

REFERENCES

- ADAMS, W. R.: Studies of teaching in the diagnostic process. In Jacquez, John A. (Ed.): *The Diagnostic Process*. Proceedings of a Conference held at the University of Michigan, May 1963. 1964, pp. 367-85.
- BAER, R. M.: A note on computer diagnosis. *IEEE Transactions on Biomedical Engineering, BME-11*:8-12, Jan.-April 1964.
- BRUNER, J. S.; GOODNOW, J. J., and AUSTIN, G. A.: *A Study of Thinking*. New York, Wiley, 1956.
- BRUNK, H. D., and LEHR, J. L.: An improved Bayes' method for computer diagnosis. In *Proceedings of Conference on the Use of Computers in Radiology*. University of Chicago Center for Continuing Education, Oct. 22, 1966. To be published.
- Case Records of the Massachusetts General Hospital (Case 4-1967). *New Eng J Med*, 276:230-7, 1967.
- CASTLEMAN, B., and DUDLEY, H. R. (Ed.): In *Proceedings of Clinicopathological Conference of the Massachusetts General Hospital*. London, Churchill Ltd., 1960.
- COBB, S.: On the development of diagnostic criteria. *Arthritis Rheum*, 3:91-5, Feb. 1960.
- COFFIN, R. W.; GOHEEN, H. E., and STAHL, W. R.: Simulation of a Turing machine on a digital computer. In *Proceedings of AFIPS Fall Joint Computer Conference*, 24:35-43, 1963. (American Federation of Information Processing Societies.)
- COLLEN, M. F.; RUBIN, L.; NEYMAN, J. et al.: Automated multiphasic screening and diagnosis. *Amer J Public Health*, 54:741-50, May 1964. Copyright 1964, by the American Public Health Association, Inc.
- COLLEN, M. F.; RUBIN, L., and DAVIS, L.: Computers in multiphasic screening. In Stacy, R. W. and Waxman, B. D. (Eds.): *Computers in Biomedical Research*. New York, Academic, 1965. vol. 1, chapt. 14, pp. 339-52.
- CORNFIELD, J.: Bayes' theorem. In *Proceedings of 6th IBM Medical Symposium*, 1964, pp. 163-96, (a).
- CORNFIELD, J.: Discriminant functions. In *Proceedings of 6th IBM Medical Symposium*, 1964, pp. 567-89, (b).
- CORNFIELD, J.: Sequential trials, sequential analysis and the likelihood principle. *Amer Statistician*, 20(2):18-23, April 1966.
- DE FINETTI, B.: Foresight: Its logical laws, its subjective sources. *Annales de l'Institut Henri Poincaré*, 7:1-68, 1937. (English translation available in Kyberg and Smokler: *Studies of Subjective Probability*. New York, Wiley, 1964, pp. 95-158.)
- DE FINETTI, B. of University of Rome, personal communication, June 27, 1966.
- EDEN, M.: The taxonomy of disease. In Jacquez, John A. (Ed.): *The Diagnostic Process*. Proceedings of Conference held at The University of Michigan, May 1963. 1964, pp. 47-9.
- EDWARDS, W.: Dynamic decision theory and probabilistic information processing. *IEEE Transactions on Human Factors in Electronics*, 4:59-73, 1962.

- EDWARDS, W.: Introduction to Special Issue on Revision of opinions by men and man-machine systems. *IEEE Transactions on Human Factors in Electronics, HFE-7*: 1-6, March 1966, (a).
- EDWARDS, W.: *Nonconservative Probabilistic Information Processing Systems*. Report *ESD-TR-66-404*, Dec. 1966, (b). (Engineering Psychology Laboratory, Institute of Science and Technology, The University of Michigan, Ann Arbor.)
- EDWARDS, W. M.; COX, R. S., JR., and GARLAND, L. H.: The solitary nodule (coin lesion) of the lung. An analysis of 52 consecutive cases treated by thoracotomy and a study of preoperative diagnostic accuracy. *Amer J Roentgen*, 88:1020-42, Dec. 1962.
- EDWARDS, W.; LINDMAN, H., and SAVAGE, L. J.: Bayesian statistical inference for psychological research. *Psychol Rev*, 70:193-242, May 1963.
