NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

TECHNICAL LETTER NASA-129

SELECTED BIBLIOGRAPHY OF REMOTE SENSING

September 1968

Prepared by the U.S. Geological Survey for the
National Aeronautics and Space Administration (NASA)
under NASA Contract No. ~~14-08-0001-10921~~, R-09-020-024
Task No. 160-75-01-32-10

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

Earth Resources Aircraft Program
Data Bank, BM5

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON, D.C. 20242

Interagency Report
NASA-129
September 1968

Mr. Robert Porter
Acting Program Chief,
Earth Resources Survey
Code SAR - NASA Headquarters
Washington, D.C. 20546

Dear Bob:

Transmitted herewith is one copy of:

INTERAGENCY REPORT NASA-129

SELECTED BIBLIOGRAPHY

OF

REMOTE SENSING*

Compiled by

Robert B. Honea**
and
Virginia L. Prentice**

The U.S. Geological Survey has released this report in open files. Copies are available for consultation in the Geological Survey Libraries, 1033 GSA Building, Washington, D.C. 20242; Building 25, Federal Center, Denver, Colorado 80225; 345 Middlefield Road, Menlo Park, California 94025; and 601 E. Cedar Avenue, Flagstaff, Arizona 86001.

Sincerely yours,

William A. Fischer
Research Coordinator
EROS Program

R-09-020-024

*Prepared under the U.S. Geological Survey Contract No. ~~14-08-0001-10921~~
Task No. 160-75-01-32-10

**Members of Commission on Geographic Applications of Remote Sensing established by the Association of American Geographer under the above contract.

UNITED STATES

DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

INTERAGENCY REPORT NASA-129

SELECTED BIBLIOGRAPHY

OF

REMOTE SENSING*

Compiled by

Robert B. Honea**

and

Virginia L. Prentice**

R-09-020-024

*Prepared under U.S. Geological Survey Contract No. ~~14-08-0001-10921~~
Task No. 160-75-01-32-10

**Members of Commission on Geographic Applications of Remote Sensing established by the Association of American Geographers under the above contract.

PREFACE

The objective of this monograph is to present a selective bibliography of publications pertaining to geographic applications of remote sensing techniques with special reference to land use classification and analysis. The monograph is intended to partially fulfill a need within the profession for a select remote sensing bibliography that can serve as a guide to introductory, technical background, applied studies, and data handling literature. The bibliography is therefore grouped into four parts.

Part I consists of a short list of publications which will serve as an introduction to the field of remote sensing and to its geographic applications. A review of these articles should provide an overview of the field and a general background of knowledge, and perhaps stimulate a quest for further understanding.

Part II is a list of technical publications in the field of remote sensing. Items on this list include essential reference materials for those intending to do research or otherwise participate in the field. For this reason both the publisher and the retail price are noted. It is further suggested that a diversified selection of these publications be included in institutional libraries for ready reference.

For more selective reading involving a knowledge of specific remote sensors, types of imagery and data, and electro-magnetic spectrum characteristics, the following classification scheme is

offered. The numbers in each category refer to specific citations in the bibliography of Part II.

(1) Geographic applications - 1, 13, 26, 33, 36, 37, 38, 39, 40

(2) Photography - 2, 3, 4, 10, 11, 12, 16, 21, 22, 24 (see also 37-40)

(3) Radar - 6, 8, 9, 29, 32, 35, 41 (see also 37-40)

(4) Infrared - 18, 19, 23, 31, 42 (see also 37-40)

(5) Physics and Optics - 5, 7, 8, 11, 14, 15, 17, 20, 25, 27, 28, 30, 34 (see also 37-40)

Part III is a selected list of publications pertaining to land use investigations using remote sensing techniques. These publications are considered to be of significance to land use research. The listing is not exhaustive but many of the publications cited contain lengthy bibliographies pertaining to additional literature.

Part IV is a selected bibliography of literature pertaining to data handling and automatic data processing techniques. It has been compiled in an attempt to emphasize the revolutionary effect remote sensing has had on analysis and assimilation of geographic data. Geographers find it difficult to handle the quantities of geographic data currently available, yet through remote sensing we will accumulate data at an ever-increasing rate. The only practical means to handle the data is by automation. The references on this list indicate that considerable research has been devoted to the development of automated techniques. Most experts, however, agree that practical applications are still far in the future.

In conclusion, acknowledgments are directed to the staffs of many institutions throughout the United States who are presently

conducting remote sensing research. Without their cooperation in search for reference material, this bibliography could not have been completed.

The finances and impetus for the bibliography were provided in part by the United States Geological Survey through the Commission on Geographic Applications of Remote Sensing of the Association of American Geographers, Contract No. ~~14-08-0001-10921.~~ 14-08-0001-10921-024 This support is gratefully acknowledged.

We trust that those of the Commission who aided this project will share in the credit for this publication, but the authors assume full responsibility for the items included and for errors.

Robert B. Honea

Virginia L. Prentice

East Tennessee State University
University of Michigan
May 22, 1968

PART I

INTRODUCTION TO REMOTE SENSING

1. American Society of Photogrammetry. Selected Papers on Remote Sensing of Environment. Falls Church, Virginia: American Society of Photogrammetry, 1966.

2. Alexander, R. H. "Geographic Data from Space," Professional Geographer, XVI, No. 6 (November, 1964), 1-5.

3. Bird, J. B., and Morrison, A. "Space Photography and Its Geographic Applications," Geographical Review, LIV, No. 4 (1964), 563-586.

4. Carneggie, D. M., and Lauer, D. T. "Uses of Multiband Remote Sensing in Forest and Range Inventory," Photogrammetria, XXI (1966), 115-141.

5. Colwell, R. N. "Remote Sensing of Natural Resources," Scientific American, CCXVIII, No. 1 (1968), 54-69.

6. _____. "Spectrometric Considerations Involved in Making Rural Land Use Studies with Aerial Photography," Photogrammetria, XX (1965), 15-33.

7. Ellermeier, R. D., and Simonett, D. S. Imaging Radars on Spacecraft as a Tool for Studying the Earth. CRES Report No. 61-6; Lawrence, Kansas: University of Kansas, Center for Research, Inc., Engineering Science Division, 1965.

8. Estes, J. E. "Some Applications of Aerial Infrared Imagery," Annals of the Association of American Geographers, LVI (1966), 673-682.

9. Ewing, G. C. (ed.) Oceanography from Space. Ref. No. 65-10; Woods Hole, Massachusetts: Woods Hole Oceanographic Institution, 1965.

10. Fischer, W. A., et al. "Infrared Surveys of Hawaiian Volcanoes," Science, CXLVI, No. 3645 (1964), 733-792.

11. Frey, H. T. Agricultural Application of Remote Sensing--The Potential from Space Platforms. Agricultural Information Bulletin No. 328; Washington, D. C.: U. S. Department of Agriculture, Economic Research Service, 1967.

12. Golstein, A., and Rosenfeld, A. "Optical Correlation for Terrain Type Discrimination," Photogrammetric Engineering, XXX, No. 4 (1964), 639-646.

13. Hoffer, R. M. Interpretation of Remote Multispectral Imagery of Agricultural Crops. Research Bulletin No. 831; Lafayette, Indiana: Purdue University, Agricultural Experiment Station, 1967.

14. Latham, J. P. "Remote Sensing of Environment," Geographical Review, LVI, No. 2 (1966), 288-291.

15. Latham, J. P., and Witmer, R. E. "Comparative Waveform Analysis of Multisensor Imagery," Photogrammetric Engineering, XXXIII, No. 7 (1967), 779-786.

16. Lowe, D. S., and Braithwaite, J. G. N. "A Spectrum Matching Technique for Enhancing Image Contrast," Applied Optics, V, No. 6 (1966), 893-898.

17. National Academy of Sciences--National Research Council. Spacecraft in Geographic Research. NAS-NRC Publication No. 1353; Washington, D. C.: National Academy of Sciences--National Research Council, 1966.

18. National Council on Marine Resources and Engineering Development. United States Activity in Spacecraft Oceanography. Washington, D. C.: U. S. Government Printing Office, 1967.

19. Olson, C. E. "Accuracy of Land Use Interpretation from Infra- Imagery in the 4.5 to 5.5 Micron Band," Annals of the Association of American Geographers, LVII, No. 2 (1967), 382-388.

20. Parker, D. C., and Wolff, M. F. "Remote Sensing," International Science and Technology, XLIII (1965), 20-31. (also in citation No. 1)

21. Risley, E. H. "Developments in the Application of Earth Observation Satellites to Geographic Problems," Professional Geographer, XIX (1967), 130-132.

