

VA
Durham, N.C.

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July 24, 1980

Michael A. Lamastra
Material Licensing Branch
Division of Fuel Cycle and
Material Safety
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Re: Control No. 98333

Dear Sir:

This is in reply to a letter from William J. Walker, Jr., dated March 18, 1980, concerning our application for renewal of Byproduct Material License No. 32-01134-01, and offers the information requested in that letter.

1. The current membership of the Radioisotope Safety Committee is attached as Attachment A1. Statements of curriculum vitae for the committee constitute Attachment A2.
2. Page 2 of Form NRC-313m has been completed and is attached, following A2.
3. The training and experience of Mr. Conrad M. Knight are documented on Form NRC-313M-Supplement A (attachment B1) and his curriculum vitae (Attachment B2).
4. The Radioisotope Safety Committee has adopted the criteria specified in Appendix A, NRC Regulatory Guide 10.8, for physicians authorized to use radioactive material in or on humans. All applicants for authorized use of radioactive material are required to submit an Application for Use of Radioactive Material (Attachment C1, 4 pages). Applicants for use in or on humans must also submit Supplements A and B (Attachments C2 and C3). It may be seen that Supplement B is identical to Form NRC-313M-Supplement B.
5. The Radioisotope Safety Committee evaluates for adequacy the training and experience of non-physician users and physician users for non-human research as submitted on the Application for Use of Radioactive Material (Attachment C1.) The committee requires evidence of previous training in handling radioactive materials, commensurate with the quantities and types for which application is made. Deficiencies in training are required to be removed by attendance at special refresher

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courses (see below) or by attendance at courses at Duke University Medical Center.

6. Two programs of personnel training have been planned and/or instituted.
 - a. A six-hour course, conducted over 3 days, was instituted in May, 1980, for personnel who work with radioactive material, and attendance was made mandatory. Not all personnel could attend the first course without significant compromise to the institution's research activities, and additional courses will be conducted at approximately 4-month intervals until all current personnel have attended. Thereafter, the course will be conducted annually or as needed; special sessions will be held in the event of sudden important changes in operating rules, such as changes in waste-disposal procedures.
 - b. A two-hour condensed training session for other personnel (nursing, clerical, security, housekeeping, etc.) is in preparation and will be instituted as soon as staffing patterns recover from the impact of summer vacations.

The content of the courses, which are conducted by the Radiation Safety Officer, has been specifically designed to comply with the requirements of Section 19.12 of 10CFR19, as elaborated in paragraph 6 of Dr. Walker's letter.

7. It is not anticipated that any by-product material will be used in brachytherapy at the Durham VA Medical Center. The sources that are in patient use, as noted in Calibration of Radiation Instruments (Attachment D1) are at Duke University Medical Center, where the Duke Radiation Safety Office performs the calibrations, under contract with the Durham VAMC.
8. Therapeutic use of radiopharmaceuticals at Durham VAMC is restricted to the occasional use of iodine-131 for hyperthyroidism and for thyroid carcinoma. In the latter case, the patient is placed in a designated room, properly posted and surveyed as specified in Appendix K, NRC Regulatory Guide 10.8. Instructions for nursing personnel have been recently revised and are attached (Attachment E, Annex C to Radioisotope Safety Manual 1980 Draft).
9. Opening of packages containing radioactive material is covered in instructions for receiving such packages (please see next item).
10. Instructions for persons receiving radioactive material are attached (Attachment F, Incoming Packages Containing Radioactive Material).

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11. Animals that have received radioactive materials are of two classes: rodents and dogs. Rodents are kept in the research laboratories, where they are either under direct care of authorized users or in a locked laboratory. Dogs are similarly cared for, except when the animal holding facility, where they are under direct supervision of qualified personnel. Security officers are responsible for seeing that laboratories and the animal holding facility are kept locked outside normal working hours.
12. Personnel handling millicurie quantities of gamma-emitting radionuclides are required to wear either finger radiation dosimetry monitors or wrist-dosimeters (see Item 24, NRC-3124, Attachment G). We have not been successful in finding a ring that reliably holds TLD chips without losing them (the Teledyne holder is the least unsatisfactory that we have found), and the wrist-units are an alternate. A factor of 100 is used to convert to finger dose for dose-estimate purposes. The best ring chip-holders are available only as integral to a complete commercial personnel-monitoring service.
13. Bioassay for thyroid burdens of I-125 and I-131 is performed by direct counting of the subject's neck as in an ordinary clinical thyroid uptake measurement, by comparison with sources of known activity. The I-131 sources are made from material assayed by a counter calibrated from a traceable source; I-125 sources are calibrated in our laboratory by sum-coincidence absolute assay. Criteria for, and frequency of, testing are as defined in NRC Regulatory Guide 8.20, September 1979. As of this date, we have not had any measurements exceeding levels as defined in Regulatory Position C.5., NRC Regulatory Guide 8.20; when such occur, the provisions of Regulatory Position C.5. will be followed.
14. A new procedure for dose calibrator calibration that is deemed to be consistent with the methods advocated in Appendix D, Section 2, in NRC Regulatory Guide 10.8 has been initiated. The sources used are listed in Attachment H1 (listed on a copy of page 29 of 10.8). Daily and weekly (more extensive) accuracy checks will be made with cobalt-57 and cesium-137 as noted on Attachment H2, Record of Dose Calibrator Accuracy Check. Quarterly linearity checks will be performed as may be inferred from Attachment H3, Record of Dose Calibrator Linearity Check.
15. The Duke Radiation Safety Officer (RSO) is, by contract, the RSO of the Durham VA Medical Center. Under this arrangement, the RSO supervises the proper packaging of VAMC radioactive waste, and its subsequent transfer to a common holding facility for removal by

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a commercial disposal firm. The State of North Carolina is aware of this arrangement.

16. The procedures and precautions that have been developed for use of xenon-133 for lung ventilation studies are given in Attachment I, information requested in Appendix M, NRC Regulatory Guide 10.8.

Thank you for your positive responses to our request for additional time to construct our reply to Dr. Walker's letter. We hope that we have succeeded in our objective of coming into compliance with the intent of NCR Regulatory Guide 10.8. We will be pleased to submit any additional information that you request.

Sincerely,

B. F. BROWN
Medical Center Director

Membership of the Radioisotope Safety Committee, Durham Veterans Administration Medical Center, July 1, 1980:

Chairman:

C. Craig Harris, Associate Professor of Radiology, Duke University Medical Center.

Frederick R. Cobb, M.D., Associate Professor of Medicine, Assistant Professor of Radiology, Duke University Medical Center.

R. Edward Coleman, M.D., Professor of Radiology, Director of Nuclear Medicine, Duke University Medical Center and Durham VAMC.

R. Vincent Crawford, Administrative Assistant to the Chief of Staff, Durham VAMC.

Ronald C. Greene, Ph.D., Principal Scientist, Durham VAMC, Associate Professor of Biochemistry, Duke University Medical Center.

Henry Kamin, Ph. D., Professor of Biochemistry, Duke University Medical Center.

Conrad M. Knight, Associate in Radiology, Radiation Safety Officer, Duke University and Duke University Medical Center.

Burley H. McCraw, Physicist, Research Coordinator, Durham VAMC.

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rest of
these pages*

Attachment A2

Statements of curriculum vitae for members of the Radioisotope Safety Committee.



July 1, 1980

CURRICULUM VITAE

CECIL CRAIG HARRIS

Date of Birth: February 20, 1925

Place of Birth: Raymond, Mississippi, U.S.A.

Military service: U.S. Army Air Force, 1943-1945, U.S.A.F. Reserve, 1945-1968 (Ready Reserve, 1945-1962; Standby Reserve, 1962-1969). Separated with rank of Major.

Education:

B.S. in E.E. - The University of Tennessee, Knoxville (Electrical Engineering), 1949.

