Posters from Industry

Berthold of America. Dr. Heinz Filthuth, Laboratorium Prof. Dr. Berthold, D-7547 Wilbad, FRG

Radiomatic Instruments. Dr. Michael Kessler, 5102 S. Westshore Blvd., Tampa, FL

Beckman Instruments. Jeff Quint, Ph.D., PO Box C-19600, Irvine, CA

Bioscan. Seth Shulman, Bioscan, 4418 MacArthur Blvd., NW, Washington, DC

CONTINUING EDUCATION

NUCLEAR MEDICINE REVIEW COURSE

Tuesday-Friday **Room 214A**

This four-day course is a review of selected topics for candidates for examination by the American Board of Nuclear Medicine, as well as for the practicing nuclear medicine physician. The program is scheduled during the same time periods as the scientific sessions.

It is suggested that attendees also choose from topics offered in the Continuing Education track each day and one of the three Categorical Seminars on Monday, June 4.

The faculty is composed of nuclear medicine physicians and scientists who have donated their time and expertise. Attendees are invited to participate in this course in its entirety, or in part. There is no additional fee for this course.

Chairmen:
Thomas A. Verdon, Jr., M.D., Penrose Hospitals, Colorado Springs, CO; Albert S. Hale, M.D., Wilford Hall USAF Medical Center, Lackland AFB, TX; and Robert J. Lull, M.D., Letterman Army Medical Center, San Francisco, CA.

Tuesday, June 5

10:00-5:00 **Room 214A**

10:00 **Presentation to Medical Students.** Thomas A. Verdon, Jr., M.D., Penrose Hospitals, Colorado Springs, CO

10:30 **Development, Administration, Psychometrics, and Evaluation of the American Board of Nuclear Medicine Certifying Examination.** Joseph F. Ross, M.D., President, American Board of Nuclear Medicine, University of California at Los Angeles, Los Angeles, CA

11:15 **Review of Rules and Regulations Governing the Practice of Nuclear Medicine: Part I.** Paul J. Early, B.S., Nuclear Medicine Associates, Cleveland, OH

12:00 **Lunch**

1:30 **Review of Rules and Regulations Governing the Practice of Nuclear Medicine: Part II.** Paul J. Early, B.S., Nuclear Medicine Associates, Cleveland, OH

3:00 **Break**

3:30 **(Choose one of four continuing education courses.)**

Wednesday, June 6

8:30-5:00 **Room 214A**

8:30 **(Choose one of four continuing education courses.)**

10:00 **Break**

10:30 **Nuclear Accident Management.** James J. Conklin, M.D., Armed Forces Radiobiology Research Institute, Bethesda, MD

12:00 **Lunch**

1:30 **Quality Assurance I: Instrumentation.** Victor M. Spitzer, Ph.D., University of Colorado Medical Center, Denver, CO

3:00 **Break**

3:30 **Quality Assurance II: Radiopharmaceuticals.** Alan R. Fritzberg, Ph.D., University of Utah Medical Center, Salt Lake City, UT

Thursday, June 7

8:30-5:00 **Room 214A**

8:30 **(Choose one of four continuing education courses.)**

10:00 **Break**

10:30 **Review of Procedures for Evaluation of Gastrointestinal Tract.** Richard A. Holmes, M.D., University of Missouri Medical Center, Columbia, MO

12:00 **Lunch**

1:30 **Review of Procedures for Evaluation of the Thyroid.** N. David Charkes, M.D., Temple University Hospital, Philadelphia, PA

3:00 **Break**

3:30 **Radionuclide Therapy.** Robert F. Carretta, M.D., Roseville Community Hospital, Roseville, CA

Friday, June 8

8:30-5:00 **Room 214A**

8:30 **(Choose one of four continuing education courses.)**

10:00 **Break**

10:30 **Evaluation of Renal Structure and Function by Radionuclide Imaging.** Merton A. Quaife, M.D., University of Nebraska Medical Center, Omaha, N E

12:00 **Lunch**

1:30 **Useful But Uncommonly Performed Procedures in Nuclear Imaging.** George A. Wilson, M.D., University of Rochester Medical Center, School School of Medicine, Rochester, NY

3:00 **Break**

3:30 **1984 Scientific Meeting Highlights.** Henry N. Wagner, Jr., M.D., Johns Hopkins Medical Insti- Institutions, Baltimore, MD (Room 217A)

TUESDAY

RADIOPHARMACEUTICAL CHEMISTRY AND SPECT

3:30-5:00 **Room 214BC**

This session will discuss, from the standpoint of both the physician and the chemist, the present status of radiopharmaceuticals for SPECT and likely future applications. Emphasis will be placed on the relationship between the current level of chemical knowledge and the needs of radiopharmaceutical developments for clinical diagnosis and patient management.