22. Simonett, D. S., et al. The Potential of Radar as a Remote Sensor in Agriculture: A Study with K-Band Imagery in Western Kansas. CRES Report 61-21; Lawrence, Kansas: University of Kansas, Center for Research, Inc., Engineering Science Division, 1967.

23. Simpson, R. B. "Radar, Geographic Tool," Annals of the Association of American Geographers, LVI, No. 1 (March, 1966), 80-96.

24. University of Michigan. Peaceful Uses of Earth-Observation Spacecraft. Vol. I - Introduction and Summary, Vol. II - Survey of Applications and Benefits, Vol. III - Sensor Requirements and Experiments; Report No. 7219-1-F(1), (II), and (III); Ann Arbor: The University of Michigan, Institute of Science and Technology, Willow Run Laboratories, February, 1966.

University of Michigan. Proceedings of the First Symposium on Remote Sensing of Environment. Report No. 4864-1-X; Ann Arbor: The University of Michigan, Institute of Science and Technology, Willow Run Laboratories, 1962.

University of Michigan. Proceedings of the Second Symposium on Remote Sensing of Environment. Report No. 4864-3-X; Ann Arbor: The University of Michigan, Institute of Science and Technology, Willow Run Laboratories, 1963.

University of Michigan. Proceedings of the Third Symposium on Remote Sensing of Environment. Report No. 4864-9-X; Ann Arbor: The University of Michigan, Institute of Science and Technology, Willow Run Laboratories, 1965.

University of Michigan. Proceedings of the Fourth Symposium on Remote Sensing of Environment. Report No. 4864-11-X; Ann Arbor: The University of Michigan, Institute of Science and Technology, Willow Run Laboratories, 1966.

25. Yost, E. F., and Wenderoth, S. "Multispectral Color Aerial Photography," Photogrammetric Engineering, XXXIII, No. 9 (1967), 1020-1033.

PART II

TECHNICAL PUBLICATIONS

1. American Astronautical Society. Scientific Experiments for Manned Orbital Flight. Volume IV; Washington, D. C.: American Astronautical Society, 1965.

2. American Society of Photogrammetry. Manual of Color Aerial Photography. Washington, D. C.: American Society of Photogrammetry, Inc., 1968. $22.50.

3. _____. Manual of Photogrammetry. Edited by Morris M. Thompson, et al. Volume I and II; Washington, D. C.: American Society of Photogrammetry, Inc., 1966. $22.50.

4. _____. Manual of Photographic Interpretation. Washington, D. C.: American Society of Photogrammetry, Inc., 1960. $12.00.

5. Atkins, K. R. Physics. New York: John Wiley and Sons, Inc., 1966. $9.95.

6. Barton, D. K. Radar Systems Analysis. Englewood Cliffs: Prentice Hall, 1964. $16.95.

7. Bauer, G. Measurement of Optical Radiations. London: The Focal Press, 1965. $12.50.

8. Beckmann, P., and Spizzichino, A. The Scattering of Electromagnetic Waves from Rough Surfaces. New York: Macmillan Company, 1963. $15.00.

9. Berkowitz, R. S. Modern Radar, Analysis, Evaluation and System Design. New York: John Wiley and Sons, Inc., 1965. $19.50.

10. Bomback, E. S. Manual of Color Photography. Cranbury, New Jersey: A. S. Barnes Publishing Company, 1966. $12.00.

11. Brock, G. C. The Physical Aspects of Aerial Photography. New York: Dover Publications, Inc., 1967. $2.75.

12. Eastman Kodak Company Data Books. Color as Seen and Photographed. Infrared and Ultraviolet Photography. Kodak Wratten Filters. Kodak Data for Aerial Photography. Rochester: Eastman Kodak Company. $1.50.

13. Ewing, G. C. (ed.) Oceanography from Space. Reference No. 65-10; Woods Hole, Massachusetts: Woods Hole Oceanographic Institution, 1965.

14. Feynman, R. P., Leighton, R. B., and Sands, M. The Feynman Lectures on Physics. Palo Alto, California: Addison-Wesley Publishing Co., 1963. Volume I and II - $8.75; Volume III - $6.75.

15. Fink, D. G., and Lutyens, D. M. The Physics of Television. Anchor (Science Study Series, S-8); Garden City, New York: Doubleday Press, Inc., 1960. $1.25.

16. The Focal Encyclopedia of Photography. Vols. I and II; New York: The Focal Press, 1965. $39.00

17. Garbuny, M. Optical Physics. New York: Academic Press, 1965. $14.50.

18. Holter, M. R., et al. Fundamentals of Infrared Technology. New York: Macmillan Company, 1962.

19. Jamison, J. A., et al. Infrared Physics and Engineering. New York: McGraw-Hill Book Company, 1963. $19.50.

20. Kock, W. Sound Waves and Light Waves. Anchor (Science Study Series, S-40); Garden City, New York: Doubleday Press, Inc., 1965. $1.25.

21. Larmore, L. Introduction to Photographic Principles. New York: Dover Publications, Inc., 1965. $1.65.

22. Lueder, Donald R. Aerial Photographic Interpretation, Principles, and Applications. New York: McGraw-Hill Book Company, Inc., 1959. $23.50.

23. Martin, A. E. Infrared Instrumentation and Techniques. New York: Elsevier Publishing Company, 1966. $12.00.

24. Mees, C. E. K., and James, T. H. The Theory of the Photographic Process. 3rd Edition; New York: The Macmillan Company, 1967. $25.00.

25. Miller, F. College Physics. 2nd edition; New York: Harcourt, Brace and World, 1967. $10.50.

26. Parker, D. C., and Wolff, M. "Remote Sensing," International Science and Technology, XLIII (1965), 20-31. (Reprinted in American Society of Photogrammetry. Selected Papers on Remote Sensing of Environment. Washington, D. C.: American Society of Photogrammetry, Inc., 1966).

27. Pierce, J. Quantum Electronics. Anchor (Science Study Series, S-44); Garden City, New York: Doubleday Press, Inc., 1966. $1.25.

28. _____. Electrons and Waves. Anchor (Science Study Series, S-38); Garden City, New York: Doubleday Press, Inc., 1965. $1.25.

29. Poejsil, D. J., Raven, R. S., and Waterman, P. Airborne Radar. Cambridge: Boston Technical Publishers, Inc., 1965. $12.50.

30. Shurcliff, W. A., and Ballard, S. Polarized Light. New York: Van Nostrand Company, Inc., 1964.

31. Simon, I. Infrared Radiation. Princeton, New Jersey: Van Nostrand and Company, 1966. $1.50.

32. Skolnik, M. I. Introduction to Radar Systems. New York: McGraw-Hill Book Company, 1962. $14.50.

33. Spacecraft in Geographic Research. NAS-NRC Publication No. 1353; Washington, D. C.: National Academy of Sciences--National Research Council, 1966. $3.00

34. Stroke, G. W. An Introduction to Coherent Optics and Holography. New York: Academic Press, 1966. $10.00.

35. Study of Thermal Microwave and Radar Reconnaissance and Applications. Final Report, ASTIA Document No. 250363; Columbus: Ohio State University, July, 1960.

36. University of Michigan. Peaceful Uses of Earth-Observation Spacecraft. Report No. 7219-1-F(1), (II), and (III); Ann Arbor: The University of Michigan, Institute of Science and Technology, Willow Run Laboratories, February, 1966.

37. University of Michigan. Proceedings of the First Symposium on Remote Sensing of Environment. Report No. 4864-1-X; Ann Arbor: The University of Michigan, Institute of Science and Technology, Willow Run Laboratories, 1962.

38. University of Michigan. Proceedings of the Second Symposium on Remote Sensing of Environment. Report No. 4864-3-X; Ann Arbor: The University of Michigan, Institute of Science and Technology, Willow Run Laboratories, 1963.

39. University of Michigan. Proceedings of the Third Symposium on Remote Sensing of Environment. Report No. 4864-9-X; Ann Arbor: The University of Michigan, Institute of Science and Technology, Willow Run Laboratories, 1965.

40. University of Michigan. Proceedings of the Fourth Symposium on Remote Sensing of Environment. Report No. 4864-11-X; Ann Arbor: The University of Michigan, Institute of Science and Technology, Willow Run Laboratories, 1966.

41. Wheeler, G. J. Radar Fundamentals. Englewood Cliffs: Prentice Hall, Inc., 1967. $5.95.

42. Wolfe, W. (ed.) Handbook of Military Infrared Technology. Washington, D. C. Department of the Navy, Office of Naval Research, 1965.

PART III

USE OF REMOTE SENSING TECHNIQUES IN LAND USE INVESTIGATIONS

1. Alexander, R. H. "Geographic Research Potential of Earth-Satellites," Third Symposium on Remote Sensing of Environment. Ann Arbor: University of Michigan, Institute of Science and Technology, Willow Run Laboratories, 1964, 453-468.