M.S. - The University of Tennessee, Knoxville (Electronics), 1951.

Board Certification:

American Board of Radiology, Medical Nuclear Physics, June, 1971.

Honors:

Second Hevesy Nuclear Pioneer Lecturer, Society of Nuclear Medicine, 1980

Fellow in Physics, American College of Radiology, Sept. 1980

Professional Appointments:

Current:

Associate Professor of Radiology, Imaging Division, Department of Radiology, Duke University Medical Center, December 1971--
Nuclear Medicine Scientist, Durham VA Medical Center, 1979--

Previous:

Assistant Professor of Radiology (Medical Electronics), Division of Nuclear Medicine, Department of Radiology, Duke University Medical Center, 1967-1971.

Staff member at Oak Ridge National Laboratory from June 1950 to April 1967, as follows:

Jr. Development Engineer of Faculty of Oak Ridge School of Reactor Technology, 1950-1952.

Development Engineer, Physical Electronics Group, Physics Division, 1952-1957.

Research Staff Member, acting Group Leader of Medical Nuclear Instrumentation Group, Thermonuclear Division 1957-1967.

Radiation Safety Officer, Thermonuclear Division, 1961-1967.

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Instructor in Electrical Engineering, Mississippi State University,
June 1949-June 1950.

Consultantships and other appointments:

National Consultant in Electronic Detection Equipment, to Surgeon
General, United States Air Force, 1960-1962.

Task Group on Scanning, under the Planning Board on Activity--Medical
and Biological Applications, International Commission on Radiological
Units and Measurements: Member, 1963-1967; Consultant, 1967--

Member, Consulting Editorial Board, Journal of Nuclear Medicine,
1966-1973, 1976--

Advisor to nuclear medical programs at:

Radiation Research Laboratory, Tulane University, New Orleans,
Louisiana, 1957-1967.

Medical Division, Oak Ridge Associated Universities, Oak Ridge,
Tennessee, 1956--

The University of Tennessee Memorial Research Hospital, Knoxville,
Tennessee, 1965-1967.

Consultant to Department of Nuclear Medicine, Clinical Center, National
Institutes of Health, 1967-1971.

Consultant to Medical Nuclear Instrumentation Group, Oak Ridge National
Laboratory, 1967-1969.

Society of Nuclear Medicine Education and Research Foundation Vice-
president, 1968-1969.

Member, ad hoc Committee on Nuclear Medicine Standards, Joint Commission
on Accreditation for Hospitals, 1969-1975.

Member, Task Group on Phantoms, N44.3 and Task Group on Calibration Sources,
N44.3-7 of Subcommittee N44.3, Nuclear Medicine, of Committee N44
of the American National Standards Institute, 1969-1972.

Advisor to Technical Education Research Center, Cambridge, Massachusetts,
on nuclear medicine technology training, 1970-1974.

Member, Editorial Board, Applied Radiology, 1974-1975.

Consultant to Division of Allied Health Manpower, National Institutes of
Health, 1971-1973, 1975.

Lecturer, Course on Nuclear Medicine Imaging and Radioisotope Techniques,
National Naval Medical Center, Bethesda, MD, 1959-1962, 1965--

124

Memberships in Professional Organizations and Societies:

Member, American Association of Physicists in Medicine, 1965--
Committee on Nuclear Medicine, 1968-1969, 1971-1972.

Member, in Physics, American College of Radiology, 1971--
Committee on Research and Development (Commission on Nuclear
Medicine) 1974-1975.
Committee on Nuclear Medicine Technology (Commission on Human
Resources) 1974--

Member, American College of Nuclear Medicine, 1974--
Member, Board of Representatives, 1978--1979.
Co-chairman, Committee on Nuclear Medicine Scientists, 1975-1977.
Post-Certification Committee, 1976-1977.
Physician Licensing Study Committee, 1976-1977.
Committee of Nuclear Scientists, 1977-1978.
Committee on Education, 1978-1979.

Member, American College of Nuclear Physicians, 1974--
Chairman, Transportation Committee, 1974-1977.
Committee on Quality Assurance, 1975-1978.
Committee on Nuclear Medicine Scientists, 1975--
Subcommittee on Instrument Acceptance Standards
Committee on Consumer Affairs, 1975-1978.
Committee to Evaluate Equipment and Performance, 1978--
Quality Assurance and Practice Audit Certification
Committee, 1978--

Member, Radiological Society of North America, 1975--

Member, Basic Science and Therapy Examination Committee, American
Board of Nuclear Medicine, 1971-1973.

Member, Nuclear Radiology Examination Committee, American Board of
Radiology, 1974-1976.

Member, Examination Committee on Nuclear Medicine Technology
American Registry of Radiologic Technologists, 1976--

Charter Member and Secretary, Board of Directors, American Board
of Science in Nuclear Medicine, Inc., 1976-1978
Member, 1978--

Society of Nuclear Medicine, Member, 1956--, with activities as follows:


Member, Board of Trustees, 1959-1962, 1969-1974. (Voting membership
terminated 1974, membership continues for life.)

Secretary, 1962-1965

Vice-President-elect, 1965-1966; Vice President, 1966-1967.

President-elect, 1967-1968; President, 1968-1969.

Organizer and council member of the Southeastern Chapter, 1959-1974,
1975--



Society of Nuclear Medicine (continued)

Historian, Southeastern Chapter, 1975--

Representative to Panel of Consultants, Advisory Committee on Education in the Allied Health Professions and Services, Council on Medical Education, American Medical Association, 1969-1972.

Representative pro tem to SASHEP (Study of Accreditation of Selected Health Educational Programs), Washington, D.C., 1970-1972.

Alternate delegate to Committee N44 Nuclear Medicine, American National Standards Institute (ANSI), 1970-1973.

Committee assignments:

Organizational Secretary, Medical Internal Radiation Dose Committee (MIRD), 1964-1966.

Nomination Committee, Chairman 1969-1970, Member, 1970-1971.

Member, Committee on Education and Training, 1969-1973.

Chairman, Special Committee on Technologists Education and Credentials, 1971-1972.

Chairman for Technologists Liaison, 1972-1973.

Chairman, Advisory Board to Technologist Section, SNM, 1973-1974.

Member, Committee on Commercial Exhibits, 1971-1977.

Member, Committee on Meeting Sites, 1971-1977.


Member, Transportation Committee, 1973-1976.

Member, Subcommittee on Nuclear Medicine Scientists
Committee on Credentials and Certification, 1973--1979

Member, Subcommittee on Collimators
Committee on Education and Training, 1971-73, 1976-1977

Member, Subcommittee on Instrumentation
Task Group on Future Directions of Nuclear Medicine, 1977-1978

Chairman, Committee on Meeting Sites, 1979--1980



PATENTS

C. Craig Harris, M. S.

(with P. R. Bell)

Patent Number	2,880,262	Structure for sub-assembly of electronic equipment
Patent Number	3,322,954	Averaging light sensor and recording system using double photocell structure
Patent Number	3,441,351	Color recording averaging light intensity meter
Application Number	459,486	Optical potentiometer

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PUBLICATIONS

C. Craig Harris, M.S.

1955

1. MEDICAL SCINTILLATION SPECTROMETRY
J. E. Francis, Jr., P. R. Bell and C. C. Harris
Nucleonics, Nov. 1955, Vol. 13, No. 11, pp. 82-88.


1956

2. THE "HARD-BOTTOMING" TECHNIQUE IN NUCLEAR INSTRUMENTATION CIRCUIT DESIGN
C. C. Harris
IRE Transactions of the Professional Group on Nuclear Science,
Vol. NS-3, No. 2, Mar. 1956.
3. FILAMENTARY SUBMINIATURE SCALERS
C. C. Harris and P. R. Bell
The Review of Scientific Instruments, Vol. 27, No. 8, pp. 608-610,
August 1956.
4. A CsI(Tl) CRYSTAL SURGICAL SCINTILLATION PROBE
C. C. Harris, R. R. Bigelow, J. E. Francis, G. G. Kelley and P. R. Bell
Nucleonics, Nov. 1956, Vol. 14, No. 11, pp. 102-108.
5. TRANSMISSION CHARACTERISTICS OF LIGHT PIPERS
C. C. Harris and P. R. Bell
IRE Transactions on Nuclear Science, Vol. NS-3, No. 4, Nov. 1956.

