Robert R. Marshak, D.V.M., became the ninth dean of the School of Veterinary Medicine in September, 1973, succeeding Mark W. Allam, V.M.D., who resigned at this time.

Dr. Marshak was born in New York, N.Y. on February 23, 1923 and as a boy he spent considerable time on farms. From 1940 until 1942 he engaged in pre-veterinary studies, first at the University of Wisconsin and then at Cornell University. He enrolled in the New York State College of Veterinary Medicine at Cornell on a wartime accelerated program and graduated in 1945. As a student he served an assistantship in nutrition and then a laboratory assistantship in physiology.

Immediately after graduation Dr. Marshak began a dairy cattle practice in the area surrounding Springfield, Vermont, and continued this until 1956. In the early years of practice he became acquainted with a physician, Dr. Alan M. Butler, who had a farm nearby. Dr. Butler, one of the great clinical investigators of that era, was professor of pediatrics at Harvard Medical School. The two met when Dr. Marshak was called to treat a serious illness in a horse belonging to Dr. Butler’s daughter. Thus began a friendship which was to have a profound influence on Dr. Marshak’s future life, and upon the Veterinary School.

Dr. Butler strongly encouraged Dr. Marshak to engage in clinical investigation and made it possible for him to use laboratory facilities in the Massachusetts General Hospital, Boston. Dr. Marshak began some investigations of metabolic diseases in cattle, making frequent trips to Boston, often at night, with samples for laboratory analysis. At the same time he began to attend conferences dealing with metabolism, including the prestigious Gordon Conference in New Hampshire. As a result of his exposure to experts in the field of metabolic diseases, Dr. Marshak recognized a need for further training in biochemistry and he began a self-learning program in this discipline. He became especially interested in mineral metabolism, and in 1956 he was asked to be organizing chairman for a Conference on Calcium and Phosphorous Metabolism in Man and Animals with Special Reference to Pregnancy and Lactation at the New York Academy of Sciences. All of this from a man who was conducting a busy practice in rural Vermont!

As a natural consequence of events Dr. Marshak now began to give some thought to a situation which would provide an outlet for his developing scholarly interests. At one point he considered moving to Boston so that he would be near Harvard University. At the same time these thoughts were occurring to him, the Veterinary School was searching for a professor of medicine to take the place of Dr. John D. Beck who was resigning. Dean Mark W. Allam had interviewed a number of candidates for the position but he had been unable to find the right individual. Through a series of circumstances Dean Allam learned about this rather remarkable veterinarian from Vermont. Among the circumstances was a phone call by Dr. Butler to Dr. I.S. Ravdin, vice president for medical affairs in the University of Pennsylvania. Dr. Butler strongly recommended Dr. Marshak for a position in the Veterinary School and this information was relayed to Dean Allam. As a result, Dr. Allam invited Dr. Marshak to come to Philadelphia, and within a very short time after they met Dr. Allam knew that the search for a professor of medicine had ended. Concurrently, Dr. Marshak soon
came to recognize that Penn offered many of those things that he was looking for to fulfill his growing scholarly interests. He was appointed professor of medicine in 1956.

Dr. Marshak describes this time as a "fortuitous combination of events"; and it was! The School was looking for key individuals who would become part of its bold new program for the future, and it now had a professor who had some extraordinary new concepts about how clinical veterinary medicine should develop.

Dr. Marshak was unsatisfied about his own education in clinical medicine and he was disturbed about the great disparity between the programs for clinical sciences in medical schools and those in veterinary schools. Before he came to Penn he had begun to evaluate the needs of veterinary medical education, based in part on the deficiencies he recognized in his own educational experience. Looking back he reflected that "there were many tools that medical students had readily at hand that I had to find out and work for after I was out of School." His survey of various veterinary schools revealed that while "there were some reasonably decent basic science departments, the clinical departments were so overburdened with service and teaching responsibilities that they couldn't have developed research interests if they wanted to. The schools saw themselves in limited terms, and I felt that this could be changed." Dr. Marshak compared the situation in veterinary schools to that which had existed in medical schools in 1910 — the year that Flexner published his appraisal of medical education in the United States. Dr. Marshak concluded that "a trade school philosophy still dominated most clinical departments. Research, particularly basic research, was regarded with open hostility because it was believed that it detracted from and competed with clinical training." To those who complained that veterinary medicine could not and should not develop along the same basic lines as human medicine he voiced the strong view that..."of course we must emulate medicine. Medical people never hesitate to exploit our contributions, and only a few decades ago veterinary schools were not teaching aseptic surgery, clinical pathology or radiology."

Although Dr. Marshak's appointment as professor, directly from practice, was highly unusual it is obvious that he had already given much thought to academic veterinary medicine. He came to the School with a reputation as an indefatigable worker and as a young man in a hurry. Fortunately he found a small group of faculty who were fully supportive of his ideas. These were such individuals as Drs. David K. Detweiler, John T. McGrath, Charles W. Raker and John E. Martin. Dean Allam encouraged Dr. Marshak to move ahead quickly in putting his concepts into practice. Particularly heartwarming was the close relationship which developed between Dr. Marshak and Dr. William B. Boucher. They were two individuals with strikingly different make-ups, but each fully recognized what the other had to offer, and for many years they have strongly supported one another.

Fundamental to Dr. Marshak's concepts about the teaching and practice of clinical medicine is the premise that students should be taught basic principals of medicine as versus the old style of "cookbook training". With this in mind he urged the administration to strengthen the basic science departments, and through a series of judicious appointments this was done. From the outset he developed an atmosphere which led to a close working relationship between those in the basic and clinical sciences. One result of this approach was the regular scheduling of Clinical Pathologic Conferences in which individuals from the basic science and the clinical faculty came together to discuss clinical material in an in-depth fashion. For a number of years the proceedings of these Conferences were published in the AVMA Journal.

Concurrent with a strengthening of the basic science area Dr. Marshak began to recruit individuals to staff the clinical department. For some positions he sought individuals with established reputations, but he was particularly interested in young people who wished to carve out careers as teacher-investigators. It was not enough to merely recruit those with this interest; the School must offer them a real opportunity to further their education. Fortunately, in the early years of building the clinical department, the Graduate School of Medicine provided the educational appar-
and on the services provided by the Hospitals. This fundamental change is largely the result of the vision and determination of Dr. Robert R. Marshak. When first promulgated, his ideas met with much resistance in the veterinary profession, but he persisted in speaking before various groups and publishing his views in journals. It is not unreasonable to view his efforts as a “Flexner (Marshak) Report on Veterinary Medical Education.” The Veterinary School owes much of its position as a world leader amongst veterinary schools to Dr. Marshak.

When Dr. Marshak was appointed as professor of medicine in 1956, he also became chairman of the Department of Medicine. Two years later the department structure of the School was reorganized and he became chairman of the Department of Clinical Studies. He had a joint appointment as professor of medicine in the Graduate School of Medicine from 1957 until 1964, and since 1971 he has been a member of the Graduate Group Committee in Comparative Medical Sciences. Dr. Marshak was research collaborator, Medical Department, Brookhaven National Laboratory during the period 1963 to 1968, and from 1965 until 1973 he was director of the Comparative Leukemia Studies Unit at New Bolton Center.

Dr. Marshak is a charter diplomate of the American College of Veterinary Internal Medicine and served as president of this group from 1975-1976. He has served on the editorial board of several journals including the American Journal of Veterinary Research, the Journal of the American Veterinary Radiology Society and the Cornell Veterinarian. From 1964 until 1967 Dr. Marshak was chairman, Committee on Postdoctoral Education of the American Association of Veterinary Clinicians, and from 1975 until 1978 he was a member of the Committee on Veterinary Medical Sciences of the National Academy of Sciences. During the period 1976 to 1981 he was a member of the Council on Research of the American Veterinary Medical Association. Dr. Marshak served on the Advisory Council of the New York State College of Veterinary Medicine at Cornell University from 1977 until 1980. He currently serves on the Board of Directors of the Bide-a-see Home Association and the Pennsylvania Livestock Association, and is a member of the Advisory Council of the James A. Baker Institute for Animal
Health, Cornell University, and of the Secretary's Animal Health Advisory Board of the Pennsylvania Department of Agriculture.

Dr. Marshak is a member of the American Association for the Advancement of Science, the American Association for Cancer Research, the American Veterinary Medical Association, the Pennsylvania Veterinary Medical Association, the American Association of Veterinary Clinicians, the Conference of Research Workers in Animal Diseases, the College of Physicians of Philadelphia (fellow), and the Council of Deans, Association of American Veterinary Medical Colleges. He is also a member of The New York Farmers and the Philadelphia Society for Promoting Agriculture.

Dr. Marshak has published over seventy scientific papers, many of them on the subject of bovine leukemia, but also on metabolic diseases and leptospirosis. He has published four major review articles.

Dr. Marshak's contributions to the profession were recognized in 1968 when the University of Berne awarded him an honorary degree of Dr. Med. Vet.

In September, 1980, a faculty committee, chaired by Dr. Leon P. Weiss, reviewed Dr. Marshak's first seven year term as dean of the Veterinary School. The report concluded by stating: "In conclusion, the Faculty, Students, Staff and Alumni are grateful and supportive of Robert Marshak's leadership, commitment, selflessness, and strongly support his continued term as Dean of the Veterinary School." The body of the report describes many of the major visible accomplishments during these seven years of Dr. Marshak's deanship and cites the following: the strengthening of both basic and clinical sciences; the development of new clinical specialties and the concurrent evolution of a major program of animal models for human diseases; the creation of a Center on the Interactions of Animals and Society; a working relationship with the Humane Movement; the development of a Program of Aquatic Medicine; and the beginning of construction on the Veterinary Hospital of the University of Pennsylvania (VHUP). Dean Marshak had a strong hand in all of these accomplishments, and others of equal importance can be added. These include completion of the C. Mahlon Kline Center for Orthopedics and Rehabilitation, in 1975, and the major addition to the Large Animal Hospital at New Bolton Center in 1980. Presently major renovations are taking place in the old quadrangle building, providing much needed research space.

From 1956 until the present Dr. Marshak was principal investigator on research grants in the amount of over seven million dollars. During the years 1976 to 1982 he directed fund-raising efforts which realized 27.5 million dollars from the private sector, and during the period 1974 to 1982 the annual appropriation from the Commonwealth of Pennsylvania increased from 1.7 million to 7.6 million dollars. In 1983 the Veterinary School launched a fund raising campaign to raise 41.5 million dollars by 1987. This is known as the Second Century Fund, and Dean Marshak is playing a major role in its implementation.

Taken by themselves, these highly visible accomplishments during Dr. Marshak's deanship are outstanding, but his personal impact upon the School goes much further. He is a powerful personality who has articulated the highest standards of scholarship and teaching; he is highly respected in the University community and has constantly strengthened the Veterinary School's place within the biomedical and health professions schools. He sets the standard for hard work; he keeps long hours and he is involved in School affairs literally all day, every day.

Despite the great advances since 1973 these have not been easy years for the School of Veterinary Medicine and Dean Marshak has been through some punishing trails. During these years the School became a Responsibility Center within the University structure, and with this the problems of keeping a veterinary school solvent were revealed in all of their stark reality. Dean Marshak has found himself frequently at odds with the University central administration on academic and budgetary matters. It is ironic that as a private school the Veterinary School is vitally dependent upon state support. As a consequence of this situation a scholarly dean had to become a political advocate in the state capital, Harrisburg, and a personality to seek private wealth in support of the School. Dr. Marshak has spent innumerable
hours in these activities and his success is readily apparent in the great increases in private and state funds that have come to the School. In spite of the increased income it has been necessary to raise tuition and in 1982 and 1983 it was necessary to eliminate some staff positions. Like most institutions of higher learning inflationary increases have wrought havoc with the cost of providing educational and service functions.

Despite these complex and difficult activities Dean Marshak has kept uppermost the fundamental matters that nourish the Veterinary School: high academic standards, research, teaching, patient care and community service. His resolute character and his zest have inspired the School. Despite the great amount of time which he is required to spend in political and fund raising activities, Dr. Marshak has become a major spokesman for the profession. He has been superbly articulate. He has embraced an extraordinarily broad constituency including the legislature, the alumni, the Pennsylvania Veterinary Medical Association, agricultural groups, humane societies, the dog and cat world, zoo and wildlife groups and aquatic medicine.

In the face of the almost overwhelming responsibilities which are now a function of the deans office, Dr. Marshak somehow finds time to pursue some personal interests including a great love for classical music, especially opera, photography and ecology. Much of the art on display in VHUP and in other areas of the School comes from his private collection. Dr. Marshak’s efforts were responsible for the School acquiring the striking steel sculpture known as “Life Savers” which adds much to the entrance of VHUP, and for an equally outstanding piece known as “Thrust in a Taxi” which is on display at the New Bolton Center campus.

In the present era of financial austerity, coupled with an increasing public demand for more and better educational and service functions, and the vital need to maintain research at its present high level, Dean Robert R. Marshak continues as a source of great strength for the School of Veterinary Medicine.

The Faculty

Overall the faculty remained fairly stable in the years 1973 to 1983. There were a few senior members who resigned or retired during this period, and there were some important appointments, but generally the picture was one of maturing and as a result, increased strength in most areas. Five important appointments were those of Drs. Alan M. Beck, Robert J. Eckroade, Robert B. Grieve, Leon P. Weiss, and Robert H. Whitlock. The appointment of Dr. Beck marked the inception of a new area of activity in the School, the Center for Interaction of Animals and Society; under Dr. Eckroade the service, research and teaching functions of the Cooperative Poultry Diagnostic Laboratory have grown and improved; Dr. Grieve, head of the Laboratory of Parasitology, has strengthened an already strong group of researchers; Dr. Weiss, chairman of the Department of Animal Biology, is a world recognized authority on functional anatomy of the hematopoietic system; Dr. Whitlock, chief of Medical Services, New Bolton Center, has been instrumental in developing a strong program of research in farm animal diseases.

The faculty continued to work diligently during this decade. The continued growth of the physical plant, student body and areas of responsibility in the School meant a corresponding increase in committee and administrative activity. During the early years of this period the core-elective curriculum was still in a “shake-down” phase and required much attention; the
continued addition of new elective courses reflects the commitment of the faculty to offer students a broad, exciting educational experience. The faculty has responded to the expanded Continuing Education Program with vigor. The research output has been prolific; for nearly the entire decade there were 125 or more research projects underway annually. With the maturing process, individuals now occupy important places within the worldwide framework of their discipline. The additions of new hospital facilities in Philadelphia and at New Bolton Center have increased and diversified the service functions provided by faculty of the clinical departments. Dean Robert R. Marshak has remained resolutely committed to recruiting only individuals of outstanding talent to fill key positions on the faculty, and there remains a strong commitment to training promising young people.

In 1983 the standing faculty (professors, associate professors and assistant professors) numbers 108. There are eleven individuals with emeritus status, and an associate faculty (adjunct and visiting appointments) of sixty. One noticeable change in the last decade is the reduction in the number of research fellows; in 1973 there were forty-six individuals in this category, whereas in 1983 there were only eighteen. This reflects a drying-up of funds available for training. On the other hand, the residency program has grown significantly. In 1973 there were nine residents; in 1983 the number is forty-one. This is the result of greatly expanded opportunities in the clinical specialties.

A singularly important development has been the creation of eight endowed faculty chairs, which reflects both the stature of the faculty and the generous, concerned support of a number of individuals. Charles W. Baker, V.M.D., was the first occupant of an endowed chair in any veterinary school in the United States. This is the Lawrence Baker Sheppard Professorship of Surgery, established in 1967. Since that time there have been seven endowed chairs. The present occupants are: Kenneth C. Bovee, D.V.M., M.Med.Sc., Corinne R. and Henry Hoover Professor of Medicine; Ralph L. Erbinger, V.M.D., Ph.D., Richard King Mellon Professor of Reproductive Physiology; William J. Donawick, Mark Whittier and Lila Griswold Allam Professor of Surgery; David S. Kronfeld, Ph.D., D.Sc., M.V.Sc., M.R.C.V.S., Elizabeth and William Whitney Clark Professor of Nutrition; David P. Nanamaker, V.M.D., Jacques Jenny Professor of Orthopedic Surgery; Donald F. Patterson, D.V.M., D.Sc., Charlotte Newton Sheppard Professor of Medicine; and Leon P. Weiss, B.S., M.D., Grace Lansing Lambert Professor of Cell Biology.

The basic, inherent strength of the School is its faculty. It is the vital ingredient in a continual striving for excellence in all of the fundamental functions of the School — education, research and service. The present faculty, with its make-up of individuals with well established reputations in their particular field, and especially a body of bright and aggressive young individuals, offers a portentous future for the School.