2. Anschutz, G., and Stallard, A. H. "An Overview of Site Evaluation," Photogrammetric Engineering, XXXIII (1967), 1381-1396.

3. Atkinson, J. H., and Jones, R. E. "Atmospheric Limitations on Ground Resolution from Space Photography," SPIE Journal, I (1962-1963), 39-42.

4. Avery, T. E. "All Sorts of Stereograms," Photogrammetric Engineering, XXXIII, No. 12 (1967), 1397-1401.

5. Badgley, P. C., and Vest, W. L. "Orbital Remote Sensing and Natural Resources," Photogrammetric Engineering, XXXII, No. 5 (1966), 780-790.

6. Baker, M. L., and Victor, L. Y. "Effects of the Variation of Angle of Incidence and Temperature on Infrared Filter Characteristics," Applied Optics, VI, No. 8 (1967), 1343.

7. Baker, R. D. "Aerial Photographs in the Forest," Photogrammetric Engineering, XXXIII, No. 12 (1967), 1373-1376.

8. Barringer, A. R. "The Use of Multi-Parameter Remote Sensors as an Important New Tool for Mineral and Water Resource Evaluation," Fourth Symposium on Remote Sensing of Environment. Ann Arbor: University of Michigan, Institute of Science and Technology, Willow Run Laboratories, 1966, 313-325.

9. Batson, R. M. "Surveyor Spacecraft Television Photogrammetry," Photogrammetric Engineering, XXXIII, No. 12 (1967), 1365-1372.

10. Baumann, H. Forstliche Luftbildinterpretation. Schriftenreihe der Landesforstverwaltung Baden-Wurttemberg, No. 2. Tubingen-Bedenhausen: Selbstverlag der Forstdirektion Südwurttemberg-Hohenzollern, 1957.

11. Baumgardner, M. F., Hoffer, R. M., Johannsen, C. J., and Kozin, C. H. "Contributions of Automatic Crop Surveys to Agricultural Development," AIAA 4th Annual Meeting and Technical Display. Paper No. 67-766; Anaheim, California, October 23-27, 1967.

12. Becking, R. W. "Forestry Application of Aerial Color Photography," Photogrammetric Engineering, XXV, No. 4 (1959), 559-564.

13. Benninghoff, W. S. "use of Aerial Photographs in Mapping Vegetation and Surficial Geology in Subarctic Regions," Photogrammetric Engineering, XVI, No. 3 (1950), 428-429.

14. Benninghoff, W. S. "Use of Aerial Photographs for Terrain Interpretation Based on Field Mapping," Photogrammetric Engineering, XIX, No. 3 (1953), 487-490.

15. Billings, W. D., and Morris, R. J. "Reflection of Visible and Infrared Radiation from Leaves of Different Ecological Groups," American Journal of Botany, XXXVIII (1951), 327-331.

16. Boesch, H. H., and Brunnschweiler, D. H. "Seasonal Changes of Agricultural Landscape Interpreted from Aerial Photographs," Geographica Helvetica, XVI (1960), 257-261.

17. Boesch, H. H., and Steiner, D. Interpretation of Land Utilization from Aerial Photographs. Final Technical Report under U. S. Army Contract No. DA-91-591-EUC-975-01-1093-59; Zurich: University of Zurich, Geographical Institute, 1959.

18. Brunnschweiler, D. H. "Seasonal Changes of the Agricultural Pattern--A Study in Comparative Airphoto Interpretation," Photogrammetric Engineering, XXIII, No. 1 (1957), 131-139.

19. Brunt, M. "Aerial Photography and Land Use Planning," Papers of Technical Conference of Directors of Agriculture and Agricultural Institutions. London: Department of Technical Cooperation, 1961.

20. _____. "The Methods Used During the FAO Soil and Land Use Survey of the Bamenda Highlands, West Cameroon, West Africa," Paper read at UNESCO Conference on Integrared Aerial Surveys, Delft, 1962.

21. Buringh, P., and Vink, A. P. A. "Aerial Photo Interpretation in Land Use Surveys," Delft: Int. Training Centre for Aerial Survey, 1962. (Mimeographed)

22. Burke, G. F., and Wilson, R. C. "A Vegetation Inventory for Aerial Photographs," Photogrammetric Engineering, V, No. 1 (1939), 30-42.

23. Capurro, L. R. A. "Oceanography from Space," Bollettino di Geofisica Teorica ed Applicata, IX (1967), 3-16.

24. Carter, L. J. "Deep Seabed: 'Who Should Control it?' U. N. Asks," Science, CLIX, No. 3810 (1968), 66-68.

25. Charin, N. G. "New Methods of Vegetation Deciphering on Airphotos," Principy i Metody Geobotaniceskogo Rartografirovanija. Moskva: Leningrad Izdatelstvo Akademii Nauk USSR, 1962, 232-236.

26. Charter, S. "An Introduction to Infrared Aerial Photography in Agriculture," Journal of Agricultural and Food Chemistry, VII (1959), 536-539.

27. Clark, E. "The Space Program Meets Old Necessity," Astronautics and Aeronautics, V, No. 10 (1967), 18-19.

28. Clark, H. L. "Some Problems Associated with Airborne Radiometry of the Seas," Applied Optics, VI, No. 12 (1967), 2151-2157.

29. Clawson, M., and Steward, C. L. Land Use Information. Baltimore: Johns Hopkins Press, 1965.

30. Colwell, R. N. "Aerial Photography Benefits Agriculture," Proceedings 12th Annual Meeting Agricultural Research Institute. Washington: National Academy of Science-National Research Council, 1963, 195-215.

31. _____. "Aerial Photography of the Earth's Surface; Its Procurement and Use," Applied Optics, V, No. 6 (1966), 883-892.

32. _____. "The Estimation of Ground Conditions for Aerial Photographic Interpretation of Vegetation Types," Photogrammetric Engineering, XII, No. 2 (1946), 151-161.

33. _____. "The Extraction of Data from Aerial Photography by Human and Mechanical Means," Photogrammetria, XX (1965), 211-228.

34. _____. "Some Uses of Infrared Aerial Photography in the Management of Woodland Areas," Photogrammetric Engineering, XXVI, No. 5 (1960), 774-785.

35. _____. Testing the Concept and Practical Application of Multiband Reconnaissance. Semi-Annual Status Report; Berkeley: University of California, 1967.

36. Colwell, R. N., and Olson, D. L. "Thermal Infrared Imagery and Its Use in Vegetation Analysis by Remote Aerial Reconnaissance," Third Symposium on Remote Sensing of Environment. Ann Arbor: University of Michigan, Institute of Science and Technology, Willow Run Laboratories, 1964, 607-620.

37. Conaway, J., and Van Bavel, C. H. M. "Evaporation from a Wet Soil Surface Calculated from Radiometrically Determined Surface Temperatures," Applied Meteorology, VI, No. 4 (1967), 650-655.

38. _____. "Radiometric Surface Temperature Measurements and Fluctuations in Sky Radiant Emittance in the 600 and 1300 cm-1 Waveband," Agronomy Journal, LIX (1967), 389-390.

39. Condit, H. R., and Grum, F. "Spectral Energy Distribution of Daylight," Journal of the Optical Society of America, LIV, No. 7 (1964), 937-944.

40. Coulson, K. C., Gray, E. L., and Bouricius, G. M. A Study of the Reflection and Polarization Characteristics of Selected Natural and Artificial Surfaces. China Lake, California: General Electric, Space Sciences Laboratory, Missile and Space Division, May, 1965.

41. Current, I. B. "Sensitometry in Color Aerial Photography," Photogrammetric Engineering, XXXIII, No. 10 (1967), 1143-1150.

42. Dalke, G. W. "Implementation of Pattern Recognition Techniques as Applied to Geoscience Interpretation," Computer Applications in the Earth Sciences: Colloquium on Classification Procedures. Edited by Daneil F. Merriam.. Computer Contribution 7; Lawrence, Kansas: University of Kansas, State Geological Survey, 1966, 24-29.

43. Davis, K. M. Uses of Airphotos for Rural and Urban Planning. Economic Research Service Agricultural Handbook, No. 315; Washington, D. C.: U. S. Department of Agriculture, 1966.

44. Davis, W. O., and Kuettner, J. P. "Environmental Prediction Using Orbital Sensors," Paper 67-103 presented at the American Astronautical Society, 13th Annual Meeting, Dallas, Texas, May 1-3, 1967.

45. Dees, J. W. "Millimeter Wave Propagation Experiments from Satellites," Paper prepared for 1967 Martin Marietta Interdivisional Antenna Symposium, Buhker-Ramo Coporation, Canoga Park, California, August 21 and 22, 1967.