- ENGLE, R. L., JR., and DAVIS, B. J.: Medical diagnosis: Present, past and future. I. Present concepts of the meaning and limitations of medical diagnosis. *Arch Int Med (Chicago)*, 112:512-9, Oct. 1963.
- ENGLE, R. L., JR.: Medical diagnosis: Present, past and future. II. Philosophical foundations and historical development of our concepts of health, disease and diagnosis. *Arch Int Med (Chicago)*, 112:520-9, Oct. 1963, (a).
- ENGLE, R. L., JR.: Medical diagnosis: Present, past and future. III. Diagnosis in the future, including a critique on the use of electronic computers as diagnostic aids to the physician. *Arch Int Med (Chicago)*, 112:530-43, Oct. 1963, (b).
- ERDMANN, A. J., JR.: Data processing and the interpretation of symptoms. I. Results. In Jacquez, J. A. (Ed.): *The Diagnostic Process*. Proceedings of a Conference held at The University of Michigan, May, 1963. 1964, pp. 215-31.
- FEIGENBAUM, E. A.: *An Information Processing Theory of Verbal Learning*. Report No. P-1817 (Oct.). The Rand Corporation, Santa Monica, 1959.
- FEINSTEIN, A. R.: Boolean algebra and clinical taxonomy. I. Analytic synthesis of the general spectrum of a human disease. *New Eng J Med*, 269(18):929-38, Oct. 31, 1963.
- FEINSTEIN, A. R.: Symptoms as an index of biological behaviour and prognosis in human cancer. *Nature (London)*, 209(5020):241-5, Jan. 15, 1966.
- FEINSTEIN, A. R.; STERN, E. K., and SPAGNUOLO, M.: The prognosis of acute rheumatic fever. *Amer Heart J*, 68(6):817-34, Dec. 1964, The C. V. Mosby Company.
- FISHER, R. A.: The use of multiple measurements in taxonomic problems. *Ann Eugen*, 7:179-88, 1936.
- FITZGERALD, L. T., and WILLIAMS, C. M.: *Computer Diagnosis of Thyroid Disease*, 1964. (From Department of Radiology, University of Florida College of Medicine, Gainesville, Florida.)
- FITZGERALD, L. T.; OVERALL, J. E., and WILLIAMS, C. M.: A computer program for diagnosis of thyroid disease. *Amer J Roentgen*, 97:901-5, August 1966.
- FLETCHER, J.: *Situation Ethics. The New Morality*. Philadelphia, Westminster, 1966.
- GARLAND, L. H.: Scientific evaluation of diagnostic procedures. *Radiology*, 52:309-27, March 1949.
- GARLAND, L. H.: Studies on the accuracy of diagnostic procedures. *Amer J Roentgen*, 82(1):25-38, July 1959.
- GOOD, I. J.: Kinds of probability. *Science*, 129:443-7, Feb. 20, 1959.
- GREEN, D. M., and SWETS, J. A.: *Signal Detection Theory and Psychophysics*. New York, Wiley, 1966.
- HARMAN, H. H.: *Modern Factor Analysis*. Chicago, U. of Chicago, 1960, p. 469.
- HORVATH, W. J.: The effect of physician bias in medical diagnosis. *Behav Sci*, 9: 334-40, 1964.

- HORVATH, W. J.; TOLLES, W. E., and BOSTROM, R. C.: Quantitative measurements of cell properties of Papanicolaou smears as criteria for screening. In *Transactions of First International Cytology Congress*. Chicago, American Cancer Society, 1956, pp. 371-97.
- JACQUEZ, J. A. (Ed.): *The Diagnostic Process*. Proceedings of Conference held at The University of Michigan, May, 1963. Ann Arbor, Malloy Lithographing, Inc., 1964, 391 pp., (a). (Library of Congress Catalog No. 64:21210.)
- JACQUEZ, J. A.: The diagnostic process: problems and perspectives. In Jacquez, J. A. (Ed.): *The Diagnostic Process*. Proceedings of Conference held at The University of Michigan, May, 1963. 1964, pp. 23-37, (b).
- JOHNSON, M. L.: A course on factors influencing scientific judgment. *J Med Educ*, 30(7):391-7, July 1955, (a).
- JOHNSON, M. L.: Observer error; its bearing on teaching. *Lancet*, 269(6887):422-4, August 27, 1955, (b).
