescant cataracts. II. Fluorescence studies on normal and brunescant lens proteins, *Ophthal Res*, 8: 388-394 (1976).
356. Stone, W. L., and Katz, M. L., Effects of dietary vitamin E and selenium on light damage to the rat retina, *Photochem Photobiol*, 29: 725-730 (1978).
357. Straatsma, B. R., Hall, M. O., Allen, R. A., and Crescitelli, F. (eds), *The Retina*, University of California Press, Los Angeles (1969).
358. Strughold, H., and Ritter, O., Eye hazards and protection in space, *Aerospace Med*, 31: 670-673 (1960).
359. Szafran, L., A lens opacity with the morphological features of smelting cataract in a welder, *Medycyna Pracy* XVI(3): 246-249 (1965).
360. Tengroth, B. M., Lydahl, E., and Phillipson, B. T., Infrared cataract in furnacement, *Nonionizing Radiation, Proc ACGIH Topical Symposium* 11/26-28/1979, pp 170-171.
361. Tengroth, B., and Vulcan, J., Welding light, *Strahlentherapie*, 153(4): 267-272 (1977).
362. Thomas, D. M., and Schepler, K. L., Raman spectra of normal and ultraviolet-induced cataractous rabbit eyes, *Inv Ophthal & Vis Sci* 19(8): 904-912, 1980.
363. Tocado, A. R., Auth, D. C., and Bruckner, A. P., Halocamera for 3-D micrography of the alert human eye, *App Opt* 19(13): 2219-2223, 1980.
364. Towe, P., Solar retinitis, *Ann Wes Med Surg*, 2: 217-221 (1948).

Laser Hazards Bibliography

365. Trumpy, E., Experimentelle Untersuchungen uber die Wirkung hochintensiven Ultraviolets and Violetts Zwischen 314 and 435.9 nm Wellenlange auf das Auge unter besonderer Berucksichtigung der Linse. Albrecht von Graefes, Arch Ophthal, 115: 495-514 (1925).
366. Tso, M. O. M., Fine, B. S., and Zimmerman, L. E., Photoc maculopathy produced by the indirect ophthalmoscope, Am J Ophth, 73(5): 686-699 (May 1972).
367. Tso, M. O. M., and La Piana, F. G., The human fovea after sun-gazing, Tr Am Acad Ophth, 79: 788-795 (1975).
368. Tso, M. O. M., Robbins, D. O., and Zimmerman, L. E., Photoc Maculopathy, Mod Probl Ophth, 12: 220-228 (Karger, Basel 1974).
369. Tso, M. O. M., Photoc maculopathy in Rhesus monkey. A light and electron microscopy study, Invest Ophth, 12(1): 17-34 (January 1973).
370. Tso, M. O. M., Pathology of photic injury to the retina, Vis Res, (this issue) (1980).
371. Turner, H. S., The interaction of infrared radiation with the eye: a review of the literature, NASA-CR-128407, Ohio State University, NTIS Order No. N73--10064 (1973).
372. Turtz, C. A., Solar burns of the fundi, NY J Med, 48: 2489-2490 (1948).
373. Uhthoff, W., Ein fall von einseitiger centraler blendugs-retinitis durch electrisches bogenlicht mit nachfolgender traumatischer neurose, Zeitschrift Fur Augenheile, 2: 340-345 (1973).
374. Ulett, G. A., Flicker sickness, AMA Arch Ophth, 50: 685-687 (1953).
375. Vander Heuven, J. A., Affectations of the eye in glassworkers, XIII Internat Congr Ophth Amsterdam, 2: 446-447 (1929).
376. van Heyningen, R., Fluorescent compounds of the human lens, Ciba Symposium 19 (New Series), Elsevier, Amsterdam, NY, p 151 (1973).
377. van der Hoeve, J., Strahlen und Auge. Albrecht von Graefes. Arch Ophth, 116: 245-248 (1925).
378. Van Pelt, W. F., The bioeffects of light, Opt Spectra, 5: 33 (1971).
379. Vassiliadis, A., Rosan, R. C., Hayes, J., and Zweng, H. C., Investigation of retinal hazard due to pulsed xenon lamp radiation, SRI Report 7112, Stanford Research Institute, Menlo Park, CA (1969).

Laser Hazards Bibliography

380. Verhoeff, F. H., and Bell, L., The pathological effects of radiant energy on the eye - an experimental investigation, Proc Am Acad Arts & Sci, 51: 629-759, 819-827 (July 1916).
381. Vogt, A., Experimentelle Erzeugung von Katarakt durch isoliertes kurzwelliges Ultrarot, dem Rot beigemischt ist, Klin Mbl Augenheilk, 63: 230-231 (1919).
382. Vogt, A., Experimentelle unter suchungenulier die durchlassigkeit der durchlichtingen des auges, Arch F Ophth, 81: 155 (1912).
383. Vos, J. J., A theory of retinal burns, Bull Math Biophys, 24: 115-128 (1962).
384. Walker, C. B., Systematic review of the literature relating to the effects of radiant energy upon the eye, Proc Am Acad Arts & Sci, 51: 760-818 (July 1916).
385. Walker, C. B., The pathological effect of radiant energy on the eye: a systematic review of the literature, Proc Am Acad Arts and Sci, 51: 760 (1916).
386. Wallace, J., Sweetnam, P. M., Warner, C. G., Graham, P. A., and Cochrane, A. L., An epidemiological study of lens opacities among steel workers, Brit J Ind Med, 28: 265-271 (1971).
387. Wallow, I. H. L., Tso, M. O. M., and Fine, B. S., Retinal repair after experimental xenon arc photocoagulation, Am J Ophth, 75(1): 32-53 (January 1973).
388. Wallow, I. H. L., and Tso, M. O. M., Repair after xenon arc photocoagulation 2. A clinical and light microscopic study of the evolution of retinal lesions in the Rhesus monkey, Am J Ophth, 75(4): 610-626 (April 1973).
389. Wallow, I. H. L., and Tso, M. O. M., Repair after xenon arc photocoagulation 3. An electron microscopic study of the evolution of retinal lesions in Rhesus monkeys, Am J Ophth, 75(6): 957-972 (June 1973).
390. Walraven, P. L., and Leebeek, H. J., Foveal sensitivity of the human eye in the near infrared, J Opt Soc Am, 53: 765-766 (1963).
391. Walraven, P. L., and Bouman, M. A., Relation between directional sensitivity and spectral response curves in human cone vision, J Opt Soc Am, 50: 780-784 (1960).
392. Walther, G., Histochemische Untersuchungen zum Fruhnachweis einer Schädigung der Kaninchenretina durch Schweisslicht, Beitr Gerichtl Med, 27: 332-338 (1970).

Laser Hazards Bibliography

393. Walther, G., and Szilagy, S., Tierexperimentelle histochemische Untersuchungen zum Nachweis einer Fruehshadigung der Retina durch Schweisslicht, *Int Arch Arbeitsmed*, 26: 189-197 (1970).
394. Ward, B., and Bruce, W. R., Chorioretinal burn: body temperature dependence, *Ann Ophth*, 3: 898 (1971).
395. Ward, B., and Bruce, W. R., Role of body temperature in the definition of retinal burn threshold, *Invest Ophth*, 10(12): 955-958 (December 1971).
396. Weale, R. A., Photochemistry and vision, *Photophysiology, Current Topics* (Ed., A. A. Giese), Academic Press, NY, 4: 1-45 (1968).
397. Weale, R. A., An early stage in the pathology of photocoagulation, *Am J Ophth*, 53: 666-669 (1962).
398. Weale, R. A., Comparison of human and rabbit fundi to photic exposure, *J Opt Soc Am*, 54: 120-126 (1964).
399. Wells, W. H., Loss of resolution in water as a result of multiple small-angle scattering, *J Opt Soc Am*, 59(6): 686-691 (June 1969).
400. White, T. J., Mainster, M. A., Tips, J. H., and Wilson, P. W., Chorioretinal thermal behavior, *Bull Math Biophysics*, 32: 315-322 (September 1970).
401. White, T. J., Mainster, M. A., Wilson, P. W., and Tips, J. H., Chorioretinal temperature increases from solar observaton, *Bull Math Biophys*, 33: 1-17 (March 1971).
402. Whiteside, T. C. D., Dazzle from Nuclear Weapons, *Armed Forces - NRC Committee on Vision, NRC*, 835: 79 (1960).
403. Whiteside, T. C. D., The dazzle effect of an atomic explosion at night, *Flying Personnel Research Committee, Rept No. 787* (1954).
404. Whithead, A. L., Persistent central scotomata following exposure of the eyes to direct sunlight during the solar eclipse on April 8, 1921, *Trans Ophth Soc U Kingd*, 42: 278-280 (1922).
405. Wild, B., The effect of ultraviolet light on the eye, *Am J Opt & Arch Am Acad Opt*, 38: 15-21 (1961).
406. Williams, D. W., and Duggar, B. C., Review of Research on Flash Blindness, Chorioretinal Burns, Countermeasures, and Related Topics, *Bio-Dynamics In.*, Cambridge, MA, prepared for Defense Atomic Support Agency as Report DASA-1576, Washington, DC (1965).

Laser Hazards Bibliography

407. Wirtschafter, J. D., and Bourassa, C. N., Binocular facilitation of discomfort with high luminance, *Arch Ophth*, 75: 683-688 (1966).
408. Wissler, E. H., An analysis of chorioretinal thermal response to intense light exposure, *IEEE Trans, BME-23(3)*: 207-215 (1976).
409. Wolbarsht, M. L., Damage to the lens from infrared, *Ocular Effects of Nonionizing Radiation*, *Proc SPIE* 229: 121-141, 1980.
410. Wolbarsht, M. L., Landers, M. B., Wadsworth, J. A., and Anderson, W. B., Retinitis pigmentosa: clinical management based on current concepts, *Adv Exp Med Biol*, 77: 181-195 (1977).
411. Wolbarsht, M. L., Yamanashi, B. S., and Orr, M. A., The origin of cataracts in the lens from infrared radiation, Report 7-20-1977 : 62772A 3E62772A813.00.013, Duke Univ Eye Ctr, Durham, NC, Contract DAMD 17-74-C-4133 US Army Med Rsh and Dev Cmd (1977).
412. Wolbarsht, M. L., Electrophysiological determination of retinal sensitivity to color after intense monochromatic light adaptation, USAF School of Aerospace Med, Brooks AF Base, TX, Report SAM-TR-78-9 (1978).
413. Wolbarsht, M. L., Damage to the lens from infrared, *Proc Soc Photo Opt Instr Engin (SPIE) Symposium*, Washington, D.C., 229, (7 April 1980).
414. Wolf, E., Early research and physiological implications of flashblindness, US Army Natick Laboratories, Flashblindness Symposium (November 1967).
415. Wolf, E., Effects of exposure to ultraviolet light on human dark adaptation, *Proc Nat Acad Sci*, 32: 219-226 (1946).
416. Wolf, E., Effects of ultraviolet radiation on visual thresholds, *Science*, 105: 366 (1947).
417. Wolf, E., and Gardiner, J. S., Studies on the scatter of light in dioptric media of eyes as a basis of visual glare, *Arch Ophth*, 74: 338-345 (1965).
418. Wray, J. L., Model for Prediction of Retinal Burns, Report DASA-1282, Defense Atomic Support Agency, Washington, DC (1962).
419. Wright, R. E., The possible influence of solar radiation on the production of cataracts in certain districts of southern India. a preliminary investigation, *Indian J Med Res*, 24: 917-924 (1936-37).
420. Wurdemann, H. V., The formation of a hole in the macula, light burn from exposure to electric welding, *Am J Ophth*, 19: 457-460 (1936).

Laser Hazards Bibliography

421. Yamanashi, B. S., Hacker, H., and Klintworth, G. K., Wavelength dependence and kinetics of UV-induced free radical formation in the human cornea and lens, *Photochem Photobiol*, 30: 391-395 (1979).
422. Yamanashi, B. S., and Zuclich, J. A., Triplet states of tryptophan, n-formylkynurenine, and uv-irradiated lens proteins, *Ophth Res*, 10: 140-149 (1978).
423. Zaret, M. M., Snyder, W. Z., and Birenbaum, L., Cataract after exposure to non-ionizing radiant energy, *Brit J Ophthalmol*, 60(9): 632-637 (1976).
424. Zeiner, A. R., and Brecher, G. A., Reaction time performance with and without backscatter from intense pulsed light, *Avia, Space & Environ Med*, 46(2): 125-127 (February 1975).
425. Zigler, J. S., Sidbury, J. B., Yamanashi, B. S., and Wolbarsht, M., Studies on brunescant cataracts. I. Analysis of free and protein-bound amino acids, *Ophthal Res*, 8: 379-387 (1976).
426. Zigman, S., and Bagley, S. J., Near ultraviolet light effects on dogfish retinal rods, *Exp Eye Res*, 12: 155-157 (1971).
427. Zigman, S., and Vaughan, T., Near-ultraviolet light effects on the lenses and retinas of mice, *Invest Ophth*, 13(6): 462-465 (June 1974).
428. Zigman, S., Groff, J., Yalo, T., and Vaughan, T., The response of mouse ocular tissues to continuous near-UV light exposure, *Invest Ophth*, 14(9): 710-713 (September 1975).
429. Zigman, S., et al., Possible roles of near-UV light in the cataractous process, *Exp Eye Res*, 15: 201-208 (February 1973).
430. Zigman, S., Griess, G., Yalo, T., and Schultz, J., Ocular protein alteration by near UV light, *Exp Eye Res*, 15: 255-261 (1972).
431. Zigman, S., Yulo, T., and Schultz, J., Cataract induction in mice exposed to near uv light, *Ophth Res*, 6: 259-270 (1974).
432. Zigman, S., Near uv light and cataracts, *Photochem Photobiol*, 26: 437-441 (1977).
433. Zigman, S., Datiles, M., Torczynski, E., Sunlight and human cataracts, *Invest Ophth Vis Sci*, 18(5): 462-467 (1979).
434. Zigman, S., Schultz, J. B., Yulo, T., and Grover, D., Effects of near-UV irradiation on lens and aqueous humor proteins. *Isr J Med Sci*, 8: 1590-1595 (1972).

Laser Hazards Bibliography

435. Zigman, S., Schultz, J. B., and Yulo, T., Possible roles of near UV light in the cataractous process, *Exp Eye Res*, 15: 201-208 (1973).
436. Zorab, E. C., Solar eclipse-burn of macula, *Brit J Ophth*, 30: 82-84 (1946).
437. Zuclich, J. A., Hazards to the eye from UV, *Ocular Effects of Nonionizing Radiation*, *Proc SPIE* 229: 11-20, 1980.
438. Zuclich, J. A., Ocular effects of UV laser radiation, Report No. SAM-TR-74-32, USAF School of Aerospace Medicine, Brooks AFB, TX (1974).
439. Zuclich, J. A., Hazards to the eye from UV, *Proc SPIE*, 229: 229-05 (1980).
440. Zuclich, J. A., and John S. Connolly, Ocular damage induced by near ultraviolet laser radiation, *Invest Ophth*, Vol 15(9): 760-764 (1976).
441. Zuclich, J. A., and Kurtin, W. E., Oxygen dependence of near-ultraviolet induced corneal damage, *Photochem Photobiol*, 25: 133-135 (1977).
442. Zypen, E., van der Fankhauser, F., Bebie, H., and Marshall, J., Changes in the ultrastructure of the iris after irradiation with intense light, *Adv In Ophthalmol*, 39: 59-180 (1979).

C. Physical Properties of the Eye.

1. Abel, A., Dell'osso, L. F., Daroff, R. B., and Parker, L., Saccades in extremes of lateral gaze, *Invest Ophth Visual Sci*, 18(3): 324-327 (1979).
2. Adler, F. H., and Neyer, G. P., The mechanism of the fovea, *Trans Am Ophth Soc*, 33: 266-280 (1935).
3. Adler, F. H., *Physiology of the Eye*, Fourth Edition, C. V. Mosby Company, St Louis (1965).
4. Aitken, R. C. B., Ferres, H. M., and Gedye, J. L., Distraction from flashing lights, *Aerospace Medicine*, __: 302-306 (1963).
5. Allen, M. J., A note on random visual motion - a visual after effect, *Am J Optom and Arch Am Acad Optom*, 43: 664-665 (1966).
6. Allen, M. J., Treatment of binocular vision problems with light flashing at 9 Hertz. The perception and application of flashing lights, University of Toronto Press, 369-373 (1971).

Laser Hazards Bibliography

7. Alpern, M., Thompson, S., and Lee, Ms S., Spectral transmittance of visible light by the human eye, *J Opt Soc Am*, 55: 723-727 (1965).
8. Anaclerio, A. M., Self induced solar retinopathy by patients in a psychiatric hospital, *Am J Ophthalmol*, 69: 731 (1970).
9. Anderson, M. L., and Purple, R. L., Circadian rythms and variability of the clinical electrooculogram, *Inv Ophthalmol Vis Sci*, 19(3): 278-288 (1980).
10. Armaly, M. F., The size and location of the normal blind spot, *Arch Ophth*, 81: 192-201 (February 1969).
11. Arnulf, A., The distribution of the illumination in the foveal image of the eye, *J Opt Soc Am*, 41: 868 (November 1951).
12. Arnulf, A., and Dupuy, O., La transmission des contrastes par le systeme optique de l'oeil et les seuils de contrastes retiniens, *Comp Rend Hebdomadaires des Seance del l'Academe des Sciences*, 250: 2757-2759 (1960).
13. Asmus, J., and Malin, H. A., Entoptic phenomena with continuous wave lasers, *Am J Opt & Arch Am Acad Opt*, 47(1): 18-23 (January 1970).
14. Bairati, A., Jr., and Orzalesi, N., The ultrastructure of the pigment epithelium and of the photoreceptor-pigment epithelium junction in the human retina, *J Ultrastructure Res*, 9: 484-496 (1963).
15. Ball, R. J., and Bartley, S. H., Changes in brightness index, saturation, and hue produced by luminance-wavelength-temporal interaction, *J Opt Soc Amer*, 56(5): 695-699 (1966).
16. Ball, R. J., and Bartley, S. H., Effects of temporal manipulation of photic stimulation and perceived brightness, *Amer J Opt Arch Amer Acad Opt*, 42(10): 573-581 (1965).
17. Ball, R. J., and Bartley, S. H., The induction and reduction of color deficiency by manipulation of temporal aspects of photic input, *Amer J Opt Arch Amer Acad Opt*, 44(7): 411-418 (1967).
18. Barlow, H. B., Eye movements during fixation, *J Physiol*, 116: 290-306 (1962).
19. Bartleson, C. J., Pupil diameters and retinal illuminances in interocular brightness matching, *J Opt Soc Am*, 58: 853-855 (1968).
20. Bartley, S. H., and Ball, R. J., Effects of intermitten illumination on visual acuity, *Am J Opt Arch Am Acad Optom*, 45: 458-464 (1968).

Laser Hazards Bibliography

21. Bauer, G. T., Longitudinal spherical aberration of modern ophthalmic lenses and its effect on visual acuity, *Appl Opt*, 19(13): 2226-2234 (1980).
22. Bedford, R. E., and Wysecki, G., Axial chromatic aberration of the human eye, *J Opt Soc Am* 47: 564 (1957).
23. Berman, E. R., Schwell, H., and Feeney, L., The retinal pigment epithelium, chemical composition and structure, *Invest Ophth*, 13(9): 675-687.
24. Berner, I., Experimentelle untersuchungen uber die Absorption des ultrarot durch linsen von alten pferden und kuren, *Arch Ophth*, 119: 368-373 (1927).
25. Besharse, J. C., and Hollyfield, J. G., Turnover of mouse photoreceptor outer segments in constant light and darkness, *Inv Ophthalmol Vis Sci*, 18(10): 1019-1024 (1979).
26. Bettelheim, F. A., et al., Low angle laser scattering on bovine cornea, *Biochem Biophys Acta*, 177: 259-264 (1 April 1969).
27. Bettelheim, F., A., and Kaplan, D., Small angle light scattering of bovine cornea as affected by birefringence, *Biochimica Et Biophysica Acta*, 313: 268-276 (1973).
28. Bettelheim, F. A., and Kumbar, M., An interpretation of small-angle light-scattering patterns of human cornea, *Invest Ophthalmol & Visual Sci*, 16(3): 233-236 (1977).
29. Bettelheim, F. A., and Magrill, R., Small-angle light-scattering patterns of corneas of different species, *Investig Ophthalmol & Visual Sci*, 16(3): 236-240 (1977).
30. Blackwell, H. R., Contrast thresholds of the human eye, *J Opt Soc Am*, 36: 624-643 (1946).
31. Blackwell, H. R., A general quantitative method for evaluating the visual significance of reflected glare, utilizing visual performance data, *Illuminating Engineering*, 58: 161-216 (1963).
32. Blackwell, H. R., Schwab, R. N., and Pritchard, B. S., Visibility and illumination in roadway visual tasks, *Illuminating Engineering*, 59: 277-308 (1964).
33. Blackwell, H. R., and Taylor, J. H., A consolidated set of foveal contrast thresholds for normal human binocular vision, Ohio State University and University of California, San Diego Report (1970).

Laser Hazards Bibliography

34. Blank, K., Provine, R. B., and Enoch, J. M., Shift in the peak of the photopic Stiles-Crawford function with marked accommodation, *Vis Res*, 15: 499-507 (1975).

35. Blest, A. D., and Land, M. F., The physiological optics of Dinopis subrufus L Koch fish lens in a spider *Proc R Soc Lond*, 196(1123): 197-222 (1977).

36. Boettner, E. A., and Wolter, J. R., Transmission of the ocular media, *Invest Ophth*, 1: 776-783 (1962) (AD 282100).

37. Boettner, E. A., Spectral Transmission of the Eye, Final Report AF 41: 609-2996 (AD 663246) (July 1967).

38. Boettner, E. A., and Dankovic, D., Ocular absorption of laser radiation for calculating personnel hazards, Michigan Univ, Ann Arbor, MI, School of Aerospace Med, Brooks AFB, TX, Contract F41609-74-C-0008, Project AF-6301 (November 1974).

39. Bone, R. A., and Sparrock, J. M. B., Comparison of macular pigment in human eyes, *Vis Res*, 11: 1057-1064 (1971).

40. Boynton, R. M., Rinalduci, E. J., and Sternheim, C., Visibility losses produced by transient adaptational changes in the range 0.4 to 4000 footlamberts, *Ill Eng*, 64: 217-227 (1969).

41. Brindley, G. S., and Willmer, E. N., The reflection of light from the macular and peripheral fundus oculi in man, *J Physiol*, 116: 350-356 (1952).

42. Bryam, G. M., The physical and photochemical basis of visual resolving power, *J Opt Soc Am*, 34: 718-738 (1944).

43. Bryngdahl, O., Effect of retinal image motion on visual acuity, *Optica Acta*, 8(1): 1-16 (January 1961).

44. Calvet, H., Analyse de la transmission des radiations rouges lointaines et proches infra-rouge dans les milieux oculaires profonds, *Bull Soc Belge Ophthalmol* (French), 158: 405-415 (1971).

45. Campbell, F. W., The human eye as an optical filter, *Proc IEEE*, 56: 1009-1014 (1968).

46. Campbell, F. W., and Green, D. G., Optical and retinal factors affecting visual resolution, *J Physiol*, 181: 576-593 (1965).