46. Dill, H. W. "Use of the Comparison Method in Agricultural Airphoto Interpretation," Photogrammetric Engineering, XXV, No. 1 (1959), 44-49.

47. _____. Worldwide Use of Airphotos in Agriculture. Agriculture Handbook, No. 344, Economic Research Service; Washington, D. C.: U. S. Department of Agriculture.

48. Doerr, A. H. "An Operating Scheme for Humid Tropical Land Inventories," The Professional Geographer, XII, No. 3 (1960), 6-10.

49. Doverspike, G. E., Flyn, F. M., and Heller, R. C. "Microdensitometer Applied to Land Use Classification," Photogrammetric Engineering, XXXI (1965), 294-306.

50. Doyle, F. J. "Mapping of the Land from Space," Paper presented at the American Astronautical Society, 13th Annual Meeting, Dallas, Texas, May 1-3, 1967.

51. Draeger, W. C., and Lauer, D. T. "Present and Future Forestry Applications of Remote Sensing from Space," Paper No. 67-765 presented at the AIAA 4th Annual Meeting and Technical Display, Anaheim, California, October 24-27, 1967.

52. Duddek, M. "Practical Experiences with Aerial Color Photography," Photogrammetric Engineering, XXXIII, No. 10 (1967), 1117-1125.

53. Durst, A. "Die Technischen Grundlagen der Luftbildinterpretation," M.A. These am Geographischen Institut der Universitat Zurich, Karten, 1958. (Manuscript)

54. Einevoll, O. "Airphotos in Mountain Region Grassland Surveying," Tidskrift for det Norske Landbruk (English Summary), LXV (1958), 101-134.

55. Elson, B. M. "Radar Simulator Uses Digital Computer," Aviation Week and Space Technology, LXXXVII, No. 16 (1967), 97-101.

56. Fagerholm, P. O. "The Application of Photogrammetry to Land Use Planning," Photogrammetric Engineering, XXV, No. 4 (1959), 523-529.

57. Falkner, E. "Land Use Changes in Parkway School District," Photogrammetric Engineering, XXXIV, No. 1 (1968), 52-57.

58. Feder, A. M. "Let's Use More of the Electro-Magnetic Spectrum," Gulf Coast Geological Association Transactions, 14th Annual Convention, 1964, 35-40.

59. Finley, V. P. Photo Interpretation of Vegetation--Literature and Analysis. Technical Report No. 69; Willmette, Illinois: Corps of Engineers, U. S. Army, U. S. Army Snow, Ice, and Permafrost Research Establishment, July, 1960.

60. Fischer, W. A., et al. Fresh Water Springs of Hawaii from Infrared Images. Technical Report No. HA-218; USGS Hydrologic Inventory Atlas, 1966.

61. Floyd, B. N. "Landscapes from the Air," Journal of Geography, IXV, No. 3 (1966), 125-128.

62. Fritz, N. L. "Optimum Methods of Using Infrared-Sensitive Color Films," Photogrammetric Engineering, XXXIII, No. 10 (1967), 1128-1138.

63. Gatland, K. "Surveillance from Orbit," Aeroplane and Astronautics, June 3, 1960, 678-679.

64. Geary, E. L. "Coastal Hydrography," Photogrammetric Engineering, XXXIV, No. 1 (1968), 44-50.

65. Gierloff, H. G. Luftbild und Kustengeographie. Landeskundliche Luftbildauswertung im Mitteleuropaischen Raum, IV. Bad Godesberg: Selbstverlag der Bundesanstalt fur Landeskunde und Raumforschung, 1961.

66. Gimbarzevsky, P. "Land Inventory Interpretation," Photogrammetric Engineering, XXXII, No. 6 (1966), 967-976.

67. Glasstone, S. Sourcebook on the Space Sciences. Princeton, New Jersey: D. Van Nostrand Company, Inc., 1965.

68. Goodman, M. S. "Criteria for the Identification of Types of Farming on Aerial Photographs," Annals of the Association of American Geographers, XLVIII (1958), 263.

69. _____. "A Technique for the Identification of Farm Crops in Aerial Photographs," Photogrammetric Engineering, XXV, No. 1 (1959), 131-137.

70. Green, N. E. "Aerial Photographic Analysis of Residential Neighborhoods: An Evaluation of Data Accuracy," Social Forces, 1956.

71. Hadfield, S. M. An Evaluation of Land Use and Dwelling Unit Data Derived from Aerial Photography. Report UR-1; Chicago: Chicago Area Transportation Study, 1963.

72. Haefner, H. "Air photo Interpretation of Rural Land Use in Western Europe," Photogrammetria, XXII, No. 4 (1967), 143-152.

73. _____. Vegetation und Wirtschaft der oberen Subalpinen und Alpinen Stufe im Luftbild. Landeskundliche Luftbildauswertung im Mitteleuropaischen Raum, VI. Bad Godesberg: Selbstverlag der Bundesanstalt fur Landeskunde und Raumforschung, 1963.

74. Hagen, T. "Wissenschaft Luftbild-Interpretation. Ein methoddischer Versuch," Geographica Helvetica, V (1950), 209-276.

75. Hammond, R. Air Survey in Economic Development. New York: American Elsevier Publishing Company, 1967, 246 p.

76. Harris, D. E., Woodbridge, C. O., and Casper, L. "Terrain Mapping by Use of Infrared Radiation," Photogrammetric Engineering, XXX, No. 1 (1964), 134-139.

77. Hegg, K. M. A Photo Identification Guide for the Land and Forest Types of Interior Alaska. Juneau, Alaska: Northern Forest Experiment Station, 1966.

78. Heller, R. C., Aldrich, R. C., and Bailey, W. F. "An Evaluation of Aerial Photography for Detecting Southern Pine Beetle Damage," Photogrammetric Engineering, XXV, No. 4 (1958), 595-606.

79. Hendley, C. D., and Hecht, S. "The Color of Natural Objects and Terrains and Their Relation to Visual Color Deficiency," Journal of the Optical Society of America, XXXIX, No. 10 (1949), 870-873.

80. Herrington, R. B., and Tocher, S. R. Aerial Photo Techniques for a Recreation Inventory of Mountain Lakes and Streams. Forest Service Research Paper INT-37; Ogden, Utah: U. S. Forest Service, Intermountain Forest and Range Experiment Station, 1967.

81. Hoffer, R. M., Holmes, R. A., and Shay, J. R. "Vegetative, Soil, and Photographic Factors Affecting Tone in Agricultural Remote Multispectral Sensing," Fourth Symposium on Remote Sensing of Environment. Ann Arbor: University of Michigan, Institute of Science and Technology, Willow Run Laboratories, 1966, 115-134.

82. Hofman, P. R. "Progress and Problems in Radar Interpretation," Photogrammetric Engineering, XXVI, No. 4 (1960), 612-618.

83. Hogg, D. C. "Millimeter-Wave Communication through the Atmosphere," Science, CLIX, No. 3810 (1968), 39-46.

84. Howe, R. H. L. "The Application of Aerial Photographic Interpretation to the Investigation of Hydrologic Problems," Photogrammetric Engineering, XXVI, No. 1 (1960).

85. _____. "Procedure of Applying Air Photo Interpretation in the Location of Ground Water," Photogrammetric Engineering, XXIV, No. 1 (March, 1958), 35-49.

86. Howe, G. M. "A Note on the Application of Air Photography to the Agricultural Geography of North-West Cardiganshire," Geography, XXXVI (1951), 15-20.

87. "Infrared Photography-Agriculture's Aerial Detective," Farm Technology, XIX (1963), 7, 12-21.

88. Ives, R. L. "Infrared Photography as an Aid in Ecological Surveys," Ecology, XX (1939), 433-439.

89. Jensen, H. A., and Colwell, R. N. "Panchromatic Versus Infrared Minus-Blue Aerial Photography for Forestry Purposes in California," Photogrammetric Engineering, XV, No. 2 (1949), 201-223.

90. Johnson, P. L., and Vogel, T. C. Vegetation of the Yukon Flats Region, Alaska. Research Report 209; Hanover, New Hampshire: U. S. Army CRREL, 1966.

91. Karth, J. E. "Prospects for Progress: Space in the 1970's," Astronautics and Aeronautics, V, No. 10 (1967), 86-92.

92. Karan, P. P. "A Land Use Reconnaissance in Nepal by Aero-Field-Techniques and Photography," Proceedings of the American Philosophical Society, 1960, 172.-187.

93. Kee, C. F. A Report in the Application of Airphoto Interpretation in the Federation of Malaya. International Archives of Photogrammetry, 1962.

94. Keegan, H. J., et al. Spectrophotogrammetric and Colometric Change in the Leaf of Natural Drying and Excessive Moisture. Report 4528 for Project 0201-02-2325; Washington, D. C.: National Bureau of Standards, 1955.