Faculty:
R. Edward Coleman, M.D., Duke University Medical Center, Durham, NC; and William C. Eckelman, Ph.D., National Institutes of Health, Bethesda, MD

GASTROINTESTINAL NUCLEAR MEDICINE

3:30-5:00 **Room 212A**

Nuclear medicine techniques are optimally suited to the evaluation of gastrointestinal function. Quantitative methods for evaluation of esophageal, gastric, and gallbladder function will be reviewed, as will approaches to biliary imaging and GI bleeding studies. The red blood cell and labeled colloid methods for detecting GI bleeding will be compared and contrasted. Finally, the current status of hepatic scintigraphy using conventional techniques or SPECT will be reviewed and compared to other imaging modalities.

Faculty:
Leon S. Malmud, M.D., Temple University School of Medicine, Philadelphia, PA

CLINICAL UTILITY OF NEW COMPUTER TECHNIQUES IN CARDIAC STUDIES

3:30-5:00 **Room 217B**

This session will review new quantitative methods for analysis, interpretation and display of equilibrium radionuclide angiocardiography and cardiac single-photon emission computed tomography (SPECT). Basic principles of image processing, artificial intelligence, and algorithm implementation will be discussed in the context of clinical problems in equilibrium blood-pool imaging. There also will be a discussion of image artifacts in thallium-201 single-photon tomography, as well as a comparison of 180° vs 360° acquisition, linear vs. nonlinear filtering techniques, circular vs. body contoured acquisition, and single detection vs. multidetector rotating systems. Throughout this session, clinical data will be presented to highlight the applicability of these computer methods.

Faculty:
Robert Eisner, Ph.D., Emory University School of Medicine, Atlanta, GA; James Duncan, Ph.D., Yale University School of Medicine, New Haven, CT; and Harvey J. Berger, M.D., Emory University School of Medicine, Atlanta, GA

BASIC ASPECTS OF NMR I

3:30-5:00 **Room 217A**

The basic phenomenon of nuclear magnetic resonance and the principles of NMR imaging will be reviewed, along with the pulse sequences commonly used for measurements. The equipment used to construct NMR scanners will be illustrated, including the magnets, radiofrequency and gradient coils, and the various types of magnets in use (resistive, superconducting, and permanent). The origin of contrast in magnetic resonance imaging also will be discussed, and the significance of the radiofrequency pulse sequence explored. NMR contrast agents are still being developed, but most effort has been devoted to using the fact that T_1 and T_2 may be altered by small quantities of paramagnetic materials. The factors governing the choice and design of such materials, and examples of their use, will be given.

Faculty:
John C. Gore, Ph.D. and Robert C. Lange, Ph.D., Yale University Medical Center, New Haven, CT

PRESENTATION OF AWARDS, SNM BUSINESS MEETING AND WINE & CHEESE RECEPTION

5:00-6:00 **Room 212B**

Presentation of Awards by Leonard M. Freeman, M.D., *Chairman, Awards Committee* and Walter Wolf, Ph.D., *President, Education and Research Foundation*

Paul C. Aebersold Award to John S. Laughlin, Ph.D.
Tetalman Memorial Award winner to be announced
Berson-Yalow Award to Gerald L. DeNardo, M.D.
Distinguished Service Award to Joseph F. Ross, M.D.
Distinguished Educator Award to Marshall Brucer, M.D.

SNM Business Meeting Wine & Cheese Reception

WEDNESDAY

RADIOPHARMACEUTICAL CHEMISTRY AND PET

8:30-10:00 **Room 214BC**

This session will discuss, from the standpoint of both the physician and the chemist, the present status of

radiopharmaceuticals for PET and likely future developments. The ability of present chemical knowledge to address the needs of clinical nuclear medicine will be explored.