Dr. Donald A. Abt, V.M.D., received his veterinary degree from the University of Pennsylvania in 1961 and joined the faculty in the same year as instructor in anatomy. From 1965 to 1966 he was a research fellow in biostatistics. In 1966 Dr. Abt became assistant professor of epidemiology and biostatistics and in 1973, he was appointed professor. In 1970, with the advent of the core-elective curriculum, Dr. Abt became associate dean for curriculum; since that time he has been primarily responsible for implementing and maintaining the control system for the complex curriculum. In 1976 Dr. Abt became associate dean and in 1977 received an interlocking appointment as professor of epidemiology and biostatistics in the Graduate School of Arts and Sciences. He is a member of the Graduate Groups in Parasitology and Comparative Medical Sciences. Dr. Abt's major fields of research are biometry, epidemiology, oncology, and hematology. He has been associated with the Comparative Leukemia Studies Unit since 1962 and is responsible for the epidemiological and analytical phases of this major research effort. In 1976 Dr. Abt became director of the newly created Regents Program and continues to serve in this capacity. He served as a member of the Committee on Veterinary Medical Sciences, National Research Council (1980-1982), and
Gustavo D. Aguirre, V.M.D., Ph.D., known to most as "Gus," was born in Cuba and earned his veterinary degree in 1968. In 1975 Dr. Aguirre was awarded a Ph.D. degree from the Graduate School of Arts and Sciences, University of Pennsylvania. During 1968-69 he was a postdoctoral fellow in comparative ophthalmology at the Veterinary School. From 1969 to 1971 Dr. Aguirre was a postdoctoral fellow in ophthalmology at the Wilmer Ophthalmological Institute, Johns Hopkins University Medical School, Baltimore, Maryland. He spent the years 1971 to 1973 as a research associate in comparative cardiology at Cornell University, Ithaca, New York, and in 1973 was appointed assistant professor of ophthalmology in the Veterinary School, University of Pennsylvania. Dr. Aguirre, one of the outstanding veterinary ophthalmologists in the country, is presently associate professor of ophthalmology and chief, Section of Ophthalmology. He serves on several Veterinary School committees and is a consultant to the National Eye Institute, the National Institutes of Health, and the National Research Council. In 1979 he received the Fight for Sight Citation for outstanding achievements in basic research, and in 1980 was the recipient of theRalston Purina Small Animal Research Award. In 1981 Dr. Aguirre received a March of Dimes Travel Fellowship. He is a diplomate, American College of Veterinary Ophthalmologists and is a member of the Association for Research in Vision and Ophthalmology. Dr. Aguirre's primary area of research is in the field of inherited diseases of the eye, especially in retinal degeneration and in those diseases classified as "inborn errors of metabolism." He has written chapters in eight textbooks, and has published over eighty scientific papers.

Wilber B. Amand, V.M.D., graduated from the Veterinary School in the Class of 1966, and from 1966 to 1968 was an intern and resident in medicine, surgery and comparative dermatology in the School. From 1969 to 1971 Dr. Amand was instructor in medicine, and in 1975 he was appointed adjunct assistant professor of zoological medicine. In 1980 he became adjunct associate professor, a position he now holds. He is director of the Garden, Philadelphia Zoo, and during 1979-1980 served as president of the American Association of Zoological Veterinarians. Dr. Amand is very active in zoo programs on a national basis and is a member of the American Association of Zoological Parks and Aquariums. His primary research interest is on diseases of captive wild mammals, birds and reptiles. Dr. Amand teaches in the core and elective programs and has published about thirty papers.

Carl E. Arenson, A.B., Ph.D., earned his Ph.D. (pharmacology) degree in 1966 at the
University of Vermont, Burlington, Vermont. He came to the University of Pennsylvania in 1967 as an instructor in pharmacology in the Medical School. From 1969 to 1971 Dr. Aronson was a Pennsylvania Plan Scholar and from 1969 to 1972 he was a research fellow of the Heart Association of Southeastern Pennsylvania. In 1971 he joined the Veterinary School faculty as assistant professor of pharmacology. Dr. Aronson became head of the Laboratory of Pharmacology and Toxicology in 1972, and in 1973 was promoted to associate professor. In the period 1974 to 1975 he was acting associate dean for student affairs. Dr. Aronson is president of the American College of Veterinary Pharmacology and Therapeutics for the years 1983-1985. He supervises the Audio-visual Service in the Veterinary School and has served on numerous School committees. Dr. Aronson's main field of research is toxicology, he has published over thirty scientific papers. He is editor of Veterinary Pharmaceuticals and Biologicals (Harwall Publishing Co., Media, Pennsylvania) and has written chapters or sections in several textbooks. In 1980 he was program coordinator for the Second Symposium on Veterinary Pharmacology and Therapeutics, an international meeting of veterinary pharmacologists, held in Philadelphia, Pennsylvania.

Narayan C. Avadhani, Ph.D., was born in India and earned his doctorate degree (biochemistry) from the University of Bombay in 1969. From 1969 to 1972 he was at the University of Illinois, Urbana, where he became assistant professor in the Department of Physiology and Biophysics. He joined the faculty of the Veterinary School in 1972 as research investigator in the Department of Animal Biology. Dr. Avadhani became professor of biochemistry in 1982. He has done some outstanding research on mitochondrial biogenesis and has also worked in the areas of nucleic acid metabolism, bacterial genetics, protein synthesis, and carcinogenesis. Dr. Avadhani has published over seventy articles and abstracts. He is active on numerous Veterinary School committees and since 1980 he has been program director of the Short Term Research Training Program for Professional Students in the School. He is a member of the Graduate Groups in Molecular Biology, and Biochemistry.

Clifton A. Baile, Ph.D., earned his Ph.D. degree in nutrition at the University of Missouri in 1965. From 1968 to 1971 he was assistant professor of nutrition at Harvard University. During the years 1971 to 1975 he was adjunct professor of nutrition at Penn State University, lecturer in nutrition at the School of Veterinary Medicine, and research associate in the Monell Chemical Senses Center, University of Pennsylvania. Dr. Baile was manager of Neurobiological Research at Smith, Kline and French Laboratories from 1973 to 1975. In 1979 he became professor of nutrition in the Veterinary School and served in this position until 1981. Dr. Baile's primary area of research is the study of the pharmacological control of feeding behavior; he has published over 125 scientific papers.

Omar O. Barriga, D.V.M., M.S., Ph.D., earned his veterinary degree from the University of Chile, Santiago, in 1963. In 1971 he received his masters degree from the University of Illinois, Urbana, and in 1972 he was awarded a Ph.D. from the same institution, with majors in parasitology and immunology. He joined the faculty of the Veterinary School in 1973 as assistant professor of parasitology and served in this capacity until 1980, when he resigned. Dr. Barriga had a joint appointment in the Faculty of Arts and Sciences, University of Pennsylvania, and taught core and elective courses in parasitology to veterinary students as well as teaching graduate students. In 1975 he was the recipient of the Norden Award for Distinguished Teaching. Dr. Barriga was active in the Summer Orientation and Retention Program for Ethnic Minorities (S.O.A.R. Program) in the Veterinary School and served as its director from 1976 to 1977. His primary area of research is the immunological aspects of parasitism. Dr. Barriga authored chapters or sections in seven books and before he left, in 1980, he had published over thirty scientific papers.

Richard C. Bartholomew, D.V.M., is associate professor of clinical medicine and head, Field Service Clinic at New Bolton Center. He earned his veterinary degree
Alan M. Beck, Ph.D., is associate professor of clinical medicine and director of the Center for Interactions of Animals and Society. He earned his doctorate degree in 1972 at the School of Hygiene and Public Health, Johns Hopkins University, Baltimore, Maryland. From 1972 to 1974 he was chairman, Urban Ecology Task Force, Center for Biology and Natural Systems, Washington University, St. Louis, Missouri. Prior to coming to the Veterinary School in 1979 he was director, Bureau of Animal Affairs, New York City Department of Health. During his years in this position he was also chairman of the Expert Advisory Committee on Rabies and served on the Animal Care Educational Advisory Commission for New York City. Dr. Beck has also been involved in rabies control programs in San Juan, Puerto Rico, and on the Mexican/United States border. He is author of the book, The Ecology of Stray Dogs (York Press, Baltimore, 1973) and has contributed chapters and sections to many other books. Dr. Beck appears frequently on radio and television and is in great demand as guest speaker at various functions. He has published thirty-five articles.

Leonard J. Bello, Ph.D., did his graduate work at Johns Hopkins University, Baltimore, Maryland and received his doctorate degree in 1962, in biology. From 1962 to
Dr. Darryl N. Biery, professor of radiology, chief, Section of Radiology.  

1964 he was a postdoctoral fellow in the University of Pennsylvania, and from 1964 to 1965 held an appointment as associate in microbiology in the Medical School. In 1965 Dr. Bello joined the Veterinary School faculty as assistant professor of microbiology and in 1980 he became professor. He is a member of the Graduate Groups on Microbiology, Molecular Biology and Genetics. His primary area of research is in the study of cell cycle control in mammalian cells. Dr. Bello has twenty-eight publications.

Charles E. Benson, M.S., Ph.D., is associate professor of microbiology at New Bolton Center. He also holds an appointment as assistant professor of microbiology in the Medical School, University of Pennsylvania. Dr. Benson earned his master's degree from Miami University, Oxford, Ohio, in 1963 and received his doctorate degree (microbiology) from Wake Forest University, Winston-Salem, North Carolina, in 1969. From 1969 to 1971 he was a postdoctoral fellow in the Medical School, and from 1971 to 1974 he was a University of Pennsylvania Scholar. Dr. Benson was associate in microbiology in the Medical School from 1974 to 1975 and during the years 1975 to 1981 he was assistant professor, and then associate professor in the Department of Medical Technology, School of Allied Medical Professions, University of Pennsylvania. In 1980, Dr. Benson was appointed associate professor in the Veterinary School. His primary research focuses on host-organism interactions and he is especially interested in Salmonella infections in horses. His presence at New Bolton Center has resulted in the development of a number of cooperative studies with clinicians, and this has greatly enhanced the research on infectious diseases in horses and farm animals. Dr. Benson is a member of the American Society of Microbiology, and the Society for General Microbiology, and the American Association of Veterinary Laboratory Diagnosticians. He has published over thirty-five articles and abstracts.

Darryl N. Biery, D.V.M., is professor of radiology and chief, Section of Radiology. He earned his veterinary degree in 1964 from Ohio State University, and in 1967 he received a Certificate in Veterinary Medical Sciences (radiology) from the Radiology Division of Graduate Medicine, University of Pennsylvania. Dr. Biery spent the years 1964 to 1966 as an intern and resident at the Animal Medical Center, New York City. From 1966 until 1970 he was a U.S. Public Health Service Postdoctoral Fellow in Comparative Oncology in the Veterinary School. He became assistant professor of radiology in 1970. Dr. Biery holds a joint appointment as professor of radiological sciences in the Department of Radiology, School of Medicine, University of Pennsylvania. He was certified by the American College of Veterinary Radiology in 1969, and he served as president of this group from 1975 to 1976. In 1972-1973 he was president of the American Veterinary Radiology Society and from 1975 until 1976 he served on the editorial board of the Journal of Applied Radiology and Nuclear Medicine. He is a member of the North American Radiological Society, the American Association of Veterinary Clinicians, and the Veterinary Cancer Society. Dr. Biery was secretary of the faculty from 1981 to 1982 and serves on a number of committees in the Veterinary School. He is active in the Continuing Education Program, and he has presented over thirty invited lectures.

Paul Berg, V.M.D., graduated from the Veterinary School in 1962. From 1964 until 1965 he was a U.S. Public Health Service Research Fellow (pulmonary physiology) in the Graduate School of Medicine, University of Pennsylvania. Between 1966 and 1972 he was assistant professor and then associate professor of surgery in the Veterinary School. Dr. Berg left the faculty in 1972 and returned in 1980 as adjunct professor of surgery. In this position he does surgery two days weekly in the Veterinary Hospital University of Pennsylvania.

John C. Bloom, V.M.D., Ph.D., graduated from the Veterinary School in 1974 and received his Ph.D. degree (hematology) from the University of Pennsylvania in 1978. He was appointed instructor in medicine in 1978, and in 1979 became assistant professor of clinical laboratory medicine.
Dr. Bloom's main research interests are the study of lymphoma and the investigation of glucocorticoid effects on lymphocytes. While on the faculty he participated in the research on bovine leukemia as hematologist. Dr. Bloom left the faculty in 1982.

Kenneth C. Bovee, D.V.M., M.Med.Sc. (medicine), graduated from the School of Veterinary Medicine, Ohio State University in 1961. From 1961 until 1964 he was at the Animal Medical Center, New York City, as an intern and as a member of the staff. During the period 1964 to 1967 Dr. Bovee was a postdoctoral fellow of the National Heart Institute, U.S. Public Health Service at the School of Medicine, University of Pennsylvania. In 1967 Dr. Bovee was appointed assistant professor of medicine in the Veterinary School, and in 1969 he received a M.Med.Sc. degree from the Graduate School of Medicine, University of Pennsylvania. From 1970 to 1976 Dr. Bovee was chief, Section of Medicine, in the Department of Clinical Studies, Philadelphia. In 1978 he became professor of medicine, and from 1978 to the present he has served as chairman, Department of Clinical Studies, Philadelphia. In 1980 Dr. Bovee received the Ralston Purina Small Animal Award, and in 1981 he was the first recipient of the Corinne R. and Henry Bower Professorship in Veterinary Medicine. He served as president of the American College of Veterinary Internal Medicine from 1979 to 1980 and is a member of the American Society of Veterinary Clinicians, the American Society of Veterinary Urologists, and the International Society of Nephrology. Dr. Bovee is editor of the section, Urinary System, in the textbook, Spontaneous Animal Models of Human Disease (Ed. Andrews, E.J. Ward, B.C., and Altman, N.H., Academic Press, 1979). He is in frequent demand as a speaker and he has published over seventy scientific articles and has prepared chapters in twenty-two books. Dr. Bovee's research focuses on renal function and disease in the dog.

Benjamin C. Brackett, D.V.M., Ph.D., is one of the outstanding authorities in the field of research on in vitro fertilization, and sperm maturation. He received his veterinary degree from the University of Georgia, Athens, Georgia in 1962, and his Ph.D. degree in biochemistry from the same institution in 1966. From 1964 to 1966 Dr. Brackett was a postdoctoral fellow of the United States Public Health Service (Institute of Child Health and Human Development) in the Department of Biochemistry, University of Georgia. He came to the University of Pennsylvania in 1966 and was initially in the Division of Reproductive Biology and the Department of Obstetrics and Gynecology where he was involved in the Primate Colony. In 1969 Dr. Brackett was appointed assistant professor of medicine in obstetrics and gynecology in the Veterinary School. In 1971 he became associate professor of physiology, and in 1974 he was named professor of animal reproduction. Dr. Brackett holds a joint appointment in the Medical School as professor of research in obstetrics and gynecology. He is a diplomate in the American College of Theriogenologists, and is a member of numerous other professional societies including the American Society of Primatologists (charter member), International Embryo transfer Society, the Society for the Study of Fertility, the Society for the Study of Reproduction (charter member), and the Perinatal Research Society.

Dr. Brackett teaches in both the Veterinary School and the Medical School and is a member of the Graduate Group in Physiology, and the Graduate Group in Comparative Medical Sciences in the Faculty of Arts and Sciences. He serves on a number of Veterinary School committees. His primary area of research is in the investigation of basic mechanisms concerned with in vitro fertilization. His work led to the birth of the world's first test tube calf, Virgil, in June, 1981. As a recognized world authority in his field of work he lectures and participates in symposia on an international basis, and has presented over seventy invited papers. Dr. Brackett serves as a consultant to many agencies including the National Institutes of Health Reproductive Biology Study Section, the Ford Foundation, and the National Science Foundation. He is associate editor of Gamete Research, and is consulting editor of the American Journal of Primatology. He has published over 110 scientific papers.
Ralph L. Brinster, V.M.D., Ph.D., graduated from the Veterinary School in the class of 1960 and immediately began postgraduate work as a Pennsylvania Plan Scholar in the Graduate School of Arts and Sciences. He earned his Ph.D. degree in physiology in 1964 and the same year was appointed instructor of physiology in the Veterinary School. In 1970, Dr. Brinster became professor of physiology with a similar appointment in the Graduate School of Arts and Sciences. Dr. Brinster was named the Richard King Mellon Professor of Reproductive Physiology in 1975; at the time this was the fourth endowed chair in the Veterinary School, but the first in the basic science area. Since 1969 he has served as director of the Veterinary Medical Scientist Training Program and as such has been responsible for the postdoctoral training of over fifteen individuals and he has supervised the work of four Ph.D. degree students. Dr. Brinster has served as a member of the Reproductive Biology Study Section, Division of Research Grants, National Institutes of Health; the Panel on Ovum Implantation, Center for Population and Research, National Institute of Child Health and Human Development; and as a consultant for the Population Research Training Committee of the same agency. He is an intense, highly motivated researcher whose work has progressed through various stages, each more sophisticated than the previous phase. His research has involved studies on the biochemistry and physiology of cleavage stages of mammalian embryos, the differentiation of the early mammalian embryo, fertilization in mammals and invertebrates, the mechanism of implantation and the regulation of gene action. Most recently, Dr. Brinster and colleagues have achieved world-wide recognition for their research in which they were able to modify the rat growth hormone gene and transplant it into mice. The mice involved grew at a rate almost twice as fast as normal. This work demonstrated for the first time that genes can be transplanted from one mammalian species to another and can be expressed phenotypically in such a manner as to affect basic metabolic function. Dr. Brinster has published over 120 scientific papers.