47. Campbell, F. W., and Gubisch, R. W. Optical quality of the human eye, *J Physiol*, 186: 280-299 (August 1968).

Laser Hazards Bibliography

48. Carr, R. E., Optics and visual physiology (Annual Review), Arch Ophth, 80: 280-299 (August 1968).
49. Chisum, G. T., and Morway, P. E., Flashblindness following double flash exposures, Aerospace Med, 45(9): 1013-1016 (1974).
50. Chisum, G. T., and Hill, J. H., Flashblindness: the effects of preflash adaptation and pupil size, Aerospace Med, 38: 395-399 (April 1967).
51. Chisum, G. T., Flashblindness recovery following exposure to constant energy adaptive flashes, Aerospace Med, 44(4): 407-413 (April 1973).
52. Christensen, R. L., and Kohler, B. E., Excitation spectroscopy of retinal and related polyenes, Photochem and Photobiol, 19: 401-410 (1973).
53. Clowes, M. B., and Ditchburn, R. W., An improved apparatus for producing a stabilized retinal image, Optica Acta, 6(3): 252 (1959).
54. Cohen, I., Vertebrate retinal cells and their organization, Biol Rev, 38: 427-459 (1963).
55. Coogan, P. S., Hughes, W. F., and Mollsen, J. A., "Histologic and spectrophotometric comparisons of the human and phesus monkey retina and pigmented ocular fundus", Final Report, Rush-Presbyterian St. Luke's Medical Center, 1753 W. Congress Parkway, Chicago, IL, Contract No. F41609-71-C-0006 (January 1974).
56. Cooper, G. F., and Robson, J. G., The yellow colour of the lens of man and other primates, J Physiol, 203: 411-4-7 (1969).
57. Cope, W. T., Wolbarsht, M. L., and Yamanashi, B. S., The corneal polarization cross, J Opt Soc Am, 68: 1139-1140 (1978).
58. Coren, S., and Girgus, J. S., Density of human lens pigmentation: in vivo measures over an extended age range, Vis Res, 12: 343-346 (1972).
59. Cornsweet, T. N., Determination of the stimuli for involuntary drifts and saccadic eye movements, J Opt Soc Am, 46, 11, 987-993 (November 1956).
60. Crawford, B. H., The scotopic visibility function, Proc Phys Soc, 62B: 321-334 (1949).
61. Crawford, B. H., The dependence of pupil size upon external light stimulus under static and variable conditions, Proc Roy Soc, B121: 376-395 (1936).

Laser Hazards Bibliography

62. Crawford, M. L. J., and Mark, R. E., Light transmission of cat and monkey eyelids, *Vision Res*, 16: 323-324 (1976).
63. Crouzy, R., Technique D'Etude de la Diffusion de la Lumiere par la Cornee, *Vis Res*, 16(6): 663-666 (1976).
64. Crouzy, R., Optique-Physiologique: Sur la diffusion de la lumiere par le stroma corneee en cours d'oedeme: existence d'une relation entre la loi spectrale et l'intensite, *C R Acad Sc Paris*, 281 (November 1975).
65. Cushman, W. H., Effect of flash field size on flashblindness in an aircraft cockpit, *Aerospace Med*, 42(6): 630-634 (1971).
66. Davidoff, R. A., and Johnson, L. C., Photic activation and photoconvulsive responses in a non-epileptic subject, *Neurology*, 13: 617-621 (1963).
67. Davidovits, P., Photomicrography of corneal endothelial cells in vivo, *Nature*, 244-366 (1973).
68. DeGroot, W., Vision in the ultraviolet, *Nature*, 134: 494 (1934), and 135: 68-69 (1935).
69. DeGroot, S. G., and Gebhard, J. W., Pupil size as determined by adapting luminance, *J Opt Soc Am*, 42: 492-495 (1952).
70. Dieter, P., Wolf, E., and Geer, S., Glare and the scatter of light in the vitreous, *Arch Ophth*, 87: 12-15 (January 1972).
71. DelMelle, M., Retinal sensitized photodynamic damage to liposomes, *Photochem Photobiol*, 28: 357-360 (1978).
72. DeMott, D. W., Direct measures of the retinal image, *J Opt Soc Am*, 49: 571-579 (1959).
73. DeMott, D. W., and Boynton, R. M., Retinal distribution of entoptic stray light, *J Opt Soc Am*, 48: 13-22 (1958).
74. Dieter, P., Wolf, E., and Geer, S., Glare and the scatter of light in the vitreous - effect in postoperative retinal detachment patients, *Arch Ophth*, 87: 12-15 (January 1972).
75. di Francia, G. T., and Ronchi, L., Directional scattering of light by the retina, *J Opt Soc Am*, 42: 782-783 (1952).
76. Ditchburn, R. W., Eye movements and visual perception, *Research*, 9: 466-471 (1956).

Laser Hazards Bibliography

77. Ditchburn, R. W., Eye movements in relation to retinal action, *Opt Acta*, 1, 4, 171-176 (February 1955).
78. Ditchburn, R. W., and Ginsborg, B. L., Involuntary eye movements during fixation, *J Physiol*, 119: 1-17 (1953).
79. Ditchburn, R. W., and Fender, D. H., The stabilized retinal image, *Opt Acta*, 2, 3, 128 (October 1955).
80. Dobson, V., Spectral sensitivity of the 2-month infant as measured by the visually evoked cortical potential, *Vis Res*, 16: 367-374 (1976).
81. Doesschate, J., and Alpern, M., Effect of photo-excitation of the two retinas on pupil size, *J Neurophysiol*, 30: 662-676 (1967).
82. Dratz, E. A., Milianich, G. P., Nemes, P. P., Gaw, J. E., and Schwartz, S., The structure of rhodopsin and its disposition in the rod outer segment disk membrane, *Photochem Photobiol*, 29: 661-670 (1979).
83. Dreschel, E., Birngruder, R., Gabel, V. P., and Hillenkampf, F., Measurement of the size of the focus in the rabbit, *Ber Dtsch Ophthalmol Ges*, 74: 413-417 (1977) (German).
84. Drougard, R., Optical transfer properties of fiber bundles, *J Opt Soc Am*, 54: 907-913 (1964).
85. Drum, B., Additivity of the Stiles-Crawford effect for a fraunhofer image, *Vis Res*, 15: 291-298, (1975).
86. Eastman, A. A., Color contrast versus luminance contrast, *Illuminating Engineering*, 63: 613-620 (1968).
87. Eisner, A., and Macleod, I. A., Blue-sensitive cones do not contribute to luminance, *J Opt Soc Am*, 70(1): 121-123 (1980).
88. Elkinton, A. R., and Watts, G. K., Ruby laser transmission and the lens, *Brit J Ophth*, 54: 423-427 (1970).
89. Ellerbrock, V. J., Incidence of ultraviolet radiation and transmission by the eye, *Am J Opt Arch Am Acad Opt*, 38: 3-14 (1961).
90. Enoch, J. M., and Hope, G. M., Directional sensitivity of the foveal and parafoveal retina, *Invest Ophth*, 12(7): 497-503 (July 1973).
91. Enoch, J. M., Comments on excitation of waveguide modes in retinal receptors, *J Opt Soc Am*, 57: 548-549 (1967).

Laser Hazards Bibliography

92. Enoch, J. M., The retina as a fiber optics bundle, in *Fiber Optics, Principles and Applications* (by N. S. Kapany) Appendix B, Academic Press, NY (1967).
93. Enoch, J. M., Optical properties of the retinal receptors, *J Opt Soc Am*, 53: 71-85 (1963).
94. Eskridge, J. B., and Hebbard, F. W., Role of saccades and drifts in maintaining binocular vision, *J Opt Soc Am*, 50(5): 516 (May 1969).
95. Fabry, C., Vision in the ultraviolet, *Nature*, 134: 736 (10 November 1934).
96. Farnsworth, C. C., Stone, W. L., and Dratz, E. A., Effects of vitamin E and selenium deficiency on the fatty acid composition of rat retinal tissues, *Biochimica et Biophysica Acta*, 552: 281-293 (1979).
97. Farrel, R. A., and McColly, R. L., On corneal transparency and its loss with swelling, *J Opt Soc Am*, 66(4): 342-345 (1976).
98. Feeny, L., The phagolysosomal system of the pigment epithelium - a key to retinal disease, *Invest Ophth*, 12(9): 635-638 (1973).
99. Fender, D. H., Control mechanisms of the eye, *Sci Am*, 211(1): 24-33 (July 1964).
100. Fender, D. H., and Nye, P. W., An investigation of the mechanisms of eye movement control, *Kybernetik*, 1, 2, 81-88 (July 1961).
101. Feuk, T., and McQueen, D., The angular dependence of light scattered from rabbit corneas, *Invest Ophth*, 10(4): 294-299 (April 1971).
102. Fischer, W., and Rohler, R., The absorption of light in an idealized photoreceptor on the basis of waveguide theory - II: the semi-infinite cylinder, *Vis Res*, 14: 1115-1125, Pergamon Press (1974).
103. Fisher, A. J., and Christie, A. W., A note on disability glare, *Vision Res*, 5: 565-571 (1965).
104. Fisher, G. H., Sizes of retinal images formed by distant objects, *Nature*, 221: 584-587 (1969).
105. Flamant, F., Etude de la repartition de lumiere dans l'image retinieene dune fente, *Rev Opt*, 34: 433-459 (1955).
106. Flamant, F., Variation du diametre de la pupille de l'oeil en fonctuion de la brillance, *Rev Opt*, 27: 751 (1948).

Laser Hazards Bibliography

107. Fleming, D. S., Wilson, C. E., and Merrill, H. K., Photic intermittency, pupillary diameter, and the visually evoked potential, *Vis Res*, 12(3): 487-494 (March 1972).
108. Florentini, A., Dynamic characteristics of the visual process, in *Progress in Optics*, 1: 255-288, Amsterdam: North Holland Publishing Company (1961).
109. Flower, R. W., McLeod, D. S., and Pitts, S. M., The effect of blood on ocular fundus reflectance and determination of some optical properties of retinal blood vessels, *Inv Ophthalmol Visual Sci*, 17(6): 562-565 (1978).
110. Fry, G. A., *Blur of the retinal image*, Ohio State University Press, Columbus, OH (1955).
111. Fry, G. A., Retinal image formation: review, summary, and discussion, *J Opt Soc Am*, 53: 94-97 (1962).
112. Fry, G. A., Distribution of focused and stray light on the retina produced by a point source, *J Opt Soc Am*, 55: 333-335 (1965).
113. Fry, G. A., and Alpern, M., The effect of a peripheral glare source upon the apparent brightness of an object, *J Opt Soc Amer*, 43: 189-195 (1953).
114. Fry, G. A., Pritchard, B. S., and Blackwell, H. R., Design and calibration of a disability glare lens, *Illuminating Engineering*, 58: 120-123 (1963).
115. Fugate, J. M., and Dry, G. A., Relation of changes in pupil size to visual discomfort, *Illum Eng*, 51: 537-549 (1956).
116. Gabel, V. P., Birngruber, R., and Hillenkamp, F., Die Lichtabsorption am Augenhintergrund, GSF-Bericht A 55, Gesellschaft Fur Strahlen-Und Umweltforschung, MbH, Munchen (August 1976).
117. Gallagher, J. T., Method for measuring the optical components of the monkey eye, USAF School of Aerospace Med, Brooks AF Base, TX, Report SAM-TR-75-35 (December 1975) (DDC AD A-022-447).
118. Geeraets, W. J., and Berry, E. R., Ocular spectral characteristics as related to hazards from lasers and other light sources, *Am J Ophth*, 66: 15-20 (July 1968).
119. Geeraets, W. J., Williams, R. C., Chan, G., Guy, Ham, W. T., Guerry, D., DuPont, Schmidt, F. H., The loss of light energy in retina and choroid, *Arch Ophth*, 64: 606-615 (October 1960).

Laser Hazards Bibliography

120. Geeraets, W. J., Williams, R. C., Chan, G., Ham, W. T., Jr., Guerry, D., and Schmidt, F. H., The relative absorption of thermal energy in retina and choroid, *Invest Ophth*, 1: 340-347 (1962).
121. Ginsburg, B. L., Rotation of the eye during involuntary blinking, *Nature*, 169: 412 (1952).
122. Glezer, V. D., The eye as a scanning mechanism, *Fiziol Zh S S S R*, 45(3): 271-279 (1959).
123. Goldmann, H., Konig, H., and Mader, F., The transmission of the lens of the eye for infrared, *Ophthalmologica*, 120: 198-205 (1950) (Die Durchlassigkeit der Augenlinse fur infrarot).
124. Goodeve, C. F., Vision in the Ultraviolet, 134: 416-417 (15 September 1934).
125. Gordon, G., Observations upon the movements of the eyelids, *Brit J Ophth*, 35: 399 (1951).
126. Graham, C. H., Vision and Visual Perception, J. Wiley & Sons, NY (1965).
127. Graham, W. P., The absorption of the eye for ultraviolet radiation, *Am J Physiol Opt*, 4: 152-162 (1923).
128. Griffin, D. R., Hubbard, R., and Wald, G., The sensitivity of the human eye to infrared radiation, *J Opt Soc Am*, 37(1): 546-554 (July 1947).
129. Gubisch, R. W., Optical performance of the human eye, *J Opt Soc Am*, 57: 407-415 (1967).
130. Gubisch, R. W., Over-constancy and visual acuity, *Quart J Exper Psychol*, 18: 366-368 (1966).
131. Gunkel, R. D., and Gouras, P., Changes in scotopic visibility thresholds with age, *Arch Ophth*, 69: 4-9 (1963).
132. Haddad, G. M., and Steinman, R. M., The smallest voluntary saccade: Implications for fixation, *Vis Res*, 13: 1075-1086.
133. Haines, R. F., Dimensions of the apparent pupil when viewed at oblique angles, *Am J Ophth*, 649-656 (October 1969).
134. Ham, W. T., Jr., Remarks on fundus reflectance, *Vis Res*, 15: 1167-1168 (1975).

Laser Hazards Bibliography

135. Hart, R. W., and Farrell, R. A., Light scattering in the cornea, J Opt Soc Am, 59(6): 766-774 (June 1969).
136. Hebbard, F. W., Variation of physiological nystagmus with convergence, J Opt Soc Am, 48: 288 (April 1958).
137. Heelis, P. F., Parsons, B. J., Phillip, G. D., Barghigiani, C., Colombetti, G., Lenci, F., and McKellar, J. F., *Flavin pigments embedded in lipid matrices: a spectroscopic and photochemical investigation*, Photochem Photobiol, 30: 507-512 (1979).
138. Helmholtz, H. von, Handlück der physiologischen optik, 1.3. Aufl, p 157, Ergantz und herasgegeben von W. Nagel, Hamburg, Leipzig: VOSS1909.
139. Higgins, G. C., and Stultz, K. F., Frequency and amplitude of ocular tremor, J Opt Soc Am, 43: 1136-1140 (1953).
140. Higgins, K. E., and Rinalduci, E. J., Suprathreshold intensity-area relationships: a spatial broca-sulzer effect, Vis Res, 15(1): 129-143 (1975).
141. Holladay, L. L., The fundamentals of glare and visibility, J Opt Soc Am, 12: 271-319 (1926).
142. Hunt, R. W. G., Measurement of color appearance, J Opt Soc Am, 55: 1540-1151 (1965).
143. Israelachvili, J. N., Sammut, R. A., and Snyder, A. W., Birefringence and dichroism of photodetectors, Vis Res, 16: 47-52 (1976).
144. Ivanoff, A., About the spherical aberration of the eye, J Opt Soc Am, 46: 901-903 (1956).
145. Jameson, D., and Hurvich, L. M., Visual Psychophysics, V11(4): Handbook of Sensory Psychology.
146. Johnson, L. C., Flicker as a helicopter pilot problem, Aerospace Medicine 34: 306-310 (1963).
147. Kaufmann, J. E., ed., IES lighting handbook, New York: illuminating Engineering Society (1966).
148. Kinoshita, J. H., Mechanisms initiating cataract formation, Invest Ophth, 13(10): 713-724 (October 1974).
149. Kinsey, V. E., Spectral transmission of the eye to ultraviolet radiations, Arch Ophth, 39: 508-513 (1948).

Laser Hazards Bibliography

150. Kleinbanss, G., On the influence of the divergence angle of the optical image of light sources in the human eye (German), *Elektromedizin*, 11: 13-23 (January 1966).
151. Krauskopf, J., Light distribution in human retinal images, *J Opt Soc Am*, 52: 1046-1050 (1962).
152. Krauskopf, J., Further measurements of human retinal images, *J Opt Soc Am*, 54: 715-716 (1964).
153. Krauskopf, J., Some experiments with a photoelectric ophthalmoscope, in *Performance of the Eye at Low Luminances* (Ed., M. A. Bouman and J. J. Vos), 171-181, Excerpta Medica Foundation, NY (1966).
154. Kravtsov, A. B., et al., Role of the spatial coherence of a light source in visual reception, *Nerv Sist*, 11: 43-44 (1970).
155. Kumbar, M., and Bettelheim, F. A., Cornea model: light-scattering patterns from a two-dimensional nonrandom assembly of anisotropic rods, *Polymer Journal*, 7(4): 449-459 (1975).
156. Langer, H., *Biochemistry and physiology of visual pigments*, Springer-Verlag, NY (1973).
157. LaVail, M. M., Circadian nature of rod outer segment disc shedding in the rat, *Invest Ophthalmol*, 19(4): 407-411 (1980).
158. LeGrand, Y., Recherches sur la diffusion de la lumiere dans l'oeil humain, *Revue d'Optique*, 12: 201-214, 241-266 (1937).
159. LeGrand, Y., *Light, Colour, and Vision*, Chapman and Hall, Ltd. London (1957).
160. LeGrand, Y., *Form and Space Vision*, Indiana University Press, Bloomington (1967).
161. Lele, P. P., and Weddell, G., The relationship between neurohistology and corneal sensibility, *Brain*, 79: 119 (1956).
162. Le Noble, J., and Le Grand, Y., L'Absorption due Cristallin dans L'Infrarouge, *Rev D'Opt*, 32: 641-648 (1953).
163. Leure-duPree, A., Ultrastructure of the pigment epithelium in the domestic sheep, *Am J Ophth*, 65: 383-398 (1968).
164. Liebman, P. A., and Entine, G., Lateral diffusion of visual pigment in photoreceptor disk membranes, *Science*, 185: 457-459 (August 1974).

Laser Hazards Bibliography

165. Lindstrom, J. I., Scattering of light from the rabbit's cornea, Report 11-29 (1973) School of El Eng Chalmers Univ of Technology Goteborg, Sweden.
166. Loomis, J. M., Complementary afterimages and the unequal adapting effects of steady and flickering light, J Opt Soc Am, 68(3): 411-417 (1978).
167. Lotmar, W., and Lotmar, T., Peripheral astigmatism in the human eye. experimental data, and theoretical model predictions, J Opt Soc Am, 64(6): 510-513 (April 1974).
168. Lowry, O. H., Roberts, N. R., and Lewis, C., The quantitative histochemistry of the retina, J Biol Chem, 220: 37-51 (1938).
169. Ludvigh, E., and McCarthy, E. F., Absorption of visible light by the refractive media of the human eye, Arch Ophth, 20: 37-51 (1938).
170. Lukiesh, M., and Moss, F. K., The Science of Seeing, D. Van Nostrand Company, NY (1937).
171. MacLeod, D. I. A., and Hayhoe, M., Three pigments in normal and anomalous color vision, J Opt Soc Am, 64(1): 92-96 (January 1974).
172. Maher, E. F., Transmission and absorption coefficients for ocular media of the rhesus monkey, USAF School of Aerospace Med, Brooks AF Base, TX, Report SAM-TR-78-32 (1978).
173. Mannagh, J., Dharmendra, V. A., and Irvine, A. R., Jr., Tissue culture of human retinal pigment epithelium, Invest Ophth, 12(1): 52-64 (1973).
174. Marshall, J., and Ansell, P., Membranous inclusions in the retinal pigment epithelium - phagosomes and myeloid bodies, J Anat, 110: 91-104 (1971).
175. Mathis, W., and Bourassa, C. M., Fusion and nonfusion as factors in aversion to high luminance, Vis Res, 8: 1501-1506 (1968).
176. Mellerio, J., Light absorption and scatter in the human lens, Vis Res, 11(2): 129-141 (February 1971).
177. Mershon, D. H., and Amerson, T. L., Stability of measures of the dark focus of accommodation, Invest Ophthalmol Vis Sci, 19: 217-221 (1980).
178. Miller, D., and Lazenby, G. W., Glare sensitivity in corrected aphakes, Ophthalmic Surg, 8(6): 54-57 (1977).

Laser Hazards Bibliography

179. Miller, W. H., Receptor-optic waveguide effects, Invest Ophth, 13(8): 556-559 (August 1974).
180. Miller, W. H., and Cawthon, D. F., Pigment granule movement in limulus photoreceptors, Invest Ophth, 13(5): 401-405 (May 1974).
181. Miller, W. H., and Snyder, A. W., The tiered vertebrate retina, Vision Res, 17: 239-255 (1977).
182. Millodot, M., and Lamont, A., Refraction of the periphery of the eye, J Opt Soc Am, 64(1): 110-111 (January 1974).
183. Mitchell, D. E., and Rushton, W. A. H., Visual pigments in dichromates, Vis Res, 11: 1033-1043 (1971).
184. Mitchell, D. E., and Rushton, W. A. H., The red/green pigments of normal vision, Vis Res, 11: 1045-1056 (1971).
185. Moon, P., and Spencer, D. E., On the Stiles-Crawford effect, J Opt Soc Am, 34: 319-329 (1944).
186. Nachmias, J., Two dimensional motion of the retinal image during monocular fixation, J Opt Soc Am, 49(9): 901-908 (1959).
187. Nachmias, J., Determiners of the drift of the eye during monocular fixation, J Opt Soc Am, 51(7): 761-766 (July 1961).
188. Nachmias, J., Brightness and visual acuity with intermittent illumination, J Opt Soc Amer, 48(10): 726-730 (1958).
189. von Norren, D., and Padmos, P., Cone dark adaptation: the influence of halothane anesthesia, Invest Ophth, 14(3): 212-227 (March 1975).
190. Ogilvie, J. C., Ultraviolet radiation and vision, Arch Ophth, 50: 748-763 (1953).
191. Ogilvie, J. C., and Ryan, J. E., Threshold sensitivity to light measured with an extraneous ultraviolet source in the visual field, J Opt Soc Am, 45(3): 206-209 (1955).
192. Ogle, K. N., Blurring of retinal image and foveal contrast thresholds of separated point light sources, J Opt Soc Am, 52: 1035-1039 (1962).
193. Ohzu, H., and Enoch, J. M., Optical modulation by the isolated human fovea, Vis Res 12: 245-251 (1972).