- KAPLAN, R. J., and NEWMAN, J. R.: Studies in probabilistic information processing. *IEEE Transactions on Human Factors in Electronics*, HFE-7:49-63, 1966.
- KING, D. J., and MANEGOLD, R. F.: Consistency of cardiologists' prognostic judgments in cases of myocardial infarction. *Amer J Cardiol*, 15:27-32, Jan. 1965.
- KIRSCH, R.: The hypothetical example is derived from some ideas presented by Mr. Kirsch (National Bureau of Standards) at a Conference on the Use of Computers in Radiology, University of Chicago Center for Continuing Education, Oct. 21, 1966.
- KLEINMUNTZ, B.: MMPI decision rules for the identification of college maladjustment: A digital computer approach. *Psychol Monogr*, 77, 1963, (a).
- KLEINMUNTZ, B.: Profile analysis revisited: A heuristic approach. *J Counsel Psychol*, 10(4):315-24, 1963, (b).
- KLEINMUNTZ, B.: Diagnostic problem solving by computer. *Jap Psychol Res*, 7:189-94, 1965.
- LEDLEY, R. S.: High-speed automatic analysis of biomedical pictures. *Science*, 146 (3641):216-23, Oct. 9, 1964.
- LEDLEY, R. S., and RUDDLE, F. H.: Chromosome analysis by computer. *Sci Amer*, 214(4):40-6, 1966.
- LEDLEY, R. S., and LUSTED, L. B.: Reasoning foundations of medical diagnosis. *Science*, 130(3366):9-21, July 3, 1959.
- LEDLEY, R. S., and LUSTED, L. B.: The use of electronic computers in medical data processing. *IRE Transactions on Medical Electronics*, ME-7:31-47, Jan. 1960.
- LEDLEY, R. S., and LUSTED, L. B.: Medical diagnosis and modern decision making. In *Mathematical Problems in the Biological Sciences*. Proceedings of Symposia in Applied Mathematics, 14:117-58, 1962.
- LINDER, F. E.: The health of the American people. *Sci Amer*, 214:21-9, June 1966.
- LINDLEY, D. V.: *Introduction to Probability and Statistics from a Bayesian Viewpoint. Part II. Inference*. Cambridge, Cambridge U. P., 1965, chaps. 5 and 7.
- LIPKIN, M.: The role of data processing in the diagnostic process. In Jacquez, J. A. (Ed.): *The Diagnostic Process*. Proceedings of Conference held at The University of Michigan, May, 1963. 1964, pp. 255-73, (a).
- LIPKIN, M.: The likelihood concept in differential diagnosis. *Perspect Biol Med*, 7:485-97, Summer 1964, (b).
- LIPKIN, M., and HARDY, J. D.: Mechanical correlation of data in differential diagnosis of hematological diseases. *JAMA*, 166(2):113-25, Jan. 11, 1958.
- LODWICK, G. S.: A probabilistic approach to the diagnosis of bone tumors. *Radiol Clin N Amer*, 3:487-97, Dec. 1965.

- LODWICK, G. S.: Computer aided diagnosis in radiology. A research plan. *Invest Radiol*, 1:72-80, Jan.-Feb. 1966.
- LODWICK, G. S., and TURNER, A. H., JR.: *Computer Aided Diagnosis of Primary Bone Tumors*. Dec. 1965. (Available from Dr. Gwilym S. Lodwick, Department of Radiology, University of Missouri School of Medicine, Columbia, Missouri 65202.)
- LODWICK, G. S.; TURNER, A. H., JR.; LUSTED, L. B., and TEMPLETON, A. W.: Computer-aided analysis of radiographic images. *J Chronic Dis*, 19(4):485-96, April 1966.
- LUCE, R. D., and RAIFFA, H.: *Games and Decisions. Introduction and Critical Survey*. New York, Wiley, 1957.
- LUSTED, L. B.: Logical analysis in roentgen diagnosis. *Radiology*, 74:178-93, Feb. 1960.
- MANNING, R. T., and WATSON, L.: Signs, symptoms and systematics. *JAMA*, 198: 1180-4, Dec. 12, 1966.
- MENDELSON, M. L.; KOLMAN, W. A., and BOSTROM, R. C.: Initial approaches to the computer analysis of cytophotometric fields. *Ann N Y Acad Sci*, 115:998-1008, July 31, 1964.