James W. Buchanan, D.V.M., M.Med.Sc., received his veterinary degree at Michigan State University in 1960 and came to the University of Pennsylvania in the same year as a resident in cardiology in the Comparative Cardiovascular Studies Unit. He became assistant professor of cardiology in 1964 and in 1976 became professor of medicine (cardiology). In 1964-1965 and again in 1978-1979, Dr. Buchanan was chief of the Section of Cardiology and from 1966 to 1970 he was chief, Section of Small Animal Medicine. From 1975 to 1982 he performed outstanding service as chairman of the Small Animal Hospital Building Committee. In this position Dr. Buchanan visited fifteen other veterinary schools in the United States and Europe to obtain information and ideas for the new building. The magnificent Veterinary Hospital of the University of Pennsylvania (VHUP), dedicated in 1981, stands as a testimony to his painstaking devotion; many features of the building reflect his personal attention to detail. Dr. Buchanan's primary areas of research are comparative cardiology, the recognition and characterization of new spontaneous cardiovascular disease entities, and the pathogenesis of congenital heart disease. He has written chapters in twelve books and has published over forty papers. Dr. Buchanan is a charter member of the College of Veterinary Internal Medicine (Specialty groups, veterinary internist and veterinary cardiologist). Dr. Buchanan is an imposing figure, who is a good teacher and has a sincere zest for life.

Samuel K. Chacko, B.V.Sc., Ph.D., came to the Veterinary School in 1967 with an appointment as instructor in pathology in the Comparative Cardiovascular Studies Unit. He received his veterinary degree in 1963 from Kerala Veterinary College and Research Institute, India. In 1969 he earned his Ph.D. degree, in pathology, from the University of Pennsylvania. In 1981 Dr.
Chacko became professor of pathology in the Veterinary School and holds a similar joint appointment in the Graduate School of Arts and Sciences. His major research fields are the study of cell differentiation in cardiac and smooth muscle, contractile proteins in normal and pathological smooth muscle, and the regulation of contraction in smooth muscle. He has published over twenty-five papers and has written chapters in several textbooks. In 1983 Dr. Chacko received a Fogarty International Fellowship for conducting research at the University of Tokyo on the biochemical regulation of arterial smooth muscle.

William Chalupa, M.S., Ph.D., an expert on the various basic aspects of ruminant nutrition, received his M.S. degree (dairy nutrition) from Rutgers University, New Brunswick, New Jersey in 1959 and his Ph.D. degree (nutrition) from the same institution in 1962. From 1969 to 1970 he was visiting scientist with the U.S. Department of Agriculture, and from 1971 to 1976 served as manager, Rumen Metabolic Research, Smith, Kline and French Laboratories, Philadelphia, PA. In 1976, Dr. Chalupa was appointed associate professor of nutrition in the Veterinary School, and he became professor in 1981. Dr. Chalupa's main research interest centers on nitrogen utilization, chemical control of rumen fermentation and the use of buffers to regulate ruminal environment. In 1981 he received the American Feed Manufacturers Award for Research in Dairy Cattle Nutrition. Dr. Chalupa serves on several Veterinary School Committees, is a member of the Subcommittee on Nitrogen Usage in Ruminants of the National Research Council and serves on the Editorial Board of the Journal of Dairy Science.

Ann M. Chiapella, D.V.M., received her veterinary degree from the University of California, Davis, in 1973. From 1973 to 1976 she served as an intern and resident in small animal medicine in the Veterinary School. Dr. Chiapella was instructor in medicine from 1976 to 1978, when she was appointed associate in medicine. She is a diplomate of the American College of Internal Medicine and is a member of the Comparative Gastroenterology Association. Dr. Chiapella's primary field of research is the study of gastrointestinal function and disease. When she left the faculty in 1980 she had published eight scientific papers.

Wendell L. Cooper, V.M.D., graduated from the Veterinary School in 1956, and had a diverse career before returning to the School as a member of the faculty in 1974. He practiced from 1956 to 1958, and then became supervising field veterinarian of the Wisconsin Department of Agriculture until 1960. He returned to practice during the period 1960 to 1965, and then served as veterinarian-manager of the Hemp Standardbred Horsebreeding Farm, Mechanicsburg, Pennsylvania from 1965 to 1973. Dr. Cooper was associate manager of clinical research for the Schering Corporation, Kenilworth, New Jersey from 1973 to 1974, and then was appointed assistant professor of animal reproduction. He was a member of the Section of Clinical Reproduction at New Bolton Center where he conducted research on various aspects of equine reproduction. Dr. Cooper left the faculty in 1980.

Dr. Vincent J. Cristofalo, M.A., Ph.D., received his masters degree from Temple University, Philadelphia, PA in 1958 and his doctorate degree from the University of Delaware, Newark, Del., in 1962. Dr. Cristofalo, who now serves as Director, Center for Aging in the University of Pennsylvania, became associate in the Wistar Institute, University of Pennsylvania in 1963 and in 1969 was appointed assistant professor of biochemistry in the Veterinary School. In 1974 he became professor of biochemistry and in 1976 was named professor in the Wistar Institute. Dr. Cristofalo is a member of the Graduate Group in Physiology and the Graduate Group in Genetics. He is editor of Gerontology and serves on the editorial board of several other publications. Dr. Cristofalo's primary research interests are the study of the metabolic aspects of aging, the regulation of cell division and the intermediary metabolism of normal and neoplastic cells and tissues. He has published about 140 scientific papers, abstracts and review articles, and is an editor of eight books.

Sandra J. Davidheiser, Ph.D., joined the Veterinary School faculty in 1976 as a postdoctoral fellow and research associate
Dr. Richard O. Davies, professor of physiology.

Richard O. Davies, D.V.M., Ph.D., received his veterinary degree from the New York State College of Veterinary Medicine at Cornell University in 1960. From 1960 until 1964 he was a Pennsylvania Plan Scholar in the School of Medicine, University of Pennsylvania, and in 1964 he received his Ph.D. degree in physiology. He joined the Veterinary School faculty in the same year as associate in physiology. Dr. Davies became professor of physiology in 1979. He is a member of the Graduate Groups in Physiology and Comparative Medical Sciences. During 1976-1977 he was visiting scientist, Institut fur Physiologie der Ruhr-Universitat, Bochum, West Germany. Dr. Davies is a member of the American Society of Veterinary Physiologists and Pharmacologists, the World Association of Veterinary Physiologists, Pharmacologists and Biochemists, the Society for Neuroscience and the American Physiological Society. His research career includes outstanding work in the area of respiratory physiology, especially the neural and chemical control of respiration. He is an excellent teacher whose contributions have been recognized by the Norden Award for Distinguished Teaching in 1969, and the Lindback Award for Distinguished Teaching, by the University of Pennsylvania in 1970. Dr. Davies has been active on the University Senate and serves on numerous committees in the Veterinary School. He is a quiet, reserved individual who brings great strength to the Laboratory of Physiology.

Robert E. Davies, M.A., B.Sc., M.Sc., Ph.D., F.R.S., Benjamin Franklin and University Professor of Molecular Biology was born in Lancashire, England. He attended the University of Manchester where he was awarded the M.Sc. degree in 1942. During World War II he taught at the University of Sheffield in the Ministry of Supply and with the Medical Research Council Unit for Research in Cell Metabolism. From 1948 to 1954 he was honorary lecturer in biochemistry at the University of Sheffield and in 1949 was awarded a Ph.D. degree by this institution. In 1952 Dr. Davies earned a D.Sc. degree at the University of Manchester. From 1947 to 1955 he was a member of the Medical Research Council. In 1955 he came to the United States and joined the faculty of the School of Medicine, University of Pennsylvania, as professor of biochemistry. In 1956 he was appointed to the Graduate Group Committee in Biochemistry, Graduate School of Arts and Sciences. In 1962 Dr. Davies joined the Veterinary School faculty as professor of biochemistry, and from 1962 to 1973 served as chairman, Department of Animal Biology. From 1962 to 1971 he served as chairman, Graduate Group Committee on Molecular Biology in the Graduate School of Arts and Sciences and from 1962 to 1964 was professor of biochemistry in the Division of Graduate Medicine, School of Medicine. Since 1966 Dr. Davies has served as a member of the Graduate Group Committee in Physiology, Graduate School of Arts and Sciences. In 1970 he was appointed to the prestigious position of Benjamin Franklin Professor of Molecular Biology. Dr. Davies is very active in the University Senate and the University Council and in other University affairs including the Council's Committee on Research, the Council Committee on Implementing Research Policy, the Council Steering Committee, the Senate Advisory Committee, the Faculty Grievance Commission, and the Academic Planning and Budget Committee. Dr. Davies has been an invited lecturer at numerous institutions and scientific societies at the international level, and has been involved in the publication of over 250 papers on original data. He has supervised Ph.D. dissertations of seventeen individuals.

Dr. Davies' research has covered many fields. His work includes the mechanism of
hydrochloric acid secretion by the stomach; gastric urease and carbonic anhydrase; urea and bicarbonate metabolism; cation and anion transport by the kidney, brain and pancreas and by the mitochondria; the mechanism, energetics and thermodynamics of contraction and vigor development in skeletal, cardiac and smooth muscle in various vertebrates and invertebrates; oxygen poisoning; and the use of citation analysis and predictions to compare scientists work. Dr. Davies is an avid spelunker and has written on his findings in exploration of caves.

Richard Delaney, M.S., V.M.D., a graduate of the Veterinary School in 1969, is presently research assistant professor in physiology in the Veterinary School and holds a joint appointment as research assistant professor in medicine, Cardiovascular-Pulmonary Division, of the School of Medicine. He earned his M.S. degree in 1966 from Penn State University, College Park, PA. Since 1971 Dr. Delaney has served as Chief, Laboratory Animal Facilities of the Cardiovascular-Pulmonary Division in the Medical School. He is a member of the American Thoracic Society and has published over twenty scientific papers and abstracts. Dr. Delaney lectures in core and elective courses in physiology in the Veterinary School.

Adelaide M. Delluva, Ph.D., earned her Ph.D. degree in biochemistry from the University of Pennsylvania in 1946. Immediately after this she was appointed Instructor in biochemistry in the Medical School, University of Pennsylvania and in 1954 she became assistant professor. She joined the faculty of the Veterinary School in 1969 as assistant professor of biochemistry. Prior to coming to the Veterinary School she had taught veterinary students, since at this time biochemistry was taught in the Medical School. In 1978 Dr. Delluva became professor, and from 1973 to 1975 she served as acting chairperson of the Department of Animal Biology, and since 1981 she has been head of the Laboratory of Biochemistry. From 1977 to 1979 she was associate dean for student affairs and on two occasions, 1970 to 1973, and from 1982 until 1983 she served as secretary of the faculty. Dr. Delluva has been active on a number of important committees in the Veterinary School and the University Senate has served on numerous committees. From 1972 until 1978 she served the important role in the SOAR Program for minority students. Dr. Delluva's research has involved several areas including studies of intermediary metabolism, urea synthesis, ion transport in the kidney and biochemical phenomena associated with muscle contraction. She has contributed much to the Veterinary School in many roles, and she is especially well known for the delicious home-made baked goods which she brings to the School on numerous occasions, both private and public.

Thomas J. Divers, D.V.M., joined the faculty in 1981 as assistant professor of medicine. He earned his veterinary degree at the University of Georgia, Athens, in 1975, and from 1976 until 1981 he served as an intern in equine medicine at the University of California, Davis, and as a resident in large animal internal medicine at the University of Georgia. Dr. Divers who is certified by the American College of Internal Medicine works at New Bolton Center where he carries a full teaching load and is involved in several research projects. In addition to teaching veterinary students, Dr. Divers is coordinator of the Large Animal Continuing Education Program. His research has included studies on endotoxic mastitis, the effect of thiabendazole and dextran in blood coagulation in ponies, and techniques of measuring myoglobin and hemoglobin in urine. In 1983, Dr. Divers was the recipient of the Norden Award for Distinguished Teaching. He has published over twenty-five scientific papers and abstracts, and he has authored chapters in three books and has given over twenty invited lectures.

Peter Dodson, M.Sc., Ph.D., has an interesting and unusual educational, research and teaching background. In 1970 he earned his masters degree in geology from the University of Alberta, Canada and in 1974 he was granted his Ph.D. degree in geology from Yale University. Dr. Dodson came to the Veterinary School in 1974 as associate in anatomy and in 1982 became associate professor. He teaches veterinary students
gross anatomy and an elective course in fish diseases. Dr. Dodson also serves on the faculty of the Aquavet Program and presents courses on vertebrate paleontology, dinosaurs, mammalian paleontology, and mammology in the adult education program of the Academy of Natural Sciences, Philadelphia. In addition to his appointment on the Veterinary School faculty he holds an appointment as associate professor of geology in the University of Pennsylvania and is a member of the Graduate Groups in Anatomy and Biology. Dr. Dodson is a research associate in the Academy of Natural Sciences, Philadelphia, and has served as a consultant to the Franklin Institute Research Laboratory, Philadelphia, and to the National Academy of Sciences, Washington, D.C. He is a reviewer for research proposals to the National Science Foundation and is a review editor for many natural science publications. Dr. Dodson's primary research interest is in paleontology. He has about thirty publications.

William J. Donawick, D.V.M., earned his veterinary degree in 1963 at Cornell University. He practiced for one year and then joined the faculty of the Veterinary School as instructor in large animal medicine. From 1966 to 1969 Dr. Donawick was a postdoctoral research trainee in the Department of Medical Genetics, Medical School, University of Pennsylvania. He was appointed assistant professor of surgery in 1969 and became professor in 1978. In 1981 Dr. Donawick was named the Mark Whittier and Lila Griswold Allam Professor of Surgery, the first occupant of this endowed chair. He is a diplomate of the American College of Veterinary Surgeons and a member of the American Society of Veterinary Anesthesiologists. In 1970 Dr. Donawick received the Norden Award for Distinguished Teaching. Early in his career Dr. Donawick carried out pioneering research on interspecies heart transplants in which he was able to transplant hearts from goats into calves and obtain up to a ninety-day survival rate. His present research focuses on developing programs for metabolic care of horses with acute abdomen, studies on the secretion of water and electrolytes in the normal and obstructed bowel of the horse, and an investigation on organ preservation and interspecies banking. Dr. Donawick has given over thirty invited lectures before professional meetings in the United States and foreign countries and participates in the Continuing Education Program. He has published nearly fifty scientific papers and abstracts and has prepared chapters for two books. Dr. Donawick is an avid fly fisherman and has been active in the Civil Air Patrol.

Susan Donoghue, M.S., V.M.D., graduated from the Veterinary School in the class of 1976. Previous to coming to the School she earned a masters degree in nutritional pathology at the University of Connecticut, Storrs. Dr. Donoghue was a postdoctoral fellow in nutrition in the Veterinary School. In 1979 she was appointed clinical instructor in nutrition, and in 1981 she became assistant professor of nutrition. Dr. Donoghue carries a full teaching load and has carried on an active research program. Her primary research fields are in nutrition of horses and ruminants, with special emphasis on fat soluble vitamins. She also has conducted studies on nutrition of the fetus and neonate, and is presently involved in an investigation of the relationship of parasitism in sheep to nutrition. Dr. Donoghue has given ten invited lectures and has published sixteen scientific papers.