Laser Hazards Bibliography

194. Palmer, K. E., and Williams, D., Optical properties of water in the near infrared, *J Opt Soc Am*, 64(8): 1107-1110 (August 1974).
195. Pitts, D. G., Transmission of the visible spectrum through the ocular media of the bovine eye, *Am J Opt & Arch Am Acad Opt*, 36: 289-298 (1959).
196. Pomerantzeff, O., Kaneko, H., Donovan, R. H., Chepens, C. L., and McMeel, J. W., Effect of the ocular media on the main wavelengths of argon laser emission, *Invest Ophth*, 15(1): 70-77 (January 1976).
197. Porter, F., and Yamada, E., Studies on the endoplasmic reticulum, *J Biophys Biochem Cytol*, 8: 181-205 (1960).
198. Prince, J. H., Spectral absorption of the retina and choroid from 340-1700 um, Publ 14, Institute for Research in Vision, Ohio State Univ (1962).
199. Pritchard, R. M., Stabilized images on the retina, *Sci Am*, 204(6): 72-78 (June 1961).
200. Randall, H. G., Brown, D. J., and Sloan, L. L., Peripheral visual acuity, *Arch Ophth*, 75: 500-504 (1966).
201. Ratliff, F., and Riggs, L. A., Involuntary motions of the eye during monocular fixation, *J Exp Psychol*, 40(6): 687-701 (December 1950).
202. Reeves, P., The response of the average pupil to various intensities of light, *J Opt Soc Am*, 4: 35-43 (1920).
203. Riggs, L. A., and Ratliff, F., Coordination of the eyes in maintaining fixation, *Am Psych*, 5: 260 (1950).
204. Riggs, L. A., Armington, J. C., and Ratliff, F., Motions of the retinal image during fixation, *J Opt Soc Am*, 44(4): 315-321 (April 1954).
205. Robertson, C. W., and Dudley, W., Lambert absorption coefficients of water in the infrared, *J Opt Soc Am*, 61(1): 1316-1320 (1971).
206. Rohler, R., Die abbildungseigenschaften der augenmedien, *Vis Res*, 2: 391-429 (1962).
207. Rohler, R., and Hilz, R., Physical and physiological factors in visual modulation transfer, in *Performance of the Eye at Low Luminances* (Ed., M. A. Rouman and J. J. Vos) 105-117, Excerpta Medica Foundation, NY (1966).
208. Rosenblum, R. A., Electoretinographic evaluation of the Bunsen-Roscoe law for the human eye at high energy levels, *Invest Ophthal*, 10: 904-910 (1971).

Laser Hazards Bibliography

209. Ross, K. S., and Macri, F. J., The concentration of ascorbic acid in the posterior and anterior chambers of the Rhesus monkey (Malaca Mulatta), Invest Ophth, 14(12): 942-944 (December 1975).
210. Ruddock, K. H., The effect of age upon colour vision II. Changes with age in light transmission of the ocular media, Vis Res, 5: 47-58 (1964).
211. Rushton, W. A. H., The rhodopsin density in the human rods, J Physiol, 134: 30-46 (1956).
212. Rushton, W. A. H., The difference spectrum and the photosensitivity of rhodopsin in the living human eye, J Physiol, 132: 11-29 (1956).
213. Rushton, W. A. H., and Gubisch, R. W., Glare: its measurement by cone threshold and by the bleaching of cone pigments, J Opt Soc Amer, 56: 104-110 (1966).
214. Rusk, A. N., Williams, D., and Querry, M. R., Optical constants of water in the infrared, J Opt Soc Am, 61: 895-903 (July 1971).
215. Safir, A., and Hymans, L., Distribution of cone orientations as the explanation of the Stiles-Crawford effect, J Opt Soc Am, 59(6): 757 (June 1969).
216. Sagan, W., Attenuation of continuous wave laser radiation, Am J Opt & Arch Am Acad Opt, 48: 219-223 (March 1971).
217. Said, F. S., and Sawires, W. S., Age dependence of changes in pupil diameter in the dark, Optica Acta, 19(5): 359-361.
218. Said, F. S., and Weale, R. A., The variation with age of the spectral transmissivity of the living human crystalline lens, Gerontologia, 3: 213-231 (1959).
219. Salomon, F., Spectral transmission of the lens, Rev Opt (Theor Instr), 29: 632-647 (1950).
220. Salomon, F., L'absorption selective de la lumiere par le cristalin, Rev Opt (Theor Instr), 29: 632-647 (1950).
221. Schute, C. C., Haidinger's brushes and predominant orientation of collagen in corneal stroma, Nature, 250: 163-164 (12 July 1974).
222. Semmlow, J., and Stark, L., Pupil movements to light and accommodative stimulation: A comparison study, Vis Res, 13: 1087-1100 (1973).

Laser Hazards Bibliography

223. Sheard, C., Dark adaptation: some physical, physiological, clinical, and aeromedical considerations, *J Opt Soc Am*, 34(8): 464-508 (August 1944).
224. Shearer, A. C., Morphology of the isolated pigment particle of the eye by scanning electron microscopy, *Exp Eye Res*, 8: 122-126 (1969).
225. Sinclair, D. C., Demonstration of chromatic aberration in the eye using coherent light, *J Opt Soc Am*, 55: 756-757 (May 1965).
226. Sliney, D. H., Wangemann, R. T., Franks, J. K., and Wolbarsht, M. L., Visual sensitivity of the eye to infrared laser radiation, *J Opt Soc Am*, 66(4): 339-341 (1976).
227. Smirnov, M. S., Measurement of wave aberration in the human eye, *Biophys*, 6: 652 (1961).
228. Smith, R. C., and Tyler, J. E., Optical properties of clear natural water, *J Opt Soc Am*, 57(5): 589-601 (May 1967).
229. Snyder, A. W., Light absorption in visual photoreceptors, *J Opt Soc Am*, 64(2): 216-230 (February 1974).
230. Snyder, A. W., and Pask, C., The Stiles-Crawford effect-explanation and consequences, *Vis Res*, 13: 1115-1137 (1973).
231. Spitznas, M., Morphogenesis and nature of the pigment granules in the adult human retinal pigment epithelium, *Zeitschrift Fur Zellforschung und Mikroskopische Anatomie*, 122: 378-388 (1971).
232. Steinman, R. M., Haddad, G. M., Skavenski, A. A., and Wyman, D., Miniature eye movement, *Science*, 181: 810-819 (August 1973).
233. Stiles, W. S., The effect of glare on the brightness difference threshold, *Proc Roy Soc (London)*, B104: 322-350 (1929).
234. Stiles, W. S., and Wyszecki, G., Colour-matching data and the spectral absorption curves of visual pigments, *Vis Res*, 14: 195-207, Pergamon Press (1974).
235. Stiles, W. S., and Crawford, B. H., The effect of a glaring light source on extra foveal vision, *Proc R Soc B*, 122: 255-280 (1937).
236. Stiles, W. S., and Crawford, B. H., The luminous efficiency of rays entering the pupil at different points, *Proc Roy Soc*, B112: 428-450 (1933).
237. Stone, W. L., Farnsworth, C. C., and Dratz, E. A., A reinvestigation of the fatty acid content of bovine, rat and frog retinal rod outer segment, *Exp Eye Res*, 28: 387-397 (1979).

Laser Hazards Bibliography

238. Stuck, B. E., Talsma, D. M., and Beatrice, E. S., Vitreal syneresis in Rhesus monkeys, *Inv Ophthal and Vis Sci*, 16(11): 1068-1070 (1977).
239. Swann, D. A., Constable, I. J., and Gaulfield, J. B., Vitreous structure IV, chemical composition of the insoluble residual protein fraction from the rabbit vitreous, *Invest Ophth*, 14(8): 613-616 (August 1975).
240. Tamai, M., and Chader, G. J., The early appearance of disc shedding in the rat retina, *Invest Ophth Vis Sci*, 18(9): 913-917 (1979).
241. Tamai, M., Teurstein, P., Goldman, A., O'Brien, P., and Chader, G., The pineal gland does not control rod outer segment shedding and phagocytosis in the rat retina and pigment epithelium, *Invest Ophth Visual Sci*, 17: 558-562 (1978).
242. Tanaka, T., and Ishimoto, C., In vivo observation of protein diffusivity in rabbit lenses, *Inv Ophthal and Vis Sci*, 16(2): 135-140 (1977).
243. Taniguchi, Y., Ultrastructure of pigment granules of retinal epithelium, *Am J Ophth*, 48: 221-230 (1959).
244. Tannenbaum, P. M., Spectral shaping and waveguide modes in retinal cones, *Vis Res*, 15: 591-593 (1975).
245. Thoss, F., and Bourzina, S., The influence of adaptation and field area on the exponents of Stevens' Power Functions at the light reaction of human pupil, *Vis Res*, 16: 317-320 (1976).
246. Tso, M. O. M., and Friendman, E., The retinal pigment epithelium growth and development, *Arch Ophth*, 80: 214-216 (1968).
247. Twersky, V., Transparency of pair-correlated, random distributions of small scatterers, with applications to the cornea, *J Opt Soc Am*, 65(5): 524-530 (May 1975).
248. Van Buskirk, C., Wolbarsht, M. L., and Stecher, K., Jr., The nonnervous causes of normal physiologic tremor, *Neurology*, 16: 217-21 (1966).
249. Van den Brink, G., Measurements of the geometrical aberrations of the eye, *Vis Res*, 2: 233-244 (1962).
250. Van den Brink, G., Variation of integrative actions in the retinal system an adaptational phenomenon, *J Opt Soc Am*, 44: 616-620 (1954).
251. Van Liempt, J. A. M., and De Vriend, J. A., Pupillenmessungen Bei Monochromatischem Licht, *Physica*, 7: 10 (December 1940).

Laser Hazards Bibliography

252. Van Nes, F. L., and Bouman, M. A., The effects of wavelength and luminance on visual modulation transfer, in *Performance of the Eye at Low Luminances* (Ed., M. A. Bouman and J. J. Vos), 183-192, Excerpta Medica Foundation, NY (1966).
253. Van Nes, F. L., and Bouman, M. A., Spatial modulation transfer in the human eye, *J Opt Soc Am*, 57: 401-406 (1967).
254. Vento, R., and Cacioppo, F., The effect of retinol on the lysosomal enzymes of bovine retina pigment epithelium, *Exp Eye Res*, 15: 43-49 (1973).
255. Verheijen, F. J., A simple after image method demonstrating the involuntary multidirectional eye movements during fixation, *Optica Acta*, 8(4): 309-311 (October 1961).
256. von Helmholtz, H., *Handbuch der physiologischen Optik*, I. 3. Aufl: 157, Ergantz and herausgegeben von W. Nagel, Hamburg, Leipzig: Voss (1909).
257. Van Meeteren, A., Calculations on the optical modulation transfer function of the human eye for white light, *Optica Acta*, 21: 395-412 (1974).
258. Van Norren, D., and Vos, J. J., Spectral transmission of the human ocular media, *Vis Res*, 14: 1237-1244 (1974).
259. Vos, J. J., Contribution of the fundus oculi to entoptic scatter, *J Opt Soc Am*, 53: 1449-1451 (December 1963).
260. Vos, J. J., and Bouman, M. A., Contribution of the retina to entopic scatter, *J Opt Soc Am*, 54: 95-100 (1964).
261. Vos, J. J., et al., Absolute spectral reflectance of the fundus oculi, *J Opt Soc Am*, 55: 573 (May 1965).
262. Vos, J. J., and Boogaard, J., Contribution of the cornea to entoptic scatter, *J Opt Soc Am*, 53: 869-873 (1963).
263. Vos, J. J., Walraven, J., and von Meeteren, A., Light profiles of the foveal image of a point source, *Vis Res*, 16: 215-219 (1976).
264. Vos, J. J., Lazet, A., and Bouman, M. A., Visual contrast thresholds in practical problems, *J Opt Soc Am*, 46: 1065-1068 (1956).
265. Wagman, I. H., and Nathanson, L. M., Influence of intensity of white light upon pupil diameter of the human and of the rabbit, *Proc Soc Exp Biol*, 49: 466-470 (1942).
266. Wald, G., and Griffin, D. R., The change in refractive power of the human eye in dim and bright light, *J Opt Soc Am*, 37: 321-336 (1947).

Laser Hazards Bibliography

267. Wald, G., Brown, P. K., and Gibbons, I. R., The problem of visual excitation, *J Opt Soc Am*, 53: 20-35 (1963).
268. Wald, G., Alleged effects of the near ultraviolet on human vision, *J Opt Soc Am*, 42: 171-177 (1952).
269. Walraven, J., Spatial characteristics of chromatic induction: the segregation of lateral effects from straylight artifacts, *Vision Res*, 13: 1739-1753 (1973).
270. Walraven, P. L., and Leebeck, H. J., Foveal sensitivity of the human eye in the near infrared, *Opt Soc Am J*, 53: 765-772 (1963).
271. Webber, R. B., and Daroff, R. B., The metrics of horizontal saccadic eye movements in normal humans, *Vis Res*, 11: 921-928, Pergamon Press (1971).
272. Webber, R. B., and Daroff, R. B., Corrective movements following refixation saccades: type and control system analysis, *Vis Res*, 12: 467-475, Pergamon Press (1972).
273. Westheimer, G., Retinal light distribution for circular apertures in maxwellian view, *J Opt Soc Amer*, 49(1): 41-49 (1959).
274. Westheimer, G., Optical and motor factors in the formation of the retinal image, *J Opt Soc Am*, 53(1): 86-93 (January 1963).
275. Westheimer, G., Image quality in the human eye, *Optica Acta*, 17(9): 641-648.
276. Westheimer, G., and Campbell, F. W., Light distribution in the image formed by the living human eye, *J Opt Soc Am*, 52: 1040-1045 (1962).
277. Wheelless, L. L., Cohen, G. H., and Boynton, R. M., Luminance as a parameter of the eye-movement control system, *J Opt Soc Am*, 57: 394-400 (1967).
278. Wiesinger, H., Schmidt, F. H., Williams, R. C., Tiller, C. O., Ruffin, R. S., Guerry, D., III, and Ham, W. T., The transmission of light through the rabbit eye, *Am J Ophth*, 42: 907-910 (1956).
279. Wijngaard, W., Bouman, M. A., and Budding, F., The Stiles-Crawford colour change, *Vis Res*, 14: 951-957 (1974).
280. Wijngaard, W., Mode interference patterns in retinal receptor outer segments, *Vis Res*, 14: 889-893, Pergamon Press (1974).
281. Williams, D. R., Visual consequences of the foveal pit, *Invest Ophthalmol Vis Sci*, 19(6): 653-666 (1980).

Laser Hazards Bibliography

282. Wolbarsht, M. L., The function of intraocular color filters, Fed Proc, 35(1): 44-49 (1976).
283. Wolf, E., Effects on visual thresholds of exposure to the radiation below 4000 angstroms, Trans Am Acad Opth, 53 (1949).
284. Yarbus, A. L., Eye movements and vision, 68-73, Plenum Press, NY (1967).
285. Young, R. W., and Bok, D., Participation of the retinal pigment epithelium in the rod outer segment renewal process, J Cell Biol, 42: 392-403 (1969).
286. Young, R. W., Renewal systems in rods and cones, Ann Opth, 5: 843-852 (August 1973).
287. Young, R. W., An hypothesis to account for a basic distinction between rods and cones, Vis Res, 11: 1-5 (1971).
288. Young, R. W., Visual cells and the concept of renewal, Invest Ophthalmol, 15(9): 700-725 (1976).
289. Young, R. W., The daily rhythm of shedding and degradation of rod and cone outer segment membranes in the chick retina, Inv Opthal and Vis Sci, 17(2): 105-116 (1978).
290. Zwas, F., and Alpern, M., The density of human rhodopsin in the rods, Vis Res, 16(2): 121-27 (February 1976).

V. LASER SAFETY.

1. American Conference of Governmental Industrial Hygienists, A guide for control of laser hazards, ACGIH, Cincinnati (1976).
2. American Conference of Governmental Industrial Hygienists, Threshold Limit Values of Physical Agents Adopted by ACGIH for 1978, ACGIH, Cincinnati, OH (1978).
3. American Conference of Governmental Industrial Hygienists, 1968, A guide for uniform industrial hygiene codes or regulations for laser installations, Cincinnati, OH, also discussed in Safety Standards, 17: 1-7 (November-December 1968), reprinted in Las Foc, 4(19): 50-57 (October 1968).
4. American Conference of Governmental Industrial Hygienists, 1968, Appendix C, Threshold Limit Values, Lasers, Transactions of the Thirtieth Annual Meeting of the American Conference of Governmental Industrial Hygienists, St Louis, MO, 186-187 (12-14 May 1968).

Laser Hazards Bibliography

5. American Conference of Governmental Industrial Hygienists, 1980, TLV's, Threshold Limit Values for Chemical Substances and Physical Agents in the Workroom Environment with Intended Changes for 1980, ACGIH, Cincinnati.
6. American National Standards Institute, The Safe Use of Lasers, Proposed Standard Z-136.1, ANSI, New York (1980).
7. Anderson, F. A., Sodium and mercury lamps, Nonionizing Radiation, Proc ACGIH Topical Symposium 11/26-28/1979, pp 239-244.
8. Anderson, F. A., Acute and long-term bioeffects and lamp safety, Ocular Effects of Nonionizing Radiation, Proc SPIE 229: 92-96, 1980.
9. Andersen, A. F., Biological bases for and other aspects of a performance standard for laser products, Bureau of Radiological Health, US Dept of Health, Education and Welfare, DHEW No. (FDA) 75-8004, July 1974 [updated as (FDA) 80..., 1980].
10. Anderson, W. J., and Gebel, R. K. H., Ultraviolet windows in commercial sunglasses, Appl Opt, 16(2): 515-517 (1977).
11. Anonymous, Uniformity in safety codes, Las Foc, 9: 42-44 (October 1973).
12. Anonymous, Safe use of lasers, Nat Saf News, 110(4): 57-65 (October 1974).
13. Anonymous, Laser eye safety: a hot topic, Occ Haz, 36(2): 42-43 (February 1974).
14. Anonymous, Laser Beam Precautions, RI, Med J, 56: 199-200 (1973).
15. Anonymous, General Safety Guide for Laser Users, United States Atomic Energy Commission, 194 (31 August 1964).
16. Anonymous, Guidelines for use in surveying laser operations, Ind Hyg News Report, 2(1): 1-4 (January 1968).
17. Anonymous, Hazards of lasers concern communications industry, Public Health Service, 83: 222-223 (March 1968).
18. Anonymous, Laser laboratories precautions, Am Assn Ind Nurses J, 14: 15-16 (April 1966).
19. Anonymous, Laser safety, Sci Res, 1(7): 26-30 (July 1966).
20. Anonymous, Laser safety training programs, Arch Environ Hlth, Chicago, 20: 202 (February 1970).

Laser Hazards Bibliography

21. Anonymous, Safety with lasers, Brit Med J, 3: 3-4 (July 1971).
22. Anonymous, Laser safety. Workshop summaries and recommendations, Eye Arch Environ Hlth, Chicago, 20: 197-199 (February 1970).
23. Anonymous, Laser systems, recent legislation, lasers and risks, Illinois Med J, 135: 85-86 (January 1969).
24. Anonymous, Laser safety. Workshop summaries and recommendations, Skin, Arch Environ Hlth, Chicago, 20: 200 (February 1970).
25. Anonymous, Laser Systems - Code of Practice, British Ministry of Aviation of the United Kingdom, Shell Mex House, London, England (1965).
26. Anonymous, Lasers and masers, Special Haz Bull Z-125, Association of Casualty and Surety Companies, NY (May 1963).
27. Anonymous, Lasers, Occ Hlth News, Seattle, University of Washington, School of Medicine, 5-6: 1-9 (May-June 1968).
28. Anonymous, Notes from British Radiological Protection Association symposium on lasers, Hlth Phys J, 13(3): 311 (March 1967).
29. Anonymous, Recommended Safeguards for Personnel Working With Lasers, Industrial Hygiene and Safety Administration Department, Bell Telephone Laboratories, Murray Hill, NJ (15 January 1965).
30. Anonymous, Safety measures in use of laser discussed at Cincinnati meeting, Hosp Trib, 2(9): 12 (22 April 1968).
31. Anonymous, Safety strategy for lasers, Occ Haz, 26: 24-25 (December 1964).
32. Anonymous, Supplementary status report on threshold limit values for control of hazards from certain forms of electromagnetic radiation, Ind Hyg Dig, 27: xii-xiii (September 1963).
33. Anonymous, Environmental contaminants from laser rise, Arch Environ Hlth, Chicago, 20: 201 (February 1970).
34. Anonymous, Hazards of laser beams, Ind Med Surg, 38: 73-78 (December 1969).
35. Anonymous, Burning questions on lasers, Bus Week, 44 (3 June 1967).
36. Aref'ev, I. M., Bibkova, A. V., and Khukhliev, K. K., Safety in working with medical laser equipment, Med Tekh, (2): 36 (1977).

Laser Hazards Bibliography

37. Armstrong, C. E., Intense Radiations and Ocular Exposure Hazards, Nat Saf News, 90-95 (October 1969).
38. Baier, E. J., Pennsylvania laser regulatory program, Am J Pub Hlth, 62: 514 (1972).
39. Baker, E. I., et al., Pennsylvania laser regulatory program, Am J Pub Health, 62: 514-515 (April 1972).
40. Ballereau, P., Laser radiological protection - a bibliographic review, CEA Centre d'Etudes de Bruyeres-le-Chatel, 92 Montrouge, France.
41. Bartleson, C. J., Retinal burns from intense light sources, Am Ind Hyg Assn, 29: 415-424 (1968).
42. Bauer, G., Hubner, H. J., and Sutter, E., Measurement of light scattered by eye protection filter, Appl Opt, 7(2): 325-329 (February 1968).
43. Bazzano, E., et al., Problems of the sanitary protection from the laser irradiation, Minerva Fisiconuci, 13: 32-45 (January-March 1969).
44. Beauchamp, I. L., and Pantell, R. H., Laser Safety Manual, Stanford University Health Physics and Industrial Hygiene Office, Stanford, CA (1967).
45. Bell, C. R., and Watts, A. J., Thermal limits for industrial workers, Brit J Ind Med, 28: 259-264 (1971).
46. Bell, H. E., and Townsend, A. R., The philosophy of a regulation, Arch Environ Hlth, 18: 416-423 (March 1969).
47. Blackman, C. P., Jr., Copeland, H. P., and DeRose, L. B., Evaluation and control of hazards in laser light shows, Hlth Physics 31(2): 189-190 (1976).
48. Blaney, L., Perspectives on lasers. The industrial nurse and occupational hazard control, Am Assn Ind Nurses J, 16: 13-17 (July 1968).
49. Bond, V. P., and Baker, L. A., Jr., Laser hazards, Naval Training Dev Ctr, Orlando, FL (AD387 317), Report NAVTRADEVCECEN-IH-151, Project MMP-7881-17 (January 1968).
50. Bonnet, M., Prevention of photocoagulation accidents in the treatment of disorders of the posterior pole, Annee Thre Clin Ophthalmol, 27: 265-281 (1976).
51. Borland, R. G., Safety with lasers, Proc Roy Soc Med, 66: 841-846 (September 1973).

Laser Hazards Bibliography

52. Borland, R. G., Determination of Safe Exposure Levels: Energy Correlates of Ocular Damage, NATO-AGARD Publication No. LS-79, pp 7-1 to 7-6 (1975).
53. Borland, R. G., and Nicholson, A. N., Laser safety codes, Proc R Soc Med, 66(9): 845-846 (September 1973).
54. Borland, R. G., Derivation of Safety Codes: UK Experience, NATO-AGARD Publication No. LS-79, pp 9-1 to 9-6 (1975).
55. Brennan, D. H., Ocular examination of laser workers and investigation of accidents, Proc R Soc Med, 66(9): 844-845 (September 1973).
56. Brennan, D. H., Ocular complications of industrial lasers, Proc R Soc Med, 69(1): 64-65 (1976).
57. Brown, J. L., The use of colored filter goggles for protection against flashblindness, USNADC, Aviation Medical Acceleration Laboratory, Report No. NADC-MA-5917 (October 1959).
58. Burch, J. M., and Gates, J. W. C., Lasers: practical control and protection in experimental laboratories, Ann Occ Hyg, Laser Safety Suppl: 65-73 (1967).
59. Burnett, W. D., Laser Eye and Skin Hazard Evaluations, Sandia Laboratories Research Report SC-RR-68-174 (May 1968).
60. Burnett, W. D., Laser Eye Hazard Evaluations, Sandia Laboratories Research Report SC-RR-67, 563: 1-18 (August 1967).
61. Burton, D. J., Laser safety, Nat Saf News, 100(3): 75-78 (September 1969).
62. Butman, A. B., Ermelaer, E. A., Zhokov, B. P., Kovatch, P. D., and Semene, A. I., On the effect of unfavorable factors in working with optic quantum generators, Voennomed - Zh, 7: 43-47 (July 1968).
63. Butman, A. B., and Zhuraiev, B. A., Characteristics of certain hygienic factors in working with optic quantum generators in the laboratory, Voennomed - Zh, 5: 47-51 (May 1968).
64. Bykhovskii, A. V., Laser safety standards in the USA, Gig Sanit, 3: 80-5 (Russian) (1976).
65. Campbell, F. W., The human eye as an optical filter, IEEE, 56(6): 1009-1014 (June 1968).