1957

6. AURAL COUNTING-RATE INDICATORS
C. C. Harris, P. R. Bell and J. E. Francis, Jr.
Nucleonics, Sept. 1957, Vol. 15, No. 9, pp. 152-154.

1958

7. SCINTILLATION SPECTROMETRY
J. E. Francis, Jr., P. R. Bell and C. C. Harris
A chapter in External Collimation Detection of Intracranial Neoplasia with Unstable Nuclides, G. M. Shy, M.D., M.R.C.P., R. B. Bradley, B. S., and W. B. Matthews, B.S., E. & S., Livingstone Ltd., Edinburgh and London, 1958.
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1959

8. BASIC PRINCIPLES OF SCINTILLATION COUNTING FOR MEDICAL INVESTIGATORS
C. C. Harris, D. P. Hamblen, and J. E. Francis, Jr.
ORNL 2808/ORINS 30 (1959).
9. PROBLEMS ENCOUNTERED IN IN VIVO LOCALIZATION OF RADIOACTIVITY &
SOLUTIONS TO A FEW OF THEM
C. C. Harris, J. E. Francis, Jr., and P. R. Bell
Proceedings of the 2nd Annual Texas Conference on the Utilization of
Atomic Energy, Texas Engr., Expr. Sta. E 72-60, November 1959.


1960

10. AN OSCILLOSCOPE MONITOR FOR SCINTILLATION SPECTROMETERS
C. C. Harris, H. O. Eason, J. E. Francis, Jr., and P. R. Bell
J. Nuc. Med. 1:280-284, 1960.

1962

11. A FOCUSING COLLIMATOR FOR RESEARCH IN SCANNING
J. E. Francis, Jr., C. C. Harris and P. R. Bell
J. Nuc. Med. 3:10-17, 1962.
12. A RADIOACTIVITY SCANNING METHOD USING TRACERS FOR DIAGNOSIS OF DISEASE
IN HUMANS
J. E. Francis, Jr., C. C. Harris and P. R. Bell
Published in Japanese in the Proceedings of the Fourth Japan Conference
on Radioisotopes, Kyoto, Japan, October 10-12, 1961.

1963

13. COLLIMATORS FOR RADIOISOTOPE SCANNING
C. C. Harris, P. R. Bell, J. E. Francis, Jr., M. M. Satterfield,
J. C. Jordan and J. P. Murray, Jr. Chapter 2, pp. 25-65,
Progress in Medical Radioisotope Scanning, Eds. R. M. Kniseley,
G. A. Andrews and C. C. Harris, Oak Ridge, U.S.A.E.C., 1963. TID 7673 -
Proceedings of a symposium, Medical Division of The Oak Ridge Institute
of Nuclear Studies, Oak Ridge, Tennessee, 22-26 October, 1962.
 14. DATA RECORDING FOR RADIOISOTOPE SCANNING
C. C. Harris, P. R. Bell, M. M. Satterfield, J. C. Jordan, J. E. Francis,
Jr., Chapter 3, pp. 66-104, Progress in Medical Radioisotope Scanning,
U.S.A.E.C., 1963. TID 7673, op. cit.
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1964

15. ON THE ASSAY AND DOSIMETRY OF MERCURY-197, Letter to the Editor
C. C. Harris and Robert H. Rohrer
J. Nuc. Med. 5:317-318, 1964.
16. CERTAIN FUNDAMENTAL PHYSICAL CONSIDERATIONS IN SCANNING
C. C. Harris, Chapter 1, pp. 1-15, Scintillation Scanning in Clinical Medicine, based on a symposium by the Department of Radiology of the Bowman Gray School of Medicine, Winston-Salem, N.C., January 30-31, 1964. Edited by James L. Quinn III, M.D., W. B. Saunders Company, 1964.
17. A COLLIMATOR FOR SCANNING WITH LOW-ENERGY PHOTONS
C. C. Harris, J. C. Jordan, M. M. Satterfield, Jack K. Goodrich, H. L. Stone and Rebecca Hill, J. Nuc. Med. 5:653-656, 1964.

1965

18. THE DESIGN & PERFORMANCE OF A LARGE HIGH-RESOLUTION FOCUSING COLLIMATOR
C. C. Harris, P. R. Bell, M. M. Satterfield, D. A. Ross and J. C. Jordan, Medical Radioisotope Scanning, proceedings of a symposium on scanning, Athens, Greece, April 20-24, 1964, IAEA, Vienna, 1965, Vol. 1, pp. 193-208.
19. ANALYSIS OF SCAN RECORDS WITH A RECORDING DENSITOMETER--THE "RE-SCANNER"
C. C. Harris, P. R. Bell, M. M. Satterfield, D. A. Ross and J. C. Jordan, Medical Radioisotope Scanning, op. cit., Vol. 1, pp. 529-543.
20. LOW-ENERGY GAMMA EMITTERS IN SCANNING AND OTHER CLINICAL APPLICATIONS
D. A. Ross, M. M. Satterfield, J. C. Jordan, C. C. Harris and P. R. Bell, Proceedings of the Sixth International Symposium on Radioactive Isotopes in Clinical Medicine and Research, 8-11 January, 1964, Bad Gastein, Austria. Radioaktive Isotope in Klinik und Forschung, Band VI, pp. 108-125. Eds. K. Fellingner and R. Hofer. Urban and Schwarzenberg, Munchen und Berlin 1965.
21. CLINICAL APPLICATIONS OF LOW-ENERGY HIGH-TRANSMISSION COLLIMATOR
J. K. Goodrich, H. L. Stone, C. C. Harris and R. Hill
J. Nuc. Med. 6:409-420, 1965.
22. NEW CHALLENGES IN CLINICAL COUNTING
D. A. Ross, C. C. Harris, M. M. Satterfield and P. R. Bell
The Japanese Journal of Nuclear Medicine, Vol. 2, No. 2, pp. 81-87, 1965.
23. LIGHT COLLECTION AND TRANSFER EFFICIENCY, LIGHT PIPERS
C. C. Harris, Section 4.2 of the chapter entitled THE SCINTILLATION METHOD, by J. H. Neiler and P. R. Bell in Alpha, Beta and Gamma Spectroscopy, Eds. Kai Siegbahn, North Holland Publishing Company, Amsterdam, 1965.

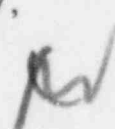
1966

24. CALCULATIONS OF LOCAL ENERGY DEPOSITION DUE TO ELECTRON CAPTURE AND INTERNAL CONVERSION
E. M. Smith, C. C. Harris and R. H. Rohrer
J. Nuc. Med. 7:23-31, 1966.
25. COMPARISON OF VARIOUS METHODS OF RATE RECORDING
C. C. Harris, M. M. Satterfield, P. R. Bell and D. A. Ross in
Recent Advances in Nuclear Medicine, based on a symposium sponsored
by the Department of Radiology, Hahnemann Medical College, Philadelphia,
March 1965. Eds. M. N. Croll and L. W. Brady. Appleton-Century-Croft,
New York, pp. 5-14.
26. "BETA-TYPE" ABSORBED DOSE FROM NON-BETA-EMITTING RADIONUCLIDES
C. C. Harris
in Recent Advances in Nuclear Medicine, op. cit., pp. 77-78.
27. COLLIMATORS FOR LOW-ENERGY ISOTOPES
C. C. Harris
in Recent Advances in Nuclear Medicine, op. cit., pp. 120-123.
28. DEVELOPMENT OF INSTRUMENTATION IN NUCLEAR MEDICINE
D. A. Ross, C. C. Harris, M. M. Satterfield and P. R. Bell
Proceedings of the Sixth Japan Conference on Radioisotopes.
29. A "RE-SCANNER" WITH PHOTOGRAPHIC COLOR READOUT
C. C. Harris, M. M. Satterfield, Guio Uchiyama and Harry E. Kimble
J. Nuc. Med. 7:501-509, 1966.