Richard R. Dubielzig received his D.V.M. degree from the University of Minnesota in 1972 and was in practice from 1972 to 1974. In 1974 he was appointed resident in pathology in the Veterinary School and in 1978 he became assistant professor of pathology and chief of the necropsy service. Dr. Dubielzig's main research interests are in comparative dental and ophthalmic pathology. He has conducted studies on the visual apparatus of the Bowhead and Gray Whale, and he has published approximately thirty papers. Dr. Dubielzig left the faculty in 1983.

Robert J. Eckroade, D.V.M., M.S., Ph.D., associate professor of poultry pathology and head, Poultry Diagnostic Laboratory, earned his veterinary degree from the University of Georgia in 1962. He practiced from 1962 to 1964 and from 1964 to 1966 he was director of the Regional...
Poultry Disease Diagnostic Laboratory, North Carolina Department of Agriculture. In 1966, Dr. Eckroade went to the University of Wisconsin where he was project associate in the Department of Pathology Primate Center. During the period 1967 to 1970 Dr. Eckroade was a National Institutes of Health Postdoctoral Fellow at the University of Wisconsin where he earned his masters degree in pathology and veterinary science in 1969, and his Ph.D. degree in the same programs in 1972. From 1971 to 1976 he served as assistant professor in the Department of Animal Science and Agriculture Biochemistry, University of Delaware. Dr. Eckroade joined the Veterinary School faculty in 1977 as assistant professor of poultry pathology; he became associate professor in 1981. He is a member of the Graduate Group in Pathology, Faculty of Arts and Sciences. Since his appointment he has served as head of the Cooperative Poultry Diagnostic Laboratory, a facility which provides free diagnostic service to poultrymen. Dr. Eckroade has served on several Veterinary School committees, and is active in community services, including 4-H activities, the Boy Scouts and the Grange. He is solely responsible for teaching core and elective courses in poultry medicine and in 1980 he was the recipient of the prestigious Lindback Award for Distinguished Teaching of the University of Pennsylvania. Dr. Eckroade is active in professional groups including serving as a member of the Scientific Program Committee of the American Association of Avian Pathologists. He has published eighteen scientific papers, primarily on poultry diseases and virus diseases of mink, and has authored a chapter in the textbook, *Slow Transmissible Diseases of the Nervous System* (Academic Press, 1979).

Eugene J. Eigenmann, Dr.Med.Vet., received his veterinary degree in 1972 from the University of Zurich, Switzerland. From 1973 until 1976 he was a trainee in the Experimental Medicine Metabolic Unit, University Hospital, Zurich, and from 1976 until 1978 he was at the Institut National De Sante et de la Recherche Medicale and Department of Biochemistry, University XI, Paris. Dr. Eigenmann was on the staff of the Small Animal Clinic, State University of Utrecht, The Netherlands, from 1978 until he joined the Veterinary School faculty in 1981. He is presently assistant professor of medicine and is conducting research on the relationship of growth hormone to diabetes mellitus, acromegaly, and dwarfism in dogs. He has published thirteen scientific papers.

Roselyn J. Eisenberg, Ph.D., who is associate professor of microbiology, received her doctorate degree from the University of Pennsylvania in 1968. From 1969 to 1978 she was research associate in the Department of Microbiology in the Medical School, and assistant professor of microbiology in the Dental School, University of Pennsylvania. Dr. Eisenberg was appointed assistant professor of microbiology in the Veterinary School in 1978 and in 1982 became associate professor. She is a member of the Graduate Groups in Microbiology and Genetics and teaches both veterinary and graduate students. Dr. Eisenberg serves on a number of Veterinary School and University committees. Her research centers on investigation of the synthesis, processing and functioning of herpes simplex virus glycoproteins. Dr. Eisenberg has published over forty scientific papers and abstracts.

Loren H. Evans, D.V.M., earned his veterinary degree from Washington State University, Pullman, in 1961. In the same
year he came to the Veterinary School as assistant instructor in surgery. Dr. Evans has spent his entire academic career at New Bolton Center, and was appointed professor of surgery in 1977. He is a noted equine surgeon and also breeds Standardbred and Thoroughbred horses. His research has included studies on laminitis, the prevention of painful neuromas in horses, and upper respiratory surgery in horses. Dr. Evans is a member of the American Association of Equine Practitioners, the American College of Veterinary Surgery, the United States Trotting Association, and the Pennsylvania Horse Breeders Association. In 1974, Dr. Evans received the McCoy Award for Outstanding Alumnus Activity in Veterinary Medicine by Washington State University. In recognition of his teaching contributions he was the recipient of the Norden Award in 1976. Dr. Evans has been an invited speaker at a number of international meetings and has published over thirty papers.

Sydney M. Evans, V.M.D., graduated from the Veterinary School in 1977. From 1977 to 1978 she interned in the Veterinary School and from 1979 to 1982 served as resident in radiology. In 1982 Dr. Evans was appointed instructor in radiology and began a postdoctoral fellowship in Children's Hospital of Philadelphia in the Comparative Medical Sciences Graduate Group. Her research centers on a study of the response of human melanoma and neuroblastoma cellular tumor spheroids (MTS) to radiation. Dr. Evans has published over fifteen scientific papers and abstracts.

Gustave E. Fackelman, received his veterinary degree from Cornell University, Ithaca, N.Y., in 1964. After practicing for one year he was appointed assistant professor of surgery at Kansas State University and in this appointment served from 1965 to 1967 in Nigeria, where he helped to establish the Faculty of Veterinary Medicine at Ahmadu Bello University. From 1967 until 1973 Dr. Fackelman was at the University of Zurich where he earned his Dr.Med.Vet. degree and served as head of the Department of Equine Surgery. In 1973 he was appointed associate professor of orthopedic surgery in the Veterinary School. In 1977 Dr. Fackelman was named associate director of the C. Mahlon Kline Orthopedic and Rehabilitation Center, New Bolton Center, and served in this position until he resigned in 1981. Dr. Fackelman's primary areas of research are internal fixation of fractures in horses, the transplantation of tendons and skin, and lymphography.

George C. Farnbach, V.M.D., Ph.D., received his veterinary degree in 1974, and his Ph.D. degree in 1977, from the University of Pennsylvania. During his years as a student in the Veterinary School and in his graduate work he was in the prestigious Veterinary Medical Scientist Training Program. Dr. Farnbach was appointed as research associate in neurology in 1977, and in 1979 became assistant professor of neurology. Dr. Farnbach's field of work is in neurology where he is a recognized authority on canine epilepsy. In 1981 he initiated and became director of the American Canine Epilepsy Service in the Veterinary Hospital, University of Pennsylvania. Dr. Farnbach teaches courses in neurology and neurophysiology to veterinary students and along with Dr. Jules Melbin has developed computerized self-learning programs for cardiology and neuromuscular physiology. He has given over ten invited lectures, written chapters or sections in seven books, and has published more than twelve scientific articles and abstracts.

Peter J. Felsburg, V.M.D., Ph.D., graduated from the Veterinary School in 1969, and earned his Ph.D. degree in 1973 from the University of Pennsylvania. He served as adjunct professor of epidemiology in the Veterinary School from 1974 to 1975, and was appointed assistant professor of epidemiology in 1975. Dr. Felsburg received a joint appointment in the Graduate School of Arts and Sciences in 1976, and was a member of the Graduate Groups in Epidemiology and Comparative Medical Sciences. In 1979 Dr. Felsburg's appointment in the Veterinary School was changed to assistant professor of clinical laboratory medicine and he became chief, Section of Clinical Laboratory Medicine; he resigned in 1982. Dr. Felsburg's research involved studies on the immune response
to infectious disease agents and tumor antigens and the development of enzyme-linked immunosorbent assays. Before leaving the School he had published thirty-seven scientific articles and abstracts and he had authored chapters in two books.

Jay P. Farrell, M.S., Ph.D., joined the faculty in 1974 as research assistant professor in parasitology. He earned his M.S. degree (Zoology) from Rutgers University, New Brunswick, N.J., in 1970 and received his Ph.D. (Zoology) from the same institution in 1972. In 1976 Dr. Farrell was appointed assistant professor in the Graduate Group in Parasitology, University of Pennsylvania and in 1980 became assistant professor in the Veterinary School. Dr. Farrell has published over fifteen scientific papers; his main research interest is the investigation of the immune response to parasitic protozoans.

Jorge F. Ferrer, M.D., was born in Argentina and received his medical degree from the University of Buenos Aires in 1957. From 1957 to 1959 he was a postdoctoral fellow in the Instituto de Cultura Hispanica, Madrid, Spain. In 1960 he was Director of Curriculum, School of Medicine, Cordoba, Argentina and in 1961 he had a research fellowship in the same university. From 1961 to 1963 Dr. Ferrer was on a research fellowship in the Institute of Hematological Research, National Academy of Medicine, Buenos Aires. He came to the United States in 1964 and from 1964 to 1965 was Cancer Research Scientist at the Roswell Park Memorial Institute in Buffalo, New York. In 1965-1966 Dr. Ferrer had an Eleanor Roosevelt Fellowship (International Union Against Cancer) at Stanford University, Palo Alto, California. He remained at Stanford until 1969 and was then appointed research associate professor of microbiology in the Comparative Leukemia Research Unit at New Bolton Center. In 1971 he became chief, Section of Viral Oncology, and in 1975 he was promoted to professor. In 1977 Dr. Ferrer became director of the Comparative Leukemia Studies Unit. Dr. Ferrer is an intense, imaginative worker who, beginning in 1970, gave new direction and impetus to the work in the Comparative Leukemia Research Unit. The research by him and his colleagues has provided a number of major breakthroughs concerning the etiology and pathogenesis of bovine leukemia and has added important new basic knowledge in the field of viral oncology. Dr. Ferrer has published over 130 scientific papers and abstracts.

John P. Fetrow, V.M.D., M.B.A., graduated from the Veterinary School in 1977 and earned his M.B.A. degree from the Wharton School, University of Pennsylvania, in 1981. From 1977 to 1980 he served as an intern and resident in the Field Service Unit, New Bolton Center. In 1980 he was appointed lecturer in Health Delivery Service, and in 1981 was named assistant professor of medicine and animal health economics. Dr. Fetrow’s educational background in veterinary medicine and business enables him to make unique contributions in teaching and research. He teaches courses in animal health economics, production system economics and various medicine courses. In 1981 he received the Norden Award for Distinguished Teaching. Most of Dr. Fetrow’s work centers on food animals and especially on bovine herd health. He is in charge of the 500 sow confinement farrowing unit at New Bolton Center and is responsible for computer use and development at New Bolton Center. In 1980, Dr. Fetrow revised the Honor System for the Veterinary School. His research involves veterinary medical economics including developing cost/benefit and cost/efficacy analysis and economic models of preventative medical and management programs. He also prepares delivery systems for health maintenance programs and record systems for on-farm microcomputer systems.

Claire G. Fox, Ph.D., has been adjunct assistant professor of veterinary history since 1975. Previously she had taught History of the Western Civilization at Temple University, Philadelphia, and the History and Philosophy of Education at Beaver College, Bryn Mawr, Pennsylvania. Dr. Fox earned her doctorate degree from the Graduate School of Arts and Sciences, University of Pennsylvania, in 1967. She has published over fifty papers and book reviews, primarily on some segment of history. One of her publications is the

Dr. Fox is a fellow of the College of Physicians, Philadelphia, and is a member of a number of historical societies, including the American Association for the History of Medicine, the American Medical Writers Association, the American Veterinary History Society and the World Association for the History of Veterinary Medicine.

David E. Freeman, M.V.E., M.R.C.V.S., attended the Veterinary College of Ireland and graduated in 1972. From 1974 to 1977 he was an intern and resident in large animal surgery, and from 1977 to 1981 a postdoctoral fellow in surgery in the Veterinary School at New Bolton Center. In 1981, Dr. Freeman was appointed assistant professor of surgery; since 1977 he has been a Ph.D. candidate in the Comparative Medical Sciences Graduate Faculty. Dr. Freeman is active on several Veterinary School committees, and he teaches core and elective courses. Much of his research has involved studies on the physiology and disease of the gastrointestinal tract of horses. Dr. Freeman has published thirteen articles, authored chapters in five books, and he has given six invited lectures.

G. Frederick Fregin, V.M.D., graduated from the Veterinary School in 1964 and was appointed instructor in cardiology in the same year. From 1965 to 1970 he was engaged in postdoctoral work in the University of Pennsylvania, and from 1970 to 1974 he was a research fellow in cardiology in the Comparative Cardiovascular Studies Unit, Veterinary School. Dr. Fregin was appointed assistant professor of medicine in 1973, and until he left, in 1982, he worked at New Bolton Center. He was in charge of the Heart Station and he was responsible for the instruction of veterinary students, interns and residents in large animal cardiology. Dr. Fregin served on several Veterinary School committees and is a member of the Academy of Veterinary Cardiology, the Cardiovascular Systems Dynamic Society, the American College of Sports Medicine, and the Association for the Advancement of Sports Potential. While at New Bolton Center, Dr. Fregin’s primary areas of research were on the effects of exercise on the cardiopulmonary system and on the pharmacokinetics of certain drugs. Before leaving the faculty he published over forty scientific papers and gave thirty-nine lectures by invitation.

Marcio C. Garcia, D.V.M., Ph.D., is assistant professor of clinical reproduction, and a member of the staff of the Georgia and Philip Hofmann Center for Reproductive Research, New Bolton Center. He earned his veterinary degree from the College of Veterinary Medicine, University of the Philippines, Diliman, Rizal, Philippines in 1964. Dr. Garcia received his Ph.D. degree in endocrinology and reproductive physiology from the University of Wisconsin, Madison, in 1976. From 1976 to 1979 he was research associate at the University of Wisconsin and then came to the Veterinary School as assistant professor. Dr. Garcia directs the Endocrine Assay Laboratory at New Bolton Center; this is a service and research facility. His main area of research is in basic endocrine mechanisms regulating the hypothalamo-pituitary-gonadal axis and its function in modifying reproductive activity. He teaches both veterinary students and graduate students and has published over forty scientific papers and abstracts.

Lawrence T. Glickman, V.M.D., Ph.D., graduated from the Veterinary School in 1972, and received his Ph.D. degree (epidemiology) from the Graduate School of Public Health, University of Pittsburgh in 1977. He practiced for two years and was then appointed as assistant professor epidemiology and public health, New York State Veterinary College at Cornell University. In 1980 Dr. Glickman joined the faculty of the Veterinary School as associate professor of epidemiology and chief, Section of Epidemiology and Public Health. He is a fellow of the American College of Epidemiology, and among other professional societies he is a member of the American Public Health Association, the Society of Epidemiologic Research, the Society for Tropical Veterinary Medicine, the American Society of Tropical Veterinary Medicine and Hygiene, and the American Association for Laboratory Animals. Dr. Glickman is a friendly, cooperative in-
Dr. Lawrence T. Glickman, associate professor of epidemiology (left) receives Ralston Purina Small Animal Research Award from Dr. Paul Landis (V'39), AVMA President.

individually who has an excellent grasp of the entire field of veterinary epidemiology, teaches core and elective courses on the subject. His research includes studies on the epidemiologic and public health importance of diseases transmitted from animals to man, and especially the parasitic zoonoses, the epidemiology of spontaneous cancers in companion animals and their public health importance, infections acquired by animals while in the hospital and field trials with new vaccines. He has published about fifty scientific articles.

Michael H. Goldschmidt, M.Sc., B.V.M.S., M.R.C.V.S., came to the Veterinary School in 1974 as a resident in pathology. He received his B.V.M.S. degree from the University of Glasgow in 1968, and his M.Sc. degree from the University of London in 1974. Dr. Goldschmidt is presently assistant professor of pathology and chief of service in pathology. He is a member of the American College of Veterinary Pathologists and has published twenty-eight papers. His main research interest is dermatopathology.

Robert B. Grieve, M.S., Ph.D., assistant professor of parasitology and head of the Laboratory of Parasitology earned his masters degree in microbiology and parasitology at the University of Wyoming, Laramie, in 1975, and in 1978 he received his doctorate degree in parasitology (immunoparasitology) from the University of Florida, Gainesville. From 1979 until 1981, Dr. Grieve was research associate in immunoparasitology at the New York State Veterinary College of Cornell University, Ithaca, New York and in 1981 was appointed assistant professor of parasitology in the Veterinary School, with a joint appointment in the Faculty of Arts and Sciences, University of Pennsylvania. Dr. Grieve is a member of the American Association of Veterinary Parasitologists, the American Heartworm Society, the American Society of Parasitologists, the American Society of Tropical Medicine and Hygiene, and the Society of Tropical Veterinary Medicine. Dr. Grieve's primary area of research is the immunobiology of parasitic infections, specifically methods of immunodiagnosis of Filarid infections. He has published over fifteen scientific papers and has presented over ten invited lectures and seminars.