95. Keegan, H. J., et al. Spectrophotometric and Colometric Study of Diseased and Rust Resisting Cereal Crops. Report 4591 for Project 0201-02-2325; Washington, D. C.: National Bureau of Standards, 1956.

96. Kelly, G. L. "Applications for Pattern Recognition Techniques to Geoscience Interpretation," Computer Applications in the Earth Sciences: Colloquium on Classification Procedures. Edited by Daneil F. Merriam. Computer Contribution 7; Lawrence, Kansas: University of Kansas, State Geological Survey, 1966.

97. Kennedy, J. M., and Edgerton, A. T Microwave Radiometric Sensing of Soils and Sediments," Paper presented at the American Geophysical Union, 48th Annual Meeting, April 17-20, 1967.

98. _____. "Microwave Radiometric Sensing of Soil Moisture Contents," Paper presented at the International Union of Geodesy and Geophysics, 14th General Assembly, Berne, Switzerland, September 27-October 7, 1967.

99. Klaer, W. "Luftbildinterpretation und Landnutzung in Libanon," Paper presented at the Tenth International Congress of Photogrammetry, Lisboa, 1964.

100. Knestrick, G. L.,and Curico, J. A. "Measurements of Spectral Radiance of the Horizon Sky," Applied Optics, VI, No. 12 (1967), 2105-2109.

101. Kolipnski, M. C., and Higer, A. L. Applications of Aerial Photography and Remote Sensing to Hydrobiological Research in South Florida. Miami: U. S. Geological Survey, Water Resources Division, 1967.

102. Konoski, C. F. "Water and Cloud Temperatures Measured from U-2 Aircraft," Bulletin of the American Meteorological Society, XLV, No. 9 (1964), 581-486.

103. Konrad, T. G., Hicks, J. J., and Dobson, E. G. "Radar Characteristics of Birds in Flight," Science, CLIX, No. 3812 (1968), 274-280.

104. LaCote, D. S. "A Review of Landtype Classification and Mapping," Land Economics, XXVII, No. 3 (1961), 271-278.

105. Landgrebe, D. A. Automatic Identification and Classification of Wheat by Remote Sensing. Research Progress Report 279. Lafayette, Indiana: Purdue University Agricultural Experiment Station, 1967.

106. Latham, J. P. "Geographic Analysis and Remote Sensing Capability," Second Symposium on Remote Sensing of Enviroment. Ann Arbor: University of Michigan, Institute of Science and Technology, Willow Run Laboratories, 1966.

107. _____ Methodology for Instrumented Geographic Analysis. Bowling Green. Ohio: Bowling Green State University, Office of Naval Research, Geography Branch, Department of Geography, 1962.

108. Latham, J. P. "A Study of the Application of Electronic Scanning and Computer Devices to the Analysis of Geographic Phenomena." Technical Report No. 1; Philadelphia, Pennsylvania: University of Pennsylvania. Wharton School of Finance and Commerce, Geography and Industry Department. (Mimeographed)

109. Libby, W. F., et al. "The Worth of the Space Program," Paper presented at the AIAA 4th Annual Meeting and Technical Display, Anaheim, California, October 27, 1967.

110. Lyons, E. H. "Forest Sampling with 70 mm Fixed Air-Base Photography from Helicopters," Photogrammetria, XXII, No. 6 (1967), 213-231.

111. McAnerney, J. M. "Terrain Interpretation from Radar Imagery," Fourth Symposium on Remote Sensing of Environment. Ann Arbor: University of Michigan, Institute of Science and Technology, Willow Run Laboratories, 1966.

112. Mach, R. E., and Gardner, T. L. "Rectification of Satellite Photography by Digital Techniques," Photographic Science and Engineering, XI, No. 6 (1962).

113. Marble, D. F. and Thomas, E. U. "Some Observations on the Utility of Multispectral Photography for Urban Research," Fourth Symposium on Remote Sensing of Environment. Ann Arbor: University of Michigan, Institute of Science and Technology, Willow Run Laboratories, 1966.

114. Mason, J. F. "In Reconnaissance, The Eyes Have It," Electronics, XL (1967), 89-97.

115. Meienberg, P. "Die Landnutzungskartierung nach Pan-Infrarot und Farbluftbildern. (Ein Beitrag zur agrargeographischene Luftbild-interpretation und zu den Moglichkeiten der Luftbildphotographie)," Munchner Studien zur Sozial and Wirtschaftsgeographie. I. Regensburg: Im Verlag Michael Lassliben Kallmunz, 1966.

116. Meyer, M. P., and French, D. W. "Detection of Diseased Trees," Photogrammetric Engineering, XXXIII, No. 11 (1967), 1035-1040.

117. Meyer, M. P., and Woolfolk, E. J. "Anthill Infestations," Photogrammetric Engineering, XXXIII, No. 11 (1967), 1247-1249.

118. Miller, B. I. "Characteristics of Hurricanes," Science, CLVII, No. 3795 (1967), 1389-1399.

119. Miller, R. G. "The Interpretation of Tropical Vegetation and Crops on Aerial Photographs," Invited Paper to Commission VII, 9th International Congress of Photogrammetry, London, 1960. Photogrammetria, XVI (1960), 232-240. Also in Proceedings of the 9th International Congress of Photogrammetry, 1961, 126-136.

120. Monier, R. B., and Green, N. E. "Report on Current Research in Aerial Photography Interpretation as Related to Urban Geographic Studies," Annals of the Association of American Geographers, XLVII, No. 2 (1957), 172.

121. Moore, R. K.,and Simonett, D. S. "Potential Research and Earth Resource Studies with Orbiting Radars: Results of Recent Studies," Paper presented at the AIAA 4th Annual Meeting and Technical Display, Paper No. 67-767, Anaheim, California, October 23-27, 1967.

122. _____. "Radar Remote Sensing in Biology," Bioscience, XVII, No. 6 (1967), 384-390.

123. Morain, S. A. Field Studies on Vegetation at Horsefly Mountain, Oregon, and Its Relation to Radar Imagery. CRES Report No. 61-22; Lawrence, Kansas: The University of Kansas, Center for Research, Inc., Engineering Science Division, 1967.

124. Morain, S. A., and Simonett, D. S. "Vegetation Analysis with Radar Imagery," Fourth Symposium on Remote Sensing of Environment. Ann Arbor: University of Michigan, Institute of Science and Technology, Willow Run Laboratories, 1966, 605-622.

125. Moxham, R. M., et al. Thermal Features at Mount Rainier, Washington as Revealed by Infrared Surveys. Professional Paper 525-D; Washington, D. C.: U. S. Geological Survey, 1965, D99-D100.

126. Mumbower, L., and Donoghue, J. "Urban Poverty Study," Photogrammetric Engineering, XXXIII, No. 6 (1967), 610-618.

127. Nakana, T. "Land Use and Vegetation Mapping by Means of Aerial Photo Interpretation in Japan." Report to Working Party on Rural Land Use, IGU Comm. Interpretation of Aerial Photography; Tokyo: Tokyo Metropolitan University, Department of Geography, 1964. (Manuscript)

128. "New IR Radiometer Planned for Tiros IV," Aviation Week and Space Technology, LXXXVIII, No. 4 (1968), 78.

129. Norton, C. L. "Aerial Cameras for Color," Photogrammetric Engineering, XXXIV, No. 1 (1968), 36-42.

130. Ory, T. R. "Line Scanning Reconnaissance Systems in Land Utilization and Terrain Studies," Third Symposium on Remote Sensing of Environment. Ann Arbor: University of Michigan, Institute of Science and Technology, Willow Run Laboratories, 1964, 393-398.

131. Perry, B. L. "Preservation of Color Integrity in Multistage Photography," Applied Optics, VI. No. 12 (1967), 2158-2162.

132. Philpotts, L. E. Aerial Photo Interpretation of Land-Use Changes. (Background Studies for Resource Development in the Tweed Forest District). Ontario: Ontario Agricultural College, Department of Agricultural Economics, 1963.

133. Philpotts, L. E. Aerial Photo Interpretation of Land Use Changes in Madawaska County, New Brunswick, 1944 to 1961. Ottawa: Canada Department of Agriculture, Economic Division, 1964.

134. _____. The Use of the Aerial Photo in the Change of Land Use in Southwestern Saskatchewan. Ottawa: Canada Department of Agriculture, 1957.

135. Preston, F. W. "Two-Dimensional Power Spectra for Classification of Land Forms," Computer Applications in the Earth Sciences: Colloquium on Classification Procedures. Edited by Daneil F. Merriam.. Computer Contribution 7, Lawrence, Kansas: University of Kansas, State Geological Survey, 1966, 64-69.