Faculty:
Henry N. Wagner, Jr., M.D., Johns Hopkins Medical Institutes, Baltimore, M.D.; and Gerhard Stocklin, Ph.D., Kernforschungsanlage Julich, Julich, FRG

ENDOCRINE IMAGING

8:30-10:00 **Room 212A**

This session will provide participants with a current state-of-the-art imaging review of thyroid, parathyroid, and adrenal scintigraphy. Various aspects of thyroid imaging including imaging agents and instrumentation, interpretation, possible problems that are encountered, and future prospects for this modality will be discussed. The potential of Tl-201 parathyroid scintigraphy will be assessed and compared to the utility of CT and other diagnostic modalities. Radiopharmaceuticals and their mechanisms of uptake in the adrenal cortex and medulla will be introduced. Adrenocortical scans in "suppressed" and "unsuppressed" patients as well as normal and abnormal adrenomedullary scans will be presented, and adrenal scintigraphy will be assessed in relation to alternative imaging techniques.

Faculty:
Martin P. Sandler, M.D., Vanderbilt University School of Medicine, Nashville, TN; and Brahm Shapiro, M.D., University of Michigan Medical Center, Ann Arbor, MI

INSTRUMENTATION ADVANCES IN SPECT

8:30-10:00 **Room 217B**

Single-photon emission computed tomography is on the verge of being accepted as a routine clinical technique in nuclear medicine. At the same time, its potential for absolute quantitation of radioactivity distribution in the setting of the clinical nuclear medicine laboratory has not yet been realized. To fulfill that promise, attenuation and scattering corrections, evolution of equipment and software for patient studies, and realistic patient-oriented quality assurance techniques must be developed. This session will address these questions, and others, in relation to patient studies and commercially available equipment.

Faculty:
Barbara Y. Croft, Ph.D., University of Virginia Medical Center, Charlottesville, VA; Ernest V. Garcia, Ph.D., Cedars-Sinai Medical Center, Los Angeles, CA; and Michael M. Graham, M.D., Ph.D., University of Washington, Seattle, WA

BASIC ASPECTS OF NMR II

8:30-10:00 **Room 217A**

An overview of practical considerations for site planning and preparation will be discussed, including fringe fields around magnets, radiofrequency shielding, magnetic shielding, and patient communication and monitoring. Experience with quality assurance phantoms also will be presented, such as the partial volume phantom that has been used to measure T_1 and T_2 stability, contrast detail curves, gradient stability, field uniformity, signal-to-noise ratio stability, and distortion.

Faculty:
William Pavlicek, M.S., Cleveland Clinic, Cleveland, OH; and Richard L. Witcofski, Ph.D., Bowman Gray School of Medicine, Winston-Salem, NC

RADIOASSAY QUALITY CONTROL WORKSHOP

(Sponsored by the SNM Radioassay Council)

8:30-5:00 **Room 216A**

The evaluation of assay performance remains an important part of clinical radioimmunoassay practice. This workshop provides a review of basic radioimmunoassay quality control principles, a look at more recently developed quality control measures, and a framework used to establish control during assay development. The value of ongoing assay control will be illustrated by reviewing problems detected by measures routinely employed in the clinical radioimmunoassay laboratory. Participants will receive information that can immediately be employed in their own laboratories.

Moderators: Lynn Witherspoon, M.D.
Benjamin Rothfeld, M.D.

I. Quality Control in Radioassay

8:30 **Introduction to Quality Control in RIA.** Linda Monroe, Ph.D., St. Luke's Episcopal Hospital, Houston, TX

8:45 **Beyond Precision Profiles.** James E. Ellis, MS, Corning Medical, Medfield, MA

9:30 **Quality Control in Assay Development.** Avir Kagan, M.D., Coney Island Hospital, Brooklyn, NY

10:15 **Break**

10:30 **Specific Assay Problems.** Lynn R. Witherspoon, M.D., Ochsner Medical Institutions, New Orleans, LA

11:15 **Break**

II. Extra-Laboratory Factors Effecting RIA
This portion of the workshop will deal with factors, which although not strictly technical can affect radioassay results.