1967

30. QUANTITATIVE COUNTING IN THE PRESENCE OF COINCIDENCE-SUMMING
SCINTILLATIONS
D. A. Ross, R. H. Rohrer and C. C. Harris
J. Nuc. Med. 8:502-514, 1967.

1968

31. MEASUREMENT OF RADIOACTIVITY
D. A. Ross and C. C. Harris
in Principles of Nuclear Medicine. Ed. Henry N. Wagner, Jr.
W. B. Saunders Company, Philadelphia, 1968, pp. 130-184.
 32. QUANTIFICATION OF SCAN RECORDS
C. C. Harris
in the proceedings of a Symposium on Computers and Scanning, December 16-17,
1965, New Orleans, La. Ed. J. U. Hidalgo
The Society of Nuclear Medicine, New York, pp. 50-56.
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1968 (cont'd.)

33. MOVING-DETECTOR SCANNERS VS. STATIONARY IMAGING DEVICES
C. C. Harris, P. R. Bell, D. A. Ross and M. M. Satterfield
in Fundamental Problems in Scanning, based on a symposium held in
Chicago, May 8-9, 1965. Eds. A. Gottschalk and R. N. Beck.
Charles C. Thomas, Springfield, Ill., 1968, pp. 93-116.

1969

34. SENSITIVITY AND RESOLUTION IN RADIOISOTOPE SCANNING
W. J. MacIntyre, S. O. Fedoruk, D. E. Kuhl, C. C. Harris and J. R. Mallard
A report to the International Commission on Radiation Units and Measure-
ments, in Medical Radioisotope Scintigraphy, Proceedings of a Symposium,
Salzburg, 1968, Vol. 1, International Atomic Energy Agency, Vienna 1969,
p. 391.
35. SENSITIVITY AND RESOLUTION IN RADIOISOTOPE SCANNING
W. J. MacIntyre, S. O. Fedoruk, D. E. Kuhl, C. C. Harris, and J. R. Mallard
Published by invitation in Nuclear-Medizin, VIII, July 15, 1969, pp. 99-146.
36. AVAILABLE AND POTENTIAL SHORT HALF-LIVED RADIONUCLIDE GENERATORS, C. C. Harris
in Radiologic Clinic of North America, VII: 2 August 1969, pp. 221-232
Advances in Radiation Therapy and Nuclear Medicine, Ed. E. Richard King,
W. B. Saunders Co., Philadelphia.


1970

37. SCINTIANGIOCARDIOGRAPHY IN CHILDREN: RAPID SEQUENCE VISUALIZATION OF THE
HEART AND GREAT VESSELS FOLLOWING INTRAVENOUS RADIONUCLIDE INJECTION
T. P. Graham, Jr., J. K. Goodrich, A. M. Robinson, and C. C. Harris,
American Journal of Cardiology, Vol. 25, April 1970, pp. 387-394.
38. MEASUREMENT OF IN VIVO RADIOACTIVITY: THE COLLIMATOR PROBLEM
C. C. Harris, J. K. Goodrich, and T. S. Buffaloe
in Pulmonary Investigation with Radionuclides. Eds. Albert J. Gilson, M.D.
and William M. Smoak, III, M.D.
Charles C Thomas, Springfield, Ill., 1970, pp. 90-105.
39. IMAGING DEVICES: COMPARATIVE PHYSICAL PROPERTIES
C. C. Harris, and J. K. Goodrich
in Pulmonary Investigation with Radionuclides. Eds. Albert J. Gilson, M.D.
and William M. Smoak, III, M.D.
op. cit., pp. 135-145.
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1970 (cont'd.)

40. IMAGING DEVICES: COMPARATIVE CLINICAL ATTRIBUTES (ONE OPINION)
J. K. Goodrich and C. C. Harris
in Pulmonary Investigation with Radionuclides. Eds. Albert J. Gilson, M.D.
and William M. Smoak, III, M.D.
op. cit., pp. 146-159.
41. THE IMPORTANCE OF REPRODUCIBLE LUNG SCANNING
J. K. Goodrich and C. C. Harris
in Pulmonary Investigation with Radionuclides. Eds. Albert J. Gilson, M.D.
and William M. Smoak, III, M.D.
op. cit., pp. 260-281.
42. A MEANS OF REDUCING RADIATION EXPOSURE FROM TECHNETIUM GENERATOR OPERATIONS,
Huey D. Barnett, and C. C. Harris
Letters to the Editor in Journal of Nuclear Medicine, Vol. II, 1970, pp. 180-181.


1971

43. CEREBRAL ANGIOAUTOTOMOGRAPHY
James J. Smith, John A. Goree, John P. Jimenez, and C. Craig Harris.
American Journal of Radiology, Radium Therapy and Nuclear Medicine,
Vol. 112, 1971, pp. 315-323.
44. THE MAINTENANCE AND HANDLING OF NUCLEAR INSTRUMENTATION, C. Craig Harris in
Annex I to Report of Inter-Society Commission for Heart Disease Resources:
Optimal Radiologic Facilities for Examination of the Chest and Cardiovascular
System, Circulation LIII: A-135, 1971.
45. A "^{99m}Tc" CLOCK FOR CALCULATING INDIVIDUAL PATIENT DOSES, Howard A. Anderson,
Michael G. Alexander, and C. Craig Harris
Journal of Nuclear Medicine, Vol. 12, 1971, p. 742.
46. REPORT OF THE ICRU TASK GROUP ON SCANNING, William J. MacIntyre, Sylvia O.
Fedoruk, C. Craig Harris, David E. Kuhl, and John R. Mallard, in Quantitative
Organ Visualization in Nuclear Medicine, Eds. Peter J. Kenny and Edward M.
Smith, Univ. of Miami Press, 1971, pp. 167-184.
47. DECAY OF RADIONUCLIDES AND SUBSEQUENT EMISSIONS, C. Craig Harris,
Continuing Education Lectures, 1971, A Review of Nuclear Medicine, Vol. 1,
Southeastern Chapter of Nuclear Medicine, 1971.
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1972

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 14. CEREBRAL DYNAMIC STUDIES FOR THE EARLY DETECTION OF RECURRENT NEOPLASMS, L. R. Witherspoon, M. S. Mahaley, Jr., J. R. Leonard, J. W. Tyson, C. C. Harris, J. K. Goodrich. Journal of Nuclear Medicine, Vol. 15, 1974, p. 544.
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CURRICULUM VITAE

NAME: Frederick Ross Cobb

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DATE AND PLACE OF BIRTH: October 6, 1938
Greenville, South Carolina

MARITAL STATUS: Married - Nancy Louise Mitcham

CHILDREN: Three

ACADEMIC HONORS: 1962 - Roche Award - Outstanding Sophomore Student
1963 - Alpha Omega Alpha - Junior Year
1964 - Leathers Award - Outstanding Graduating Senior

SOCIETY MEMBERSHIPS:

American Heart Association
American Federation for Clinical Research
Southern Society for Clinical Investigation
American Physiological Society
American Society for Clinical Investigation
Council Member, Basic Science and Circulation, American Heart Association

EDUCATION:


Mississippi College, Clinton, Mississippi, B.S. (Chemistry and Biology), 1960.
University of Mississippi Medical Center, Jackson, Mississippi, M.D., 1964

PROFESSIONAL LICENSURE:

Medical License - States of North Carolina and Mississippi
Certified by American Board of Internal Medicine, 1972
Certified by the Subspecialty Board of Cardiovascular Disease, 1974

POSITIONS HELD:

1964-1965 Intern in Medicine, Duke University Medical Center, Durham, North Carolina
1965-1966 Medical Resident, Research Training Program, Duke University Medical Center
1966-1967 Medical Resident, Duke University Medical Center
1967-1968 Cardiology Fellowship, Duke University Medical Center
1968-1970 Assistant Director, Medical Research and Development
Madigan General Hospital, Tacoma, Washington
Military Service - Army
1970-1973 Research Associate, Veterans Administration Hospital, Durham, North Carolina
1972-1975 Assistant Professor of Medicine, Duke University Medical Center
1973-1975 Clinical Investigator, Veterans Administration Hospital, Durham, North Carolina



CURRICULUM VITAE

Frederick Ross Cobb, M.D.