Laser Hazards Bibliography

66. Campbell, F. W., and Gubisch, R. W., Optical quality of the human eye, *J Physiol*, 186: 558-578 (1966).
67. Carpenter, J. A., Lehmillier, D. J., and Tredici, T. J., US Air Force permissible exposure levels for laser irradiation, *Arch Environ Hlth*, Chicago, 20: 171-176 (February 1970).
68. Charschan, S. S. (ed), *Lasers in Industry*, Rheinhold-Van Nostrand, NY (1972).
69. Charschan, S. S., The evaluation of laser machining and welding-with safety, *Ocular Effects of Nonionizing Radiation*, *Proc SPIE* 229: 145-153, 1980.
70. Chisum, G. T., Laser eye protection for flight personnel, Naval Air Dev Ctr, Aircraft and Crew System Tech Dir, Warminster, PA 18974, Report APN234000174W, Unit TK 101 (July 1978).
71. Cirincione, P. A., Biological effects of lasers: safety recommendations and a comment on the concept of ocular damage, TR NAVTRADEVCTR IH-15 (US Naval Training Device Center) (28 July 1964).
72. Clark, B. A. J., Infrared transmission limits for welding filters, *Australian J Optom*, 50: 154-161 (1967).
73. Clark, B. A. J., Welding filters and thermal damage to the retina, *Australian J Optom*, 51: 94-98 (1968).
74. Clarke, A. M., Ocular hazards from lasers and other optical sources, *Crit Rev Environ Control*, 1(3): 307-339 (November 1970).
75. Clarke, A. M., The hazards of viewing intense optical sources, *Surv of Ophthal*, 18(2): 140-143 (1973).
76. Cleuet, A., and Mayer, A., Risques lies a l'utilisation industrielle des lasers, *Cahiers de notes documaintaires*, 99(2): 207-222 (1980).
77. Coakley, J. M., and Mohan, K., Practical application of low power lasers, *Proc SPIE*, 92: 14-19 (1976).
78. Coblentz, W. W., and Stair, R., Correlation of the shade numbers and densities of eye-protective glasses, NBS Circular 471, National Bureau of Standards, Washington, DC (November 1930).
79. Coogan, P. S., Casey, H. W., and Bowman, R. W., Lasers: their technical, biologic and Air Force implications, School of Aerospace Med, Brooks AFB, TX, Report SAM-TR-Review-3-68 (May 1968).

Laser Hazards Bibliography

80. Courtney, R. W., Experience of the state of Illinois department of public health following the enactment of a laser system registration law, Radiol Hlth Data Report, 10: 421-426 (October 1969).
81. Crookes, W., The preparation of eye-preserving glass or spectacles, Phil Trans Roy Soc, p 204 (1914).
82. Dalziel, C. F., and Lee, W. R., Reevaluation of lethal electric currents, IEEE Transactions on Industry and General Applications IGA-4(5): 467-476 (September 1968).
83. Daniels, R. G., and Goldstein, B., Laser and masers-health hazards and their control, Fed Proc, 24: S-27-30 (1965).
84. Dettmers, D., Gefahr, Laser-licht, Amtlichen Mitteilungsblattes der Tiefbau-Berufsgenossenschaft, 3-5 (1968).
85. Dietz, P. H., Probability analysis of ocular damage due to laser radiation through the atmosphere, Appl Opt, 8: 371-375 (1969).
86. Dulberger, L. H., How dangerous are lasers? Electronics, 35(4): 27 (26 January 1962).
87. Dunskey, I. L., Fife, W. A., and Richey, E. O., Determination of Revised Air Force Permissible Exposure Levels for Laser Radiation, USAF School of Aerospace Medicine, Brooks AF Base, TX, Report No. SAM-TR-72-11 (April 1972).
88. Dunskey, I. L., Fife, W. A., and Richey, E. O., Determination of revised air force permissible exposure levels for laser radiation, J Am Ind Hyg Assn, 34: 235-240 (June 1973).
89. Ebberts, R. W., et al., Comparison of laser reflectivity from typical wall materials and paints, ARL-TR-69-113, US Air Force 6571, Aeromed Res Lab, 1-17 (October 1969).
90. Ebberts, R. W., Rodriguez, T. L., and Sproffske, J. E., Comparison of laser reflectivity from typical wall materials and paints, Am Ind Hyg Assn J, 31: 618-622 (September-October 1970).
91. Ehlers, G., Occupationally and therapeutically induced injuries through laser beams. Histological and cytophotometric studies, Hefte Unfallheilkd, 121: 509-513 (1975) (German).
92. Ehrenkranz, T. E., and Ettinger, H. J., Laser Safety Program, Los Alamos Scientific Laboratory, Report No. LA-3731-MS (1 September 1967).

Laser Hazards Bibliography

93. Ehrenkranz, T. E., and Schulte, H. F., Hazards From Masers, US Atomic Energy Commission, Los Alamos Scientific Laboratory, Report LADC-5764, Los Alamos, NM (1962).
94. Elder, R. L., Laser protective eyewear, Appl Opt, 13: 725 (1974), Science, 182: 1080 (1973).
95. Eleccion, M., Laser hazards, IEEE Spectrum, 10: 32 (1973).
96. Electronic Engineering Association, A General Guide to the Safe Use Of Lasers, Electronic Engineering Association, Berkeley Square House, Berkeley Square, London (September 1966).
97. Envall, K. R., Coakley, J. M., Peterson, R. W., and Landry, R. J., Preliminary evaluation of commercially available laser protective eyewear, US Dept of Health, Education, and Welfare, Bureau of Radiological Health, DHEW Publication (FDA) 75-8026: 32 (March 1975).
98. Envall, K. R., Laser protective eyewear study, in Hazzard, D. G. (ed.), Symposium on biological effects and measurements of light sources, Bureau of Radiological Health Report, QH 651 3983s, 87-90 (1976).
99. Envall, K. R., and Murray, R., Jr., Evaluation of commercially available laser protective eyewear, US Dept of Health, Education, and Welfare, Bureau of Radiological Health, DHEW Publication (FDA) 79-8086 (May 1979).
100. Feigen, L., Fine, S., Madkeen, D., and Klein, E., Hazards and Protective Devices Associated With 10.6 Radiation, NEREM Record, 5.2 (1967).
101. Fife, W. A., and Dobbs, M. B., Hazard Study of Six He-Ne Laser Boresights, USAF School of Aerospace Medicine, Brooks AF Base, TX, Report SAM-TR-72-5 (February 1972).
102. Fine, S., Hansen, W. P., Peacock, G. R., Biophysical Studies With The CO₂ Laser, NEREM Record, 166 (1966).
103. Fine, S., et al., Preliminary report of biologic testing of laser protective materials, Am J Ophth, 71: 828-834 (April 1971).
104. Fine, B. S., Zimmerman, L. E., CO₂ laser irradiation of the rabbit eye, clinical and histopathological observations, NEREM Record, 160 (1966).
105. Fine, S., Nowak, W., Hansen, W., Hergenrother, K., Scott, R. E., Donoghue, J., Klein, E., Measurements and hazards on interaction of laser radiation and biological systems, NEREM Record, paper H-5.5 (November 1964).

Laser Hazards Bibliography

106. Fine, S., Implementation of procedures and techniques for safe operation of lasers, in Proceedings of the First Conference on Laser Safety (Ed., G. W. Flint), 97-109, or 8400 Martin Company, Orlando, FL (1966).
107. Fine, S., Klein, E., Hardway, G., Scott, R. E., King, W., and Aaronson, C., The use of closed circuit television in laser investigations, J Invest Derm, 42(4): 289-291 (4 April 1964).
108. Flint, G. W., Derivation of Laser Eye Hazard Equations, Report OR 6672-1, Orlando, FL, Martin-Marietta Corporation (September 1965).
109. Flint, G. W., Derivation of laser hazard criteria, in Proceedings of the First Conference on Laser Safety (Ed., G. W. Flint), 63-84, or 8400, Martin Company, Orlando, FL (1966).
110. Flint, G. W., A Determination of Laser Eye Hazards, Report OR 8336, Martin-Marietta Corporation, Orlando, FL (May 1966).
111. Flood, J. M., The derivation of maximum permissible exposures to laser radiation, Ann Occ Hyg, Laser Safety Suppl 47-53 (1967).
112. Floriam, H. J., Laser and the eye -- occupational protection for physicians, Hefte Unfallheilkd, 121: 514-519 (1975) (German).
113. Fodor, W. J., Laser protection eyewear: preliminary report from colorfastness testing, School of Aerospace Med, Brooks AFB, TX, Report SAM-TR-76-45, Project 6301 (December 1976).
114. Fodor, W. J., Laser protection eyewear: an evaluation procedure, School of Aerospace Med, Brooks AFB, TX, Report SAM-TR-76-19, Project AF-6301 (May 1976).
115. Franks, J. K., and Sliney, D. H., Electrical hazards of lasers, E-O Systems Design, 7(12): 20-25 (December 1975).
116. Freasier, B. C., Army Laser Range Controls, Electronic Product Radiation and the Health Physicist BRH/DEP 70-26, 365-372, US Department of Health, Education, and Welfare, Bureau of Radiological Health, Rockville, MD (October 1970).
117. Freke, A. M., News from the United Kingdom laser systems, Health Physics J, 11: 229 (1965).
118. Friedman, A. E., and Graham, F. E., A screening program for personnel exposed to laser radiation, Ann Occ Hyg, 12: 219-221 (October 1969).

Laser Hazards Bibliography

119. Glatt, L. D., Laser and the industrial optometrist, J Am Opt Assn, 41: 72-78 (January 1970).
120. Glew, D. H., Jr., Military medical aspects of lasers, Mil Med, 131: 499-504 (June 1966).
121. Goldman, L., Laser light, a new visual art and a new occupational hazard, Arch Environ Hlth, 20: 145 (February 1970).
122. Goldman, L., and Hornby, P., The design of a medical laser laboratory, Arch Environ Hlth, 10: 493-497 (March 1965).
123. Goldman, L., Laser laboratory design, CRC Handbook of Laboratory Safety, Chemical Rubber Company, Cleveland, OH, 294-301 (1967).
124. Goldman, L., Plans and goals of the laser safety conference, Arch Environ Hlth, 20: 148 (February 1970).
125. Goldman, L., Progress in laser safety in Biomedical installation, Arch Environ Hlth, 20: 193-196 (February 1970).
126. Goldman, L., Protection of personnel operating lasers, Am J Med Electr, 2: 335-338 (1963).
127. Goldman, L., Rockwell, R. J., Jr., Epstein, R., Kinneman, R. E., Schechter, E., and Meyer, R., Protection of pilots against lasers, Aerospace Med, 40: 196-197 (February 1969).
128. Goldman, L., and Hornby, P., Personal protection from high energy lasers, Am Ind Hyg Assn J, 6: 553-557 (November-December 1965).
129. Goldman, L., and Hornby, P., Laser laboratory design and personnel protection from high energy lasers, J Chem Edu, 43: A335-347 (April 1966).
130. Goldman, L., Rockwell, R. J., Jr., Fidler, J. P., Altemeier, W. A., and Siler, V. E., Investigative laser surgery: safety aspects, Biomed Eng, 4: 415-418 (September 1969).
131. Goodwin, D. W., Safety with lasers, Brit Med J, 3: 370 (August 7, 1971).
132. Gorodetski, A. A., Kirichinski, B. R., Evdokimov, I. R., and Kolesnik, V. M., Some data on the biological activity and radiation protection of optical quantum generators, Gig Tr Prof Zabol, 12: 37-41 (January 1968) (Russian).
133. Gulacsik, C., Auth, D. C., and Silverstein, F. E., Ophthalmic hazards associated with laser endoscopy, Appl Opt, 18(11): 1816-1824 (1979).

Laser Hazards Bibliography

134. Hansen, W. P., Feigen, P. L., and Fine, S., A worst-case of continuous wave he-ne laser hazards to the eye, *Appl Opt*, 6: 11 (November 1967).
135. Harlen, F., The development of laser codes of practice and maximum permissible exposure levels, *Ann Occup Hyg*, 21(2): 199-211 (1978).
136. Harris, K. D., The electronic engineering association guide to the safe use of lasers, *Ann Occ Hyg, Laser Safety Suppl*: 61-64 (1967).
137. Harris, J. O., Jr., and Cutchen, J. T., Electrooptic Variable Density Optical Filter, Sandia Laboratories, Albuquerque, NM (1972).
138. Hartmann, B., and Kleman, B., Exposure limits for broadband 400-1400 nm radiation, *Ocular Effects of Nonionizing Radiation*, *Proc SPIE* 229: 105-114, 1980.
139. Hartridge, H., and Hill, A. V., The transmission of infra-red rays by the media of the eye and transmission of radiant energy by crookes and other glasses, *Proc Roy Soc London, Ser B*, 89: 58-76 (1917).
140. Hathaway, J. A., Medical surveillance requirements for nonionizing radiation workers, *Ocular Effects of Nonionizing Radiation*, *Proc SPIE* 229: 36-40, 1980.
141. Hathaway, J. A., Stern, N., Soles, E. M., and Leighton, E., Ocular medical surveillance on microwave and laser workers, *J Occ Med*, 19(10): 683-688 (1977).
142. Hepburn, V., Protective coating for nonfogging of water-soluble materials, *Appl Opt*, 19(10): 1566 (1980).
143. Hinricks, J. F., A bright spot in welding, *Nonionizing Radiation*, *Proc ACGIH Topical Symposium 11/26-28/1979*, pp 245-248.
144. Holst, G. C., Proper selection and testing of laser protective materials, *Am J Opt*, 50: 477-83 (June 1973).
145. Honey, R. C., Hammer safety, *J Occ Med*, 10: 245-246 (May 1968).
146. Huston, T. O., Human Biological Interactions with Laser Light, NELC 1502, San Diego, CA, Naval Electronics Laboratory Center (2 August 1967) (AD 660361).
147. Jones, A. E., Personnel protection from lasers and discussion of eye protective devices, in *Laser Eye Effects* (Ed., H. G. Sperling), 75-82, Armed Forces-National Research Council Committee on Vision, Washington, DC (1968).

Laser Hazards Bibliography

148. Jones, D. E., Comment on eye protection criteria for laser radiation, Hazards Control Quarterly Report No. 17, UCRL-12004, 37-38, University of California Lawrence Radiation Laboratory (April-June 1964).
149. Jones, D. E., and Montan, D. N., Eye protection criteria for laser radiation, Hazards Control Quarterly Report No. 16, UCRL-7811, 14-19, University of California Lawrence Radiation Laboratory (January-March 1964).
150. Jones, D. E., and Sykos, M., Investigations of laser eye protection, Hazards Control Quarterly Report No. 14, UCRL-7571, 24-26, University of California Lawrence Radiation Laboratory (July-September 1963).
151. Jones, H. H., AGGIH Activities, Nonionizing Radiation, Proc ACGIH Topical Symposium 11/26-28/1979, pp 263-264.
152. Kashuba, V. A., and Akifev, S. A., Working conditions and morbidity among workers preparing clock jewels using lasers and mechanical techniques, Gig Tr Prof Zabol, 1: 37-40 (1977) (English abstract, Russian).
153. Kashuba, V. A., Problems of labor hygiene in the utilization of Nd lasers in the manufacture of watches, Gig Sanit, 8: 29-32 (1976) (English abstract, Russian).
154. Kaufmann, E., Laser hazard to the human eye, Schweiz Arch, 36: 211 (1970).
155. Kaufman, J. C., Protect your sight from laser light, Microwaves, 5: 38-45 (April 1966).
156. Kent, P. R., and Smithwick, G. A., Safety in Laser Operations, New London, CT, US Naval Submarine Medical Center, Special Report No. 65-1 (July 1965).
157. Kinney, M. S., Occupational Laser Hazards, A Survey of the Literature, Autonetics Division of North American Aviation (1965) (AD 811429).
158. Klost, W., Safety measures in the use of laser rays, Zentralbl Arbeitsmed, 21: 105-111 (April 1971) (German).
159. Komarova, A. A., Motzerenkov, V. P., Skatskaia, G. K., Chemny, A. B., and Pivovarov, N. N., Action of reflected laser radiation on the eye, Vestn Oftalmol, (1): 46-50 (1978) (Russian).
160. Komarova, A. A., and Markova, T. F., Clinical physiological characteristics of the state of the nervous system in persons servicing optical quantum generators, Gig Tr Prof Zabol, 2: 8-12 (1976).

Laser Hazards Bibliography

161. Kouwenhoven, W. B., Jude, J. R., and Knickerhocker, G. G., Closed chest cardiac massage, JAMA 173, 1064-67 (9 July 1960).
162. Kupfer, E., Lasers in their significance for work hygiene, Z Gesamte Hyg, 19: 169-177 (March 1973).
163. LaNier, M., Rose, V. E., and Powell, C. H., A preliminary study of national health hazards from lasers, Am Ind Hyg Assn J, 31: 60-68 (January-February 1970).
164. Laser Institute of America, Laser Safety Guide, 31 pp, LIA, 4100 Executive Park Dr, Cincinnati, OH (1974).
165. Lehman, R., and Edmunds, H. D., A procedure for evaluating on nonionizing photocopier emissions, Occular Effects of Nonionizing Radiation, Proc SPIE 229: 155-160, 1980.
166. Lehman, R., and Edmunds, H. D., A procedure for evaluation of nonionizing photocopier emissions, Nonionizing Radiation, Proc ACGIH Topical Symposium 11/26-28/1979, pp 224-232.
167. Liska, M., Boecek, V., Vut, F. S., Riebel, O., and Vanysek, J., Laser rays and the eye, J Mech Opt, 11: 341-344 (1967) (Czeck).
168. Litwin, M. S., Fine, S., Klein, E., Fine, B. S., and Raemer, H., Hazards of laser radiation: mechanisms, control, and management, Am Ind Hyg Assn J, 28: 68-75 (1967).
169. Litwin, M. S., et al., Burn injury after carbon dioxide laser irradiation, Arch Surg, 98: 219-222 (February 1969).
170. Lubensky, T. Report on Laser Eye Damage Levels, Culver City, CA, Hughes Aircraft Company, 2720.01/02, 14 (August 1965).
171. Lutz, A. M., Trends in laser applications: public health implications, Am J Pub Health, 61: 2277-2281 (November 1971).
172. Lynch, O. D. T., Jr., Laser hazard evaluation and calculations, Electronic Product Radiation and the Health Physicist, BRH/DEP 70-26, US Department of Health, Education, and Welfare, Bureau of Radiological Health, Rockville, MD, 339-363 (October 1970).
173. MacFarlane, J. H., and Severance, J. E., The incredible laser, its power and hazards, Saf Maint, 130(4): 35-38 (1965).
174. Makous, W. L., and Gould, J. C., Vision and Lasers, the Effects of Lasers on the Human Visual System, With Some Implications for the Design of Laser Displays, IBM Research Report RC-1702, IBM Watson Research Center,

Laser Hazards Bibliography

Yorktown Heights, NY (October 28, 1966), and IBM J Res Develop, 12: 257 (1968).

175. Marich, K. W., Orenberg, J. B., Treytl, W. J., and Glick, D., Health hazards in the use of the laser microprobe for toxic and infective samples, Am Ind Hyg Assn J, 33(7): 488-491 (July 1972).

176. Marston, D. R., Laudieri, P. C., and Walker, P.D., Evaluation of Laser Eye Protectors Commercially Available, USAF School of Aerospace Medicine, Brooks AF Base, TX, Report No. SAM-TR-72-8 (July 1972).

177. Martin-Orlando, What You Should Know About Laser Safety, Martin-Marietta Corporation (September 1965, revised November 1965).

178. Martin-Marietta Corporation, Proceedings of the First Conference on Laser Safety, Orlando, FL, 146 (19-20 May 1966).

179. Matelsky, I., ANSI Z-311 Committee on the photobiological safety of lamps and lighting systems, Nonionizing Radiation, Proc ACGIH Topical Symposium 11/26-28/1979, pp 182-184.

180. Matelsky, I., The non-ionizing radiations, Ind Hyg Highlights (Ed., L. V. Cralley), Industrial Hygiene Foundation of America, Pittsburgh, 140-178 (1968).

181. Maver, H., Laser hazards and protection, Lijec Vjesn, 93: 1247-1249 (1971).

182. McBrien, T. H., Working safely with lasers, Saf Rev, 21(12): 4-6 (1964).

183. McGregor, R. R., Devices for eye protection, Laser Eye Effects (H. G. Sperling, ed), Armed Forces-National Research Council Committee on Vision, Washington, DC, 83-86 (1968).

184. McIntyre, C. M., Kerr, J. R., Lee, M. H., and Churnside, J. H., Enhanced variance of irradiance from target glint, Appl Opt, 18(19): 3211-3212 (1979).

185. McKeen, D., Fine, S., and Klein, E., Toxic and Explosive Hazards Associated with Lasers: Safety Note, Dept Biophysics and Biomedical Engr, Northeastern Univ, Boston, MA, Contract: DA-49-193-MD-2436, 2437, Office of The Surgeon General, NASA, NGR-22-011-007.

186. Meade, J. P., Laser safety, USAF Medical Service Digest, 20(5): 28-31 (May 1969).

Laser Hazards Bibliography

187. Mendoza, A., The ministry of aviation code of practice, Ann Occ Hyg, Laser Safety Suppl: 43-46 (1967).
188. Meyers, G. E., Operating lasers: Don't be half-safe, E-O Systems Design, 5(7): 30-34 (1973).
189. Michaelson, S. M., Standards for protection of personnel against nonionizing radiation, Am Ind Hyg Assn J, 35(12): 766-784 (December 1974).
190. Michaelson, S. M., Human exposure to nonionizing radiant energy potential hazards and safety standards, Proceedings IEEE, 60(4): 389-421 (April 1972).
191. Millicevic, S., et al., Effect of laser irradiation on the human body and protective measures, Vojnosanit Pregl, 30: 111-114 (March-April 1973).
192. Millicevic, S., et al., Protection against laser radiation under laboratory conditions, Arh Hig Rada Toksikol, 23: 317-26 (1972).
193. Milne, M. J. Laser injuries, JAMA, 240(4): 347 (1978).
194. Ministry of Technology (United Kingdom), Laser Systems Code of Practice (October 1969).
195. Miroshnichenko, A. B., Certain changes in the functional state of the body during servicing of the optical quantum generators, Gig Tr Prof Zabol, 18: 44-45 (April 1974).
196. Mohon, W. N., and Derderian, G. Laser safety goggles, Dept of the Navy, Washington, DC (DDC 110050), Report PAT-APPL-876-373 (February 1978).
197. Moore, R. T., The place of federal law in laser safety, Arch Environ Hlth, 20: 203-206 (February 1970).
198. Moss, C. E., An overview of the national institute for occupational safety and health (NIOSH) activity in nonionizing radiation, Occular Effects of Nonionizing Radiation, Proc SPIE 229: 89-91, 1980.
199. Moss, E., Radiation hazards associated with ultraviolet radiation curing processes, Nonionizing Radiation, Proc ACGIH Topical Symposium 11/26-27/1979, pp 204-210.
200. Myers, G. E., Operating lasers: Don't be half safe, Electro-Optical Systems Design, 5(7): 30-34 (July 1973).
201. Nicholson, A. N., Safety with lasers, NATO-AGARD Publication No. LS-79, pp 1-1 (1975).