Diane E. Gunson, B.V.Sc., Ph.D., was born in Kent, England and received her veterinary degree from the University of Bristol in 1971, and her Ph.D. degree (pathology) from the same institution in 1974. From 1974 to 1975 she was a research associate in the Clinical Research Center, Philadelphia General Hospital, and in 1975 was appointed instructor in pathology in the Veterinary School. Dr. Gunson, who works at New Bolton Center, was promoted to assistant professor in 1976. In 1979 she spent three months as visiting research
scientist at the Laboratory of Chemical Biodynamics, University of California, Berkeley. Dr. Gunson has several research interests including collagen immunology, and diseases of connective tissue and studies on the immunologic basis of allergic respiratory disease and purpura hemorrhagica in horses. She has also worked on zinc toxicosis, especially in horses, and on investigating the side effects of non-steroidal anti-inflammatory drugs in horses. She has published about twenty scientific papers and abstracts. Dr. Gunson is a diplomate of the American College of Veterinary Pathology.

Phalgani Gupta, Ph.D., M.S., was born in Calcutta, India and earned a masters degree (biochemistry) from the University of Calcutta in 1966. In 1969 Dr. Gupta earned a second masters degree from the University of Wisconsin, Madison, and in 1972 he was awarded a Ph.D. degree in biochemistry from the same institution. From 1972 to 1974 he was research associate at the Albert Einstein College of Medicine, Bronx, N.Y., and from 1975 to 1977 served as a postdoctoral Fellow at the Hershey Medical Center, Penn State University, Hershey, Pennsylvania. In 1977 Dr. Gupta was appointed research assistant professor in the Veterinary School and began work in the Comparative Leukemia Research Unit at New Bolton Center. Dr. Gupta is engaged in immunobiochemical studies on the viral etiology of leukemia. He has published about fifteen scientific papers. He is presently research assistant professor of viral oncology.

Richard E.W. Halliwell, M.A., Ph.D., Vet.M.B., M.R.C.V.S., received his veterinary degree from the University of Cambridge, England, in 1961, and his Ph.D. degree from the same institution in 1973. He was visiting instructor in dermatology in the Veterinary School from 1968 to 1970 and then returned to the University of Cambridge on a Welcome Research Fellowship. In 1973, Dr. Halliwell returned to the Veterinary School as assistant professor of dermatology and served in this position until 1977, when he resigned. From 1974 to 1976 he was director of nursing in the Small Animal Hospital. Dr. Halliwell, whose general fields of research are immunology and dermatology, is a diplomate of the American College of Veterinary Internal Medicine (dermatology). Before leaving the School he had published thirty-three papers and given thirty-eight invited lectures.

Elaine P. Hammel, V.M.D., graduated from the Veterinary School in 1960, and until 1966 practiced in Colorado and Virginia. In 1966, she returned to the School and was appointed instructor in medicine. Dr. Hammel was a postdoctoral trainee in the Department of Animal Biology, Veterinary School from 1968 until 1971 when she was appointed assistant professor of medicine. In 1979 she became associate professor. Dr. Hammel has spent most of her academic career at New Bolton Center providing clinical service and engaging in research on muscle metabolism and disease, and exercise physiology. She has served on numerous Veterinary School committees and is active in community affairs, especially scouting activities. Dr. Hammel is a member of the American College of Sports Medicine, the Philadelphia Physiological Society, the American Association of Equine Practitioners, and the New York Academy of Science. She has published thirteen scientific papers and had authored a chapter in one book.

Peter J. Hand, V.M.D., Ph.D., graduated from the Veterinary School in 1961, and earned his Ph.D. degree from the University of Pennsylvania in 1964. He was appointed associate in anatomy in the Veterinary School in 1964, and he was promoted to assistant professor in 1965. Dr. Hand became professor of anatomy in 1979, and since 1977 he has had interlocking appointments in the Faculty of Arts and Sciences, University of Pennsylvania. He served as acting head of the Laboratories of Anatomy during 1973-1974, and since 1980 has been head of this Laboratory. Dr. Hand has been a member of the Graduate Group in Anatomy since 1967, and since 1968 he has been a member of the Institute of Neurological Sciences. Dr. Hand’s research specialty is neuroscience, particularly the study of somatic pathways. He has published over thirty scientific papers, and over forty-five abstracts. He has been invited to participate in ten symposia, three international meetings, including the IXth
International Congress of Anatomists, Leningrad, U.S.S.R., and has presented eighteen seminars. He has been a reviewer of National Science Foundation grants since 1973, and is presently an external reviewer for the *Journal of Experimental Neurology,* and the *Journal of Neurophysiology.* In addition to his regular teaching duties in anatomy, Dr. Hand accepts students for Independent Research and Study, and he has been advisor to four students in a Ph.D. program. He has served on many University and Veterinary School committees. Dr. Hand is involved in numerous community activities, particularly those involving the arts. He is an accomplished musician, and he has written and published several songs.

Colin E. Harvey, B.V.Sc., M.R.C.V.S., was born in Reading, England and received his veterinary degree from the School of Veterinary Sciences, Bristol University. He came to the Veterinary School in 1966 as an intern in the Small Animal Hospital. In 1980 Dr. Harvey became professor of surgery. His research interests focus on the mechanics, control and effects of obstruction of the upper airways, oral disease in dogs and cats, and the clinical investigation of diseases of the head, neck and chest of dogs and cats. He serves as visiting assistant professor of surgery in the Department of Surgery and Laryngeal Institute, Hahnemann Medical College, Philadelphia. Dr. Harvey has served on numerous committees in the Veterinary School, is editor of the *Journal of Veterinary Surgery* and is a diplomate of the American College of Veterinary Surgeons. In 1974 he received the Norden Distinguished Teacher Award, and in 1983 he was the recipient of the Simon Award of the British Small Animal Veterinary Association. Dr. Harvey has published a text book (Diseases of the Respiratory System of the Dog and Cat, J.A. O'Brien and C.E. Harvey, W.B. Saunders Co., Philadelphia, 1983), and has written chapters or sections in nineteen other texts. He has published over fifty papers, and has an avid interest in veterinary medical history, especially in old publications.

Mark E. Haskins, V.M.D., M.S., Ph.D., received his V.M.D. degree in 1969, and then continued graduate studies at Drexel University, Philadelphia where he received an M.S. degree in biomedical engineering in 1973, and at the University of Pennsylvania where he obtained a Ph.D. degree in pathology in 1977. In 1974 he became research associate in the Veterinary School and in 1981 assistant professor of pathology. Dr. Haskins is interested in the development of animal models of human genetic disease and has done some outstanding work on feline mucopolysaccharidosis and on the dysplastic pulmonary valve ultrastructure. He is a member of the Graduate Group in Pathology, Faculty of Arts and Sciences, and in 1979 he received the National Phi Zeta Research Award. Dr. Haskins has published over thirty papers.

Joan C. Hendricks, V.M.D., Ph.D., participated in the Veterinary Medical Scientist Training Program while a student in the Veterinary School. She received her veterinary degree (summa cum laude) in 1979, and her Ph.D. degree from the Faculty of Arts and Sciences in 1980. From 1980 until 1983, Dr. Hendricks was a postdoctoral fellow in anatomy in the Veterinary School; in 1980 she became resident in medicine and in 1983 she was appointed assistant professor of medicine. Dr. Hendricks has carried out some interesting research, partly in cooperation with Dr. Adrian R. Morrison, on sleep in animals. She is particularly interested in the study of abnormal sleep patterns. Dr. Hendricks has published over twenty scientific papers and abstracts.
John P. Hurtgen, D.V.M., M.S., Ph.D., received his veterinary degree from the University of Minnesota in 1972, and earned his masters and Ph.D. degrees, in theriogenology, from the same institution in 1976 and 1979 respectively. From 1972 until 1979 he was instructor and research fellow at the University of Minnesota, and in 1979 was appointed assistant professor of animal reproduction in the Veterinary School. Dr. Hurtgen was a member of the Section of Clinical Reproduction and conducted research at New Bolton Center on a number of aspects of reproduction in farm animals. His work included investigations of seasonal fertility patterns in swine, the use of prostaglandins in dairy cattle and horses, semen quality of the boar, stallion, and ram, spermatogenesis in the boar and stallion and the role of abnormal acrosomes on the sperm of stallions. Before he left the faculty, in 1983, he had published sixty-six scientific papers and was an invited participant in nearly seventy scientific meetings.

Melkote Raja Iyengar, M.Sc., Ph.D., was born in India and studied at the University of Mysore where he was awarded his masters degree (chemistry) in 1950. In 1956 he obtained his Ph.D. degree (biochemistry) from the University of Wisconsin, Madison. Dr. Iyengar was assistant research professor of biochemistry at the University of Pittsburgh from 1960 to 1962 and in 1963 came to the Veterinary School as assistant professor of biochemistry. From 1966 to 1968 he served as head of the Laboratory of Biochemistry and in 1976 became professor. Dr. Iyengar’s primary research interests involve the investigation of the hormonal regulation of uterine growth in the bovine and murine, studies on the energy regulation for myocardial function and the growth and development of cardiac muscle. He has published over thirty scientific papers.

Ann Jeglum, V.M.D., who is assistant professor of medicine (oncology), graduated from the Veterinary School in 1977. From 1977 to 1978 she was a postdoctoral trainee in oncology in the School. Dr. Jeglum was appointed associate in oncology in 1978 and became assistant professor in 1982. She was visiting scientist in the Frederick Cancer Research Center, National Cancer Institute, Frederick, Maryland, from 1977 to 1980, and since 1981 has been head, Clinical Oncology Service of the Veterinary Hospital of the University of Pennsylvania. Dr. Jeglum’s research area is comparative medical oncology, particularly chemotherapy and immunotherapy. She is a member of the Veterinary Cancer Society, the American Association for Cancer Research, and the International Society of Preventative Oncology. Dr. Jeglum has published thirteen scientific articles and abstracts, authored chapters in five books, and has given nineteen invited lectures.

Peter F. Jezyk, V.M.D., Ph.D., received his Ph.D. degree in zoology from the University of Massachusetts in 1966, and was assistant professor in the Department of Biochemistry, Medical College of Virginia, Richmond, from 1967 to 1971. He then came to the Veterinary School and graduated, magna cum laude, in 1975. The same year he was appointed assistant professor of medical genetics, and in 1981 became associate professor. Dr. Jezyk is also director of the Metabolic Screening Group, Children’s Hospital of Philadelphia. His primary research involves studies of inborn errors of metabolism of domestic animals and the investigation of immunodeficiency disorders in companion animals. Dr. Jezyk teaches both core and elective courses and has published over forty-five scientific papers. He has authored chapters or sections in six books.

Dudley E. Johnston, B.V.Sc., M.V.Sc., was born in Australia and practiced in that country for seven years after receiving his veterinary degree from the University of Sydney in 1954. In 1964 he was awarded the M.V.Sc. degree (experimental surgery and radiology) by the University of Melbourne. In 1964 Dr. Johnston was assistant professor of large animal surgery at the Ontario Veterinary College and from 1964 to 1969 served as senior lecturer and head of the sub-department of veterinary surgery, University of Melbourne. He came to the Veterinary School in 1969 as professor of surgery and from 1969 to 1974 served as head and then director of the Small Animal Hospital. Dr. Johnston is a member of the American College of Veterinary Surgeons and serves as editor-in-chief of the Compend-
Dr. Dudley F. Johnston, professor of surgery.

In 1979 Dr. Johnston was the recipient of the Norden Teaching Award. He has served on numerous Veterinary School committees and is active in the Continuing Education Program. Dr. Johnston’s primary research areas include the study of the anatomy of the retroperitoneum in the dog, investigation of the cause and treatment of canine perineal fistula, and the development of methods for skin grafting in dogs and urethral surgery in the dog and cat. Dr. Johnston is also working on the etiology and treatment of gastric dilatation/torsion in the dog, and is investigating perianal hidradenitis in dogs. Dr. Johnston has published over thirty scientific papers and has prepared chapters for nine textbooks.

Colin Johnstone, B.V.M.S., M.R.C.V.S., born in Mayport, England, received his veterinary degree from the University of Glasgow in 1967. He practiced for one year in England, came to the Veterinary School in 1967, and worked in the Comparative Leukemia Studies Unit at New Bolton Center until 1970. He then engaged in graduate studies and received a Ph.D. degree in parasitology from the University of Pennsylvania in 1976. In 1977 he was appointed assistant professor of parasitology and in 1979 was appointed associate dean for student affairs. From 1977 until 1981 Dr. Johnstone served as minority advocate on the Admissions Committee and as director of the Minority Student Recruitment Programs. He played a major role in developing a progressive minority program for the Veterinary School. Dr. Johnstone’s major research interests are in the immunology and epidemiology of parasitic diseases and on the economic effects of parasitism. He has served on numerous committees in the Veterinary School and has devoted much time to dealing with student affairs, and with the problems of student financial aid.

Morry R. Kare, M.S.A., Ph.D., is professor of physiology and director of the Monell Chemical Senses Center, both of which appointments he has held since 1968. Dr. Kare earned his masters degree at the University of British Columbia, Vancouver, and his doctorate degree at Cornell University, Ithaca, New York. From 1953 until 1961 he was at Cornell where he became professor of physiology, and from 1962 until 1967 he held a similar appointment at North Carolina State University, Raleigh, North Carolina. Dr. Kare’s research involves studies of the chemical senses of taste and smell. His current research is on the physiological function of oral stimulation on digestion, particularly on pancreatic secretion. He has published over 200 scientific articles, and he has authored over thirty-five chapters or sections in books.

Syed S.V. Kashmiri, B.Sc., M.Sc., Ph.D., is assistant professor of viral oncology and works in the Comparative Leukemia Research Unit at New Bolton Center. He was born in India and was awarded his masters degree (chemistry) by the University of Lucknow, India, in 1958. Dr. Kashmiri received his Ph.D. degree (genetics, biochemistry) from Duke University, Durham, North Carolina in 1969. From 1968 to 1972 he was research associate (assistant professor) in the Wistar Institute, University of Pennsylvania. During the years 1974 to 1977 Dr. Kashmiri was senior scientist in the Department of Experimental Oncology, Litton Biometrics, Inc., Bethesda, Maryland. From 1977 to 1979 he was research associate in the Department of Pharmacology and Experimental Therapeutics Johns Hopkins School of Medicine, Baltimore, Maryland. Dr. Kashmiri came to the Veterinary School in
Dr. Robert M. Kenney, professor of animal reproduction.

1979. His main research is focused on delineating the genome structure of the bovine leukemia virus (BLV). Thus far he has detected, isolated, and characterized the DNA intermediates in the life cycle of BLV and has developed a physical map of the BLV genome. Dr. Kashmiri has published about thirty scientific papers and abstracts.

Alan M. Kelly, B.V.Sc., M.R.C.V.S., Ph.D., was born in Walsall, England and attended the University of Bristol where he earned his veterinary degree in 1962. In 1967 he was awarded a Ph.D. degree (pathology) by the University of Pennsylvania and in 1968 he was appointed assistant professor of pathology in the Veterinary School. Dr. Kelly became professor in 1979, and holds a joint appointment in the Faculty of Arts and Sciences where he is a member of the Graduate Groups in Pathology and Comparative Medical Sciences. In 1974, Dr. Kelly’s excellent contribution to teaching was recognized when he received the Lindback Award of the University of Pennsylvania. During 1983 he served as acting chairman of the Department of Pathobiology. He is a member of the Royal College of Veterinary Surgeons, the American Society for Cell Biology, the Pennsylvania Muscle Institute, and the Neurologic Institute of the University of Pennsylvania. Dr. Kelly’s main area of research is the study of muscle development and of pathological conditions affecting this tissue. He has authored chapters in five textbooks, and he has published about forty scientific papers and abstracts. Dr. Kelly has given thirteen invited lectures.

Robert M. Kenney, D.V.M., Ph.D., is professor of animal reproduction and chief, Section of Reproductive Studies. He received his veterinary degree from Oklahoma State University in 1954 and his Ph.D. degree, in veterinary pathology, from Cornell University in 1963. He joined the faculty of the Veterinary School in 1963 as research assistant professor of reproductive pathology, assigned to medicine. Dr. Kenney left the School in 1965 and went to the New York State Veterinary College at Cornell University as associate professor. He returned to the Veterinary School in 1969 as associate professor of animal reproduction, and in 1973 became professor. He served as chief of the Section of Reproductive Studies from 1973 until 1983, and has directed the Georgia and Philip Hoffmann Center for Animal Reproduction since its beginning in 1969. Among the professional societies in which Dr. Kenney is active are the Society for the Study of Reproduction, the Society for Theriogenology, the College of Theriogenology and the American Association of Equine Practitioners. Dr. Kenney’s research has involved various aspects of reproductive physiology and disease, including work on reproductive hormones, the use of endometrial biopsy in fertility evaluation and histochemical studies of bovine ovarian follicles. He has published over forty scientific articles.