POSITIONS HELD (Cont):

1975-1977	Director, Coronary Care Unit, Veterans Administration Hospital, Durham, North Carolina
1976-1977	Director, Cardiology Clinic, Veterans Administration Hospital, Durham, North Carolina
1976-	Established Investigator of the American Heart Association
1976-	Associate Professor of Medicine, Duke University Medical Center
1979-	Assistant Professor of Radiology, Duke University Medical Center

CURRICULUM VITAE

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GRANTS AWARDED:

PRINCIPLE INVESTIGATOR:

Veterans Administration - Research Associate
Coronary Artery Blood Flow in the Unanesthetized Dog 1970-1973
Veterans Administration - Clinical Investigator
Distribution of Coronary Blood Flow in Awake Dogs 1973-1975
Veterans Administration
Evaluation of Scintigraphic Techniques for Detection and
Quantitation of Myocardial Ischemia and Acute Myocardial
Infarction 1976-1979
National Institute of Health Research Grant
Regional Blood Flow after Acute Myocardial Injury
Award No. HL18537-01 9/1/75-8/31/80

American Heart Association - Established Investigator
October 1, 1976 - present

HL-17670 - Study of Ischemic Heart Disease - Specialized Center -
Project Title - Radionuclide Evaluation of Coronary Artery
Disease 1/1/79-12/31/79

RFP NHLBI-79-20 Contract No. 1 - HV92923
Characterization and Evaluation of Animal Models for Use
in the Assessment of Therapy to Protect Ischemic
Myocardium 9/30/79-9/29/81

HL-17670 - Study of Ischemic Heart Disease - Specialized Center -
Project Title - Ventricular Function and Myocardial
Perfusion at Rest and Exercise in Patients with Coronary
Artery Disease 1/1/80-12/1/85

CURRICULUM VITAE

Frederick Ross Cobb, M.D.

ABSTRACTS:

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CURRICULUM VITAE

Frederick Ross Cobb, M.D.

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CURRICULUM VITAE

Frederick R. Cobb, M.D.

ABSTRACTS (Cont):

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Frederick Ross Cobb, M. D.

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Frederick Ross Cobb, M. D.

PUBLICATIONS:

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CURRICULUM VITAE

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PUBLICATIONS (continued):

12. Starmer, C. F., McHale, P. A., Cobb, F. R., and Greenfield, J. C., Jr.: Evaluation of several models for computing stroke volume from central aortic pressure. *Circulation Res.* 33: 139-148, 1973.
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20. Bache, R. J., Cobb, F. R., and Greenfield, J. C., Jr.: Neurogenic influences on the coronary vascular response to ischemia in the awake dog. *J. Thorac. Cardiovasc. Surg.* 69: 421-428, 1975.
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CURRICULUM VITAE

Frederick Ross Cobb, M.D.

PUBLICATIONS (continued):

23. Bruno, F. P., Cobb, F. R., Rivas, F., and Goodrich J. K.: Evaluation of ^{99m}Tc technetium stannous pyrophosphate as an imaging agent in acute myocardial infarction. *Circulation*. 54: 71-77, 1976.
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26. Irvin, R., and Cobb, F. R.: Relationship between epicardial ST segment and regional blood flow measurements and extent of acute myocardial infarction. *Circulation*. 55: 825-832, 1977.
27. Bache, R. J., and Cobb, F. R.: Effects of maximum coronary vasodilation on transmural myocardial perfusion during tachycardia in the awake dog. *Circulation Res*. 41: 648-652, 1977.
28. Cobb, F. R., McHale, P. A., and Rembert, J. C.: Effects of acute cellular injury on coronary vascular reactivity in awake dogs. *Circulation*. 57: 962-967, 1978.
29. Rembert, J. C., Greenfield, Jr., J.C., Alexander, J. A., and Cobb, F. R.: Transmural distribution of systolic myocardial blood flow in awake dogs. *Cardiovascular System Dynamics*. MIT Press. 1978.
30. Rosenfelt, F. L., Cobb, F. R., Bache, R. J., and Sabiston, D. C., Jr.: Stroke work and ventricular pressure response to increases in aortic pressure before and after coronary occlusion in awake dogs. *Cardiovascular Res* 13:392-400, 1979.
31. Cobb, F. R., Irvin, R., Haggerty, P., and Roe, C. R.: Effect of extension of infarction on CK activity. *Circulation* 60:145-154, 1979.
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CURRICULUM VITAE

Frederick Ross Cobb, M. D.

PUBLICATIONS (Continued):

33. Port, S., Cobb, F.R., and Jones, R.H.: Effects of propranolol on left ventricular function in normal man. *Circulation*. In Press.
34. Irvin, R.G., Cobb, F.R., and Roe, C.R.: Relationship between onset of symptoms of acute myocardial infarction and appearance and disappearance of CK-MB. *Arch Int Med*. In Press.
35. Beck, J.W., Tatum, J.L., Cobb, F.R., Harris, C.C., and Goodrich, J.K.: Myocardial perfusion imaging using thallium-201: A new algorithm for calculation of background activity. *J Nucl Med*. In Press.
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37. Swain, J.L., Cobb, F.R., McHale, P.A., and Roe, C.R.: Relationship between creatine kinase estimates, histologic extent of infarction, and regional myocardial blood flow in conscious dogs after permanent coronary occlusion. Submitted for publication.
38. Nielsen, A.P. and Cobb, F.R.: Progressive alterations in perfusion after restoring blood flow to acutely injured myocardium. Submitted for publication.
39. Stiles, G.L., Morris, K.G., and Cobb, F.R.: Effects of chronic administration of prazosin on clinical symptoms and left ventricular function in severe congestive heart failure. Submitted for publication.
40. Murdock, R.H. and Cobb, F.R.: Effects of infarcted myocardium on regional blood flow measurements to ischemic regions. Submitted for publication.
41. Cobb, F.R., Murdock, R.H., McHale, P.A., and Greenfield, J.C. Jr.: An awake animal model for evaluating intervention therapy: Relationship between blood flow to ischemic regions and the extent of myocardial infarction. Submitted for publication.
42. Wallace, A.G., Williams, R.S., Rerych, S.K., Cobb, F.R. and Jones, R.H.: Effects of physical conditioning on patients with angina pectoris: Assessment by radionuclide angiography. Submitted for publication.

CURRICULUM VITAE

Frederick Ross Cobb, M. D.

PUBLICATIONS (Continued):

43. Upton, M.T., Rerych, S.K., Newman, G.E., Port, S., Cobb, F.R., and Jones, R.H.: Detection of abnormalities in left ventricular function during exercise before angina pectoris and ST segment depression. Circulation. In Press.

CURRICULUM VITAE

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EDUCATION:

1961 - 1964 University of Evansville, B. A.

1964 - 1968 Washington University School of Medicine, M. D.