- MEYERS, P. H.; BECKER, H. C.; SWEENEY, J. W. et al.: Evaluation of a computer-retrieved radiographic image. *Radiology*, 81(2):201-6, 1963.
- MEYERS, P. H.; NICE, C. M.; BECKER, H. C. et al.: Automated computer analysis of radiographic images. *Radiology*, 83(6):1029-34, 1964.
- MOSTELLER, F., and WALLACE, D. L.: *Inference and Disputed Authorship: The Federalist*. Reading, Addison-Wesley, 1964.
- NASH, F. A.: Differential diagnosis, an apparatus to assist the logical faculties. *Lancet*, 266(6816):874-5, April 17, 1954.
- NEWELL, A., and SIMON, H. A.: Computer simulation of human thinking. *Science* 134: 2011-17, Dec. 22, 1961.
- NEYMAN, J., and PEARSON, E. S.: On the problem of the most efficient tests of statistical hypotheses. *Philosophical Transactions of the Royal Society, London* (Series A), 231:289-337, 1933.
- NUGENT, C. A.; WARNER, H. R.; DUNN, J. T. et al.: Probability theory in the diagnosis of Cushing's syndrome. *J Clin Endocr*, 24(7):621-7, 1964.
- OVERALL, J. E., and HOLLISTER, L. E.: Criteria for evaluating diagnostic decision making. In Mountain, C. (Ed.): *Proceedings of Second Houston Symposium on Biomathematics*. Springfield, Thomas, 1964.
- OVERALL, J. E., and WILLIAMS, C. M.: Models for medical diagnosis. *Behav Sci*, 6:134-41, April 1961, (a).
- OVERALL, J. E., and WILLIAMS, C. M.: Models for medical diagnosis: Factor analysis. I. Theoretical. *Medizinische Dokumentation*, 5:51-6, April 1961, (b).
- OVERALL, J. E., and WILLIAMS, C. M.: Models for medical diagnosis: Factor analysis. II. Experimental. *Medizinische Dokumentation*, 5:78-80, July 1961, (c).
- OVERALL, J. E., and WILLIAMS, C. M.: Conditional probability program for diagnosis of thyroid function. *JAMA*, 183:307-13, Feb. 2, 1963, (a).
- OVERALL, J. E., and WILLIAMS, C. M.: Comparison of alternative models for thyroid diagnosis. In *Proceedings of Third San Diego Symposium for Biomedical Engineering*. La Jolla, California, 1963, pp. 141-6, (b). (8848 La Jolla Shores Drive).
- OVERALL, J. E., and WILLIAMS, C. M.: A computer procedure for the diagnosis of thyroid functioning. In Enslein, K. (Ed.): *Data Acquisition and Processing in Biology and Medicine*. New York, Pergamon, 1964, vol. 2, pp. 261-76.

- PAYCHA, F.: Critique scientifique des démarches intellectuelles du diagnostic. (Critical study of intellectual procedures in diagnosis.) *Presse Med*, 63:1753-6, Dec. 17, 1955.
- PAYCHA, F.: Diagnosis, therapeutics, prognosis and computers. *IRE Transactions on Medical Electronics*, ME-7:288-90, Oct. 1960.
- PECKHAM, R. H.: Betting odds in medical diagnosis. *Amer J Med Sci*, 253:35-7, Jan. 1967.
- PHILLIPS, L. D.; HAYS, W. L., and EDWARDS, W.: Conservatism in complex probabilistic inference. *IEEE Transactions on Human Factors in Electronics*, HFE-7:7-18, 1966.
- PICKERING, SIR GEORGE W.: In conclusion: the physician. In *Controlled Clinical Trials—A Symposium*. Oxford, Blackwell, 1960, pp. 163-7.
- PREWITT, J. M., and MENDELSON, M. L.: The analysis of cell images. *Ann N Y Acad Sci*, 128:1035-53, Jan. 31, 1966.
- RAIFFA, H., and SCHLAIFER, R.: *Applied Statistical Decision Theory*. Boston, Harv. Bus. School, 1961.
- REITMAN, W. R.: Information-processing models in psychology. *Science*, 144:1192-8, June 5, 1964.