Simon J. Kenyon, B.Vet.Med., Ph.D., was born in Banbury, England and earned his veterinary degree at the University of London, England in 1969. Dr. Kenyon came to the United States and received his Ph.D. from the University of Pennsylvania in 1976. In the same year he was appointed assistant professor of medicine in the Veterinary School. Dr. Kenyon spent the next six years as immunologist in the Comparative Leukemia Studies Unit. He left the faculty in 1982.

Rebecca Kirby, D.V.M., is instructor of surgery and head of Emergency Service in the Veterinary Hospital of the University of Pennsylvania (VHUP). She earned her veterinary degree from the University of Missouri, Columbia, in 1977, interned at the School of Veterinary Medicine, Purdue University, Lafayette, Indiana, from 1977 to 1978, and then served a residency in small animal internal medicine at the School of Veterinary Medicine, University of Florida from 1978 to 1980. Before coming to the Veterinary School in 1982, she was the staff emergency clinician in the Emergency Animal clinic, San Diego, California. Dr. Kirby is a qualified diplomate in the American College of Internal Medicine and has published eight papers. She has brought a refreshing measure of order and good professional service to the Emergency Service of VHUP.

Lisa V. Klein, V.M.D., graduated from the Veterinary School in 1970 and served as resident in anesthesia from 1971 to 1973.
In 1973 she was appointed instructor in anesthesia and in 1976 became assistant professor. Dr. Klein is a diplomate in the American College of Veterinary Anesthesiologists and is a member of the American Society of Veterinary Anesthesia, the Association of Veterinary Anesthetists of Great Britain and Ireland, the American Society of Regional Anesthesia, the American Society of Anesthesiologists, the American Association of Zoo Veterinarians, and the American Association of Zoological Parks and Aquariums. Dr. Klein's major research interest is the investigation of myopathies following anesthesia, particularly in horses. She has published nineteen scientific papers and she has given nineteen invited lectures, and authored chapters or sections in two books.

Alan M. Klide, V.M.D., graduated from the School of Veterinary Medicine in 1965, summa cum laude. Immediately after graduation he became a post doctoral trainee in the department of anesthesia of the Medical School, University of Pennsylvania. In 1967 he became instructor in anesthesiology in the Veterinary School and in 1972 was named associate professor. From 1972 until 1980 he was chief, Section of Anesthesia. Dr. Klide is a charter member of the American College of Veterinary Anesthesiologists, and is a member of the American Society of Anesthesiologists, the American Society of Veterinary Anesthesiology, the International Anesthesia Research Society, the Association of Veterinary Anesthetists of Great Britain and Ireland, the International Association for the Study of Pain, the International Veterinary Acupuncture Society and the American Society of Regional Anesthesia. In 1978-1979 he was president of the American Association of Veterinary Anesthesia. Dr. Klide's areas of research include the pharmacology of anesthetics and related drugs, and acupuncture. He has published about fifty scientific papers, and he has presented over ninety invited lectures. Dr. Klide has authored or co-authored three books and has prepared chapters or sections in six other books.

David H. Knight, D.V.M., M.Med.Sc., graduated from the New York State Veterinary College, Cornell University in 1962. From 1964 until 1968 he studied in the Division of Graduate Medicine, University of Pennsylvania. In 1967 he was appointed instructor in medicine in the Veterinary School, and in 1973 became associate professor. Dr. Knight is a member of the Graduated Groups in Comparative Medical Sciences and Parasitology in the Graduate School of Arts and Sciences, and since 1970 has served as chief, Section of Cardiology, in the Veterinary School. He has served on numerous Veterinary School committees. Dr. Knight is a charter member of the American College of Internal Medicine, and is a member of the American Heart Association and the American Heartworm Society. His primary research fields are the pathophysiology of pulmonary hypertension and the development of animal models for pulmonary hypertension. He has written chapters in twelve books and has published over twenty-five papers and abstracts. In 1974 Dr. Knight and his wife won a Gold Medal, the first by a United States citizen, for competition in the International Canoe Federations white-water slalom race.

David F. Kowalczyk, V.M.D., Ph.D., graduated from the Veterinary School in 1975 and the next year received his Ph.D. degree (pharmacology) from the University of Pennsylvania. As a student, Dr. Kowalczyk was a participant in the elite Veterinary Medical Scientist Training Program. In 1978, Dr. Kowalczyk, who teaches core and elective courses in pharmacology, was named assistant professor of pharmacology. His primary areas of research are in the toxicology of heavy metals and the study of the pharmacokinetics of antibiotics.
and anticonvulsant drugs. He has published fifteen scientific papers.

David Kritchevsky, M.S., Ph.D., was born in Russia and received his masters degree (organic chemistry), in 1942, from the University of Chicago. In 1948 he was awarded a Ph.D. degree by Northwestern University. In 1957 Dr. Kritchevsky was appointed as associate member, Wistar Institute, University of Pennsylvania, and in 1962 became a member of the Graduate Group in Biochemistry of the Graduate School of Arts and Sciences. He was appointed professor of biochemistry in the Veterinary School in 1965, and in 1966 was named Wistar Professor of Biochemistry and Chairman, Graduate Group on Molecular Biology. Dr. Kritchevsky also serves as a member of the Graduate Group in Comparative Medical Sciences, and since 1975 has been associate director of The Wistar Institute. He serves as editor or on the editorial board of numerous publications including *Atherosclerosis, Experimental and Molecular Biology, Journal of Medicine* and *Journal of Nutrition*. Dr. Kritchevsky is a member of the Food and Nutrition Board of the National Research Council, National Academy of Sciences. In 1974 he received the Borden Award in Nutrition of the American Institute of Nutrition and in 1979 he was the recipient of the Professional Achievement Award of the University of Chicago. Dr. Kritchevsky's research is in the area of lipid metabolism. Specifically he has worked on dietary effects in experimental atherosclerosis, and has investigated lipid metabolism in aging animals and the effects of heavy water on lipid metabolism.

Dr. David S. Kronfeld, Elizabeth and William Whitney Clark Professor of Nutrition; chief, Section of Nutrition.

David S. Kronfeld, Ph.D., D.Sc., M.V.Sc., M.R.V.S., Elizabeth and William Whitney Clark Professor of Nutrition, was born in Auckland, New Zealand, and received his early professional education in Australia. In 1952 he earned his B.V.Sc. degree from the University of Queensland and in 1953 and 1957, the B.Sc. and M.R.C.V.S. degrees, respectively, from the same institution. Dr. Kronfeld then immigrated to the United States and earned his Ph.D. degree in physiology at the University of California, Davis, in 1960. He returned to the University of Queensland for his D.Sc. degree (biochemistry) in 1972.

Dr. Kronfeld came to the Veterinary School in 1960 as assistant professor of pharmacology. He quickly established an interest in nutrition and in 1967 was appointed professor of nutrition. He is a member of the Graduate Groups in Pharmacology, Physiology, and Comparative Medical Sciences. Since 1969 he has been chief of the Section of Nutrition and in 1976 he became director of the Animal Health Economics Unit.

When Dr. Kronfeld arrived at the Veterinary School there was virtually no scientific research in nutrition and teaching of the subject was covered in a course called Feeds and Feeding. Mainly through his efforts a major research program was developed and the teaching of nutrition now involves basic scientific material and a practical consideration of feeding in rela-
tion to production and economics. Dr. Kronfeld himself, and the Section of Nutrition, now enjoy an international reputation for excellence.

Dr. Kronfeld’s primary research interests involve the investigation of metabolic disorders associated with pregnancy, parturition, lactation and exhaustive exercise, as well as studies on nutrition for ruminants, horses and dogs, with special emphasis on diets that promote maximal production and performance. He has always maintained a busy teaching schedule and has made important contributions to the School through his work on various committees. He has served as president of the American Academy of Veterinary Nutrition (1973-1975), and of the John Morgan Society (1975-1976). He is a member of the American Association of Veterinary Nutritionists, the American Institute of Nutrition, the American Physiological Society, and the Australian College of Veterinary Scientists. Dr. Kronfeld is a diplomat of the American College of Veterinary Internal Medicine. In 1972 he was senior research fellow, Commission on Sciences, New Zealand, and in 1981 he was Abbott Lecturer, Nutrition Society of Australia.

Dr. Kronfeld has published over one-hundred articles on original data in professional and scientific journals, and authored chapters in six textbooks. He is a regular contributor to lay publications on canine nutrition, and has given over 110 invited lectures and seminars on an international basis.

Dr. Kronfeld is noted for his wry, cryptic humor and an abrupt, straightforward manner of speaking on both professional and social topics.

William C. Lawrence, V.M.D., Ph.D., graduated from the Veterinary School in 1959, and received his doctorate degree in virology from the University of Pennsylvania in 1965. From 1959 to 1962 he was a U.S. Public Health Service Postdoctoral Fellow in the Veterinary School and the Institute for Medical Research, Camden, New Jersey, and during the years 1963 to 1965 he was a Pennsylvania Plan Scholar. Dr. Lawrence was appointed assistant professor of microbiology in the Veterinary School in 1965, and in 1972 became associate professor with a joint appointment in the Faculty of Arts and Sciences. In 1979-1980, Dr. Lawrence was on scholarly leave from the School to conduct research in the Wistar Institute, University of Pennsylvania. He has served on a number of Veterinary School committees, and teaches both veterinary students and graduate students. Dr. Lawrence is a member of the American Society for Microbiology, the American Society for Virology, the U.S. Animal Health Association and the Conference of Research Workers on Animal Disease. He is a dedicated, exacting researcher whose primary field of work is on basic aspects of virology, especially on DNA fingerprinting techniques for identification of herpes viruses and other viruses. Dr. Lawrence has published over thirty scientific papers and abstracts. He became professor of microbiology in 1983.

Ruth Leventhal, Ph.D., earned her doctorate degree in parasitology from the University of Pennsylvania in 1973 and in the same year joined the faculty of the Veterinary School as assistant professor of parasitology. In 1980, Dr. Leventhal became associate professor and in 1982 adjunct associate professor. She has held appointments in the School of Allied Medical Professions and the Medical School, and from 1977 until 1981 she was acting dean of the School of Allied Medical Professions. She served as a member of the Graduate Group in Parasitology of the Faculty of Arts and Sciences. Dr. Leventhal teaches core courses in parasitology and conducts seminars for veterinary students. Her special research interest is on the immunological aspects of parasitism, and she has published over twenty scientific papers and abstracts.

Florence S. Lief, A.B., Sc.M., Ph.D., joined the faculty in 1967 as associate professor of microbiology in epidemiology and public health. In 1971 Dr. Lief became professor of microbiology in animal biology, and in 1975 her appointment was changed to professor of microbiology. In 1977 Dr. Lief became professor of virology.

Meryl P. Littman, V.M.D., graduated from Veterinary School in 1975 and served an internship in medicine from 1975 to 1976. From 1976 to 1978 she was in prac-
tice and then returned to the School in 1979 as resident in medicine. In 1981 Dr. Littman was appointed instructor in medicine. She is certified by the American College of Internal Medicine and since 1980 has served as Director of Interns and the Intern Program. Dr. Littman is investigating hypertension in dogs secondary to renal, thyroid, cardiac and other diseases, and is also investigating the possible occurrence of primary hypertension. She is also involved in a study of the blood parasites, *Ehrlichia canis* and *Babesia canis*, and in renal injuries in dogs with pyometra.

**Israel Live, V.M.D., A.M., Ph.D.**, graduated from the Veterinary School in 1934 and immediately joined the faculty as an assistant in pathobiology. He was born in Austria and had previously studied at the University of Vienna. He was the first veterinarian to earn graduate degrees from the University of Pennsylvania, receiving a masters degree in 1936, and a Ph.D. degree in 1940. In 1943, Dr. Live became assistant professor of veterinary pathology, even though most of his research was in the field of bacteriology. From 1943 until 1946 he supervised the work in the clinical pathobiology laboratory. In 1946, Dr. Live’s appointment was changed to assistant professor of bacteriology and he moved to the Department of Bacteriology and Immunology. In 1953 he became professor of microbiology, and he held similar appointments in the Graduate School of Medicine, and the Graduate School of Arts and Sciences. In 1953, Dr. Live served as president of the American Association of Veterinary Bacteriologists, and in 1976 he was chairman, National Brucellosis Conference. Since 1950 he has been a member on the Expert Panel on Brucellosis, World Health Organization. Dr. Live is a member of the American Society of Microbiologists, the American Association of Immunologists, the American Public Health Association, and the Association of Research Workers in Animal Diseases in North America. He is a charter diplomate of the American College of Veterinary Microbiologists, and a fellow of the American Academy of Microbiology.

For many years, Dr. Live’s research was centered on various investigations of brucellosis. In more recent years his attention has turned to studies on Staphylococci, particularly the characterization of human and canine *Staphylococcus aureus*. On two occasions Dr. Live spent sabbatical leaves pursuing studies on Staphylococci at other institutions; in 1961, he was at the Pasteur Institute, Paris, and he spent 1969 at the Statens Serum Institut, Copenhagen, Denmark. In 1977, Dr. Live also conducted some research at the University of Bergen, Norway.

Dr. Live is a quiet, reserved individual who has served the School in an exemplary fashion. He is an exacting teacher who stresses fundamental aspects of microbiology, and his research has contributed important basic information. As the School approaches its Centennial Year he is completing his fiftieth year of uninterrupted service. In 1981, Dr. Live became emeritus professor; he has continued to give some lectures on a contract, and now on a voluntary basis, and he continues to conduct research. The School is in debt to him.

**Sheelagh S. Lloyd, M.V.B., M.R.C.V.S., Ph.D.,** received her veterinary degree from the University of Dublin, Ireland, in 1969, and earned her Ph.D. (parasitology) from the University of Pennsylvania in 1975. She is a member of the Royal College of Veterinary Surgeons. In 1976, Dr. Lloyd was appointed assistant professor of parasitology in the Veterinary School and served in this position until 1979. While at the School she conducted an active research program in the field of immunoparasitology. At the time she left the faculty she had published eleven scientific papers and abstracts and she had authored a chapter in one book.

**Lillian Maggio-Price, V.M.D.,** is a graduate from the Veterinary School in the class of 1972. She was an oncology intern at the Sloan Kettering Cancer Institute, New York City, from 1972 to 1973 and then went to the Angell Memorial Hospital, Boston, Massachusetts as a junior staff member, from 1973 to 1975. She returned to the Veterinary School in 1975 and was associate in medicine and chief, Intensive Care Unit, until 1978. Dr. Maggio-Price was a postdoctoral trainee in 1978 to 1979 and
spent the year at the Cardeza Foundation for Hematologic Research, Thomas Jefferson University, Philadelphia, and then spent the period 1979 to 1982 as a postdoctoral trainee in the Laboratory of Experimental Hematology and Cell Biology, Veterinary School. In 1982 she was appointed lecturer in medicine. Dr. Maggie-Price is a qualified diplomate of the American College of Internal Medicine. Her research field is hematology and she is primarily interested in basic mechanisms of hematopoiesis.

Bryan E. Marshall, M.D., F.R.C.P., is professor of comparative anesthesia in the Veterinary School and is Horatio C. Wood Professor and director, McNeil Center for Research in Anesthesia in the Medical School and Hospital of the University of Pennsylvania. Dr. Marshall was born in England and graduated from the Leeds University Medical School in 1959. He came to the University of Pennsylvania in 1965 as research fellow in the department of anesthesia of the Medical School and received his appointment in the Veterinary School in 1973. Dr. Marshall lectures to veterinary students in courses on physiology and medicine. His main area of research concerns the occurrence, management and fundamental causes of impaired pulmonary exchange associated with anesthesia, surgery and shock states. He has published over seventy scientific papers or reviews and has written chapters or authored eight textbooks. Dr. Marshall is editor of the journals, Anesthesiology, and Circulatory Shock and serves on the editorial board of several other publications.