1:30 **Non-Thyroid Factors Influencing Thyroid Testing.** Faud S. Ashkar, M.D., University of Miami, Miami, FL

2:15 **Sample Problems and Handling in RIA.** Eileen Nickoloff, Ph.D., Squibb Laboratories, Princeton, NJ

3:00 **Break**

3:15 **Altered Body States.** Arthur Karmen, M.D., Albert Einstein Medical Center, Bronx, NY

"NMR VS. MRI": THE FUTURE OF NUCLEAR MEDICINE IN MAGNETIC RESONANCE STUDIES

(Sponsored by the SNM Academic Council)

12:00-1:30 **Room 216BC**

Moderator: Philip O. Alderson, M.D.

12:00 **The Potential of Magnetic Resonance Studies.** C. Leon Partain, M.D., Ph.D., Vanderbilt University, Nashville, TN

12:20 **Magnetic Resonance Imaging: A Diagnostic Radiology Procedure.** William G. Bradley, M.D., Ph.D., Huntington Medical Research Institute, Huntington, CA

12:40 **Will There Be A "Nuclear" in the Future of NMR?** Hirsch Handmaker, M.D., Children's Hospital, San Francisco, CA

1:00 **Open Panel Discussion**

THURSDAY

MONOCLONAL ANTIBODIES IN NUCLEAR MEDICINE

8:30-10:00 **Room 214BC**

This session will consider the present and future of radiolabeled monoclonal antibodies in nuclear medicine. The technical problems associated with antibody labeling, the various chemical approaches to labeling, and the potential of radiochemical methodologies to provide more readily available antibody preparations will be discussed in relationship to specific clinical needs.

Faculty:
Steven M. Larson, M.D., National Institutes of Health, Bethesda, M.D.; and B. M. Gallagher, Ph.D., New England Nuclear Corporation, N. Billerica, MA

SKELETAL IMAGING IN PEDIATRICS

8:30-10:00 **Room 212A**

The techniques and the unique disease processes of children require specific consideration to ensure that imaging procedures yield useful clinical information. In the axial skeleton standard radiography and computed tomography may be needed to fully evaluate the child with an abnormal bone scan and obsure back pain. The interrelationships of various diagnostic modalities in evaluation of skeletal disease in children will be emphasized. Special techniques for pediatric bone imaging and the imaging patterns of specific disease entities, such as neonatal osteomyelitis, the battered child, and childhood neoplastic diseases, will be reviewed.

Faculty:
John R. Sty, M.D., Milwaukee Children's Hospital, Milwaukee, WI; and Massoud Majd, M.D., National Children's Medical Center, Washington, DC

APPLICATIONS OF ARRAY PROCESSORS IN NUCLEAR MEDICINE

8:30-10:00 **Room 217B**

Most nuclear medicine computer systems are now being offered with an array processor as an option. This course will review the architecture and programming of array processors, and survey the present and possible future applications of array processors in nuclear medicine. Emphasis will be placed on explaining the "jargon" associated with array processors and giving insight into both the advantages and limitations to adding an array processor to a nuclear medicine computer system.

Faculty:
Michael A. King, Ph.D., University of Massachusetts Medical Center, Worcester, MA; Peter D. Esser, Ph.D., Columbia-Presbyterian Medical Center, New York, NY; Ernest V. Garcia, Ph.D., Cedars-Sinai Medical Center, Los Angeles, CA; Samuel E. Lewis, M.D., University of Texas Health Sciences Center, Dallas, TX; and J. Randolph Perry, M.D., University of North Carolina Medical Center, Chapel Hill, NC

CLINICAL APPLICATIONS OF SPECT

8:30-10:00 **Room 217A**

This presentation will attempt to summarize the state-of-the-art in available equipment, quality control procedures, clinical use for protocols, and clinical results for SPECT. The current clinical applications of SPECT will be reviewed with reference to the capabilities and limitations of presently available commercial hardware. Related matters of normal anatomy and problems in learning the proper application of these techniques also will be reviewed. The clinical experience with SPECT using conventional tracers and the new iodinated tracers for SPECT studies of the brain will be discussed.