TRAINING:

1967 - 1969 Internship, Ward Medicine, Barnes Hospital, St. Louis, Missouri

1969 - 1970 Medicine, Royal Victoria Hospital, Montreal, Quebec

1972 - 1974 Fellowship, Nuclear Medicine, Mallinckrodt Institute of Radiology
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ACADEMIC APPOINTMENTS:

July 1979 - Present: Professor of Radiology, Duke University Medical
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June 1978 - July 1979: Associate Professor of Radiology, University of
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May 1978 - July 1979: Associate Professor of Pathology, University of
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May 1976 - June 1978: Assistant Professor of Radiology, University of
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January 1975 - May 1976: Assistant Professor of Radiology, Washington
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July 1974 - December 1974: Instructor in Radiology, Washington University
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CLINICAL APPOINTMENTS:

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May 1976 - July 1979: Director, Clinical Radioimmunoassay Laboratory,
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May 1976 - July 1979: Director, Division of Nuclear Medicine, Department
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May 1976 - July 1979: Director, Intermountain Radiopharmacy Program,
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June 1974 - May 1976: Consultant in Radiology (Nuclear Medicine) Homer
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September 1974 - May 1976: Consulting Physician, St. Louis Children's Hospital,
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September 1974 - May 1976: Assistant Radiologist, Barnes Hospital, St. Louis,
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SPECIALTY BOARD CERTIFICATION:

1973 American Board of Internal Medicine (42540)

1974 American Board of Nuclear Medicine (02865)

MEMBER:

Society of Nuclear Medicine

American College of Nuclear Physicians

Radiologic Society of North America

American College of Radiology

American Association for the Advancement of Science

American Roentgen Ray Society

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MEDICAL LICENSES:

Missouri, 1968

Indiana, 1970

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COMMITTEE APPOINTMENTS:

Medical Isotope Committee, V. A. Hospital

Academic Council, Society of Nuclear Medicine

Residency Selection Committee

EDITORIAL BOARD:

Journal of Nuclear Medicine Technology

PUBLICATIONS:

Book Chapters

1. James AE Jr, Heshiki A, Coleman RE, Siegel BA: Emergency nuclear medicine, in Potchen EJ, Current concepts of radiology, Vol. 2, St. Louis, Mosby, 1975, pp. 258-312.
2. Gado M, Coleman RE, Alderson PO: Clinical comparison of radio-nuclide brain imaging and computerized transaxial tomography of the brain I, in DeBlanc HJ, Sorenson JA eds: Noninvasive brain imaging: computed tomography and radionuclides. Society of Nuclear Medicine, Inc. New York, 1975, pp. 147-173.
3. Ter-Pogossian MM, Hoffman EJ, Weiss ES, Coleman RE, Phelps ME, Welch MJ, Sobel BE: Positron emission reconstruction tomography for the assessment of regional myocardial metabolism by the administration of substrates labeled with cyclotron-produced radionuclides, in Harrison DC, Sandler H, Miller HA eds: Cardiovascular imaging and image processing - theory and practice. Society of Photo - Optical Instrumentation Engineers, California, 1975, pp. 277-287.
4. Coleman RE, Welch MJ, Harwig JF: Thrombus detection, in Potchen EJ, Current concepts in radiology, Vol. 3, St. Louis, Mosby 1977, pp. 313-330.
5. Gado MH, Phelps ME, Coleman RE: Contrast enhancement in computerized cranial tomography: its mechanisms and implications, in Ter-Pogossian MM, Phelps ME, Brownell GL, et al, eds: Reconstruction tomography in diagnostic radiology and nuclear medicine, University Park Press, Baltimore, 1977, pp 517-534.
6. Ter-Pogossian MM, Phelps ME, Hoffman EJ, Coleman RE: The performance of PETT III, in Ter-Pogossian MM, Phelps ME, Brownell GL, et al, eds: Reconstruction tomography in diagnostic radiology and nuclear medicine, University Park Press, Baltimore, 1977, pp. 359-370.
7. Coleman RE, Cooper MD: Conventional methods of diagnosis using nuclear scans and recent progress with radionuclide transaxial tomography, In Modern Concepts in Brain Tumor Therapy, National Cancer Institute Monograph 46:97-108, 1977.
8. Coleman RE, Welch MJ, Thakur ML: Preparation and evaluation of leukocytes labelled with Indium-111, in Medical Radionuclide Imaging IAEA, Vol II, Vienna, 1977, pp. 47-51.
9. Coleman RE: Thrombus detection, in Categorical Course in Nuclear Medicine, RSNA, 1977, pp. 209C-1-209C-10.
10. Coleman, R.E., Christian P.E.: The skeletal system in Bernier, D.R., Langan, J and Wells, D, eds: Nuclear Medicine: Technology and Techniques, Mosby Co. 1979, in press.
11. Coleman RE: The role and value of the nuclear venogram, fibrinogen uptake and platelet techniques, In Nuclear Medicine Techniques Indications and Applications, Southeastern Chapter Society of Nuclear Medicine, Atlanta, 1979, pp. 11-1-11-12.

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18. Coleman RE, Klein MS, Roberts P, Sobel BE: Improved detection of myocardial infarction with ^{99m}Tc (Sn) pyrophosphate and serum MBCKP. Am J Cardiol 37:732-735, 1976.
19. Secker-Walker RH, Coleman RE: Estimating relative renal function. Journal of Urology, 115:621-625, 1976.
20. Gado MH, Coleman RE, Merlis AL, Alderson PO, Lee KS: Comparison of computerized tomography and radionuclide imaging in "stroke". Stroke 7:109-113, 1976.
21. Gado MH, Coleman RE, Lee KS, Mikhel MA, Alderson PO, Archer CR: Correlation between computerized transaxial tomography and radionuclide cisternography in dementia. Neurology 26:555-561, 1976.
22. Harwig JR, Welch MJ, Coleman RE: ^{123}I -labeled highly iodinated fibrinogen: preparation and use for imaging deep vein thrombi. J Nucl Med 17:397-401, 1976.
23. Alderson PO, Mikhael M, Coleman RE, Gado M: Optimal utilization of computerized cranial tomography and radionuclide brain imaging. Neurology 26:803-807, 1976.
24. Phelps ME, Hoffman EJ, Coleman RE, Welch MJ, Raichle ME, Weiss ES, Sobel BE, Ter-Pogossian MM: Tomographic images of blood pool and perfusion in brain and heart. J Nucl Med 17:603-613, 1976.
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26. Klein MS, Coleman RE, Weldon CS, Sobel BE, Roberts R: Concordance of electrocardiographic and scintigraphic criteria of myocardial infarction after cardiac surgery. J Thor Cardiovasc Surg 71:934-937, 1976.
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29. Ter-Pogossian MM, Weiss ES, Coleman RE, Sobel BE: Computerized axial tomography of the heart. Am J Roentgen 127:79-91, 1976.
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45. Lee J, Coleman RE, Sherman LA: Comparison of iodine monochloride and modified chloramine-T radiodination for in vivo protein studies, *J Lab Clin Med* 89:836-844, 1977.
46. Michal JA, Coleman RE: Localization of ⁶⁷Ga citrate in a mycotic aneurysm. *Am J Roentgen* 129:111-113, 1977.
47. Roberts R, Klein MS, Coleman RE: Radionuclides in the assessment of myocardial infarction. *Amer Heart J* 95:650-668, 1978.
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51. Freston JW, Berenson MM, McCloskey DW, Koehler PR, Coleman RE, Moody FG: Caroli's disease: Clinical Pathologic Conference. Submitted, *Gastroenterology*
52. Atcheson, SG, Coleman RE, Ward, JR: Septic arthritis mimicking cellulitis: distinction using radionuclide bone imaging. *Clin Nucl Med*. 4:79-82, 1979.
53. Coleman RE, Black RE, Welch DM, Maxwell, JG: Indium-111 labeled leukocytes in the evaluation of suspected abdominal abscesses. Submitted, *Am J Surg*.
54. Coleman RE, Beightol RW, Kitahara M, Baker WJ, Hill HR: Granulocyte chemotaxis using a radioassay of indium-111 labeled leukocytes. Submitted, *J Nucl Med*.
55. Welch DM, Baker WJ, Beightol RW, Coleman RE: Indium-111 labeled leukocytes in the evaluation of suspected inflammatory processes. Submitted, *J Nucl Med*.
56. Coleman RE, Welch DM: Possible pitfalls with indium-111 leukocyte imaging. Submitted, *J Nucl Med*.