Laser Hazards Bibliography

202. Novak, J. R., Dawson, W. R., and Windsor, M. W., Dynamic Filter Materials for 530 nm Radiation, TRW Systems Group, Redondo Beach, CA, 104 (1970) (AD 872285).
203. Oliver, R., Hazard control for helium-neon gas lasers, Brit J Radiol, 43: 909-910 (December 1970).
204. Ouchinnikov, B. V., Eye protection in laser operation, Sov J Opt Technol, 39: 348 (1972).
205. Pal'tsev, Iu. P., Baburina, E. B., Petrunic, E. Z., and Pechenina, L. P., Health state of workers handling lasers in a watch factory, Sov Med, 7: 119-122 (1977) (English abstract, Russian).
206. Parker, G. S., The current status of state regulation on laser radiation, Laser J, 2(3): 17-20, 33 (May-June 1972).
207. Peacock, G. R., and Van Nus, F., Laser properties and eye hazards, Am J Opt, 46: 202-213 (March 1969).
208. Peacock, G. R., Near Infrared Lasers: Safety Calculations, Report No. 761, US Army Medical Research Laboratory, Fort Knox, KY (26 December 1967).
209. Peacock, G. R., and Van Nus, F., Laser properties and eye hazards, Report No. 776, US Army Medical Research Laboratory, Fort Knox, KY, 21 (31 May 1968).
210. Peppers, N. A., Laser safety standards, Soc of Photo-Optical Engr J, 4: 111-115 (February-March 1966).
211. Pert, G. J., Laser satellite ranging as a hazard to overflying aircraft, Optics and Laser Techn, 7: 77-80 (1978).
212. Plumb, W. B., and Crilly, J. B., Eye Protective Devices, Technical Note N-643, US Naval Civil Engineering Lab (21 September 1964) (AD 450637).
213. Pollack, V. A., and Romanchuc, K. G., The risk of retina damage from high intensity light sources, Am Ind Hyg Assoc J. 41: 322-327, 1980.
214. Powell, C. H., and Goldman, L., Review of the proceedings of British conference on laser safety, Arch Environ Hlth, 17: 286-288 (August 1968).
215. Powell, C. H., and Brown, M. C., Laser problems as related to the nation's health, Arch Environ Hlth, 18(3): 391-393 (March 1969).
216. Powell, C. H., and Goldman, L., Recommendations of the laser safety conference, Arch Environ Hlth, 18: 448-452 (March 1969).

Laser Hazards Bibliography

217. Powell, C. H., et al., Recommendations of the laser safety conference, *Sightsav Rev*, 39: 30-32 (Spring 1969).
218. Powell, C. H., Bell, H. E., Rose, V. E., Goldman, L., and Wilkinson, T. K., Current status of laser threshold guides, *Am Ind Hyg Assn J*, 31: 485-491 (July-August 1970).
219. Powell, C. H., Recommendations of the second international laser safety conference, *Arch Environ Health*, 20: 207-211 (February 1970).
220. Price, W. F., Lasers and Laser Safety Survey Review, 22: 173 (July 1974).
221. Rampal, V. V., Nomographic determination of safety factor for protection of eye against laser radiation, *Inst Telecomm Eng*, 16: 325 (1970).
222. Rich, J., The biological effects of intense light, *Ann Occ Hyg, Laser Safety Suppl*: 13-22 (1967).
223. Righi, E., and di Pofi, M., Aspects of industrial hygiene in occupational exposure to the hazards of laser light, *Ann Ist Surer Sanita*, 13(1): 67-84 (1977) (English abstract, Italian).
224. Rockwell, J. R., Lasers in art and entertainment, Nonionizing Radiation, *Proc ACGIH Topical Symposium 11/26-28/1979*, pp 234-238.
225. Rockwell, R. J., Wilson, R. M., Jander, S., Dreffer, R., Final Progress Safety Report on Occupational Hazards of Laser Material Processing, National Institute of Occupational Safety and Health, Grant No. OH 00371, Cincinnati, OH, 36 pp (October 1972 - January 1975).
226. Rockwell, R. J., Wilson, R. M., Jander, S., and Dreffer, R., Occupational hazards of laser material processing, Report: College of Medicine of the University of Cincinnati, Report 0859, Grant Number R01 OH 00371, National Institute of Occ Safety & Health, Cincinnati (May 1976).
227. Rutgers, G. A. W., Protective glasses for welding, *Documenta Ophth*, 4: 320-325 (1950).
228. Schlickman, J. J., and Kingston, R. H., The dark side of the laser, *Electronics*, 93-98 (19 April 1965).
229. Schreibeis, W. J., Laser eye protection goggles based on manufacturer's information, *Am Ind Hyg Assn J*, 29: 504 (1968).
230. Sherr, A. E., Tucker, R. J., and Greenwood, R. A., New plastics absorb at laser wavelengths, *Las Foc*, 5(9): 46-48 (September 1969).

Laser Hazards Bibliography

231. Seltzer, J. E., Flow of specular points on a random wave-like surface, *J Opt Soc Am*, 63(7): 813-819 (July 1973).
232. Semenov, A. I., Effects of laser irradiation on the body and preventive measures, *Gig Tr Prof Zabol*, 8: 1-6 (1976) (English abstract, Russian).
233. Setter, L. R., Snively, D. R., Solem, D. L., and Van Wye, R. F., Regulations, standards, and guides for microwaves, ultraviolet radiation, and radiation from lasers and television receivers-an annotated bibliography, *Environ Hlth Ser (Radiol Hlth)*, 35: 1-77 (April 1969).
234. Sherr, A. E., Spector, R. H., and Tucker, R. J., Adhesive films for laser eye protection, American Cyanamid Co., Bound Brook, NY, Contract F41609-72-C-0052, Project AF-7784 (October 1973).
235. Shipp, L. M., Electronics and medicine, *J Occ Med*, 7: 423-430 (September 1965).
236. Sliney, D. H., Introduction to the optical spectrum, *Ocular Effects of Nonionizing Radiation*, Proc ACGIH Topical Symposium 11/26-28/1979, pp 123-128.
237. Sliney, D. H., and Marshall, W. J., Analyzing the hazards of broadband optical sources, *Ocular Effects of Nonionizing Radiation*, Proc SPIE 229: 72-79, 1980.
238. Sliney, D. H., Laser Protective Devices, NATO-AGARD Publication No. LS-79, pp 11-1 to 11-11 (1975).
239. Sliney, D. H., Derivation of Safety Codes: US Experience, NATO-AGARD Publication No. LS-79, pp 8-1 to 8-13 (1975).
240. Sliney, D. H., The safety aspects of atmospheric transmission of lasers, *Ann NY Acad Sci*, 267: 366-372 (1976).
241. Sliney, D. H., The development of laser safety criteria-biological considerations, in *Laser Applications in Medicine and Biology* (Ed., M. L. Wolbarsht), Plenum Press, NY, 163-238 (1971).
242. Sliney, D. H., Laser radiation viewed as a point source or a diffuse source, *Electronic Product Radiation and the Health Physicist*, BRH/DEP 70-26, 329-337, US Department of Health, Education, and Welfare, Bureau of Radiological Health, Rockville, MD (October 1970).
243. Sliney, D. H., Laser Distance Measuring Equipment Used by US Army Topographic Command, US Army Environmental Hygiene Agency Special Study No. 42-073-71 (February-April 1971) (AD 729346).

Laser Hazards Bibliography

244. Sliney, D. H., Tveten, P. D., and Yacovissi, R., Optical Distance Measuring Equipment, AGA Model 4D Geodimeter, US Army Environmental Hygiene Agency Special Study No. 42-014-71 (February-April 1971) (AD 729345).
245. Sliney, D. H., and Palmisano, W. A., The evaluation of laser hazards, *Am Ind Hyg Assn J*, 29: 325-431 (September-October 1968).
246. Sliney, D. H., The amazing laser, *Trans of the 56th Nat Safety Congress, Chicago, National Safety Council*, 8: 38-44 (1968).
247. Sliney, D. H., and Freasier, B. C., The evaluation of optical radiation hazards, *Appl Opt*, 12(1): 1-24 (January 1973).
248. Sliney, D. H., Evaluating health hazards from military lasers, *J Am Med Assn*, 214(6): 1047-1054 (9 November 1970).
249. Sliney, D. H., Bason, F. C., and Freasier, B. C., The measurement of ultraviolet, visible, and infrared radiation, *Am Ind Hyg Assn J*, 32: 415-431 (July 1971).
250. Sliney, D. H., Evaluating hazards and controlling them, *Las Foc*, 5(15): 39-42 (August 1969).
251. Sliney, D. H., Laser hazards control in the laboratory and in the field, *Proceedings of the 13th Annual Technical Symposium of the Society of Photo-Optical Instrumentation Engineers, Redondo Beach, CA, Society of Photo-Optical Engineers* (1968).
252. Sliney, D. H., Laser safety considerations, *AMC Radiation Protection Symposium, Department of the Army*, 85-94 (1967).
253. Sliney, D. H., Laser protective eyewear, *Laser Applications in Medicine and Biology* (Ed., M. L. Wolbarsht), Plenum Press, NY, 2: (1974).
254. Sliney, D. H., Lasers in construction, *Nat Saf Cong Trans*, 8: 19-21 (1974).
255. Sliney, D. H., and Franks, J. K., Safety Rules and Recommendations, 1976 *Las Foc Buyers Guide*, 12(2): 189-192 (February 1976).
256. Sliney, D. H., and Yacovissi, R., Control of health hazards from airborne lasers, *Aviat Space Environ Med*, 46(5): 691-696 (May 1975).
257. Sliney, D. H., Vorpahl, K. W., and Winburn, D. C., Environmental health hazards from high-powered infrared laser devices, *Arch Environ Health*, 30(4): 174-179 (April 1975).

Laser Hazards Bibliography

258. Sliney, D. H., The merits of an envelope action spectrum for ultraviolet radiation exposure criteria, *Am Ind Hyg Assn J*, 33:644-653 (October 1972).
259. Sliney, D. H., Marshall, W. J., Krial, N. P., Franks, J. K., and Lyon, T. L., Laser hazard classification guide, USAEHA, Aberdeen Proving Ground, MD, for NIOSH, HEW Publication No. (NIOSH) 76-183, Div Biomed Behavioral Sci, Cincinnati, OH (July 1976).
260. Sliney, D. H., and Wolbarsht, M. L., Safety with lasers and other optical sources, Plenum, NY (1980).
261. Sliney, D. H., Marshall, W. J., Carothers, M. L., and Kaste, R. C., Hazard analysis of broad band optical sources, TG 085 US Army Environmental Hygiene Agency, Aberdeen Proving Ground, MD, available from NTIS as ADA 054-802/4GI (December 1977).
262. Smith, J. F., Murphy, J. J., and Eberle, W. J., Industrial Laser Safety Program Management System Products Division, IBM Corp, Poughkeepsie, NY (1975).
263. Snow, J. C., Norton, M. L., Saluja, T. S., and Estanislao, A. F., Fire hazard during CO₂ laser microsurgery of the larynx and trachea, *Anesth Analg (Cleve)*, 55(1): 146-7 (1976).
264. Solon, L. R., and Sims, S. D., Laser parameters for human viewing 1. an analysis of viewing direct and scattered laser radiation, Biorad Inc, AD 675 803 (August 1968).
265. Solon, L. R., Aronson, R., and Gould, G., Physiological implications of laser beams, *Science*, 134: 1506-1508 (1961).
266. Solon, L. R., and Sims, S. D., Fundamental physiological optics of laser beams, *Med Res Eng*, 9(3): 10-25 (June 1970).
267. Solon, L. R., Occupational safety with laser beams, *Arch Environ Health*, 6: 414-416 (1963).
268. Solon, L. R., The use of laser beams and their potential occupational hazards, *Ind Hyg Rev*, 5: 19-26 (May 1962).
269. Solon, L. R., Hazard considerations with laser (optical maser) devices, *J Am Soc Saf Eng*, 6-8 (December 1962).
270. Snow, J. C., Norton, M. L., Saluja, T. S., and Estanislao, A. F., Fire hazard during CO₂ laser microsurgery on the larynx and trachea, *Anesth Analg (Cleve)*, 55(1): 146-147 (1976).

Laser Hazards Bibliography

271. Specht, W. A., Laser safety hazards: problems solvable, Technical Paper MR77-983, Soc Manuf Eng, Dearborn, MI (1977).
272. Spencer, D. J., and Bixler, H. A., IR laser radiation eye protector, Rev Sci Instr, 43: 1545-6 (October 1972).
273. Starr, R. C., The light fantastic: lasers, hazards, controls, Safety Standards, 14: 7-12 (May-June 1965).
274. Stoll, A. M., and Chianta, M. A., Heat transfer through fabrics as related to thermal injury, Trans New York Acad of Sci, 33: 649-669 (1971).
275. Stone, H. A. G., Safety with lasers, Ordnance, 50: 315-318 (November-December 1965).
276. Straub, H. W., Protection of the human eye from laser radiation, Ann NY Acad Sci, 122: 773-776 (1965).
277. Straub, H. W., Laser eye protection in the USA, Die Berufsgenossenschaft Zeitschrift fur Unfallversicherung und Betriebssicherheit, 3: 83-87 (March 1970).
278. Straub, H. W., Protection of the human eye from laser radiation, Harry Diamond Laboratories Report TR-1153 (July 1963) (AD 415740).
279. Straub, H. W., Use of protective goggles in areas of laser radiation, Fed Proc, 24: S-78 - S-79 (1965).
280. Stuck, B. E., and Lund, D. J., Extrapolation of pulsed light data in scanned displays, SPIE Proc, 162: 107-111 (1978).
281. Swope, C. H., Protective devices in a laser environment, J Am Opt Assn, 41(1): 50-54 (January 1970).
282. Swope, C. H., and Koester, C. J., Eye protection against lasers, Appl Opt, 4(5): 523-525 (May 1965).
283. Swope, C. H., Design considerations for laser eye protection, Arch Environ Hlth, 20: 184-187 (February 1970).
284. Swope, C. H., The eye protection, Arch Environ Hlth, 18: 428-433 (March 1969).
285. Sykos, M., Safety considerations of lasers, J Am Soc Saf Eng (April 1962).
286. Sykos, M., Safety considerations of lasers, Hazards Control Quarterly Report No. 11, UCRL 7254, 6-16 (October-December 1962).

Laser Hazards Bibliography

287. Sykos, M., Safety considerations of lasers, J Am Soc Saf Eng, 14-18 (April 1963).

288. Tebo, E. J., Lasers introduce new safety problems, Saf Dig, AMCP 385-57, US Department of the Army (January 1964).

289. Tebrock, H. E., Young, W. N., and Machle, W., Laser-medical and industrial hygiene controls, J Occ Med, 5(12): 564-567 (December 1963).

290. Terrill, J. G., Jr., Adverse reactions due to occupational exposures, Arch Environ Hlth, 19: 265-272 (August 1969).

291. US Atomic Energy Commission Nevada Operations Office, Recommendations of the Ad Hoc Laser Committee, Standards for Laser Safety, USAEC Nevada Operations Office, Las Vegas (1967).

292. US Department of the Army, Regulation AR 40-46, Control of health hazards from lasers and other high intensity optical sources, Washington, DC (6 February 1974).

293. US Department of the Army and US Department of the Navy, Control of Hazards to Health from Laser Radiation, TB MED 279, NAVMED P-5052-35 (24 February 1969, revised 24 September 1974).

294. US Department of the Air Force, Laser Health Hazards Control, AFM 161-8, Washington, DC (April 1969 with changes September 1971 and November 1971).

295. US Department of the Air Force, Laser/Maser Hazards, AFR 161-24 (12 January 1967), and Letter, Safe Laser Radiation Exposure Levels, AFMSPAA Washington, DC (12 April 1968).

296. US Department of Labor, Safety and Health Regulations for Construction, Federal Register, Washington, DC, 36(75): (17 April 1971).

297. Van Pelt, W. F., Stewart, H. F., and Peterson, R. W., A safety oriented laser manual for science teachers, Electronic Product Radiation and the Health Physicist BRH/DEP 70-26, 385-389, US Department of Health Education and Welfare, Bureau of Radiological Health, Rockville, MD (October 1970).

298. Welsh, K. W., Miller, J. W., Kislin, B., Tredici, T. J., and Rahe, A. J., Ballistic impact testing of scratched and unscratched ophthalmic lens, USAF School of Aerospace Med, Brooks AF Base, TX, 51: 304 (1974).

299. Weston, B. A., Laser Systems-Code of Practice, Ministry of Technology Safety Services Organization, Station Square, Kent, England (October 1969).

Laser Hazards Bibliography

300. White, D. F., The control of the hazards from lasers, *Ann Occ Hyg, Laser Safety Suppl*: 55-60 (1967).
301. Wilkening, G. M., Commentary on the nonionizing radiations, *Ocular Effects of Nonionizing Radiation*, *Proc SPIE* 229: 41-44, 1980.
302. Wilkening, G. M., A commentary on laser-induced biological effects and protective measures, *Ann NY Acad Sci*, 168(3): 621-626 (February 1970).
303. Wilkening, G. M., Laser hazard control procedures, *Electronic Product Radiation and the Health Physicist*, BRH/DEP 70-26, 275-291, US Department of Health, Education, and Welfare, Bureau of Radiological Health, Rockville, MD (October 1970).
304. Wilkening, G. M., Eye, *Arch Environ Health*, 20: 197 (1970).
305. Williams, D. R., Some comments on the properties of absorptive lenses, *J Am Opt Assn*, 41(1): 82-91 (January 1970).
306. Winburn, D. C., The safety program for laser-fusion research at Los Alamos Scientific Laboratory, Submitted to the Laser Short Course, University of Cincinnati, Cincinnati, OH, LA-UR-73-933 (6-10 August 1973).
307. Winburn, D. C., Safety considerations in the laser research program at the Los Alamos Scientific Laboratory, *Ann NY Acad Sci*, 267: 135-151 (1976).
308. Winburn, D. C., Safety aspects of laser fusion research at the LASL, *Optics & Laser Technol*, 8(6): 265-268 (December 1976).
309. Winburn, D. C., Lightweight, comfortable prescription spectacles for use in laser laboratories, *LASL Mini-Review* (December 1977).
310. Winburn, D. C., Fast-pulse laser studies at Los Alamos scientific laboratory - an overview, *Electro-optical Systems Design*, (11): 19-22 (November 1977).
311. Wixom, C., and Sartwell, F., The laser's edge, *Job Saf & Health*, 2(12): 4-8 (December 1974).
312. Wolbarsht, M. L., and Sliney, D. H., The formulation of protection standards for lasers, *Lasers in Medicine and Biology* (Ed., M. L. Wolbarsht), II: 309-360, Plenum Press, NY (1974).
313. Worden, F. X., Roberts, W. C., and Dunn, J. P., Safety with the laser, *Nat Saf News*, 94(4): 20-27 (1966).

Laser Hazards Bibliography

314. Wyman, P. W., Laser radar eye hazard considerations, Appl Opt, 8(2): 383-392 (February 1969).
315. Wyman, P. W., Analysis of Laser-Radar Eye Hazard, NRL Report 6657, Washington, DC, Naval Research Laboratory, 22 (16 February 1968).
316. Zabetakis, M. G., Safety With Cryogenic Fluids, Plenum Press, NY (1967).
317. Zaret, M. M., Safeguarding lasers, Nat Saf News, 91(2): 22-25 (February 1965).
318. Zaret, M. M., The laser hazard, Arch Environ Hlth, 10: 629-630 (April 1965).
319. Zaret, M. M., Surveillance on microwave and laser workers, JOM, 20(5): 314-318 (1978).
320. Zweng, H. C., and Rose, H., Eye examination standards and treatment, Laser Eye Effects (H. G. Sperling, ed), 87-89, Armed Forces - National Research Council Committee on Vision, Washington, DC (1968).

VI. ATMOSPHERIC ATTENUATION OF LASER BEAMS.

1. Anonymous, Summary of Some Aspects of Atmospheric Propagation at 10.6 microns, Third DOD Conference on Laser Technology, Columbus, OH, Ohio State University, The Electronic Science Laboratory (April 1967).
2. Arnulf, A. J., Bricard, E., Cure, E., and Veret, C., Transmission by haze and fog in the spectral region 0.35 to 10 microns, J Opt Soc Am, 47: 419-498 (June 1957).
3. Bass, H. E., and Bauer, H. J., Kinetic model for thermal blooming in the atmosphere, Appl Opt, 12(7): 1506-1510 (July 1973).
4. Becker, R. A., Effects of atmospheric turbulence on optical instrumentation, IRE Trans Mili Electronics, Mil-5: 352-356 (October 1961).
5. Belen'kii, M. S., Boronoev, V. V., Gomboev, N. Ts., and Mironov, V. L., Measurements of atmospheric-turbulence-structure parameters using a space-limited laser beam, Optics Letters, 5(2): 67-69 (1980).
6. Beran, M. J., and Whitman, A. M., Free-space propagation of irradiance fluctuations and the forth-order coherence function, J Opt Soc Am, 64(12): 1636-1640 (December 1974).

Laser Hazards Bibliography

7. Beran, M. J., Propagation of a finite beam in a random medium, J Opt Soc Am, 60(4): 518-521 (April 1970).
8. Beran, M. J., and Whitman, A. M., Asymptotic theory for beam propagation in a random medium, J Opt Soc Am, 61(8): 1044-1050 (August 1971).
9. Bissonnette, L. R., Atmospheric scintillation of optical and infrared waves: a laboratory simulation, Appl Opt, 16(8): 2242-2251 (1977).
10. Bissonnette, L. R., and Wizinowich, P. L., Probability distribution of turbulent irradiance in a saturation regime, Appl Opt, 18(3): 1590-1599 (1979).
11. Bogoslovskij, A. I., Laser electroretinogram, Vestn Oftal'mol, 2: 3 (1972).
12. Born, G. K., Bogenberger, R., Erben, K. D., Frank, F., Mohr, F., and Sepp, G., Phase-front distortion of laser radiation in a turbulent atmosphere, Appl Opt, 14(12): 2857-2863 (December 1975).
13. Bouricius, G. M. B., and Clifford, S. F., Experimental study of atmospherically induced phase fluctuations in an optical signal, J Opt Soc Am, 60(11): 1484-1489 (November 1970).
14. Breig, E. L., Limitations on the atmospheric thermal effects for high-power CO₂ laser beams, J Opt Soc Am, 62(4): 518-528 (April 1972).
15. Brookner, E., Improved model for the structure constant variations with altitude, Appl Opt, 10(8): 1960-1962 (August 1971).
16. Brookner, E., Log-amplitude fluctuations of a laser beam, J Opt Soc Am, 61(5): 641 (May 1971).
17. Brown, W. P., Jr., Second moment of a wave propagating in a random medium, J Opt Soc Am, 61(8): 1051-1059 (August 1971).
18. Brown, W. P., Jr., Fourth moment of a wave propagating in a random medium, J Opt Soc Am, 62(8): 966-971 (August 1972).
19. Bruce, R., Mason, J., White, K., and Gomez, R. B., An estimate of the atmospheric propagation characteristics of 1.54 micron laser energy, ECOM-5185, 1-28 (March 1968).
20. Buck, A. L., The radiation pattern of a truncated gaussian aperture distribution, Proc of the IEEE, 55(3): 448-450 (March 1967).