136. Pryor, W. T. "Evaluation of Aerial Photography and Mapping in Highway Development," Photogrammetric Engineering, XXX, No. 1 (January, 1964), 111-123.

137. Rafique, M. M., and Saleem, M. Infrared Technology--A Bibliography. Lahore, Pakistan: Atomic Energy Centre, April, 1966.

138. Rall, L. L. "Geographic Data Processing," Photogrammetric Engineering, XXII, No. 6 (1966), 978-986.

139. Rawcliffe, R. D., and Randall, C. M. "Metal Mesh Interference Filters for the Far Infrared," Applied Optics, VI, No. 8 (1967), 1353.

140. Rawson, E. R., and Sealy, K. R. "Air Photographs and Land-Utilization Maps," Geography, XLII, Part I, No. 195 (1957), 60-63.

141. Raychandhuri, S. P., and Murphy, R. S. "Land Classification for Agricultural Development," Soils and Fertilizers, XXVIII, No. 4 (1960), 235-240.

142. "Remote Sensing of Air and Water Pollution." Paper presented at the Annual Conference sponsored by Cartwright Aerial Surveys, Inc., Sacramento, California, February 2-3, 1967.

143. Reynders, J. J. "The Analysis of Shifting Cultivation Areas," Transactions of the Symposium on Photo Interpretation, September, 1962. Edited by Commission VII. Delft, The Netherlands: International Society for Photogrammetry, 1963. Also in Archives Internationales de Photogrammetrie, XIV, 171-176.

144. Richter, D. M. "An Airphoto Index to Physical and Cultural Features in the Western United States," Photogrammetric Engineering, XXXIII, No. 12 (1967), 1402-1419.

145. Risley, E. M. "Satellites for Earth Surveys," Earth Sciences Newsletter, No. 2 (1967), 1-3. (Division of Earth Sciences, NAS-NAE-NRC, Washington, D. C.)

146. Robertson, V. C. "Aerial Photography and Proper Land Utilization," Photogrammetric Record, I, No. 6 (1955), 5-12.

147. Robinove, C. J., and Skibitzke, H. E. "An Airborne Multispectral Television System," Geological Survey Research 1967. Professional Paper 575-D; Washington, D. C.: U. S. Geological Survey, 1967.

148. Rouse, J. W., Jr., and Walters, R. L. Radar Sensing for Geoscience Purposes. Contract NSR-17-004-003, Semi-annual Progress Report, July 1, 1966 - January 1, 1967, x67-12529; Lawrence, Kansas: University of Kansas, Center for Research, Inc., 1967.

149. Rouse, J. W., Waite, W. P., and Walters, R. L. Use of Orbital Radars for Geoscience Investigations. CRES Report No. 61-8; Lawrence, Kansas: University of Kansas, Center for Research, Inc., Engineering Science Division, 1965.

150. Saunders, D. F., Pressman, A. E., Kinsman, F. D., and Staff. T.I. Remote Sensing Experience Related to Earth Resources Satellite Mission. (Summary of Briefing) Greenbelt, Maryland: Texas Instruments, Inc., NASA Goddard Space Flight Center, 1967.

151. Sanderson, J. A. "Optics at the Naval Research Laboratory," Applied Optics, VI, No. 12 (1967), 2029-2043.

152. Schmidt-Kraepelin, E. "Methodische Fortschritte der wissenchaftlichen Luftbild-Interpretation," Erdkunde, 12 (1958), 81-107; 13 (1959), 201-213; 14 (1960), 99-115.

153. Schmidt-Kraepelin, E., and Schneider, S. Luftbildinterpretation in der Agrarlandschaft. Luftbildauswertung im Mitteleuropaischen Raum, Heft 7; Bad Godesberg, West Germany: Schriftenfolge des Instituts fur Landeskunde in der Bundesanstalt fur Landeskunde und Raumforschung, 1966.

154. Schneider, S. "Der Interpretationswert des farbigen Luftbildes," Bildmessung und Luftbildwesen. Bd. 34, 3-4. (Bericht uber die im Rahmen des Geodatschen Kolloquiums der Technischen Hochschule Karlsruhe von der Deutschen Gesellschaft fur Photogrammetrie veranstalteten Vortragsreihe am 28, Januar 1966 in Karlruhe).

155. _____. "Die Landeskundliche Luftbildauswertung in Deutschland," Berichte zur Deutschen Landskunde, 25 (1960), 144-147.

156. _____. "Die Stelluing der Luftbildinterpretation in Landesforschung," Berichte zur Deutschen Landskunde, 30, No. 1 (1962), 73-84.

157. Schulte, O. W. "The Use of Panchromatic, Infrared, Color Aerial Photography in the Study of Plant Distributions," Photogrammetric Engineering, XVII, No. 5 (1951), 688-714.

158. Schwidefsky, K. "Kontrastubertragungs-Funktionen zur Bewertung der Bildgute in der Photogrammetrie," Bildmessung und Luftbildwesen, 28 (1960), 86-101.

159. "Scientists Study Data Linking Earth, Moon," Aviation Week and Space Technology, LXXXVII, No. 15 (1967), 29-30.

160. Sherman, J. C. "Accumulation of Geographic Data Through Remote Sensing Techniques," Second Symposium on Remote Sensing of Environment. Ann Arbor: University of Michigan, Institute of Science and Technology, Willow Run Laboratories, 1963, 427-429.

161. Simonett, D. S. "Applications on Color Combined Multiple Polarization Radar Images to Geoscience Problems," Computer Applications in the Earth Sciences: Colloquium on Classification Procedures. Edited by Daneil F. Merriam. Computer Contribution 7; Lawrence, Kansas: University of Kansas, State Geological Survey, 1966, 19-23.

162. _____. Present and Future Needs of Remote Sensing in Geography. CRES Report No. 61-12; Lawrence, Kansas: University of Kansas, Center for Research, Inc., Engineering Science Division, 1966.

163. Simonett, D. S., et al. The Potential of Radar as a Remote Sensor in Agriculture: A Study with K-Band Imagery in Western Kansas. CRES Report 61-21; Lawrence, Kansas: University of Kansas, Center for Research, Inc., Engineering Science Division, 1967.

164. Simons, J. H., and Beccasio, A. D. An Evaluation of Geoscience Applications of Side-Looking Airborne Mapping Radar. Autometric Raytheon Company, 1964.

165. Sledge, O. D. Airborne Sensors. Washington, D. C.: Naval Research Laboratories, 1966.

166. Smith, H. T. U. Eolian Geomorphology, Wind Direction, and Climatic Change in North Africa. Final Report Under Contract No. AF 19 (628)-298; Boston: University of Massachusetts, March, 1963.

167. _____. Photo Interpretation Studies in the Sand Hills of Western Nebraska. Supplementary Report under Contract No. ONR-868(00); Lawrence, Kansas: University of Kansas, June, 1963.

168. _____. Photo Interpretation of Terrain. Publication No. GG209/1; Washington, D. C.: Department of Defense, Research and Development Board, 1953.

169. Smith, R. A., Jones, F. E., and Chasmer, R. P. (ed.) The Detection and Measurement of Infrared Radiation. 2nd edition; New York: Oxford University Press, 1967.

170. Sorem, A. L. "Principles of Aerial Color Photography," Photogrammetric Engineering, XXXIII, No. 9 (1967), 1008-1018.

171. Sridas, S. Interpretation and Mapping of Rural Land Use from Air Photographs in Ceylon. Report to Working Party on Rural Land Use; Colombo: IGU, Resources Survey Centre, 1964.

172. Steiner, D. Die Bedeutung der jahreszeitlichen Aspekte fur die Landnutzungsinterpretation auf Luftbildern, gezeigt am Beispiel einer alpinen Agrarlandschaft (Heinzenberg, Graubunden). Landeskundliche Luftbildauswertung im Mitteleuropaischen Raum, Heft 3; Bad Godesberg: Institut fur Landeskunde, 1960, 51-55.

173. _____. "Eine Einfache Methode der Reflexionsmessung im Gelande und Ihre Anwendung bei Problemen der Landnutzungsinterpretation von Luftbildern," Bildmessung und Luftbild, 29 (1961), 123-133.

174. _____. "Die Frage der gunstigsten Jahreszeit bei der Landnutzungsinterpretation auf panchromatischen Luftbildern," Paper fur den 9, Internationalen Kongress fur Photogrammetrie; London: Geographisches Institut der Universitat Zurich, 1960.

175. _____. Index to the Use of Aerial Photographs for Rural Land Use Studies. Bad Godesberg: Selbstverlag der Bundesanstalt fur Landeskunde und Raumforschung, 1967.