Abstracts

1. Metzger JM, Secker-Walker RH, Krohn KA, Coleman RE, Potchen EJ: The biologic behavior of ¹²⁵I-fibrinogen labeled by four methods of iodination. Fed Pro 32:259, 1973.
2. Metzger JM, Secker-Walker RH, Coleman RE, et al: Biologic clearance and distribution studies of ¹²⁵I-fibrinogen labeled by four methods of iodination. J Nucl Med 14:429, 1973.
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4. Harwig JF, Coleman RE, Harwig SL, et al: Highly iodinated fibrinogen, a new thrombus localizing agent. Circulation 50, suppl III: 285, 1974.
5. Coleman RE, Klein MS, Ahmed SA, et al: Improved detection of myocardial infarction with Tc-99m (Sn) pyrophosphate and serum MBCKP. J Nucl Med 16:521, 1975.
6. Coleman RE, Harwig SSL, Harwig JF, et al: Labeled soluble fibrin: rapidly clearing thrombus localizing agent. J Nucl Med 16:521, 1975.
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8. Harwig SSL, Harwig JF, Coleman RE, et al: Effect of iodination level on the properties of radioiodinated fibrinogen. J Nucl Med 16:534, 1976.
9. Ter-Pogossian MM, Phelps ME, Hoffman EJ, Mullani NA, Coleman RE, Grubb RL, Raichle ME: A positron emission transverse tomograph for three dimensional assessment of cerebral hemodynamics and metabolism. Stroke 6:231, 1975.
10. Coleman RE, Klein MS, Roberts R, et al: Enzymatic and scintigraphic detection of myocardial infarction after cardiac surgery. Circulation 52, Suppl II:171, 1975.
11. Klein MS, Coleman RE, Ahmed SA, et al: ^{99m}Tc (Sn) pyrophosphate scintigraphy: sensitivity specificity, and mechanisms. Circulation 52, Suppl II:52, 1975.
12. Klein MS, Coleman RE, Roberts R, Weiss AN: ^{99m}Tc (Sn) pyrophosphate scintigrams in exercise-induced angina and calcified valves. Am J Cardiol 37:149, 1976.
13. Ahmed SA, Weiss ES, Thakur M, Welch MJ, Coleman RE, Sobel BE, Ter-Pogossian MM: Externally monitored leukocytic infiltration in myocardial infarcts. Am J Cardiol 37:116, 1976.

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14. Roberts R, Klein MS, Coleman RE, Weldon CS, Sobel BE: Scintigraphic versus enzymatic detection of myocardial infarction after surgery. *Am Roy Coll Phys* 9:16, 1976.
15. Thakur ML, Coleman RE, Welch MJ: Indium-111 labeled leukocytes for the localization of abscesses. *J Nucl Med*, 17:560, 1976.
16. Thakur ML, Welch MJ, Joist JH, Coleman RE: Indium-111 labeled platelets: preparation, function studies and in vivo evaluation. *J Nucl Med*, 17:561, 1976.
17. Phelps ME, Hoffman EJ, Coleman RE, Welch MJ, Raichle ME, Weiss ES, Sobel BE, Ter-Pogossian MM: Computerized transaxial tomographic blood pool and perfusion imaging in human volunteers and patients, *J Nucl Med*, 17:552, 1976.
18. Welch MJ, Coleman RE, Straatman MG, Asberry BE, Primeau JL, Fair WR, Ter-Pogossian MM: Carbon-11 labeled N-methyl 1, 4 diaminobutane: a putrescine analog for prostate and tumor localization. *J Nucl Med* 17:525, 1976.
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20. Phegley D, Bernier DR, Coleman RE: A multi-detector scanner for whole body imaging. *J Nucl Med Tech* 4:96, 1976.
21. Clarke MP, Bernier DR, Welch MJ, Coleman RE, Ter-Pogossian MM: Positron emission scanning: A new direction for nuclear medicine imaging systems. *J Nucl Tech* 4:96, 1976.
22. Klein MS, Coleman RE, Weiss AN, Roberts R: False positive myocardial infarct images due to delayed removal of ^{99m}Tc (Sn) pyrophosphate from the blood pool. *Clin Res* 24:224A, 1976.
23. Buchholz WM, Joist MH, Coleman RE, Sherman LA: Hemostatic alterations in patients with thrombocytosis. *Fed Proc* 35:804, 1976.
24. Ter-Pogossian MM, Raichle ME, Weiss ES, Coleman RE, Sobel BE: The in vivo and regional assessment of cerebral and cardiac infarcts by the combined use of cyclotron-produced radionuclides and positron computerized axial tomography. *Europ J Nucl Med*, 1:65, 1976.
25. Harwig JM, Harwig SSL, Coleman RE, Siegel BA, Welch MJ: Thrombus imaging with ^{123}I -labeled fibrinogen derivatives. *Medical Imaging* 1:37-38, 1977.
26. Coleman RE: Computed tomography and radionuclide imaging of the brain and ventricular system--a look to the future. *Proc XIV Int Cong Rad*: 192, 1977.

Abstracts (Continued)

27. Gelman MI, Coleman RE, Stevens PM, Davey BW: Radiography, radio-isotopic bone imaging and arthrography: a correlative study in evaluating total hip and knee replacement complications. RSNA Scientific Program, 263, 1977.
28. Coleman RE, Portas M, Beightol R, Kitahara M, Baker W, Hill HR: Granulocyte chemotaxis using a radioassay of leukocytes labeled with indium-111. J Nucl Med, 19:722, 1978.
29. Coleman RE, Kitahara M, Baker WJ, Beightol R, Hill HR: Chemotactic radioassay for monocytes labeled with indium-111 oxine. Proc World Fed Nucl Med Biol, p. 15, 1978.
30. Baker WJ, Beightol RW, Coleman RE: Radiopharmacy waste disposal. Proc. World Fed Nucl Med Biol, p. 16, 1978.
31. Baxter BS, Christian PE, Coleman RE: Precision computer display techniques in nuclear medicine. J Nucl Med 20:607-608, 1979.
32. Khentigan A, Rudd TG, Bennett LR, Weber PM, Coleman RE, Pavel DG, Conway JJ: Iodohippurate I-123 renography (I-123 OIH): A cooperative clinical study. J Nucl Med 20:619, 1979.
33. Welch DM, Baker WJ, Beightol RW, Coleman RE: Indium-111 labeled leukocytes in the evaluation of suspected inflammatory processes. J Nucl Med 20:659-660, 1979.
34. Coleman RE, Christian PE, Moore JG: Standardization of dual isotope gastric emptying. Proc Ann Mtg 20:2, 1979.
35. Coleman RE, Welch DM: Clinical evaluation of indium-111 leukocytes. Proc Ann Mtg 20:2, 1979.

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EDUCATION:

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Veterans Administration Graduate Education Program Scholar
Double concentration - finance, manpower management

1967 - 1971 Johns Hopkins University Bachelor of Arts
Phi Beta Kappa, Alpha Epsilon Delta, honors graduate
Alfred P. Sloan Scholar

EMPLOYMENT:

1978 - VA Medical Center Durham, North Carolina
Administrative Assistant/Chief of Staff
Full staff assistance to Chief of Medical Staff of 500
bed university-affiliated hospital. Serve on all major
hospital boards and committees. Responsible for
administrative aspects of professional services operations
including graduate medical education program.