Laser Hazards Bibliography

21. Buck, A. L., Effects of the atmosphere on laser beam propagation, Appl Opt, 6(4) (April 1967).
22. Bufton, J. L., Minott, P. O., and Fitzmaurice, M. W., Measurements of turbulence profiles in the troposphere, J Opt Soc Am, 62(9): 1068-1070 (September 1972).
23. Burch, D. E., Gryvnak, D. A., and Patty, R. R., Absorption of infrared radiation by CO₂ and H₂O. II. Absorption by CO₂ between 8000 and 10000 cm⁻¹ (1-1.25 microns), J Opt Soc Am, 58(3): 335-341 (1968).
24. Burke, J. J., Observations of the wavelength dependence of stellar scintillation, J Opt Soc Am, 60(9): 1262-1264 (September 1970).
25. Buser, R. G., and Rohde, R. S., Severe self-induced beam distortion in laboratory simulated laser propagation at 10.6 μ m, Appl Opt, 12(2): 205-211 (February 1973).
26. Buser, R. G., and Rohde, R. S., Transient thermal blooming of long laser pulses, Appl Opt, 14: 50 (January 1975).
27. Buser, R. G., Interferometric determination of the distance dependence of the phase structure function for near-ground horizontal propagation at 6328 Å, J Opt Soc Am, 61(4) (October 1971).
28. Calfee, R. F., and Gates, D. M., Calculated slant-path absorption and distribution of atmospheric water vapor, Appl Opt, 5: 287 (February 1966).
29. Calfee, R. F., Infrared absorption properties of atmospheric gases, J Quant Spectrosc Radiat Transfer, 6: 221-228.
30. Calfee, R. F., Anomalous dispersion calculated for water vapor, Appl Opt, 1: 1652 (August 1968).
31. Cantor, I., Atmospheric transmission from a 4- light source to a 2-receiver, Appl Opt, 12(7): 1482-1495 (July 1973).
32. Carlson, F. P., Application of optical scintillation measurements to turbulence diagnostics, J Opt Soc Am, 59(10): 1343-1347 (October 1969).
33. Chu, T. S., and Hogg, D. C., Effects of precipitation on propagation at 0.63, 3.5, and 10.6 μ m, Bell Sys Tech J, 47: 5 (May-June 1968).
34. Clemesha, B. R., Kent, G. S., and Wright, R. W. H., A Study of the Feasibility of Measuring Atmospheric Densities by Using a Laser - Search light Technique, AF-AFOSR-616-64 (May 1965) (AD 480201).

Laser Hazards Bibliography

35. Clifford, S. F., Bouricius, G. M. B., Ochs, G. R., and Ackley, M. H., Phase variations in atmospheric optical propagation, J Opt Soc Am, 61(10): 1279-1284 (October 1971).
36. Clifford, S. F., Temporal-frequency spectra for a spherical wave propagating through atmospheric turbulence, J Opt Soc Am, 61(10): 1285-1292 (October 1971).
37. Clifford, S. F., Ochs, G. R., and Lawrence, N. S., Saturation of optical scintillation by strong turbulence, J Opt Soc Am, 64(2): 148-154 (February 1974).
38. Clifford, S. F., Ochs, G. R., and Wang, T. I., Optical wind sensing by observing the scintillations of a random scene, Appl Opt, 14(12): 2844-2850 (December 1975).
39. Cohen, A., Horizontal visibility and the measurement of atmospheric optical depth of lidar, Applied Optics, 14: 2878-2881 (1975).
40. Collett, E., and Alferness, R., Depolarization of a laser beam in a turbulent medium, J Opt Soc Am, 62(4): 529-532 (April 1972).
41. Collins, S. A., Jr., A Qualitative Estimate of the Effects of Receiver Optics in Viewing Atmospheric Turbulence (Optical Radar Techniques), Ohio State University Research Fndn, Contr AF 33(657)-11195 (30 June 1965).
42. Collins, S. A., Jr., Description of Energy Transfer in Turbulent Air, Ohio State University, Tech Rpt 2156-6 (11 January 1968).
43. Consolini, A., Ronchi, L., and Moroder, E., Role of the outer scale of turbulence in atmospheric degradation of optical images, J Opt Soc Am, 63(10): 1246-1248 (October 1973).
44. Curcio, A., Evaluation of atmospheric aerosol particle size distribution from scattering measurements in the visible and infrared, J Opt Soc Am, 51: 548-551 (1961).
45. Curcio, A., and Durbin, K. A., Atmospheric Transmission in the Visible Region, NRL Report 5368, US Naval Research Laboratory, Washington, DC (1959).
46. Curcio, A., Knestrick, G. L., and Cosden, T. H., Atmospheric Scattering in the Visible and Infrared, NRL Report 5567, US Naval Research Laboratory, Washington, DC (1961).
47. Dabberdt, W. F., Slant-path scintillation in the planetary boundary layer, Appl Opt, 12(7): 1536-1542 (July 1973).

Laser Hazards Bibliography

48. Dabberdt, W. F., and Johnson, W. B., Analysis of multiwavelength observations of optical scintillation, *Appl Opt*, 12(7): 1544-1548 (July 1973).
49. Davidson, F., and Gonzales-del-Valle, A., Measurement of three-parameter log-normally distributed optical field irradiance fluctuations in a turbulent medium, *J Opt Soc Am*, 66(6): 655-663 (June 1975).
50. Davis, J. I., Consideration of atmospheric turbulence in laser systems design, *Appl Opt*, 5: 139-147 (January 1966).
51. Deirmendjian, D., The role of water particles in the atmospheric transmission of infrared radiation, *Royal Meteorol Soc Quart J*, 85: 414 (1960).
52. Deitz, P. H., Near-earth propagation of optical beams, *Lasers*, 15 (September-October 1967).
53. Deitz, P. H., Probability analysis of ocular damage due to laser radiation through the atmosphere, *Appl Opt*, 8: 371-375 (1969).
54. Deitz, P. H., Safety considerations in outdoor applications, *Laser Focus*, 6: 40 (1970).
55. Deitz, P. H., Optical method for analysis of atmospheric effects on laser beams, Memorandum Report No. 1840, US Army Ballistic Research Laboratories, 46 (July 1967).
56. Deitz, P. H., Optical method for analysis of atmospheric effects on laser beams, *Mod Opt* 757-774.
57. Deitz, P. H., Safety considerations in outdoor applications, *Las Foc*, 6(6): 40-43 (June 1970).
58. Deitz, P. H., Twelve Eye Safety Nomographs, Ballistic Research Laboratories, APG, also published in *Appl Opt*, 8: 2293-2295 (November 1969).
59. Deitz, P. H., and Evans, J. M., Holographic method of measuring scintillation effects, *Appl Opt*, 10(5): 1080-1082 (May 1971).
60. De Wolf, D. A., Strong irradiance fluctuations in turbulent air, III. Diffraction cutoff, *J Opt Soc Am*, 64(3): 360-365 (March 1974).
61. De Wolf, D. A., Angle-of-arrival difference spectrum of a simple interferometer in turbulent air, *J Opt Soc of Am*, 63(6): 657-660 (June 1973).

Laser Hazards Bibliography

62. De Wolf, D. A., Strong irradiance fluctuations in turbulent air: II. Spherical waves, J Opt Soc, 63(10): 1249-1253 (October 1973).
63. Dickson, L. D., Characteristics of a propagating gaussian beam, Appl Opt, 9(8): 1854-1861 (August 1970).
64. Dowling, J. A., and Livingston, P. M., Behavior of focused beams in atmospheric turbulence: Measurements and comments on the theory, J Opt Soc Am, 63(7): 846-858 (July 1973).
65. Downs, A. R., Atmospheric Transmission of Light for Clear Air and Fog in the Spectral Region 0.35 to 1.10 microns, BRL Memorandum Report No. 1561, RDT and E Project No. 1M523801A286, Weapon Systems Laboratory, Aberdeen Proving Ground (April 1964).
66. Dunkelman, L., Horizontal Attenuation of Ultraviolet and Visible Light by the Lower Atmosphere, NRL Report No. 4031 (10 September 1952) (AD 169364).
67. Edmonds, W. R., Isoline method of portraying atmospheric attenuation of laser radiation, Appl Opt, 14: 1263-1265 (1975).
68. Edmonds, W. R., Isoline approach to portraying atmospheric turbulence induced laser beam spread, Appl Opt, 16(6): 1606-1608 (1977).
69. Electro-Optical Systems, Inc., Laser Systems Study Part III, Effect of Clouds, 61 pp (December 1965) (AD 479487).
70. Elterman, L., Atmospheric Attenuation Model, 1964, in the Ultraviolet, Visible, and Infrared Regions for Altitudes to 50 km, AFCRL-64-740, Hanscom Field, MA (September 1964) (AD 479487).
71. Evers, H. B., Sepucha, R., and Whitney, C., Algebraic model for CW thermal blooming effects, Appl Opt, 18(15): 2638-2643 (1979).
72. Fante, R. L., Electric field spectrum and intensity covariance of a wave in a random medium, Rad Sci, 10(1): 77-85 (January 1975).
73. Fante, R. L., Electromagnetic beam propagation in turbulent media, Proc of the IEEE, 63: 12 (December 1975).
74. Fante, R. L., Some results for the variance of the irradiance of a finite beam in a random medium, J Opt Soc Amer, 65(5): 608-610 (1975).
75. Fante, R. L., Irradiance scintillations: comparison of theory with experiment, J Opt Soc Am, 65(5): 548-550 (1975).

Laser Hazards Bibliography

76. Fenn, R. W., Aerosol distributions and atmospheric light-scattering, USAELRDL Technical Report 2411, US Army Electronics Research and Development Laboratories, Fort Monmouth, NJ (1964).

77. Fenn, R. W., Correlation between atmospheric back scattering and meteorological visual range, Appl Opt, 5(2): 293-295 (February 1966).

78. Fried, D. L., and Yura, H. T., Telescope-performance reciprocity for propagation in a turbulent medium, J Opt Soc Am, 62(4): 600-602 (April 1972).

79. Fried, D. L., and Mevers, G. E., Evaluation of r_0 for propagation down through the atmosphere, Appl Opt, 13(11): 2620-2622 (November 1974).

80. Fried, D. L., Mevers, G. E., and Keister, M. P., Jr., Measurements of laser beam scintillation in the atmosphere, J Opt Soc Am, 57: 787-797 (1967).

81. Furutsu, H., Statistical theory of wave propagation in a random medium and the irradiance distribution function, J Opt Soc Am, 62(2): 240-254 (February 1972).

82. Garrison, L. M., Doda, D. D., and Green, A. E. S., Total ozone determination by spectroradiometry in the middle ultraviolet, Appl Opt, 18(6): 850-855 (1979).

83. Gebbie, H. A., Harding, W. R., Hilsum, C., Pryce, A. W., and Roberts, V., Atmospheric transmission in the 1 to 14 microns region, Proc Royal Soc A, 206: 87-107 (1951).

84. Gebhardt, G., and Smith, D. C., Effects of diffraction of the self-induced thermal distortion of a laser beam in a crosswind, App Opt, 11(2): 244-248 (February 1972).

85. Gebhardt, F. G., and Smith, D. C., Effect of wind on thermal defocusing of CO₂ laser radiation, Appl Phys Letter, 14(2): 52-54 (1970).

86. Gee, S., Method of Laser Measurement of Particle Concentration in Gases, Arnold Eng Dev Ctr, AF Sys Comd, Arnold AR Stn, TN (February 1967).

87. Gibbons, M. G., Experimental study of the effect of field of view on transmission measurements, J Opt Soc Am, 49(7): 702-709 (1959).

88. Gillespie, P. S., Armstrong, R. L., and White, K. O., Spectral characteristics and atmospheric CO₂ absorption of two H₀⁺³:YLF laser at 2.05 μ , Appl Opt, 15(4): 865-868 (1976).

Laser Hazards Bibliography

89. Gilmartin, T. J., and Schultz, F. V., Laser beam broadening in atmospheric propagation, *Rad Sci*, 4: 983-990 (1969).
90. Gochelashvily, D. S., Focused laser irradiance fluctuations in a turbulent medium, *Optica Acta*, 20(3): 193-206 (1973).
91. Goldstein, I., Miles, P. A., and Chabot, A., Heterodyne measurements of light propagation through atmospheric turbulence, *Proc IEEE*, 1172-1180 (1965).
92. Gomez, R. B., and White, K. O., Erbium laser propagation in simulated atmospheres, *ECOM-5260* (July 1969).
93. Gracheva, M. E., and Gurvich, A. S., Strong fluctuations in the intensity of light propagated through the atmosphere close to the earth, *Radiofizika*, 8: 717-724 (1965).
94. Gumprecht, R. O., and Diepcevish, C. M., Tables of Light Scattering Functions for Spherical Particles, Engineering Research Institute, University of Michigan, Ann Arbor, MI (1951).
95. Hanst, P. L., et al., Detection and measurement of air pollutants by absorptions of infrared radiation, *J Air Pollu Contr Assn*, 18: 754-757 (November 1968).
96. Harris, E. D., et al., Laser Meteorological Radar Study, Electro Optical Systems, Inc., Pasadena, CA (January 1965) (AD 615444).
97. Harris, F. S., Jr., et al., Laser light scattering and aerosols, *J Air Pollu Contr Assn*, 18: 659-660 (October 1968).
98. Haught, K. M., and Dowling, J. A., Long-path high-resolution field measurements of absolute transmission in the 3.5 to 4.0 μm atmospheric window, *Optics Letters*, 1: 121-124 (1977).
99. Hayes, J. N., Ulrich, P. B., and Aitken, A. H., Effects of the atmosphere on the propagation of 10.6 μm laser beams, *Appl Opt*, 11(2): 257-260 (February 1972).
100. Hinchman, W. R., and Buck, A. L., Fluctuations in a laser beam over 9 and 90 mile paths, *IRE Proc - Correspondence Section*, 52(3): 305 (March 1964).
101. Ho, T. L., Coherence degradation of gaussian beams in a turbulent atmosphere, *J Opt Soc Am*, 60(5): 667-673 (May 1970).
102. Hodges, J. A., Aerosol extinction contribution to atmospheric attenuation in infrared wavelengths, *Appl Opt*, 11(10): 2304-2310 (October 1972).

Laser Hazards Bibliography

103. Hohn, D. H., Atmospheric vision, $0.35 \mu\text{m} < \lambda < 14 \mu\text{m}$, Appl Opt, 14(2): 404-412 (February 1975).
104. Hok, G., Barasch, M. L., Lambropoulos, P., and Miller, E.K., Study of Problem Areas in Optical Communications, University of Michigan College of Engineering, Department of Electrical Engineering, Tech Report AFAL-TR-66-27 (April 1966).
105. Howard, J. N., The transmission of the atmosphere in the infrared, Proc IRE, 47(9): 1451-1457 (September 1954).
106. Howard, J. N., Burch, D. E., and Williams, D., Infrared transmission of synthetic atmosphere, II. Absorption by carbon dioxide, J Opt Soc Am, 46(4): 237-241 (1956).
107. Howard, J. N., Burch, D. E., and Williams, D., Infrared transmission of synthetic atmospheres, III absorption by water vapor, J Opt Soc Am, 46(4): 242-245 (1956).
108. Hughes, H. G., and Richter, J. H., Extinction coefficients calculated from aerosol size distributions measured in a marine environment, Opt Eng 19(4): 616-620, 1980.
109. Johnson, W. B., Lidar applications in air pollution research and control, J Air Pollu Contr Assn, 19: 176-180 (March 1969).
110. Johnson, W. B., Evans, W. E., and Uthe, E. E., Atmospheric effects upon laser eye safety, Stanford Res Inst, Menlo Park, CA, Contract F41609-69-C-0001 (1970).
111. Kerr, J. R., Comments on Irradiance fluctuations in optical transmission through the atmosphere, J Opt Soc Am, 62(7): 916 (July 1972).
112. Kerr, J. R., and Dunphy, J. R., Experimental effects of finite transmitter apertures on scintillations, J Opt Soc Am, 63(1): 1-8 (January 1973).
113. Kerr, J. R., Experiments on turbulence characteristics and multiwavelength scintillation phenomena, J Opt Soc Am, 62(9): 1040-1049 (September 1972).
114. Kerr, J. R., and Eiss, R., Transmitter-size and focus effects on scintillations, J Opt Soc Am, 62(5): 686-684 (May 1972).
115. King, S. R., Hodges, D. T., Hartwick, T. S., and Barker, D. H., High resolution atmospheric transmission measurement using a laser heterodyne radiometer, Appl Opt, 12(6): 1106-1107 (June 1973).

Laser Hazards Bibliography

116. Kleen, R. H., and Ochs, G. R., Measurements of the wavelength dependence of scintillation in strong turbulence, J Opt Soc Am, 60(12): 1695-1697 (December 1970).
117. Kleen, R. H., and Abshire, L., Atmospheric Scattering From a 1.15 μ Laser Beam and Its Off-Axis Detectable Range, US Department of Commerce, ESSA Research Laboratories, Boulder, CO, ERL 90-WPL 5 (February 1968).
118. Kleinman, H., and O'Neil, R. W., Deflection of a CO₂ laser beam in an absorbing gas, J Opt Soc Am, 61(1): 12-15 (January 1971).
119. Kneizys, F. X., Shettle, E. P., Gallery, W. O., Chetwynd, J. H., Abreu, L. W., Selby, J. E. A., Fenn, R. W., and McClatchey, R. A., Atmospheric transmittance/radiance: Computer code LOWTRAN 5, Report No. AFGL-TR-80-0067, Project 7670 (21 February 1980).
120. Knestrick, G. L., Cosden, T. H., and Curcio, J. A., Atmospheric Attenuation Coefficients in the Visible and Infrared, NRL Report 5648, US Naval Research Laboratory (1961).
121. Lang, R. H., and Minott, P. O., Determination of atmospheric structure function by using a single coherent detector, Appl Opt, 12(12): 2843-2849 (December 1973).
122. Langer, R. M., Laser Beam Attenuation in the Lower Atmosphere, J. R. M. Bege Company, Arlington, MA (AD 604735) (22 November 1963); (AD 454990) (1 June 1964).
123. Lanres, P., Geometrical approach to gaussian beams propagation, Appl Opt, 6: 747 (April 1967).
124. Lawrence, R. S., Experimental Results in Optical Waves, CU/ESSA Electromagnetic Propagation Course Lecture VII-2 (1968).
125. Lawrence, R. S., Irradiance fluctuations in optical transmission through the atmosphere, J Opt Soc Am, 62(5): 701 (May 1972).
126. Lawrence, R. S., Ochs, G. R., and Clifford, S. F., Measurements of atmospheric turbulence relevant to optical propagation, J Opt Soc Am, 60(6): 826-830 (June 1970).
127. Leader, J. C., Beam property of partially coherent curved beam waves in the turbulent atmosphere, J Opt Soc Am, 70(6): 682-688 (1980).
128. Lee, M. H., Elliott, R. A., Holmes, T. F., and Kerr, J. R., Variance of irradiance for saturated scintillations, J Opt Soc Am, 66(12): 1389-1391 (1976).

Laser Hazards Bibliography

129. Livingston, P. M., Study of target edge response viewed through atmospheric turbulence over water, *Appl Opt*, 11(10): 2352-2357 (October 1972).
130. Livingston, P. M., Dietz, P. H., and Alcarez, E. C., Light propagation through a turbulent atmosphere: measurements of the optical filter function, *J Opt Soc Am*, 60(7): 925-935 (July 1970).
131. Long, R. K., Atmospheric attenuation of ruby lasers, *Proc IEEE*, 51 (May 1963).
132. Long, R. K., Absorption of Laser Radiation in the Atmosphere, The Ohio State University Research Foundation, Columbus, OH, The Antenna Laboratory, 1579-1583 (AD 410571) (31 May 1963).
133. Lowicki, E., Clough, A., Coherent Optical Propagation Study, TR NO. RADC-TR-65-313 (November 1965).
134. Mason, J. B., and Lindberg, J. D., Laser beam behavior on a long high path, *Appl Opt*, 12(2): 187-190 (February 1973).
135. McClatchey, R. A., and Selby, J. E. A., Atmospheric attenuation of laser radiation from 0.76 to 31.25 m, *AFCRL-TR-74-0003* (January 1974).
136. McMillin, L. M., Fleming, H. E., and Hill, M. L., Atmospheric transmittance of an absorbing gas: 3. A computationally fast and accurate transmittance model for absorbing gases with variable mixing ratios, *Appl Opt*, 18(10): 1600-1604 (1979).
137. Middleton, W. E. K., *Vision Through the Atmosphere*, University of Toronto Press (1952).
138. Minott, P. O., Scintillation in an earth-to-space propagation path, *J Opt Soc Am*, 62(7): 885-888 (July 1972).
139. Nilsson, B., Meteorological influence on aerosol extinction in the 0.2-40-um wavelength range, *Appl Opt*, 18(20): 3457-3473 (1979).
140. Noll, R. J., Zernike polynomials and atmospheric turbulence, *J Opt Soc Am*, 66(3): 207-211 (March 1976).
141. Ochs, G. R., Clifford, S. F., and Wang, T. I., Laser wind sensing: The effects of saturation of scintillation, *Appl Opt*, 15(2): 403-408 (February 1976).
142. Ochs, G. R., and Lawrence, R. S., Measurements of Laser Beam Spread and Curvature Over Near-Horizontal Atmospheric Paths, US Department of Commerce ESSA, Technical Report Research Laboratories, Boulder, CO, ERL 106-WPL 6 (February 1969).

Laser Hazards Bibliography

143. Ochs, G. R., and Lawrence, R. S., Saturation of laser-beam scintillation under conditions of strong turbulence, *J Opt Soc Am*, 59(2): 226-227 (February 1969).
144. Ochs, G. R., and Little, C. G., Studies of atmospheric propagation with laser beams on 5.5, 15, 45, and 145 km paths, in *Proceedings of the IEEE Conference on Tropospheric Wave Propagation*, London (30 September - 2 October 1968).
145. Ochs, G. R., and Wang, T. I., Finite aperture optical scintillometer for profiling wind and C_n^2 , *Appl Opt*, 17(23): 3774-3778 (December 1978).
146. Owens, J. G., Optical refractive index of air, dependence on pressure, temperature, and composition, *Appl Opt*, 6: 51-59 (January 1967).
147. Owens, C., Recent progress in optical distance measurement; lasers and atmospheric dispersion, *Osterreichischen Zeitschrift fur Vermessungswesen (sonderheft 25)* and *Proceedings of the International Symposium Figure of the Earth and Refraction*, Vienna, 14-17 (March 1967).
148. Paperlein, D., Meteorologische Einflüsse auf die terrestrische Scintillation, *Optica Acta*, 19(5): 391-393 (1972).
149. Parry, G., and Pusey, P. N., K distributions in atmospheric propagation of laser light, *J Opt Soc Am*, 69(5): 796-798 (1979).
150. Patton, R. B., and Reedy, M., Effects of Atmospheric Turbulence on Ground to Air Laser Beam Propagation, *US Army Ballistic Research Laboratory Report No. BRL 1427 (AD 851815)* (March 1969).
151. Pearson, J. E., Yeh, C., and Brown, W. P., Jr., Propagation of laser beams having an on-axis null in the presence of thermal blooming, *J Opt Soc Am*, 66(12): 1384-1388 (1976).
152. Pearson, M. D., and Tank, W. G., Atmospheric Processes Affecting the Performance Capabilities of Optical Radar Systems, *The Boeing Company (AD 466942)* (December 1964).
153. Pendorf, R., Table of the refractive index for standard air and the rayleigh scattering coefficient for the spectral region between 20 and 0.2 and their application to atmospheric optics, *J Opt Soc Am*, 47: 176-182 (February 1957).
154. Pendorf, R., Scatter tables, *J Opt Soc Am*, 47: 176-182 (1967).
155. Peterancecz, I. P., Atmospheric Propagation Studies at Optical, Millimeter and Microwave Frequencies, Part I Experimental Instrumentation Techniques and Data Analysis, *University of Dayton, Research Institute, AF Avionics Laboratory, Technical Report AFAL-TR- 65-79, Part 1* (March 1965).