176. _____. Die Jahreszeit als Faktor bei der Landnutzungs-interpretation auf Panchromatischen Luftbildern gezeigt am Beispiel des Schweizerischen Mittellandes. Landeskundliche Luftbildauswertung im Mitteleuropaischen Raum. Bad Godesberg: Selbstverlag der Bundesanstalt fur Landeskunde und Raumforschung, 1961.

177. _____. "Zur Technik und Methodik der Landnutzungs-interpretation von Luftbildern," Berichte zur Deutschen Landeskunde, XXIX, No. 1 (1962), 99-130.

178. _____. Die Verwndung von Luftbildern bei Wirtschaftsgeographischen Untersuchungen im alpinen Gebiet, dargestellt am Beispiel Heinzenberg (Graubunden). Zurich: Geographischen Institut der Universitat, Diplomarbeit, 1956. (Manuscript)

179. _____. "Use of Air Photographs for Interpreting and Mapping Rural Land Use in the United States," Photogrammetria, XX (1965), 65-80.

180. _____. "A Worldwide Survey of the Application of Air Photographs to Interpreting and Mapping Rural Land Use," Paper presented on Conference on Principles and Methods of Integrating Aerial Survey Studies of Natural Resources of Potential Development, Toulouse, 1964.

181. Steiner, D., and Haefner, H. "Tone Distortion for Automated Interpretation, Automatic Quantitative Discrimination of Terrain Cover on Aerial Photographs Presents Problem Relative to Densitometric Measurements," Photogrammetric Engineering, XXXI (1965), 269-280.

182. Stephan, J. G. "Mapping the Ocean Floor," Photogrammetric Engineering, XXXIII, No. 3 (1967), 312-317.

183. Strandberg, C. H. Aerial Discovery Manual, New York: John Wiley and Sons, 1967.

184. _____. "Photoarchaeology," Photogrammetric Engineering, XXXIII, No. 10 (1967), 1152-1157.

185. Stokes, G. A. "The Aerial Photograph, A Key to the Cultural Landscape," Journal of Geography, XLIX (1950), 32-40.

186. Stubner, K. "Das Luftibld im Dienste Geomorphologescher Fein Analyse," Insebesondere der Badenersoins Forschung (Jena), 1953. (Mimeographed)

187. Studies of New Target Discrimination Techniques with an IR Image Tube. Final Report, Contract NONR-3909(00); Cambridge, Massachusetts: Block Engineering Company, 1962.

188. Sullivan, G. H. "Marine and Aerospace Symbiosis," Paper No. 67-961 presented at the AIAA 4th Annual Meeting and Technical Display, Anaheim, California, October 23-27, 1967.

189. Tolbot, W. J. "Land Utilization Surveys by Field Mapping and by Air Photo Interpretation," South African Journal of Photogrammetry, II (1963), 5-12.

190. Thomas, P. G. "Global Weather Forecasting," Space/Aeronautics, XL, No. 5 (1967), 76-89.

191. Thomas, E. N., and Marble, D. F. "The Use of Remote Sensors in Urban Information Systems," Proceedings of the Third Annual Conference on Urban Planning Information Systems and Programs. Chicago: American Society of Planning Officials and Northwestern University, 1966.

192. Tousey, R. "Highlights of Twenty Years of Optical Space Research," Applied Optics, VI, No. 12 (1967), 2044-2070.

193. Trachsel, A. F. "Electro-Optical Rectifier," Photogrammetric Engineering, XXXIII, No. 5 (1967), 513-524.

194. Trapnell, C. G. "The Uses of Aerial Photographs in Vegetation, Soil and Land Use Surveys," A paper read to the Nairobi Scientific and Philosophical Society, 1952. (Manuscript)

195. U. S. Naval Photographic Intelligence Center. A Guide to Pacific Landforms and Vegetation for Use in Photographic Interpretation. USNPIC Report No. 7; Washington, D. C.: U. S. Naval Photographic Intelligence Center, 1945.

196. "United States Activities in Spacecraft Oceanography," The National Council on Marine Resources and Engineering Development, October 1, 1967.

197. Van Valkenburg, S. "The World Land Use Survey," Economic Geography, XXVI, No. 1 (1950), 1-5.

198. Vidal, R. S. "Land Use Mapping in Chile," Photogrammetria, XXII, No. 5 (1967), 153-159.

199. Vink, A. P. A. Die Bodenkartierung mit Hilfe der Luftbildinterpretation unter europaischen Verhaltnissen. Bad Godesberg: Berichte zur Deutschen Landeskunde und Raumforschung, 1962.

200. Vivian, W. E. "Applications of Passive Microwave Techniques in Terrain Analysis," Second Symposium on Remote Sensing of Environment. Ann Arbor: University of Michigan, Institute of Science and Technology, Willow Run Laboratories, 1963, 119-125.

201. Von Braun, W. "Space Prospects Before the Space Age Began--and Today," Astronautics and Aeronautics, V, No. 10 (1967), 44-49.

202. Wagner, R. R. "Using Air Photos to Measure Changes in Land Use Around Highway Interchanges," Photogrammetric Engineering, XXIX, No. 4 (1963), 654-649.

203. Wallace, R. E., and Moxham, R. M. "Use of Infrared Imagery in Study of San Andreas Fault System, California," Geological Survey Research 1967. Professional Paper 575-D; Washington, D. C.: U. S. Geological Survey, 1967.

204. "Watching the Invisible Enemy," Electrons, XL (1967), 100-103.

205. Weiner, M. M. "Atmospheric Turbulence in Optical Surveillance Systems," Applied Optics, VI, No. 2 (1967), 1984-1991.

206. Wellar, B. Generalization of Housing Quality Data from Multiband Aerial Photographs. Evanston, Illinois: Northwestern University, Department of Geography, Geographic Applications Program, 1967.

207. Westermann, J. H., and Zonneveld, J. I. S. Photo-geological Observations and Land Capability and Land Use Survey of the Island of Bonaire (Netherlands Antilles). Amsterdam: Koninklijk Institut voor de Tropen, Nedeling No. 123, Afdeling Tropische Producten No. 47, 1956.

208. Westlander, A. E. and Wilson, R. C. "Classifying Forest and Other Vegetation from Air Photography," Photogrammetric Engineering, VIII, No. 3 (1942), 203-215.

209. Williams, R. S., and Ory, T. R. "Infrared Imagery Mosaics for Geological Investigations," Photogrammetric Engineering, XXXIII, No. 12 (1967), 1377-1380.

210. Winogradow, B. W. Objektive Methoden fur die Analyse der Vegetationswierdergabe auf Luftbildern. Ubersetzung aus dem Russischen, zitiert bei Haefner 1963; aus: Ispol'zovanie aerometodov pri issledovanii priorduych resursov 5-15. Moskau/Leningrad: Laboratorija Aerometodov, Akademija Nauk USSR, 1961.

211. Witmer, R. E. Waveform Analysis of Geographic Patterns Recorded on Visible and Infrared Imagery. Technical Report No. 4 for Office of Naval Research, Geography Branch, Task NR 387-034, Contract NONR 4761(00); Boca Raton: Florida Atlantic University, 1966.

212. Young, L. Advances in Microwaves. Volume I; New York: Academic Press, Inc., 1966.

213. Young, H. S. "Recent Advances in Forest and Wildlife Photogrammetry Maine Forester, (1967), 23-27.

214. Zirkind, R. (ed.) Electromagnetic Sensing of the Earth from Satellites, Proceedings of the Symposium held on November 22-24, 1965. Brooklyn, New York: Polytechnic Press of the Polytechnic Institute, 1966.

PART IV

TECHNIQUES OF DATA HANDLING AND AUTOMATIC DATA PROCESSING

1. Alexander, N. E., and Blak, D. P. "Automatic Counting of Bacterial Cultures--A New Machine," IRE Transactions on Medical Electronics, PGME-XII (December, 1958), 89-92.

2. Arduini, A. Processing of Sensory Visual Information. Final Report. Parma University, 1966.

3. Baumgardner, M. F., Hoffer, R. M., Johannsen, C. J., and Kozin, C. H. "Contributions of Automatic Crop Surveys to Agricultural Development." Paper presented at the AIAA 4th Annual Meeting and Technical Display, Paper No. 67-766, Anaheim, California, October 23-27, 1967.

4. Bertram, S. "The Universal Automatic Map Compilation Equipment," Photogrammetric Engineering, XXI, No. 2 (March, 1965), 244-260.

5. Colwell, R. N. "The Extraction of Data from Aerial Photography by Human and Mechanical Means," Photogrammetria, XX (1965), 211-228.

6. Cook, J. C. "Monocycle Radar Pulses as Environmental Probes," Second Symposium on Remote Sensing of Environment. Ann Arbor: University of Michigan, Institute of Science and Technology, Willow Run Laboratories, 1963, 223-234.