David S. McDevitt, M.S. Ph.D., is associate professor of anatomy. He joined the faculty in 1968 as assistant professor after receiving his masters and doctorate degrees from Bryn Mawr College, Pennsylvania, in 1963 and 1966 respectively. In addition to his appointment in the Veterinary School, Dr. McDevitt is associate professor of ophthalmology in the School of Medicine and the Scheie Eye Institute, University of Pennsylvania. He is a member of the Graduate Groups in Anatomy and Biochemistry and served as associate dean for student affairs from 1972 to 1977. Dr. McDevitt is a member of the American Association of Veterinary Anatomists, the American Society for Cell Biology, the American Society of Zoologists, the Association for Research in Vision and Ophthalmology, and the International Society of Developmental Biologists. In 1969 he received a travel award from the National Science Foundation to attend and deliver a paper at the IXth International Embryological Conference, Moscow, U.S.S.R., and in 1970 he was an invited participant at the International Working Party on Lens Protein Immunochemistry, Edinburgh, Scotland. In addition to his teaching in core and elective courses, Dr. McDevitt accepts students for Independent Study and Research. Dr. McDevitt's primary research involves the study of structural proteins of the adult, normal regenerating, and regenerated eye lenses. He has published over forty-five scientific articles.

Richard A. McFeely, V.M.D., M.Med.Sc., (Ob./Gyna.), graduated from the Veterinary School in the class of 1961 and in 1967 earned his masters degree in obstetrics and gynecology from the Graduate School of Medicine, University of Pennsylvania. During the years 1962 to 1963 he was a postdoctoral fellow in the King Ranch Laboratory of Reproductive Physiology of the Veterinary School; from 1964 to 1966 he was a U.S. Public Health Service trainee; and in 1966 was appointed as assistant professor of clinical reproduction in the Veterinary School. Dr. McFeely was appointed chief of the Section of Clinical Reproduction in 1968, and in 1975 became professor of animal reproduction; from 1973 to 1975 he served as chief of staff, Large Animal Hospital, New Bolton Center. His present appointments are as professor of animal reproduction, director, Large Animal Hospital, and associate dean for New Bolton Center, a position he assumed in 1976. Dr. McFeely is a good teacher, one who is able to relate basic information to clinical problems. In 1977 he received the Norden Award for Distinguished Teaching. In 1978 he was named Veterinarian of the Year by the Pennsylvania Veterinary Medical Association (PVMA).

Dr. McFeely is active in professional groups and served as president of the
Dr. William Medway, professor of clinical laboratory medicine.

PVMA for 1983. He is a diplomate of the American College of Theriogenologists and served as its president for 1980-1981. He is a member of the Society for the Study of Reproduction, the American Association of Veterinary Clinicians, the American Association of Bovine Practitioners, the American Association of Equine Practitioners, and the Society of Theriogenologists. Among community organizations in which he is active are the Boy Scouts, Red Cross, and the Chester County Planning Commission. Dr. McFeely is an affable, outgoing individual and frequently acts as host for various social and professional events held at New Bolton Center.

For the past twenty years Dr. McFeely's research has centered on the study of chromosome disorders in domestic animals. He has published over thirty scientific articles.

William Medway, D.V.M., Ph.D., earned his veterinary degree in 1954 from the Ontario Veterinary College, Guelph, Canada, and his Ph.D. degree, in veterinary physiology, from Cornell University, Ithaca, New York in 1958. He came to the Veterinary School as associate in medicine in 1958, and became assistant professor of clinical laboratory medicine in 1959. Dr. Medway returned to the Ontario Veterinary College during the years of 1960 to 1962 with an appointment as research associate and assistant professor of physiology. In 1962 he returned to the Veterinary School as assistant professor of clinical laboratory medicine and in 1968 became professor. From 1965 until 1980 Dr. Medway was chief, Section of Clinical Laboratory Medicine. Dr. Medway served as president of the American Society of Veterinary Clinical Pathologists in 1968-1969, and as president of the International Association of Aquatic Animal Medicine in 1974-1975. He is a member of the American Society of Veterinary Physicians and Pharmacologists, the American Association of Clinical Chemists, and the American Association of Veterinary Clinicians. In earlier years Dr. Medway carried out research on water metabolism in fowls, and renal osteodystrophy in the dog. More recently he has conducted some interesting and important studies on marine animals. He has published over sixty articles and has authored chapters or sections in eight books.

Jules Melbin, V.M.D., Ph.D., professor of physiology, has a unique educational background. He attended the U.S. Merchant Marine Academy and earned a B.Sc. degree before enrolling in the Veterinary School. He earned his veterinary degree in 1960, and his masters degree, in 1960, from the Graduate School of Medicine, University of Pennsylvania. In 1970 he received his Ph.D. degree, in biomedical engineering, from the University of Pennsylvania. Dr. Melbin was research associate in the Comparative Cardiovascular Studies Unit of the Veterinary School from 1966 to 1968 and was appointed professor of physiology in 1972. He has conducted some pioneering and highly technical research in the field of hemodynamics, especially pulmonary blood flow, and has also done studies on coronary blood flow, hypertension, and the development of circulatory assist devices and prostheses. Dr. Melbin is a diplomate of the American College of Veterinary Internal Medicine (cardiology), and has served on the Committee for the Development of the Artificial Heart, and the Cardiology Advisory Committee of the National Institutes of Health. He serves on several Veterinary School committees and is a member of the Graduate Groups in Physiology, Comparative Medical Sciences, and Bioengineering. He is a member of the American Society of Physiologists and Pharmacologists, the American Heart Association, and the Cardiovascular System Dynamics Society. Dr. Melbin has published over sixty-five scientific papers and abstracts.

William H. Miller, Jr., V.M.D., graduated from the Veterinary School in the class of 1976, graduating summa cum laude. After a one year internship in the New York State College of Veterinary Medicine, he joined the faculty of the Veterinary School as a resident in dermatology and in 1983.
became assistant professor of dermatology. He is a diplomate of the American College of Veterinary Internal Medicine (dermatology) and is a member of the American Academy of Veterinary Dermatology and the American Association of Veterinary Allergy. Dr. Miller has conducted research on epidemolysis in the shetland sheep dog and on immunological aspects of dermatological diseases. He has published sixteen scientific papers. In addition to lecturing in courses in clinical orientation, public health, pharmacology and dermatology, Dr. Miller works, and instructs, in the Dermatology Clinic.

Richard R. Miselis, V.M.D., Ph.D., was a trainee in the elite Veterinary Medical Scientist Training Program and received both his veterinary degree and his doctorate degree in 1973. From 1973 to 1975 he was a Fellow of College de France, Paris. In 1975 he was appointed assistant professor of anatomy in the Veterinary School and in 1981 became associate professor. From 1978 to 1980 Dr. Miselis had an Alfred P. Sloan Foundation Fellowship for Basic Research in the Neurosciences. Dr. Miselis has been the recipient of numerous research grants to support his research in the field of neurological and physiological mechanisms of mammalian ingestive behavior. He is an outstanding example of the rewards to be realized through the Veterinary Medical Scientist Training Program which is funded by the National Institutes of Health. He has published forty-four scientific articles and abstracts and has been the invited speaker or participant at twenty scientific meetings. In 1983, Dr. Miselis received a Fogarty International Fellowship and will spend seven months at the Florey Institute of Experimental Medicine, Melbourne, Australia. While there he will conduct neuroanatomical and physiological studies on water balance in sheep.

E. Neil Moore, D.V.M., Ph.D., graduated from the New York State Veterinary College, Cornell University, Ithaca, New York in 1956, and earned his Ph.D. at the Upstate Medical Center, State University of New York in 1962. From 1956 to 1957 he was on an American Veterinary Medical Association Postdoctoral Fellowship in Neurophysiology at Cambridge University, England. In 1957-1959, he was on a similar fellowship in physiology at the Upstate Medical Center, State University of New York. From 1959 to 1962 he was on a U.S. Public Health Fellowship, first at the Upstate Medical Center and then at the Downstate Medical Center, State University of New York.

Dr. Moore was appointed research assistant professor in the Comparative Cardiovascular Studies Unit of the Veterinary School in 1962, and became professor of physiology in 1970. From 1966 until 1971 he was the William Stroud Established Investigator of the American Heart Association. He holds a joint appointment in the Faculty of Arts and Sciences, and is also professor of physiology in medicine in the Medical School, University of Pennsylvania. He is a member of the Graduate Group in Comparative Medical Sciences.

Dr. Moore is certified by the American College of Veterinary Internal Medicine (cardiology) and is a charter member of this group. He is fellow of the American College of Cardiology. He served as president of the Cardiac Electrophysiology Group of the American Federation of Clinical Research in 1975, and in 1980 served on the board of governors of the Southeastern Pennsylvania Heart Association. He is a member of the American Physiological Society, the American Heart Association, the Pennsylvania Heart Association, the American Federation of Clinical Research, the Cardiac Muscle Society, and the American Society for Physiologists and Pharmacologists. Dr. Moore is editor for Circulation, and European Journal of Cardiology and the Journal of Cardiovascular Pharmacology, and is ad-hoc editor for nine other journals.

Dr. Moore is the only veterinarian to give invited lectures, and to chair sessions of the American Heart Association, American College of Cardiology, World Congress of Electrocardiography, World Congress of Cardiology, and the European Congress of Cardiology. In 1962 he was chairman of the Sudden Cardiac Death Grantee Program of the National Institutes of Health. His area of research expertise is cardiac electrophysiology and cardiac electropharmacology. He has published over 200 scientific papers and abstracts, thirty-two book
Adrian R. Morrison, Jr., D.V.M., M.S., Ph.D., graduated from the New York State Veterinary College, Cornell University, Ithaca, New York, in 1960. He earned his masters degree from Cornell University in 1962, and was awarded the Ph.D. degree by the University of Pennsylvania in 1964. During the years 1964 to 1965, Dr. Morrison engaged in postdoctoral training in the Institute of Physiology, University of Pisa, Italy, and from 1965 to 1966 he was in postdoctoral training in the Department of Anatomy, School of Medicine, University of Pennsylvania. He was appointed as assistant professor of anatomy in the Veterinary School in 1965, and in 1975 became professor and head, Laboratories of Anatomy. He served as head of the laboratories until 1980. Dr. Morrison is a member of the Graduate Groups in Anatomy and Comparative Medical Sciences and has supervised the work of seven students in Ph.D. programs. He serves on many University and Veterinary School committees, and is a member of the American Association of Anatomists, the Association for the Psychophysiological Study of Sleep, the Society for Neuroscience, the International Brain Research Organization, the European Sleep Research Society, the American Association of Veterinary Anatomists, and the Institute of Neurological Sciences. Dr. Morrison's research involves studies of the regulation of behavior during sleep. He has delivered seventeen invited lectures, and he has participated in over twenty symposia. Dr. Morrison has published nearly one hundred papers and abstracts and has edited one book (with P.L. Strick, *Changing Concepts of the Nervous System*, Academic Press, New York, 1982).

William A. Moyer, D.V.M., is assistant professor of surgery and director, Equine Outpatient Clinic, New Bolton Center. He is a 1970 graduate from the College of Veterinary Medicine, Colorado State University, Fort Collins. Dr. Moyer first came to the Veterinary School in 1971 and served as an intern and surgical resident at New Bolton Center until 1973. For the next seven years he was in practice and then returned to the School in 1980 as instructor in surgery; he became assistant professor in 1982. The Equine Outpatient Clinic, which is part of the George D. Widener Hospital for Large Animals, is a new, important addition to the clinical services offered at New Bolton Center; it has proved to be an attractive service to horse owners. Dr. Moyer's research has focused on equine lameness problems especially degenerative joint disease and tears of the distal sesamoidean ligament. He has also investigated the clinical use of some new drugs, and the effects of various shoe designs in the gait of horses. Dr. Moyer contributes articles to several specialty journals for horses, and he has published eighteen scientific articles. He has authored chapters in four books having to do with lameness, hoof care, and horseshoeing. Dr. Moyer is especially active in the Continuing Education Program and has given fifty-eight invited lectures.

Vicki N. Meyers, V.M.D., graduated from the Veterinary School in 1976 and until 1980 was in practice. From 1980 to 1982 she was a resident (genetics/pediatrics/ reproduction) in the Veterinary School and in 1982 she became instructor in genetics, pediatrics and reproduction. She works in the Section of Medical Genetics. Dr. Myers is presently in a postdoctoral fellowship in reproductive endocrinology and is working toward her Ph.D. degree in the Comparative Medical Sciences Graduate Group of the University of Pennsylvania. She has published, or has in preparation, eight scientific papers.

Margit M.K. Nass, M.A., Ph.D., is associate professor of pharmacology in the Veterinary School and has a joint appointment as associate professor of radiation biology in radiation therapy in the Medical School. Dr. Nass joined the faculty in 1977, teaching in the core course in pharmacology. Her research involves an investigation of the mechanisms of action and effects of selected DNA-binding carcinogens, mutagens and anticancer agents on nuclear and mitochondrial DNA structure, replication and expression. She is also interested in DNA-protein interactions, the control of DNA replication and in the expression of foreign integrated DNA sequences in genomes of animal cells. Dr.
Nass has published over sixty scientific papers.

Charles D. Newton, M.S., D.V.M., earned his veterinary degree at the University of Minnesota in 1968, and received his masters degree from Ohio State University in 1970. He joined the faculty of the Veterinary School in 1971 as associate in surgery and in 1977 became associate professor of orthopedic surgery. In 1982, Dr. Newton was named chief, Section of Surgery. Dr. Newton’s teaching contributions were recognized in 1973 when he was the recipient of the Norden Award for Distinguished Teaching. He plays a major role in the Continuing Education Program and serves as program chairman for the Penn Annual Conference for Veterinarians, and for the Centennial Scientific Program of the Veterinary School. Dr. Newton is a diplomate of the American College of Veterinary Surgeons. His main area of research is in the field of small animal orthopedics, with a special interest in arthritis of small animals. He has published thirty articles and has authored one textbook and chapters in seven other books.

David Nunamaker, V.M.D., graduated from the Veterinary School in 1968 and until 1970 he was an intern and resident in orthopedics. He was appointed instructor in orthopedic surgery in 1970 and from 1971 to 1972 was on a research fellowship at the Swiss Research Institute, Laboratory for Experimental Surgery, Davos, Switzerland. In 1982, Dr. Nunamaker was named the Jacques Jenny Professor of Orthopedic Surgery in the Veterinary School. He serves as director of the Comparative Orthopedic Biomechanics Laboratory and chief, Section of Large Animal Surgery at New Bolton Center. Dr. Nunamaker holds joint appointments as associate professor of orthopedic research in the Veterans Administration Hospital, Philadelphia, associate professor of veterinary medicine in orthopedic surgery in the Department of Orthopedics of the Medical School, University of Pennsylvania, and is orthopedic consultant at the Philadelphia Zoological Gardens. Dr. Nunamaker has contributed much in enhancing the reputation of New Bolton Center as a world leader in equine orthopedic surgery. His primary research areas are in biomechanics, fracture healing and internal fixation of fractures. He has over fifteen publications of scientific papers and in association with Dr. G.E. Fackelman has published a book, Internal Fixation in the Horse (Springer-Verlag, 1982), and presently, with Dr. Charles D. Newton, is preparing a second publication, Textbook of Small Animal Orthopedics (Lippincott, Philadelphia). Dr. Nunamaker serves on a number of Veterinary School committees and is in demand as a speaker at scientific meetings and Continuing Education Courses. He is a diplomate of the American College of Veterinary Surgeons.

Joan O’Brien, V.M.D., graduated in 1963 and from 1963 to 1964 she served an internship in the Veterinary School. In 1964 she was appointed instructor in medicine and from 1964 to 1966 was the Dorothy Harrison Estes Seeing Eye Fellow. In 1978 Dr. O’Brien was appointed professor of medicine; she served as chair, Section of Small Animal Medicine from 1976 to 1982. Dr. O’Brien also serves as associate professor, Department of Otorhinolaryngology, Hahnemann Medical College, Philadelphia. She is a charter member of the American College of Veterinary Internists and has been active on numerous committees in the Veterinary School. In 1975 Dr. O’Brien was named Woman Veterinarian of the Year by the Woman’s Veterinary Medical Association and in 1976 she received

Dr. Joan B. O’Brien, professor of medicine.
ed the AVM A Gaines Award as Small Animal Clinician of the Year. She has a variety of research interests including the applications of laryngology and branch oesophagology in natural disease, the anatomy, electromyography and histology of the normal and abnormal larynx, achalasia surgery, conduction velocity in canine and equine recurrent nerves, the effect of long term tracheotomy in dogs, and congenital neurogenic laryngeal paralysis in Husky dogs. Dr. O'Brien has contributed chapters to twenty-two books, and has a textbook in preparation for publication. She has published over thirty papers.