Laser Hazards Bibliography

156. Peterson, J. C., Thomas, M. E., Nordstrom, R. J., Damon, E. K., and Long, R. K., Water vapor-nitrogen absorption at CO₂ laser frequencies, Appl Opt, 18: 834-841 (1979).
157. Plass, G. N., The absorption of laser radiation along atmospheric slant paths, Appl Opt, 5: 149-154 (January 1966).
158. Plass, G. N., Mie scattering and absorption cross-sections for absorbing particles, Appl Opt, 5: 149-154 (January 1966).
159. Poirier, J. L., and Korff, D., Beam spreading in a turbulent medium, J Opt Soc Am, 893-897 (July 1972).
160. Portman, D. T., Ryznar, E., and Waqif, A. A., Laser Scintillations Caused by Turbulence Near the Ground, Research Report No. 225, University of Michigan (AD 666798).
161. Pridmore-Brown, D. C., Absorption saturation effects on high-power CO₂ laser beam transmission, Appl Opt, 12(9): 2188-2191 (September 1973).
162. Raidt, H., and Hohn, D. H., Instantaneous intensity distribution in a focused laser beam at 0.63 μ m and 10.6 μ m propagating thru the atmosphere, Appl Opt, 14(11): 2747-2749 (November 1975).
163. Raidt, H., and Hohn, D. H., Transmission of a GaAs laser beam through the atmosphere, Appl Opt, 12(1): 103-107 (January 1973).
164. RCA, Electro-Optics Handbook, RCA Defense Electronic Products, Aerospace Systems Division, P.O. Box 588, Burlington, MA (1968).
165. Rice, D. K., Atmospheric attenuation measurements for several highly absorbed CO laser lines, Appl Opt, 12(7): 1401-1403 (July 1973).
166. Rice, D. K., Absorption measurements of carbon monoxide laser radiation by water vapor, Appl Opt, 12(2): 218-224 (February 1973).
167. Robinson, F. R., Transmissions and Scattering of Infrared Radiation By Clouds, Part 1, Cloud Data and Simple Extinction Laws, E. M. I. Electronics Ltd, Report DMP 1665/1 (AD 438400) (December 1963).
168. Rohde, R. S., and Buser, R. G., Index of refraction turbulence effects on thermal blooming in laboratory experiments, Appl Opt, 18(5): 698-702 (1979).
169. Ryznar, E., Dependency of optical scintillation frequency on wind speed, Appl Opt, 4: 1416-1418 (1965).

Laser Hazards Bibliography

170. Sancer, M. I., and Varvatsis, A. D., Saturation calculation for light propagation in the turbulent atmosphere, J Opt Soc Am, 60(5): 654-659 (May 1970).
171. Schindler, R. P., Lasers and Possible Applications, National Aviation Facilities Experimental Center, Atlantic City, NJ, 12-14 (AD 479123) (July 1965).
172. Schleusener, S. A., Lindberg, J. D., White, K. O., and Johnson, R. L., Spectrophone measurements of infrared laser energy absorption by atmospheric dust, Appl Optics, 15(10): 2546-2550 (1976).
173. Shapiro, J. H., Optimum adaptive imaging through atmospheric turbulence, Appl Opt, 13(11): 2609-2613 (November 1974).
174. Shapiro, J. H., Normal-mode approach to wave propagation in the turbulent atmosphere, Appl Opt, 13(11): 2614-2619 (November 1974).
175. Shapiro, J. H., Reciprocity of the turbulent atmosphere, J Opt Soc Am, 61(4): 492-495 (April 1971).
176. Shettle, E. P., and Fenn, R. W., Models for the aerosols of the lower atmosphere and the effects of humidity variation on their optical properties, Report AFGL-TR-79-0214, Project 7670, USAF Geophysical Laboratory (20 September 1979).
177. Solimeno, S., Corti, E., and Micoletti, B., Optical communication in turbulent media, J Opt Soc Am, 60(9): 1245-1251 (September 1970).
178. Spencer, D. J., Denault, G. C., and Takimoto, H. H., Atmospheric gas absorption at DF laser wavelengths, Appl Opt, 13(12): 2855-2864 (December 1974).
179. Straub, H. W., Coherence in long-range laser beams, Appl Opt, 4: 875-876 (July 1965).
180. Strohbehn, J. W., and Clifford, S. F., Polarization and angle of arrival fluctuations for a plane wave propagated through a turbulent medium, IEEE Trans Anten Prop, AP-15(3): 416-421 (May 1967).
181. Strohbehn, J. W., and Wang, T. I., Simplified equation for amplitude scintillations in a turbulent atmosphere, J Opt Soc Am, 63(9): 1061-1068 (September 1972).
182. Strohbehn, J. W., Propagation of higher-order coherence functions in random media, J Opt Soc Am, 60(5): 674-677 (May 1970).

Laser Hazards Bibliography

183. Subramanian, M., Laser remote sensing of atmospheric refractive-index-fluctuation profile, J Opt Soc Am, 62(5): 677-681 (May 1972).
184. Subramanian, M., and Collinson, J. A., Modulation of laser beams by atmospheric turbulence, Bell Sys Tech J, 44(3): (March 1965).
185. Tait, E., and Strong, J., The infrared transmission of atmospheric windows, J Franklin Institute, 225: 189-208 (1953).
186. Tam, W. C., and Zardecki, A., Laser beam propagation in particulate media, J Opt Soc Am, 69: 68-70 (January 1979).
187. Tatarski, V. I., Propagation of Waves in a Turbulent Medium, Russian Academy of Science, Moscow (1967).
188. Tatarski, V. I., Wave Propagation in a Turbulent Medium, Institute of Atmospheric Physics, Academy of Sciences of the USSR, McGraw Hill (1961).
189. Tatarski, V. I., On strong fluctuations of light wave parameters in a turbulent medium, Sov Phys JETP, 22: 1083-1088 (1966).
190. Tavis, M. T., and Yura, H. T., Short term average irradiance profile of an optical beam in a turbulent medium, Appl Opt, 15(11): 2922-2931 (1976).
191. Taylor, L. S., and Infosino, C. J., Diffraction theory of optical scintillations due to turbulent layers, J Opt Soc Am, 65(1): 78-84 (January 1975).
192. Titterton, P. J., Estimate of the scale height of the atmospheric refractive-index structure constant, J Opt Soc Am, 60(3): 417-418 (March 1970).
193. Titterton, P. J., Scintillation and transmitter-aperture averaging over vertical paths, J Opt Soc Am, 63(4): 439-444 (April 1973).
194. Traub, W. A., and Stier, M. T., Theoretical atmospheric transmission in the mid- and far-infrared at four altitudes, Appl Opt, 15(2): 364-377 (February 1975).
195. Tucker, J. W., Local determination of the distribution of light at any down-beam range, J Opt Soc Am, 60(11): 1532-1533 (November 1970).
196. Twomey, S., and Howell, H. B., The relative merit of white and monochromatic light for the determination of visibility by backscattering measurements, Appl Opt, 4: 501-506 (April 1965).

Laser Hazards Bibliography

197. University of Chicago, Chicago, IL, Atmospheric transmission of Infrared Radiation, Technical Note, CML-56-IN-E013-12 (AD 101792) (April 1956).
198. USAF Cambridge Research Center, Handbook of Geophysics, The Macmillan Company, NY, Chapters 14 and 16 (1960).
199. US Standard Atmosphere, US Government Printing Office, Washington, DC (1962).
200. Van de Hulst, H. C., Light Scattering by Small Particles, J. Wiley & Sons, NY (1964).
201. Varvatsis, A. D., and Sancer, M. I., Expansion of a focused laser beam in the turbulent atmosphere, Canad J Phys, 49(10): 1233-1248 (October 1971).
202. Valley, G. C., Long- and short-term Strehl ratios for turbulence with finite inner and outer scales, Appl Opt, 18(7): 984-987 (1979).
203. Wallace, J., and Camac, M., Effects of absorption at 10.6 μ on laser beam transmission, J Opt Soc Am, 60(12): 1587-1594 (December 1970).
204. Wallace, J., and Lilly, J. Q., Thermal blooming of repetitively pulsed laser beams, J Opt Soc Am, 64(12): 1651-1655 (December 1974).
205. Wallace, J., Effects of nonlinear refraction at 10.6 μ on the far-field irradiance distribution, 62(3): 373-378 (March 1972).
206. Wallace, J., and Whitney, C., A simplified analysis for high-energy laser propagation, J Opt Soc Am, 68(6): 750-754 (1978).
207. Walters, D. L., Favier, D. L., and Hines, J. R., Vertical path atmospheric MTF measurements, J Opt Soc Am, 69(6): 828-837 (1979).
208. Wang, J. Y., Infrared atmospheric transmission of laser radiation, Appl Opt, 413(1) (January 1974).
209. Wang, T. I., and Strohbehn, J. W., Log-normal paradox in atmospheric scintillations, J Opt Soc Am, 64(5): 583-591 (May 1974).
210. Wang, T. I., and Strohbehn, J. W., Perturbed log-normal distribution of irradiance fluctuations, J Opt Soc of Am, 64(7): 994-999 (July 1974).
211. Wang, T. I., Ochs, G. R., and Clifford, S. F., A saturation-resistant optical scintillometer to measure C_h^2 , 68(3): 334-338 (1978).

Laser Hazards Bibliography

212. Watkins, W. R., White, K. O., Bower, L. R., and Sojka, B. J., Pressure dependence of the water vapor continuum absorption in the 3.5-4.0 μ m region, *Appl Opt*, 18(8): 1149-1159 (1979).

213. Watkins, W. R., Spellicy, R. L., White, K. O., Sojka, B. Z., and Bower, L. R., Water vapor absorption coefficients at HF laser wavelengths, *Appl Opt*, 18(10): 1582-1586 (1979).

214. Weiter, J. J., and Subramanian, S., Free radicals produced in human lenses by a biphotonic process, *Invest Ophth Visual Sci*, 17: 869-873 (1978).

215. Weseley, M. L., and Derzko, Z. I., Atmospheric turbulence parameters from visual resolution, *Appl Opt*, 14(4): 847-853 (April 1975).

216. White, K. O., Watkins, W. R., Schleusener, S. A., Holmium 2.06- μ m laser spectral characteristics and absorption by CO₂ gas, *Appl Opt*, 14(1): 16-18 (January 1975).

217. White, K. O., Watkins, W. R., Bruce, C. W., Meredith, R. E., and Smith, F. G., Water vapor continuum absorption in the 3.5-4.0 μ m region, *Appl Opt*, 17(17): 2711-2720 (1978).

218. Whitman, A. M., and Beran, M. J., Beam spread of laser light propagating in a random medium, *J Opt Soc Am*, 60(12): 1595-1602 (December 1970).

219. Whitman, A. M., and Beran, M. J., Asymptotic theory of irradiance fluctuations in a beam propagating in a random medium, *J Opt Soc Am*, 65(7): 765-768 (July 1975).

220. Wortendyke, D. R., Optical Radar Techniques, AF Contract 33(675)-11195, Report 1641-9, Preliminary experimental investigation of the atmospheric turbulence effects on a focused laser beam (25 March 1965).

221. Wright, N. J., and Schultz, R. J., Measurement of the Refractive Index Structure Coefficient, C_n , BRL Memorandum Report No. 1885 (December 1967).

222. Wu, J., Slope and curvature distribution of wind-disturbed water surfaces, *J Opt Soc Am*, 61(7): 852-858 (July 1971).

223. Wyatt, P. J., Stull, V. R., and Plass, G. M., The infrared absorption of water vapor, Aeronutronic Division, Ford Motor Company, Newport Beach, CA, SSD-TDR-62-127, Space Systems Division, Air Force Systems Command, Los Angeles, CA (AD 297458) (1962).

224. Wyngaard, J. C., Izumi, Y., and Collins, S. A., Jr., Behavior of the refractive-index-structure parameter near the ground, *J Opt Soc Am*, 61(12): 1646-1650 (December 1971).

Laser Hazards Bibliography

225. Yates, H. W., and Taylor, J. H., Infrared Transmission of the Atmosphere, NRL Report 5453, Washington, DC, Naval Research Laboratory (AD 240188) (8 June 1960).

226. Yeh, C., Pearson, J. E., and Brown, W. P., Jr., Enhanced focal-plane irradiance in the presence of thermal blooming, Appl Opt, 15(11): 2913-2915 (1976).

227. Yin, P. K. L., and Long, R. K., Atmospheric Carbon Dioxide Absorption at the Line Center of P(20) CO₂ Laser Radiation, Ohio State University, Electro-Science Laboratory, Technical Report 2384-2 (28 November 1967).

228. Young, A. T., Saturation of scintillation, J Opt Soc Am, 60(11): 1495-1500 (November 1970).

229. Young, A. T., Aperture filtering and saturation of scintillation, J Opt Soc Am, 60(2): 248-250 (February 1970).

230. Yura, H. T., Atmospheric turbulence induced laser beam spread, Appl Opt, 10(12): 2771-2773 (December 1971).

231. Yura, H. T., First and second moment of an optical wave propagating in a random medium: equivalence of the dyson and bethe-salpeter equation to that obtained by the huygens-fresnel principle, J Opt Soc Am, 62(7): 889-892 (July 1972).

232. Yura, H. T., Optical beam spread in a turbulent medium: effect of the outer scale of turbulence, J Opt Soc Am, 63(1): 107-109 (January 1973).

233. Yura, H. T., Physical model for strong optical-amplitude fluctuations in a turbulent medium, J Opt Soc Am, 64(1): 59-67 (January 1974).

234. Yura, H. T., Short-term average optical-beam spread in a turbulent medium, J Opt Soc Am, 63(5): 567-572 (May 1973).

235. Yura, H. T., Supersaturation: effect of a high-frequency cutoff on strong optical scintillation measurements, J Opt Soc Am, 64(9): 1211-1213 (September 1974).

236. Yura, H. T., Temporal frequency spectrum of an optical wave propagating under saturation conditions, J Opt Soc Am, 64(3): 357-359 (March 1974).

Laser Hazards Bibliography

VII. MEASUREMENTS.

1. Altman, J. H., Grum, F., and Nelson, C. N., Photographic speed based on radiant energy units, *Photo Sci & Eng*, 17(6): 513-517 (1973).
2. Andre, Y. V., Chambaret, J. P., Franco, M. A., and Prade, B. S., Infrared video camera at 10 μ m, *Appl Opt*, 18(15): 2607-2608 (1979).
3. Anonymous, International study of laser wavelength, *Lab Pract*, 17: 491 (April 1968).
4. Arguelo, C. A., Mendes, C. F., and Leite, R. C. C., Simple technique to suppress spurious luminescence in raman spectroscopy, *Appl Opt*, 13(8): 1731-1732 (August 1974).
5. Armstrong, K. R., and Low, F. J., Far infrared filters utilizing small particle scattering and antireflection coatings, *Appl Opt*, 13(2): 425 (February 1974).
6. Arnaud, J. A., Hubbarb, W. H., Mandeville, G. D., de la Claviere, B., Franke, E. A., and Franke, J. M., Technique for fast measurement of gaussian laser beam parameters, *Appl Opt*, 10(12): 2775-2777 (1971).
7. Baker, H. J., Bannister, J. J., King, T. A., and Mukhtar, E. S., Phosphor converter camera for near-infrared laser-beam profile recording, *Appl Opt*, 18(13): 2136-2142 (1979).
8. Bartoli, F., Esterowitz, L., Kruer, M., and Allen, R., Irreversible laser damage in IR detector materials, *Appl Opt*, 16(11): 2934-2936 (1977).
9. Bauer, G., *Measurement of Optical Radiations*, Focal Press, NY (1965).
10. Bauer, G., Hubner, H. J., and Sutter, E., Measurement of light scattered by eye protection filters, *Appl Opt*, 7: 325-329 (1968).
11. Berg, W. F., The photographic emulsion layer as a three-dimensional recording medium, *Appl Opt*, 8(12): 2407-2416 (1969).
12. Berger, D. S., The sunburning ultraviolet meter: design and performance, *Photochem Photobiol*, 24: 587-593 (1976).
13. Bernal, G. E., Heat flow analysis of laser absorption colorimetry, *Appl Opt*, 14(2): 314-321 (February 1975).
14. Birchall, I., and Beckley, R. J., Use of a thermoluminescent dosimetry system to measure laser beam power density (sic), *Health Phys*, 28(5): 622-623 (May 1975).
15. Bird, G. R., Jones, R. C., and Ames, A. E., The efficiency of radiation detection by photographic film: State-of-the-art and methods for improvement, *Appl Optics*, 8(12): 2389-2405 (1969).

Laser Hazards Bibliography

16. Birnbaum, G., and Birnbaum, M., Measurement of Laser Energy and Power, Proc IEEE, 55(6): 1026-1031 (June 1967).
17. Blevin, W. R., and Geist, J., Influence of black coatings on pyroelectric detectors, Appl Opt, 13(5): 1171-1178 (May 1974).
18. Boivin, L. P., and Smith, T. C., Electrically calibrated radiometer using a thin film thermocouple, Appl Opt, 17: 3067 (October 1978).
19. Boivin, L. P., Reduction of defraction errors in radiometry by means of toothed apertures, Appl Opt, 17: 3323 (1978).
20. Born, M., and Wolf, E., Principles of Optics (Fourth Edition), Pergamon Press, NY (1970).
21. Bristow, M. P. F., Fluorescence of short wavelength cutoff filters, Appl Opt, 18: 952-955 (1979).
22. Buckman, W. G., Sutherland, D. C., and Cooke, D. W., The detection of ultraviolet radiation using the thermoluminescence of sapphire, Electronic Product Radiation and the Health Physicist BRH/DEP 70-26, US Department of Health, Education, and Welfare, Bureau of Radiological Health, Rockville, MD, pp 407-415 (October 1970).
23. Budde, W., Multidecade linearity measurements on Si photodiodes, Appl Opt, 18(10): 1555-1558 (1979).
24. Cann, M. W. P., Nicholls, R. W., Evans, W. J. F., Kohl, J. L., Kurucz, R., Parkinson, W. H., and Preus, E. M., High resolution atmospheric transmission calculations down to 28.7 km in the 200-243-nm spectral range, Appl Opt, 18: 964-977 (1979).
25. Clarc, A. S., Atmospheric scintillation II. Comparative measurements of saturated scintillations at 0.514 μm and 1.06 μm , Rarde Tech Report 7/77, Royal Armament R&D Establishment, Fort Halstead, Kent, UK (1977).
26. Coakley, J. M., and Mohan, K., Safety considerations for lasers, SPIE Proceedings, 92: 14-20 (1976).
27. Commission International de L'Eclairage (International Commission on Illumination): International Lighting Vocabulary, Publication CIE No. 17, (E-1.1) Paris (1970).
28. Corrons, A., and Zalewski, E. F., Detector spectral response from 350 to 1200 nm using a monochromator based spectral response, NBS Tech Note 988 (December 1978).

Laser Hazards Bibliography

29. Day, G. W., Hamilton, C. A., and Pyatt, K. W., Spectral reference detector for the visible to 12-um region; conveniently, spectrally flat, *App Opt*, 15: 1865-1868 (1976).

30. Dickson, L. D., Ronchi ruling method for measuring gaussian beam diameter, *Opt Engr*, 18: 70-75 (February 1979).

31. Diffey, B. L., and Davis, A., A new dosimeter for the measurement of natural ultraviolet radiation in the study of photodermatoses and drug photosensitivity, *Phys Med Biol*, 23(2): 318-323 (1978).

32. Douglas-Hamilton, D. H., and Hoag, E. D., Diamond as a high-power laser window, *J Opt Soc Am*, 64(1): 36-38 (January 1974).

33. Eckerle, K. L., Hsia, J. J., Weidmer, V. R., and Venable, W. H., NBS reference reflectometer, *Appl Opt*, 19(8): 1253-1259 (1980).

34. Emmons, R. B., Hawkins, S. R., and Cuff, K. F., Infrared detectors: an overview, *Opt Eng*, 14(1): 21-30 (January-February 1975).

35. Evans, L. R., et al., Laser beam power control device, *J Sci Instr*, 1: 856-858 (August 1968).

36. Evans, L. R., et al., Intensity distribution of focused laser beams in bio-medical studies, *Phys Med Biol*, 14: 205-212 (April 1969).

37. Fallon, J. P., and Kellen, P. F., Film sensitometry with laser sources, *Opt Eng*, 12(2): 75-79 (March-April 1973).

38. Franzen, D. L., and Schmidt, L. B., Absolute reference calorimeter for measuring high power laser pulses, *Appl Optics*, 15: 3115-3121 (1976).

39. Garbuny, M., *Optical Physics*, Academic Press, NY (1965).

40. Gardiner, H. A. B., Merrill, J. J., Pendleton, W. R., and Baker, D. J., Systematic errors in emission cross-sections arising in the analysis of laboratory beam measurements, *Appl Opt*, 8(4): 799-806 (April 1969).

41. Geist, J., Fundamental principles of absolute radiometry and the philosophy of this NBS program (1968-1971), NBS Tech Note 594-1, Washington, National Bureau of Standards (June 1972).

42. Geist, J., Schmidt, L. B., and Case, W. E., Comparison of the laser power and total irradiance scales maintained by the national bureau of standards, *Appl Opt*, 12(11): 2773-2775 (November 1973).

43. Geist, J., Lind, M. A., Schaefer, A. R., and Zalewsky, E. F., Spectral radiometry: a new approach based on electro-optics, NBS Tech Note 954, US Dept of Commerce, Washington, DC (July 1977).