- RIMOLDI, H. J. A.: Testing and analysis of diagnostic skills. In Jacquez, John A. (Ed.): *The Diagnostic Process*. Proceedings of Conference held at The University of Michigan, May 1963. 1964, pp. 315-43.
- ROME, H. P.: Automation techniques in personality assessment. The problem and procedure, *JAMA*, 182:1069-72, Dec. 15, 1962.
- ROPES, M. W.; BENNETT, G. A.; COBB, S. et al.: Proposed diagnostic criteria for rheumatoid arthritis. *Ann Rheum Dis*, 16:118-25, March 25, 1957.
- ROSEN, C. A.: Pattern classification by adaptive machines. *Science*, 156: 38-44, April 7, 1967.
- RUBIN, L.; COLLEN, M. F., and GOLDMAN, G. E.: Frequency decision theoretical approach to automated medical diagnosis. In *Proceedings of Fifth Berkeley Symposium on Mathematical Statistics and Probability*. Berkeley, U. of Calif., 1967, vol. IV, pp. 867-86.
- RUSSELL, C. D.: Diagnostic screening tests. *New Eng J Med*, 275:280, August 4, 1966.
- SCHEFF, T. J.: Decision rules, types of error, and their consequences in medical diagnosis. *Behav Sci*, 8:97-107, 1963.
- SIMON, H. A.: *Administrative Behavior*, 2nd Ed. New York, Macmillan, 1957, p. xxix.
- SIMON, H. A., and NEWELL, A.: Information processing in computer and man. *Amer Sci*, 52:281-300, Sept. 1964.
- SLACK, W. V.; HICKS, G. P.; REED, C. E. et al.: A computer-based medical history system. *New Eng J Med*, 274(4):194-8, Jan. 27, 1966.
- SOKAL, R. R.: Numerical taxonomy and disease classification. In Jacquez, John A. (ed.): *The Diagnostic Process*. Proceedings of Conference held at The University of Michigan, May 1963. 1964, pp. 51-60.
- SOKAL, R. R., and SNEATH, P. H.: *Principles of Numerical Taxonomy*. San Francisco, Freeman, 1963.
- SPROSTY, P. J.: The use of questions in the diagnostic problem solving process. In Jacquez, John A. (ed.): *The Diagnostic Process*. Proceedings of Conference held at The University of Michigan, May 1963. 1964, pp. 281-308.
- STAHL, W. R.; COFFIN, R. W., and GOHEEN, H. E.: Simulation of biological cells by systems composed of string processing finite automata. In *Proceedings of AFIPS Spring Joint Computer Conference*, 25:89-102, 1964. (American Federation of Information Processing Societies.)

- STEVENS, S. S.: On the operation known as judgment. *Amer Sci*, 54(4):385-401, Dec. 1966.
- STEWART, W. H.: *Health and the New Technologies*. Presented at the Interuniversity Communications Council (EDUCOM) Conference, Durham, North Carolina, April 15, 1966.
- STICKEL, D. L.: Ethical and moral aspects of transplantation. *Monogr Surg Sci*, 3:267-301, 1966.
- STUMPF, S. E.: Some moral dimensions of medicine. *Ann Int Med*, 64(2):460-70, Feb. 1966.
- SUPPES, P.: The uses of computers in education. *Sci Amer*, 215(3):207-20, Sept. 1966.
- SWALM, R. O.: Utility theory—insights into risk taking. *Harvard Business Rev*, 44:123-36, 1966.
- SWETS, J. A. (Ed.): *Signal Detection and Recognition by Human Observers*. New York, Wiley, 1964.
- SWETS, J. A.: Is there a sensory threshold? *Science*, 134:168-77, July 21, 1961. Copyright 1961 by the American Association for the Advancement of Science.
- SWETS, J. A., and GREEN, D. M.: Sequential observations of signal and noise. In Cherry, Colin (Ed.): *Information Theory*. Butterworth & Co. (Publishers) Limited, 1961.
- SWETS, J. A.; TANNER, W. P., JR., and BIRDSALL, T. G.: Decision processes in perception. *Psychol Rev*, 68:301-40, Sept. 1961.
- SWETS, J. A., and FEURZEIG, W.: Computer-aided instruction. *Science*, 150:572-6, Oct. 29, 1965. Copyright 1965 by the American Association for the Advancement of Science.