1974 - 1976 VA Medical Center Iowa City, Iowa
Assistant Chief, Medical Administration Service
Admission/discharge unit, medical records, outpatient
scheduling, ward administration, statistical reporting,
mail, telephone, medical transcription, and community
nursing home care program

1973 - 1974 VA Lakeside Medical Center Chicago, Illinois
Chief, Ambulatory Care and Processing Section
Outpatient reception and scheduling, eligibility,
admission/discharge unit, contractual medical services

1972 - 1973 VA Medical Center Iowa City, Iowa
One year traineeship in Medical Administration Service

1972

University of Iowa

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Research on proteolytic enzymes in rat lung tissue

AFFILIATIONS:

American Hospital Association

Adjunct faculty, Duke University Department of Health
Administration

PUBLICATIONS:

"State Health Care Policymaking: The Tennessee Primary
Care Act of 1973," Journal of Health Policy, Politics
and Law, in press.

House Staff Handbook, VA Medical Center, Durham, NC,
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CURRICULUM VITAE

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Three children

Education:

B.S. in Biology, June, 1949
Ph.D. in Biochemistry, June, 1954
California Institute of Technology, Pasadena, California

Graduate Assistanceships and Fellowships:

1949 - 1957 Research Assistant, University of California, Berkeley
1951 - 1953 A.E.C. Predoctoral Fellow, California Institute of Technology
1953 - 1954 McCallum Predoctoral Fellow, California Institute of Technology
1954 - 1957 Commissioned Officer
U.S. Public Health Service
National Institute of Arthritis and Metabolic Diseases, NIH, Bethesda, Maryland
1957 - Present: Biochemist to Principal Scientist, V.A. Hospital, Durham, NC.
Instructor to Associate Professor, Department of Biochemistry, Duke University Medical Center, Durham

Publications:

Krueger, J. Heilig, Johnson, J.R., and Greene, R.C. In vitro synthesis of cystathionine- γ -synthetase in Escherichia coli K12. J. Bacteriol. 133:1351-1357. (1978).

Johnson, J.R., R.C. Greene, and J. Heilig Krueger. Isolation and characterization of specialized lambda transducing bacteriophage carrying the metBJF methionine gene cluster. J. Bacteriol. 131:795-800 (1977).

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Greene, R.C., Williams, R.D., Kung, H.F., Spears, C., and Weissbach, H. Effects of methionine and vitamin B12 on the activities of methionine biosynthetic enzymes in metJ mutants of Escherichia coli K12. Arch. Biochem. Biophys. 158:249-256 (1973).

Greene, R.C. Methionine limitation in Escherichia coli K12 by growth on the sulfoxides of D-methionine. J. Bacteriol. 116:230-234 (1973).

Greene, R.C., Hunter, J.S.V., and Coch, E.H. Properties of metK mutants of Escherichia coli K12. J. Bacteriol. 115:57-67 (1973).

Kung, H-F., Spears, C., Greene, R.C., and Weissbach, H. Regulation of the terminal reactions in methionine biosynthesis by vitamin B12 and methionine. Arch. Biochem. and Biophys. 150:23-31 (1972).

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FIELDS OF PROFESSIONAL INTEREST:

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DATE OF BIRTH: October 24, 1920

NATIONALITY: U. S. Citizen

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EDUCATION: Public and Secondary Schools in Brooklyn, New York

Degrees - B.S. in Chemistry, College of City of New York, 1940
Ph.D. in Biochemistry, Duke University, Durham, NC, 1948

Graduate Training -

Thesis: "Metabolism of Parenterally Administered Glycine"
Thesis Director: Professor Philip Handler

POSITIONS HELD:

- 1940-1943 - Research Assistant & Graduate Student in Biochemistry, Duke Univ.
- 1943-1946 - U. S. Army, Sanitary Corps, 1st Lieutenant. Duties were Chief of
Clinical Chemistry and Toxicology, 4th Service Command
Medical Laboratories, Ft. McPherson, Georgia
- 1946-1948 - Research Assistant & Graduate Student in Biochemistry, Duke Univ.
- 1948-1950 - U.S.P.H.S. Postdoctoral Fellow in Biochemistry, Duke Univ.
- 1950-pres.- Successive Academic Ranks from Instructor to Professor, Department
of Biochemistry, Duke University School of Medicine
- 1953-1968 - (Concurrent with above) Principal Scientist, Veterans Administration
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OTHER RESPONSIBILITIES:

1. V.A. Liaison Representative, Biochemistry Study Section, NIH, 1962-1965
2. Chairman, V.A. Committee for Review of Basic Science Programs, 1962-1965
Member, Reconstituted Committee, 1969-1977
3. Acting Chairman, Gordon Conference on Energy Transduction, 1965
4. Chairman, Duke Univ. Medical Center Radioisotope Committee, 1967-present
5. Acting Department Chairman, Biochemistry Department, Duke University
School of Medicine (during Dr. Handler's sabbatical), 1967
6. Chairman, Organizing Committee, Third International Symposium on Flavins
and Flavoproteins, 1969
Member, Organizing Committee of IV, V, and VI International Symposia
on Flavins and Flavoproteins, 1972, 1975, 1978

CURRICULUM VITAE - Henry Kamin (cont'd.)

OTHER RESPONSIBILITIES (cont'd.)

7. Advisory Committee, Bioenergetics Colloquium, Bari, Italy, 1970
8. Member, Editorial Board, J. Biol. Chem., 1974-1979
9. Chairman, Subcommittee on Ammonia, Committee on the Medical and Biological Effects of Environmental Pollutants (MBEEP) of the National Research Council, 1975-1978
10. Associate Director, Medical Scientist Training Program (M.D.-Ph.D.) of the Duke University Medical Center, 1975-present
11. Member, NSF Panel on Metabolic Biology, 1975-1978
12. American Society of Biological Chemists Representative to Publications Committee, FASEB, 1976-1981
13. Member, Food and Nutrition Board of National Research Council, 1978-1981
14. Vice-Chairman, Food and Nutrition Board of National Research Council, 1979-1980

SCIENTIFIC ORGANIZATIONS:

American Society of Biological Chemists
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PUBLICATIONS:

See BIBLIOGRAPHY - One book (Ref. 52), One Major Report (Ref. 81) and indicated papers. Papers designated "NB" are from Dr. Kamin's laboratory but do not include his name.

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Health Physics Course, Oak Ridge National Laboratory

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1960 - 1961 Radiation Analyst, U.S. Atomic Energy Commission
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 - a. 1940-1941 - Science Instructor for Ring Gold Vocational High School, Forest, Mississippi
 - b. September 1941 - February 1942 - Science Instructor for Porterville Vocational High School, Porterville, Mississippi
 - c. February 1942 - November 1945 - Military Service, Chemical Warfare Service, United States Air Force
 - d. 1946 - 1951 - Principal and Science Instructor for Decatur Consolidated High School, Decatur, Mississippi
 - e. 1951 - 1953 - Consultant Per Annum (Radiological Safety), Veterans Administration Hospital, Houston, Texas
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9. Bibliography:

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- b. Johnston, D. H. and McCraw, Burley H.: Gastric analysis - evaluation of collection techniques. Gastroenterology 35: 512-516, Nov. 1958.
- c. Weissler, Arnold M., McCraw, Burley H., and Warren, J. W.: Pulmonary blood volume determined by a radioactive tracer technique. J. Appl. Physiol. 14: 531-534, July 1959.
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- e. Gorten, R. J., Lumb, G. D., McCraw, B. H., Hardy, L. B., and Stokes, J. R.: Delineation of experimental myocardial infarcts by photoscanning. Clin. Res. 13:26, Jan. 1965.
- f. Gorten, R. J., Hardy, L. B., McCraw, B. H., Stokes, J. R., and Lumb, G. D.: The selective uptake of ^{203}Hg -chlormerodrin in experimentally produced myocardial infarcts. Amer. Heart J. 72: 71-78, July 1966.