Laser Hazards Bibliography

44. Geist, J., Trends in the development of radiometry, Opt Engr, 15: 537-540 (1976).
45. Glass, A. J., and Guenther, A. H., Laser induced damage in optical materials: 8th ASTM Symposium, Appl Opt, 16(5): 1214-1221 (1977).
46. Green, D. G., Fruch, B. R., and Shapiro, L. M., Corneal thickness measured by interferometry, J Opt Soc Am, 65(2): 119-123 (February 1975).
47. Grenier, P., Langlet, A., Talureau, B., and Coron, N., Photometer for submillimeter measurements, Appl Opt, 12(12): 2863-2868 (December 1973).
48. Grum, F., and Wightman, T. E., Absolute reflectance of eastman white reflectance standard, Appl Opt, 16(11): 2775-2777 (1977).
49. Gunn, S. R., Volume-absorbing calorimeters for high-power laser pulses, Rev Sci Instr, 45: 936 (1974).
50. Gunn, S. R., Calorimetric measurements of laser energy and power, J of Phys, E6: 105 (1973).
51. Hamilton, C. A., Day, G. W., and Phelan, R. J., Jr., An electrically calibrated pyroelectric radiometer system, NBS Tech Note 678, Boulder, CO 80302 (1976).
52. Hamilton, C. A., and Day, G. W., A pyroelectric power meter for the measurement of low level laser radiation, NBS Tech Note 665, Boulder, CO 80302 (1975).
53. Heard, H. G., Laser Parameter Measurement Handbook, J. Wiley & Sons, Inc., NY (1968).
54. Heffner, D. K., Calibration of lasers - necessity and techniques, Laser Applications in Medicine and Biology (Ed., M. L. Wolbarsht), Plenum Press, NY, 19-34 (1971).
55. Heffner, D. K., Wolbarsht, M. L., and Fligsten, K. E., Pulsed laser energy measurement, Lasers et Optique Non Conventiennelle, 7: 27 (1967).
56. Hill, R. J., and Ochs, G. R., Fine calibration of large-aperture optical scintillometers and an optical estimate of inner scale of turbulence, Appl Opt, 17: 3608-3611 (1978).
57. Hirleman, E. D., and Stevenson, W. H., Intensity distribution properties of a gaussian laser beam focus, Appl Opt, 17(21): 3496-3499 (1978).

Laser Hazards Bibliography

58. Hoag, A. A., and Miller, W. C., Application of photographic materials in astronomy, Appl Opt, 8(12): 2417-2429 (1969).
59. Honey, R. C., Laser instrumentation and dosimetry, Electronic Product Radiation and the Health Physicist BRH/DEP 70-26, 263-272. US Department of Health, Education, and Welfare, Bureau of Radiological Health, Rockville, MD (October 1970).
60. Hovel, H. J., Solar Cells, Academic Press, New York (1975).
61. Illuminating Engineering Society, NY, I.E.S. Lighting Handbook, Fourth edition, Waverly Press, Baltimore (1966).
62. James, R. H., Ellingson, O. L., Peterson, R. W., Calibration systems for laser power or energy measuring apparatus, Am Ind Hyg J, 35(6): 327-332 (June 1974).
63. Jenkins, F. A., and White, H. E., Fundamentals of Optics, Third edition, McGraw Hill, NY (1957).
64. Jennings, D. A., and West, E. D., A laser power meter for large beams, Rev Sci Instr, 41: 565 (1970).
65. Jennings, D. A., et al., Laser Power and Energy Measurements, National Bureau of Standards Technical Note 382, US Government Printing Office, Washington, DC (October 1969).
66. Johnson, E. G., Jr., Evaluating the inequivalence and a computational simplification for the NBS laser energy standards, Appl Opt, 16(8): 2315-2321 (1977).
67. Johnson, J. C., and Massey, G. A., Bolometric laser power meter for sensitive measurements in the air-vacuum uv spectral range, Appl Opt, 17: 2268 (August 1978).
68. Johnson, N. L., and Stephenson, H. F., Influence of aperture size on the photometry of retroreflectors, Appl Opt, 19(8): 1247-1253 (1980).
69. Kidwel, T. P., The measurement of ocular transmittance and irradiance distribution in argon laser irradiated rabbit eyes, Invest Ophthalmol, 15(8): 668-71 (1976).
70. Killick, D. E., Bateman, D. A., Brown, D. R., Moss, T. S., and de la Perrelle, E. T., Power and energy measuring techniques for solid state lasers, Infrared Physics, 6: 85-109.
71. Kincaid, B. E., Cowen, S., and Campbell, D., Application of GaAs lasers and silicon avalanche detectors to optical communications, Opt Eng, 13(5): 389-395 (September-October 1974).

Laser Hazards Bibliography

72. Kirillov, A. I., Naumov, A. S., Morskov, V. F., Torshina, N. F., and Ustinov, N. D., Problem of laser radiation dosimetry scrutinized, Kvantovaya Electronica (in Russian), 3(7): 1394-1402 (1976).

73. Kolbe, W. R., Intensity Measurements for Optical Maser Applications (AD 411782), Washington, Office of Technical Information, US Department of Commerce (22 April 1963).

74. Koller, L. R., Ultraviolet Radiation, 2nd edition, 312 pp, J. Wiley & Sons, NY (1965).

75. Kopeika, N. S., Gellman, R., and Kushelevsky, A. P., Improved detection of ultraviolet radiation with gas-filled phototubes through photoionization of excited atoms, Appl Opt, 16(9): 2470-2476 (1977).

76. Kumar, R., Robinson, B., and Silva, L., Calibration of long wavelength exotech model 20C spectroradiometer, Appl Opt, 18(13): 2334-2341 (1979).

77. Labo, J. A., Marston, D. R., and Laudieri, P. C., Laser Energy Evaluator (LEE) Laboratory and Field Use, USAF School of Aerospace Med, Report SAM-TR-74-50 (December 1974) (DDC AD A-005-294).

78. Landry, R. J., and Peterson, R. W., Temperature dependent response of optical radiation measurement instrumentation, Appl Opt, 16(11): 2968-2971 (1977).

79. Landry, R. J., Optical radiation measurements and their use in hazard evaluation, Ocular Effects of Nonionizing Radiation, Proc SPIE 229: 98-103, 1980.

80. Leader, J. C., Intensity fluctuations resulting from partially coherent light propagating through atmospheric turbulence, J Opt Soc Am, 69: 73-83 (January 1979).

81. Lind, M. A., Zalewski, E. F., and Fowler, J. B., The NBS detector response transfer and intercomparison package: the instrumentation, NBS Tech Note 950, US Dept of Commerce, National Bureau of Standards, Washington, DC (July 1977).

82. Loewenstein, E. V., Smith, D. R., and Morgan, R. L., Optical constants of far infrared materials, 2. crystalline solids, Appl Opt, 12(2): 398-405 (February 1973).

83. Ludovici, B. F., Measurement units used with lasers, Electronics, 54-56 (20 April 1972).

Laser Hazards Bibliography

84. Marom, E., Chen, B., and Ramer, O. G., Spot size of focused truncated gaussian beams, *Opt Engin*, 18(1): 79-81 (1979).
85. Marshall, W. J., Optical measurement techniques, Nonionizing Radiation, *Proc ACGIH Topical Symposium 11/26-28/1979*, pp 176-180.
86. McCall, G. H., High speed inexpensive photodiode assembly, *Rev Sci Instr*, 43(6): 865 (June 1972).
87. McClatchey, R. A., and D'Agati, A. P., Atmospheric transmission of laser radiation: computer code LASER, AFGL-TR-78-0029, Environ Res Paper No. 622, AFGL Project 7670, Hanscom AF Base, MA (1978).
88. McSparron, D. A., Douglas, C. A., and Badger, H. L., Radiometric Methods for Measuring Laser Output, Technical Note 418, National Bureau of Standards, United States Department of Commerce.
89. Meier, R. R., Lee, J. S., and Anderson, D. E., Atmospheric scattering of middle uv radiation from an internal source, *Appl Opt*, 17: 3216-3225 (1978).
90. Meyer-Arendt, J. R., Radiometry and photometry: units and conversion factors, *Appl Opt*, 7: 2081-2084 (1968).
91. Millencamp, F. J., On the calibration of laser-cone calorimeters, *J Sci Instr*, 1: 1022-1023 (October 1968).
92. Mitchel, R. R., Grek, B., Johnston, T. W., Martin, F., and Pepin, H., Nanosecond photography at 10.6 um using silver halide film, *Appl Opt*, 18(14): 2422-2426 (1979).
93. Mohan, K., and James, R. H., High accuracy laser power measurements: a scale comparison, *Appl Opt*, 18(12): 1937-1940 (1979).
94. Moser, H. O., Instrument for measuring angular intensity distributions of light sources within a few milliseconds, *Appl Opt*, 13(1): 173-176 (January 1974).
95. Nakajima, S., Maruyama, Y., and Kosasa, K., A simple power meter for measuring outputs from a high power continuous wave (CW) CO₂ laser, *Opt Engin*, 18(2): 229-230 (1979).
96. Nowak, W. B., et al., On the use of thermocouples for temperature measurements during laser irradiation, *Life Sci*, 3(11): 1475-1481 (1964).
97. Offerberger, A. A., Smy, P. R., and Burnett, N. H., High power CO₂ laser energy detector, *Rev Sci Instr*, 46: 317 (1975).

Laser Hazards Bibliography

98. Olson, V. F., Measurement of transmission of infrared lenses, Appl Opt, 13(3): 469-470 (March 1974).
99. Palmer, J. M., and Tomasko, M. G., Broadband radiometry with spectrally selective detectors, Opt Lett, 5(5): 208-210 (1980).
100. Peled, S., Near-and far-field characterization of diode lasers, Appl Opt, 19(2): 324-328 (1980).
101. Peterson, R. W., Stewart, H. F., and Van Pelt, W. F., A Low Power CW Laser Evaluation Kit. Electronic Product Radiation and the Health Physicist BRH/DEP 70-26. 373-383, US Department of Health, Education, and Welfare, Bureau of Radiological Health, Rockville, MD (October 1970).
102. Plass, G. N., Kattawar, G. W., and Guinn, J. A., Isophotes of sunlight glitter on a wind-ruffled sea, App Opt, 16(3): 643-652 (1977).
103. Rampton, D. T., and Grow, R. W., Economic infrared polarizer utilizing interference effects in films of polyethylene kitchen wrap, Appl Opt, 15(4): 1034-1036 (April 1976).
104. Reichelt, W. H., Stark, E. E., and Stratton, T. F., A gas calorimeter for use at 10.6 μ m, Opt Comm, 11: 305 (1974).
105. Rennilson, J. J., Retroreflection measurements: a review, Appl Opt, 19(8): 1234-1235 (1980).
106. Rich, T. C., and Pinnow, D. A., Optical absorption in fused silica and fused quartz at 1.06 μ m, Appl Opt, 12(10): 2234 (October 1973).
107. Rock, J. C., et al., Self-calibrating technique for measurement of continuous-wave laser beam power density distributions, Aerospace Med, 41: 1187-1189 (October 1970).
108. Rockwell, R. J., Jr., Developments in laser instrumentation and calibration, Arch Environ Health, 20: 149-155 (February 1970).
109. Ross, D., Lasers, Light Amplifiers and Oscillators, Academic Press, NY (1969).
110. Saunders, R. D., Ott, W. R., and Bridges, J. M., Spectral irradiance standard for the ultraviolet: the deuterium lamp, Appl Opt, 17(4): 593-600 (1978).
111. Schaefer, A. R., Ultraviolet enhanced responsivity of silicon photodiodes, an investigation, App Optics 16(6): 1539-1542 (1977).

Laser Hazards Bibliography

112. Schell, P. G., and Tyrar, G., Irradiance from an aperture with a truncated-gaussian field distribution, J Opt Soc Am, 61(1): 31-35 (January 1971).

113. Sliney, D. H., Instrumentation and measurement of ultraviolet, visible, and infrared radiation, Am Ind Hyg Assn J, 32: 415-431 (July 1971).

114. Sliney, D. H., Instrumentation and measurements of laser radiation, NATO-AGARD Publication No. LS-79, pp 4-1 to 4-9 (1975).

115. Smathers, S. E., and Maksymenko, G., Calorimetric measurement of optical power from pulsed lasers, IEEE Transactions on Instrumentation and Measurement, IM-21(4): 430-433 (November 1972).

116. Smith, R. L., and Phelan, R. J., Jr., Limitations of the use of vacuum photodiodes in instruments for the measurement of laser power and energy, Appl Opt, 12(4): 795-798 (April 1973).

117. Smith, R. L., and Sanders, A. A., Improving beam measurement, Las Foc, 11(4): 70-71 (April 1975).

118. Smith, R. A., Detectors for ultraviolet, visible, and infrared radiation, Appl Opt, 4(6): 633-638 (June 1965).

119. Stair, R., Schneider, W. E., and Jackson, J. K., A new standard of spectral irradiance, Appl Opt, 2: 1151 (1963).

120. Stair, R., Measurement of natural ultraviolet radiation-historical and general introduction, The Biologic Effect of Ultraviolet Radiation (Ed., F. Urbach), Pergamon Press, NY, 377-390 (1969).

121. Stijns, E., Some nomographs for gaussian beams, Appl Opt, 18(16): 2827-2829 (1979).

122. Suzuki, Y., and Tachibana, A., Measurement of the m sized radius of Gaussian laser beam using the scanning knife-edge, Appl Opt, 14(12): 2809-2811 (December 1975).

123. Suzuki, Y., and Tachibana, A., Measurement of the gaussian beam divergence, Appl Opt, 16(6): 1481-1482 (1977).

124. Taboada, J., and Fodor, W. J., Pulsed dye laser densitometry using an optical delay, Appl Opt, 16(5): 1132-1134 (1977).

125. Thacher, P. D., Calorimeters for pulsed lasers: calibration, App Opt, 15(7): 1815-1822 (1976).

Laser Hazards Bibliography

126. Title, A. M., Pope, T. P., and Andelin, J. P., Jr., Drift in interference filters, *Appl Opt*, 13(11): 2675-2683 (November 1974).
127. Tkachuk, R., and Kuzina, F. D., Sulphur as a near infrared reflectance standard, *Appl Opt*, 17: 2817 (September 1978).
128. Van de Hulst, H. C., *Light scattering by small particles*, J. Wiley & Sons, NY, 1-269 (1957).
129. Venable, W. H., and Johnson, N. L., Unified coordinate system for retroreflectance measurements, *Appl Opt*, 19(8): 1236-1241 (1980).
130. Venable, W. H., Stephenson, H. F., and Terstiege, H., Factors affecting the metrology of retroreflecting materials, *Appl Opt*, 19(8): 1242-1246 (1980).
131. Walsh, J. W. T., *Photometry*, Third edition, Dover Publications, Inc., NY (1958).
132. Walther, A., Radiometry and Coherence, *J Opt Soc Am*, 58(9): 1256-1259 (September 1969).
133. Watt, B. E., Calorimeter for picosecond laser pulses, *Appl Opt*, 12(10): 2373-7 (1973).
134. Webb, W. E., Focus errors in laser beam divergence measurements, *Appl Opt*, 17: 684-685 (1978).
135. Welch, A. J., and Cain, C. P., Thin film temperature sensors for biological measurements, *IEEE Transactions on Biomedical Engineering*, 21(4): 421-423 (1974).
136. West, E. D., and Schmidt, L. B., Spectral absorptance measurements for laser calorimetry, *J Opt Soc Am*, 65(5): 573-578 (May 1975).
137. Withrow, R. B., and Withrow, A. F., Generation control, and measurement of visible and near visible radiant energy, *Radiation Biology III*: 125-258, Hollaender, A. (ed), McGraw Hill Book Company, NY (1956).
138. Wyatt, C. L., Theory and methods of radiometric calibration, *Mod Util Infrared Tech II*, 96: 217-222 (August 1976).
139. Yoshida, A., and Asakura, T., A simple technique for quickly measuring the spot size of Gaussian laser beams, *Opt and Technol*, 8(6), 273-274 (1976).
140. Young, M., and Lawton, R. A., Saturation of silicon photodiodes at high modulation frequency, *Appl Opt*, 17: 1103-1106 (1978).

Laser Hazards Bibliography

141. Zimmerer, R. W., Theory and practice of thermoelectric laser power and energy measurements, Scientech, Inc., Boulder, CO (May 1976).
142. Zimmerer, R. W., Measuring laser power, Optical Spectra, 12(2): 34-36 (1978).
143. Zimmerer, R. W., Update on power measurement, Las Foc, 8(3): 25-27 (March 1972).

Laser Hazards Bibliography

OFTEN USED REFERENCES

A. Laser Safety Standards and Regulations.

1. American National Standards Institute, Safe Use of Lasers, ANSI Standard Z-136.1, 1980. Available from ANSI, 1430 Broadway, New York, NY 10018; single copy price \$9.00.
2. American Conference of Governmental Industrial Hygienists (ACGIH), Guide for Control of Laser Hazards, 1976. Available from ACGIH, PO Box 1937, Cincinnati, OH 45201; single copy price \$2.75.
3. Laser Institute of America, Laser Safety Guide, 1976. Available from LIA, 4100 Executive Park Drive, Cincinnati, OH 45241; single copy price \$2.50.
4. US Department of Labor, Occupational Safety and Health Administration, Title 29, Code of Federal Regulations, 1978 ed., Part 1926.54, Nonionizing Radiation.
5. US Department of the Army, Control of Hazards to Health from Laser Radiation, May 1975, TB MED 279, Washington, DC, 30 May 1975.
6. US Department of the Air Force, Laser Health Hazards Control, AFM 161-8, Washington, DC, 1980.
7. US Department of Health, Education and Welfare, Title 21, Code of Federal Regulations, 1978 ed., Part 1040, Performance Standards for Light Emitting Products.

B. Rationale of Laser Exposure Limits.

1. Ham, L. T., Jr., Clarke, A. M., Geeraets, W. J., Cleary, S. F., Rueller, H. A., and Williams, R. C., The eye problem in laser safety, Arch Environ Health, 20(2): 156-160 (February 1975).
2. Wolbarsht, M. L., and Sliney, D. H., The formulation of protection standards for lasers, in Laser Applications in Medicine and Biology (Ed., M. L. Wolbarsht), Plenum Press, NY, 2: 309-355 (1974).
3. Wolbarsht, M. L., and Sliney, D. H., Needed: more data on eye damage, Las Foc, 10(12): 10-13 (December 1974).

Laser Hazards Bibliography

C. Optical Radiation Hazards - General Reviews.

1. Clarke, A. M., Ocular hazards from lasers and other light sources, Crit Rev Environ Control, 1(3): 307-339 (1970).
2. Sliney, D. H., and Freasier, B. C., The evaluation of optical radiation hazards, Appl Opt, 12(1) (January 1973).

D. Retinal Burns from Lasers.

1. (Ruby) Adams, D. O., Beatrice, E. S., and Bedell, B. B., Retinal ultrastructural alterations produced by extremely low levels of coherent radiation, Science, 177:60 (1972).
2. (Ar, Kr, He-Ne) Dunskey, I., and Lappin, P., Evaluation of retinal threshold for CW laser radiation, Vis Res, 11: 733-738 (1971).
3. (long-term) Ham, W. T., Jr., Mueller, H. A. and Sliney, D. H., Retinal sensitivity to damage from short wavelength light, Nature, 260(5547): 153-155 (11 March 1976).
4. (long-term) Ham, W. T., Jr., Mueller, H. A., Ruffolo, J. J., Jr., and Clarke, A. M., Sensitivity of the retina to radiation damage as a function of wavelength, Photochem Photobiol, 29: 735-743 (1978).
5. (mode-locked) Ham, W. T., Jr., Mueller, H. A., Goldman, A. I., Newman, B. E., Holland, L. M., and Kuwabara, T., Ocular hazard from picosecond pulses of Nd: YAG laser radiation, Science, 185:94148: 362-363 (26 July 1974).
6. (Ar long-term) Harwerth, R. S., and Sperling, H. G., Prolonged color blindness induced by spectral lights in Rhesus monkeys, Science, 174(4008): 520-522 (29 October 1971).
7. (theory) Solon, L. R., Aaronson, and Gould, G., Physiological implications of laser beams, Science, 134: 1506-1508 (December 1961).
8. (theory) Hayes, J. R., and Wolbarsht, M. L., Thermal model for retinal damage induced by pulsed lasers, Aerospace Med, 39: 474-480 (May 1968).
9. (temperature elevations) White, T. J., Mainster, M. A., Tips, J. A., and Wilson, P. W., Choriorretinal thermal behavior, Bull Math Biophys, 32: 315-322 (1970).

Laser Hazards Bibliography

E. Corneal Injury.

1. (CO₂) Peppers, N. A., Vassiliadis, A., Dedrick, K. G., Chang, H., Peabody, R. R., Rose, H., and Zweng, H. C., Corneal damage thresholds for CO₂ laser radiation.
2. (UV - nonlaser) Pitts, D. G., The human ultraviolet action spectrum, *Am J Opt & Physiol Opt*, 51(12): 946-960 (December 1974).
3. (CO₂) Vassiliadis, A., Ocular damage from laser radiation, in *Laser Applications in Medicine and Biology* (Ed., M. L. Wolbarsht), Plenum Press, NY, 1: 125-162 (1971).

F. Skin Injury.

1. Fitzpatrick, et al. (editors), *Sunlight and Man: Normal and Abnormal Photobiologic Responses*, Tokyo, University of Tokyo Press (1975).
2. Golovin, G. V., Effect of laser radiation on the morphological makeup of the peripheral blood and bone marrow experimentally and clinically, *Vestn Khir*, 121(8): 121-126 (1978).
3. Hart, R. W., Hall, K. Y., and Daniel, F. B., DNA repair and mutagenesis in mammalian cells, *Photochem Photobiol*, 28: 131-154 (1978).
4. Parr, W. H., Skin lesion threshold values for laser radiation as compared with safety standards, US Army Medical Research Laboratories Report No. 813, Ft Knox, KY (24 February 1969) (AD 668-871).
5. Prinz, V. L., Kostler, H., Report on three cases of toxic phytophotodermatitis due to *heracleum mantegazianum* (cow parsnip), *Dermatol Monatsschr*, 162(11): 881-886 (1976).
6. Resseguie, L. J., Marks, S. J., Wilkenmann, R. K., and Kurland, L. D., Malignant melanoma in the resident population of Rochester, Minnesota, *Mayo Clin Proc*, 52(3): 191-195 (1977).
7. Rockwell, R. J., and Goldman, L., Research on Human Skin, Laser Damage Thresholds, Contract No. F41609-72-C-0007, prepared for the USAF Aerospace Medical Division, Brooks AF Base, TX (June 1974).
8. Rondini, G., Bruschi, L., and Prigione, M. G., A case of skin tanning syndrome as a complication of phototherapy, *Pediatrics (Napoli)*, 84(1): 100-109 (1976).

Laser Hazards Bibliography

9. Urbach, F. (Ed), The Biological Effects of Ultraviolet Radiation (With Emphasis on the Skin), Proceedings of the First International Conference, 1966, Pergamon Press, NY (1969).

G. General Texts.

1. ACGIH, "Non-Ionizing Radiation," Proceedings of a Topical Symposium, Nov 79, Washington, DC, ACGIH, Cincinnati, OH (1980).

2. Goldman, L., and Rockwell, R. J., Lasers in Medicine, Gordon and Breach Science Publishers, NY (1971).

3. Magnus, I. A., Dermatological Photobiology, Clinical and Experimental Aspects, Blackwell Scientific Publications, London (1976).

4. Sliney, D. H., and Wolbarsht, M. L., Safety with Lasers and Other Optical Sources, A Comprehensive Handbook, Plenum Publishing Corp., New York (1980).

5. Williams, T. P., and Baker, B. N., The Effects of Constant Light on the Visual Process, Plenum Publishing Corp., New York (1980).

5. Wolbarsht, M. L. (Ed), Laser Applications in Medicine and Biology, Plenum Publishing Corp, NY, 1: (1971), 2: (1974), and 3: (197).

6. Wolbarsht, M. L., and Sliney, D. H., "Ocular Effects of Non-Ionizing Radiation," Proc Soc Photo-Opt Instr Eng, Vol 229, 1980.

DATE
FILMED
-8