- TAYLOR, D. W.: Cognitive processes in solving algebra word problems. In Kleimuntz B. (Ed.): *Problem Solving*. New York, Wiley, 1966, p. 120.
- TEMPLETON, A. W.; LEHR, J. L., and SIMMONS, C.: The computer evaluation and diagnosis of congenital heart disease using roentgenographic findings. *Radiology*, 87:658-70, Oct. 1966.
- TOLLES, W. E.; HORVATH, W. J., and BOSTROM, R. C.: A study of the quantitative characteristics of exfoliated cells from the female genital tract. II. Suitability of quantitative cytological measurements for automatic prescreening. *Cancer*, 14:455-68, May-June 1961.
- TORONTO, A. F.; VEASY, L. G., and WARNER, H. R.: Evaluation of a computer program for diagnosis of congenital heart disease. *Prog Cardiov Dis*, 5:362-77, Jan. 1963.
- UHR, L.: "Pattern recognition"—computers as models for form perception. *Psychol Bull*, 60:40-73, Jan. 1963.
- VECCHIO, T. J.: Predictive value of a single diagnostic test in unselected populations. *New Eng J Med*, 274:1171-3, May 26, 1966.
- VONNEUMANN, J.: *The Computer and the Brain*. New Haven, Yale, 1958.
- VONNEUMANN, J., and MORGENSTERN, O.: *Theory of Games and Economic Behavior*. Princeton, Princeton, 1947.
- WARNER, H. R.; TORONTO, A. F.; VEASY, L. G. et al.: A mathematical approach to medical diagnosis. Application to congenital heart disease. *JAMA*, 177:177-83, July 22, 1961.
- WARNER, H. R.; TORONTO, A. F., and VEASY, L. G.: Experience with Bayes' theorem for computer diagnosis of congenital heart disease. *Ann N Y Acad Sci*, 115:558-67, July 31, 1964.

- WARNER, H. R.; PRYOR, T. A., and JOHNSON, A. S.: On-line classification of vectorcardiograms for diagnosis of congenital heart disease. Supplement No. II to *Circulation*, XXXII(4):215, Oct. 1965.
- WARNER, H. R., and STAUFFER, W. M.: Some techniques for computer assisted diagnosis of heart disease. In *Proceedings on Automated-Data Processing in Hospitals*. Elsinore, Denmark, April-May 1966, pp. 362-74.
- WEISS, W.; BOUCOT, K. R., and COOPER, D. A.: The survival of men with measurable proved lung cancer in relation to growth rate. *Amer J Roentgen*, 98:404-15, Oct. 1966.
- WIENER, N.: Nonlinear prediction and dynamics. In *Proceedings of Third Berkeley Symposium on Mathematical Statistics and Probability*, 1954-55. Berkeley, U. of Calif., 1956, vol. 3, pp. 247-52.
- WILSON, W. J.; TEMPLETON, A. W.; TURNER, A. H., JR. et al.: The computer analysis and diagnosis of gastric ulcers. *Radiology*, 85:1064-73, Dec. 1965.
- WILSON, W. J.: Personal communication, April 11, 1967.
- WINKLER, C.; REICHERTZ, P., and KLOSS, G.: Computer diagnosis of thyroid diseases. Comparison of incidence data and considerations of the problem of data collection. *Amer J Med Sci*, 253:27-34, 1967.
- WORTMAN, P. M.: Representation and strategy in diagnostic problem solving. *IEEE Transactions on Human Factors in Electronics*, 8:48-53, 1966.
- YERUSHALMY, J.: Statistical problems in assessing methods of medical diagnosis with special reference to x-ray techniques. *Public Health Rep*, 62:1432-49, Oct. 1947.
- YERUSHALMY, J.: Reliability of chest radiography in the diagnosis of pulmonary lesions. *Amer J Surg*, 89(1):231-40, Jan. 1955.
- YERUSHALMY, J.; HARKNESS, J. T.; COPE, J. H., and KENNEDY, B. R.: Role of dual reading in mass radiography. *Amer Rev Tuberculosis*, 61:443-64, April 1950.
- 1958 Revision of Diagnostic Criteria for Rheumatoid Arthritis. *Arthritis Rheum*, 2:16-20, 1959.