Faculty:
John W. Keyes, Jr., M.D., Ph.D., Henry Ford Hospital, Detroit, MI; Thomas C. Hill, M.D., New England Deaconess Hospital, Boston, MA; and Robert E. Henkin, M.D., Loyola University Medical Center, Chicago, IL

COMPUTERS FOR THE COMPUTER-SHY WORKSHOP

5:30-Buses leave from front entrance of Convention Center **Location to be announced**

Purpose:
To educate the computer novice in some basic aspects of computer usage and how to use some practical nuclear medicine programs.

Presented by:
The SNM Computer Council and Barbara Y. Croft, Ph.D.

Limited audience so register early on registration form

FRIDAY

HIGH SPECIFIC-ACTIVITY RADIOTRACERS

8:30-10:00 Room 214BC

This session will address the techniques that can be used to ensure the chemical purity of species prepared at "no carrier added" and "carrier-free" concentrations, and methods to determine the specific activity of the product. Examples will be given for compounds labeled with positron-emitting radionuclides, the halogens, and metals.

Faculty:
Joanna S. Fowler, Ph.D., Brookhaven National Laboratories, Upton, NY; Michael R. Kilbourn, Ph.D., Washington University, St. Louis, MO; and Edward C. Deutsch, Ph.D., University of Cincinnati, Cincinnati, OH

SCINTIGRAPHY IN BENIGN BONE DISEASE

8:30-10:00 Room 212A

This course will attempt to review current applications of radionuclide imaging for a spectrum of benign bone diseases that occur in adults. The course will include emphasis on the use of three-phase bone imaging in infectious dieases, including complications of orthopedic prostheses and chronic non-unions, and in other disorders with altered bone blood flow, such as the reflex sympathetic dystrophy syndrome. The increasing application of skeletal scintigraphy for evaluation of patients with bone pain and negative radiographs has led to many patients being referred by sports medicine specialists to nuclear medicine departments. Included in the course will be a discussion of sports-related injuries, with particular emphasis on the use of scintigraphy in their diagnosis.

Faculty:
Alan H. Maurer, M.D., Temple University School of Medicine, Philadelphia, PA; and Lawrence E. Holder, M.D., Union Memorial Hospital, Baltimore, MD

RADIATION PROTECTION AND NUCLEAR MEDICINE

8:30-10:00 Room 217B

This course will review the basis for determining acceptable levels of radiation exposure in patients. The role of the NCRP, risk estimation and its uncertainties, and some developments since the last BEIR committee will be discussed. Problems associated with the exposure of pregnant or potentially pregnant women to diagnostic nuclear medicine procedures will be reviewed, as will the special problems of radiation exposure to children after administration of radiopharmaceuticals. In choosing proper administered doses, a balance must be achieved between minimizing the administered dose and maximizing information.

Moderator:
S. James Adelstein, M.D., Harvard Medical School, Boston, MA

Faculty:
Warren K. Sinclair, Ph.D., President, National Council on Radiation Protection and Measurements (NCRP), Bethesda, MD; Phyllis Segal, FDA, Rockville, MD; and David L. Gilday, M.D., Hospital for Sick Children, Toronto, Ontario, Canada

POSITRON EMISSION TOMOGRAPHY AS A CLINICAL SERVICE

8:30-10:00 Room 217A

Over the past 10 years positron emission tomography (PET) has been evolving from an instrument and method-related technology to an imaging modality with unique capabilities for examining and measuring the biochemical basis of body functions. The value of this approach is based on the principle that the fundamental nature of both normal function and diseases of the human body is chemical and that therapeutic interventions are directed at supplementing, blocking, or destroying altered chemical processes of disease. PET brings together the high sensitivity of radioassays, the principles of biochemical and tracer kinetic methods, and a tomographic instrument through which measurements of these processes can be made in man noninvasively. The importance of biochemical information to the referring physician for improving patient management and developing and evaluating new therapies is unquestionable. The relevant issue is to what degree and at what cost this can be provided by PET. Thus, this session will focus on current and future clinical applications of PET, especially in diseases of the brain and heart, and on the cost-performance requirements of PET and the development of minicyclotron-based radionuclide generators.

Faculty:
Michael E. Phelps, M.D., UCLA School of Medicine, Los Angeles, CA; and John C. Mazziotta, M.D., Ph.D., and Heinrich R. Schelbert, M.D., UCLA School of Medicine, Los Angeles, CA