7. Coppock, J. T. "Electronic Data Processing in Geographical Research," Professional Geographer, XIV, No. 4 (1962), 1-4.

8. Crandall, C. J. "Advanced Radar Map Compilation Equipment," Photogrammetric Engineering, XXIX, No. 6 (1963), 947-955.

9. Curtis, D. W. A Mathematical Model for Radar Return Statistics with Applications to Radar Mapping and Radar Altimetry. Report No. AEEM-217, AAP-3268; Goodyear Aerospace Corporation, 1961.

10. Dalke, G. W. "Implementation of Pattern Recognition Techniques as Applied to Geoscience Interpretation," Computer Applications in the Earth Sciences: Colloquium on Classification Procedures. Edited by Daneil F. Merriam.. Computer Contribution 7; Lawrence, Kansas: University of Kansas, State Geological Survey. 1966, 24-29.

11. Doverspike, G. E., Flyn, F. M., and Heller, R. C. "Microdensitometer Applied to Land Use Classification," Photogrammetric Engineering, XXXI (1965), 294-306.

12. Duke, R. D. Automatic Data Processing: Its Application to Urban Planning. East Lansing: Michigan State University, Institute for Community Development and Services, 1961.

13. Esten, R. D. "Automatic Photogrammetric Instruments," Photogrammetric Engineering, XXX, No. 4 (1964), 544-558.

14. Goodyear Aerospace Corporation. Extraction of Mapping Detail from Radar Photography. Report No. GERA-633; Goodyear Aerospace Corporation, 1961.

15. Goodyear Aerospace Corporation. Glossary of Radar Image Interpretation and Preliminary Draft of Suggested Radar Grammetric Nomenclature. Report No. AAP-22681; Goodyear Aerospace Corporation, (preliminary draft, date unknown).

16. _____. Image Interpretation Annotated Bibliography. Report No. AAP-20557; Goodyear Aerospace Corporation, 1964.

17. Hannah, L. D., et al. The Experimental Evaluation Multisensor Intelligence System. Technical Document Report No. RADC-TDR-64-160, 1964

18. Harmon, L. D. "Automatic Reading of Printing and Script." A Report to the AAAS-ASP Symposium on Automatic Recognition of Form, Montreal, Canada, 1964.

19. Hawkins, J. K., and Munsey, C. J. "Automatic Photo Reading," Photogrammetric Engineering, XXXI, No. 4 (1963).

20. Highleyman, W. H. "A Note on Optimum Pattern Recognition Systems," IRE Transactions on Electronic Computers, EC-X, No. 2 (June, 1961), 287-288.

21. Hobrough, C. L. "Automation in Photogrammetric Instruments," Photogrammetric Engineering, XXXI, No. 4 (1965).

22. Hunt, G. R., Salisbury, J. W., and Reed, J. W. Rapid Remote Sensing by Spectrum Matching Techniques. Part II: Application in the Laboratory and in Lunar Observations. Air Force Cambridge Research Labs., Massachusetts, 1966.

23. Kalmback, E. R. "A Scanning Device Useful in Wildlife Work," Journal of Wildlife Management, XIII, No. 2 (1949), 226-227.

24. Kao, R. C. "The Use of Computers in the Processing and Analysis of Geographic Information," Geographical Review, LIII (1963), 530-547.

25. Kelly, D. H. "Systems Analysis of the Photographic Process. Part I: A Three Stage Model," Journal of the Optical Society of America, L (1960), 269-276.

26. _____. "Systems Analysis of the Photographic Process. Part II: Transfer Function Measurements," Journal of the Optical Society of America, LI (1961), 319-330.

27. Kelly, Gerry L. "Applications of Pattern Recognition Techniques to Geoscience Interpretation," Computer Applications in the Earth Sciences: Colloquium on Classification Procedures. Edited by Daneil F. Merriam. Computer Contribution 7; Lawrence, Kansas: University of Kansas, State Geological Survey, 1966.

28. Konovalov, N. Y., and Gulenko, V. P. "A Numerical Model of a Terrain for Plotting an Alignment by Means of a Computer," Transportnoye stroitel'stvo, No. 1 (1963).

29. Krause, F. R., and Fisher, M. J. Remote Sensing with Optical Cross-Correlation Methods. Chicago: IIT Research Institute, December, 1966, 191-214.

30. Landgrebe, David A. Automatic Identification and Classification of Wheat by Remote Sensing. Research Progress Report No. 279, LARS Information Note 21567; Lafayette, Indiana: Purdue University, Agricultural Experiment Station, 1967.

31. Langley, P. B. "Computer Analysis of Spectrophotometric Data as an Aid in Optimizing Photographic Tone Contrast," Proceedings of the Symposium on Detection of Underground Objects, Materials, and Properties. Ft. Belvoir, Virginia, March, 1962, 103-115.

32. Latham, J. P. Possible Applications of Electronic Scanning and Computer Devices to the Analysis of Geographic Phenomena. Technical Report No. 1; Philadelphia: University of Pennsylvania Wharton School of Finances and Commerce, Geography and Industry Department, 1959.

33. Levine, D. "Automatic Production of Contour Maps from Radar Interferometer Data," Paper presented to American Society of Photogrammetry, Semiannual Meeting, September, 1965, Dayton, Ohio.

34. McLeish, W. L. "The Use of an Infrared Mapper in the Study of Small-scale Ocean Circulations," Third Symposium on Remote Sensing of Environment. Ann Arbor: University of Michigan, Institute of Science and Technology, 1965, 717-736.

35. Mach, R. E., and Gardner, T. L. "Rectification of Satellite Photography by Digital Techniques," Photographic Science and Engineering, VI, No. 6 (1962).

36. Mansberg, H. P. "Automatic Particle and Bacterial Colony Counter," Science, CXXVI, No. 3278 (October 25, 1957), 823-827.

37. Merriam, D. F. Computer Applications in the Earth Sciences: Colloquium on Classification Procedures. Computer Contribution 7; Lawrence, Kansas: University of Kansas, State Geological Survey, 1966.

38. Moore, G. A. "Direct Quantitative Analysis of Photomicrographs by a Digital Computer," Photography, Science, and Engineering, VIII, No. 3 (1964).

39. Nordbeck, S. Location of Areal Data for Computer Processing. Lund Studies in Geography, Series C, General and Mathematical, II; Lund, Sweden: Lund University, 1962.

40. Ray, R. G., and Fischer, W. A. "Quantitative Photography--A Geologic Research Tool," Photogrammetric Engineering, XXVI, No. 1 (1960).

41. Rosenfeld, A. "An Approach to Automatic Photographic Interpretation," Photogrammetric Engineering, XXXIII (1962), 660-665.

42. _____. "Automatic Imagery Interpretation," Photogrammetric Engineering, XXXI, No. 2 (1965).

43. Selfridge, G. G., and Neisser, V. "Pattern Recognition by Machines and Man," Scientific American, 1960, 60-68.

44. Spinrad, R. J. "Computers or Multichannel Analyzers," Nucleonics, XXI, No. 24 (1963), 46-49.

45. Stark, M. C. Automatic Image Matching in Stereo Photogrammetry. U. S. Department of Commerce, National Bureau of Standards, NBS 4230434, February 4, 1965.

46. _____. Pictorial Data Processing. NBS-1203-12-12434; Washington, D. C.: National Bureau of Standards, February 4, 1964.

47. Steiner, D., and Haefner, H. "Tone Distortion for Automated Interpretation," Photogrammetric Engineering, XXXI (1965), 269-280.

48. Stevens, M. E. A Survey of Automatic Reading Techniques. NBS Report; Washington, D. C.: National Bureau of Standards, 1961.

49. Stratton, R. S. A Display Simulator for Colored Image Presentation. California: Rand Corporation, December, 1966.

50. Tooler, Waldo R. "Automation and Cartography," Geographical Review, XLIX, No. 4 (1959), 526-534.

51. Uhr, L. "Pattern Recognition Computers as Models for Perception," Psychological Bulletin, 1962.

52. Uhr, L., Vossler, C., and Uleman, J. "Pattern Recognition Over Distortions by Human Subjects and by a Computer Simulation of a Model for Human Perception," Journal of Experimental Psychology, LXIII (1962), 227-234.

53. U. S. Army Engineer. Optimized Digital Automatic Map Compilation System. U. S. Army Eng. GIMRADA Report AD603861, 1964.

54. Vermont Central Planning Office. Methods and Procedures for Conducting Multipurpose Planning. Surveys Using Electronic Data Processing Techniques. Montpelier: Vermont Central Planning Office, 1963.

55. Weissenstein, H. G. "Simple Machine Method for Area Computation," Surveying and Mapping, XIV, No. 1 (January-March, 1954), 75-79.