James A. Orsini, D.V.M., is assistant professor of surgery, working at New Bolton Center. He is a 1977 graduate of the New York State Veterinary College, Cornell University, Ithaca, New York, and from 1977 until 1979 he was an intern and surgical resident in the Veterinary School at New Bolton Center. Dr. Orsini spent 1979 as visiting research associate in the James A. Baker Institute for Animal Health, Cornell University. He returned to the Veterinary School in 1980 and served until 1982 as lecturer in surgery and then became assistant professor. In his relatively short time on the faculty, Dr. Orsini has been involved in several research projects including a clinical investigation of some new drugs, renal function in cattle, the design and development of external skeletal fixation for the horse, and an investigation of selective neuronal destruction as an alternative to neurectomy. Dr. Orsini is particularly interested in developing a program for critical care medicine for large animals. He carries a full teaching load in core and elective courses and in the clinics. Dr. Orsini who is a member of the American Association of Regional Anesthesia, has given fifteen invited lectures, published eleven scientific articles, and has authored chapters in two books.

Jonathan E. Palmer, V.M.D., is presently lecturer in large animal medicine, and works at New Bolton Center. He graduated from the Veterinary School in 1977 (summa cum laude) and practiced for one year before returning to the School as resident in large animal medicine. Dr. Palmer became lecturer in 1980 and is one of the growing team of clinicians at New Bolton Center who are conducting studies on gastrointestinal diseases of horses and farm animals. He is a diplomate of the American College of Veterinary Internal Medicine and teaches core and elective courses. Dr. Palmer's research has involved studies on the pathogenesis of diarrhea in the horse, pathogenesis of abomasal displacement and abomasal ulceration in cattle, and the development of new techniques for the rapid diagnosis of specific diarrheal diseases. He has given four invited lectures and he has published seven scientific articles.

Donald F. Patterson, D.V.M., D.Sc., is the Charlotte Newton Sheppard Professor of Medicine and chief, Section of Medical Genetics. He received his veterinary degree from Oklahoma State University in 1954, and his D.Sc. degree (cardiology) from the University of Pennsylvania in 1968. He was appointed instructor in cardiology in 1958, and became professor of medicine in 1968. In 1973, Dr. Patterson was named the first recipient of the Charlotte Newton Sheppard Professorship. This was the first endowed chair in medicine in any veterinary school in the world.

When Dr. Patterson first joined the faculty he worked with Dr. David K. Detweiler in the newly emerging specialty of veterinary cardiology. The early work of Drs. Detweiler and Patterson revealed that
the field of congenital heart disease in dogs offered a virgin area of investigation. In order to develop his basic knowledge of genetics, Dr. Patterson spent two years, 1964 to 1966, as a National Institutes of Health Fellow in the Division of Genetics, Johns Hopkins University School of Medicine, Baltimore, Maryland. Upon his return to the School in 1966 he became codirector of the Comparative Cardiovascular Studies Unit, and chief, Section of Cardiology. In 1970 he was appointed chief, Section of Medical Genetics. This section, the only one of its kind in any veterinary school, now provides research, service and teaching in the field of medical genetics.

Dr. Patterson is certified by the American College of Veterinary Internal Medicine (internal medicine and cardiology), and is a member of the American Society of Veterinary Physiologists and Pharmacologists, the Academy of Veterinary Cardiology, the American Heart Association, the American Society of Veterinary Clinicians, and the Genetics Society of America. He is a fellow of the American Academy of Cardiology. He serves on the board of trustees of the Seeing Eye Foundation, and has served on the editorial board of the American Journal of Veterinary Research, the Committee on Animal Models and Genetic Stocks of the National Academy of Sciences, the Institute of Laboratory Animal Resources of the National Research Council, and the Committee on Maintenance of Genetic Stocks of the Genetic Society of America.

In 1972, Dr. Patterson was the recipient of the Gaines Research Award, and in 1981, the Ralston-Purina Award for Research of the American Veterinary Medical Association. In 1982 he received the Award of Merit of the American Animal Hospital Association.

Dr. Patterson's career at the Veterinary School has touched upon every aspect of academic life — teaching, research, administration and service. In 1973, Dean Robert R. Marshak described Dr. Patterson as being "among the handful of key figures who are responsible for placing the school squarely on the road to excellence." Dean Marshak further stated that Dr. Patterson has "indeed assumed a prime position among medical investigators concerned with congenital malformations." Dr. Patterson performed pioneering work in cardiovascular disease in animals, most of which bears a direct relationship to problems faced in human medicine. As a teacher, Dr. Patterson has the unique ability to take the most complex subject and make it thoroughly understandable without losing any of its real substance and without neglecting important new information. He has served on many major veterinary school committees and performed outstanding service in the development of the Core-Elective Curriculum and in the departmental reorganization in the School.

Dr. Patterson has published over seventy scientific papers and abstracts, nine review articles, and over twenty clinical reports. He has authored chapters or sections in eighteen books.

Barbara E. Penny, V.M.D., graduated from the Veterinary School, magna cum laude, in 1968, and interned for one year in the Section of Clinical Reproduction, New Bolton Center. From 1969 to 1973 she was staff veterinarian in the National Humane Educational Center, Humane Society of the United States, Waterford, Virginia. Dr. Penny returned to the Veterinary School in 1973 as a resident in the Section of Anesthesia. In 1976 she became instructor in anesthesia and since 1977 has served as associate. Dr. Penny's research interests are in the field of the cardiopulmonary effects of anesthetics and analgesic drugs. She is a member of the American Society of Veterinary Anesthesiology and has published six articles and authored chapters in six books.

Charles W. Raker, V.M.D., graduated from the School of Veterinary Medicine in the Class of 1942 and for the next eight years he was in practice. Dr. Raker joined the faculty in 1950 as assistant professor of veterinary medicine and director of clinics at Bolton Farm. In 1952 he became director of clinics at the newly acquired New Bolton Center. In 1954 Dr. Raker was designated as head of the Large Animal Clinic and his appointment was changed to assistant professor of surgery. He became professor of surgery in 1957 and in 1958 received a joint appointment as professor of comparative surgery in the Graduate School of Medicine, University of Penn-
sylvania. Dr. Raker served as chief, Section of Surgery from 1962 to 1975, and in 1967 was named the Lawrence Baker Sheppard Professor of Surgery. This was the first endowed chair in any veterinary school in the United States. Dr. Raker is a founder, diplomat, and charter member of the American College of Veterinary Surgery and served as president of this group in 1975.

Dr. Raker's outstanding contributions as a teacher have been recognized through the Norden Distinguished Teaching Award in 1965, and the prestigious Lindback Award from the University of Pennsylvania in 1971. In 1967 he was named Veterinarian of the Year by the American Veterinary Medical Association.

Early in his career on the faculty Dr. Raker became recognized as an excellent equine surgeon. He worked with Dr. Jacques Jenny in developing new techniques for fracture repair. He has published over sixty scientific papers and is in great demand as a speaker at professional meetings.

Dr. Ramberg has published nearly fifty scientific papers and abstracts and has contributed sections to fifteen books and symposia proceedings. He has given about thirty invited lectures.

Charles F. Reid, D.V.M., M.S., earned his veterinary degree from the New York State Veterinary College at Cornell in 1956, and his masters degree from the same institution in 1960. From 1958 until 1961 he was on an American Veterinary Medical Association Research Fellowship which included training in the Department of Biophysics, Sloan Kettering Institute for Cancer, the Department of Physical Biology, Cornell University, and in the Department of Radiology at the Cornell Medical Center. In 1961 he was an American Kennel Club Fellow in Comparative Radiology, and from 1961 until 1963 he was a research fellow in the Bronx Veterans Administration Hospital, Bronx, New York. In 1963, Dr. Reid joined the faculty of the Veterinary School as research associate in radiology, and in 1976 he became professor of radiological science. Dr. Reid served as acting chief, Section of Radiology from 1969 to 1971 and since 1981 he has been chairman, Department of Clinical Studies, New Bolton Center. He is certified by the American College of Veterinary Radiology, and is a member of the Radiological Society of North America, the American Veterinary Radiology Society, Educators in Veterinary Radiological Science, and the American Association of Equine Practitioners. Dr. Reid serves on the editorial advisory board of the Journal of the American Veterinary Radiology Society. He is a stimulating teacher and in 1978 was the recipient of a Lindback Award for Distinguished Teaching from the University of Pennsylvania. Dr. Reid has published over thirty-five scientific articles and seven articles for lay publications. He has authored a monograph titled A Guide to Veterinary Radiation Therapy (KNA Press Inc., Kennett Square, Pennsylvania, 1975).

Dr. Reid is a friendly, outgoing individual with a fine sense of humor. He is in demand as a speaker and has presented over seventy talks at scientific and lay meetings. He plays an active role in committee activities in the Veterinary School and in the Continuing Education Program.
Dr. Monica Reynolds, emeritus professor of physiology.

Monica Reynolds, Ph.D., joined the Veterinary School faculty in 1949 as associate in physiology, immediately after completing work for her doctorate degree in physiology in the College of Physicians and Surgeons, Columbia University, New York City. At the time Dr. Reynolds came to the School, the faculty in physiology was small and she carried a heavy teaching load. Gradually, she was able to find more time for research and in 1954-1955 she was a Pennsylvania-Delaware Fellow of the American Association of University Women and worked at the National Institute for Research in Dairying, Schinfeld, England. This experience led to a lifelong interest in perinatal physiology and especially in mammary circulation and metabolism in lactation. She has also done work on progesterone metabolism in the lactating mammary gland. In order to pursue her work, in which she has used goats primarily, Dr. Reynolds established her laboratory at New Bolton Center in 1956. Dr. Reynolds became professor of physiology in 1969 and held a joint appointment in the Graduate School of Arts and Sciences. In 1980 she became emeritus professor. Dr. Reynolds has given over fifteen invited lectures and has published over thirty scientific articles.

William Harker Rhodes, V.M.D., M.Med.S. (radiology), is one of the pioneers of modern veterinary radiology. He graduated from the Veterinary School in 1951, and in 1958 was the second veterinarian to receive a masters degree from the Graduate School of Medicine of the University of Pennsylvania. In 1955 Dr. Rhodes was appointed assistant instructor in radiology and in 1970 became professor. From 1964 to 1974 he served as chief, Section of Radiology. At present he holds joint appointments as professor of radiological sciences in the Medical School, and is visiting professor of radiology in the School of Veterinary Medicine, University of California, Davis. In 1970-1971 he was visiting professor of radiology in University College, Dublin. Dr. Rhodes was founder, and president (1957-1959) of Educators in Veterinary Radiologic Science, and served as president of the American Veterinary Radiology Society in 1957-1959. He is a charter member of the American College of Veterinary Radiology. He served as chairman of the American Animal Hospital Association Radiology Committee from 1963 until 1964, and as a member of the American Veterinary Medical Association Advisory Board on Veterinary Specialties from 1967 until 1971. He is presently editor of the journal, Veterinary Radiology. From 1978 until 1982 he was editor of the Veterinary School Bulletin. Dr. Rhodes is an erudite, affable individual who is an avid flyer. He is an excellent teacher, and in 1965 he received the Lindback Award for Distinguished Teaching from the University of Pennsylvania. He has published over thirty-five scientific papers and he has authored chapters in two books.

Carl A. Ritter, Ph.D., graduated from the State University of New York, Upstate Medical Center, in 1957, and came to the Veterinary School in 1966 as assistant professor of pharmacology. Dr. Ritter spent one year, 1967, as a United States Public Health Service Special Fellow at the Institute of Pathology, Karolinska Institute, Stockholm, Sweden. From 1968 until 1971 he was head of the Laboratory of Pharmacology in the Veterinary School. Dr. Ritter became a member of the Graduate Group in Pharmacology in the University of Pennsylvania in 1969 and was promoted to associate professor in 1972. His main research activity involves the interactions of chemicals with cells and especially the
transport processes whereby tumor cells take-up nitrogen mustard. Dr. Ritter has published over forty scientific papers and abstracts. He is a member of the American College of Veterinary Toxicologists and the American Society for Pharmacology and Experimental Therapeutics and he is a fellow of the American College of Veterinary Pharmacology and Therapeutics.

Dr. David Roberts, B.Sc., M.Phil., Ph.D., was assistant professor of anatomy from 1974 to 1979. He also had an appointment as assistant professor of orthodontics in the Dental School, University of Pennsylvania. Dr. Roberts earned his doctorate degree at Yale University, New Haven, Connecticut, in 1973. His research included work on temporomandibular dysfunction, development and function of the human larynx and pharynx and otorhinolaryngology and human communication. In the Veterinary School he taught gross anatomy.

James R. Rooney, D.V.M., M.S., received his veterinary degree from Cornell University in 1952 and his masters degree (veterinary pathology) from Virginia Polytechnic Institute in 1956. During the years 1954 to 1958 he was assistant professor, then professor of veterinary pathology at Virginia Polytechnic Institute; he spent the year 1956-1957 in Stockholm, Sweden at the Royal Veterinary College where he was visiting pathologist. From 1958 until 1961 Dr. Rooney was chief of the pathologic-anatomy branch of the U.S. Army Biological Laboratories, Fort Detrick, Maryland. He was professor and chairman of the Research Diagnostic Laboratory, University of Kentucky from 1961 to 1968, and in 1967 spent three months at the Equine Research Station, Animal Health Trust, Newmarket, England, where he set up a program in equine pathology. In 1969 Dr. Rooney came to the Veterinary School as associate professor of pathology, stationed at New Bolton Center where he shared the autopsy and biopsy work with Dr. David C. Dodd. In 1971, Dr. Rooney became professor of pathology and head, Section of Large Animal Pathology. He was section head for two years and served as professor until 1977 when he assumed part-time duties as adjunct professor of pathology, a position which he continues to hold. Dr. Rooney, who is a diplomate of the American College of Veterinary Pathology, has authored four books: Guide to Dissection of the Horse (W.O. Sack, Ithaca, NY, 1967); Biomechanics of the Horse (Williams and Wilkins, Philadelphia, 1970); and Clinical Neurology of the Horse (KNA Press, Kennett Square, PA, 1971). His research focused on the biomechanics of equine lameness. He has published approximately fifty articles.

Eberhard Rosin, D.V.M., Ph.D., served as associate professor of surgery, and chief, Section of Small Animal Surgery from 1980 until 1982. He received his veterinary degree from Ohio State University in 1966, and his Ph.D. degree from the University of Minnesota in 1974. Prior to coming to the Veterinary School he was instructor in the Department of Veterinary Surgery and Radiology, University of Minnesota, and associate professor in the Department of Small Animal Medicine and Surgery, University of Georgia.

Lionel F. Rubin, V.M.D., M.Med.Sc. (ophthalmology), graduated from the Veterinary School in 1958 and in 1965 received his masters degree from the Graduate School of Medicine, University of Pennsylvania. In 1961 he was appointed assistant instructor in ophthalmology in the Veterinary School and in 1972 became professor. In 1977 Dr. Rubin received a joint appointment as professor of ophthalmology in the Graduate School of Arts and Sciences. He served as chief, Section of Ophthalmology from 1965 to 1981. Dr. Rubin has served on several Veterinary School committees and from 1977 until 1979 he was a member of the University Judiciary Committee. He is a charter diplomate of the American College of Veterinary Ophthalmologists, and served as its president from 1976 to 1977. Dr. Rubin is a member of Ophthalmology Committee, U.S. Army Medical Research and Development Laboratory, Edgewood, Maryland, the Committee on Safety Assessment of Pharmaceuticals of the National Academy of Science, the Scientific Advisory Committee of the Canine Eye Research Foundation, and the Committee on Toxicologic Effects of Antimalarial Agents of the Walter Reed Army Institute of Research. His research focuses...
on disease of the retina, ocular pathology and toxicology, and ocular diseases of laboratory animals. Dr. Rubin has published over one-hundred scientific papers and abstracts and has authored two books: *Atlas of Veterinary Ophthalmoscopy* (Lea and Febiger, Phila., 1974), and with Dr. L.A. Saunders, *Ophthalmologic Pathology in Animals* (Karger, Basel, Switzerland, 1975).

Robert J. Rutman, M.S., Ph.D., professor of biochemistry has served on the faculty of the Veterinary School for fifteen years. He earned his masters degree in biochemistry at the University of Idaho in 1942, and received his doctorate degree from the University of California at Berkeley in 1950. From 1950 until 1954, Dr. Rutman was assistant professor of biochemistry Jefferson Medical College, Philadelphia, Pennsylvania. He served as research associate in the Department of Zoology, University of Pennsylvania from 1954 to 1956, and then held an appointment as senior research associate in the Department of Chemistry during the years 1956 to 1961. In 1961, Dr. Rutman was appointed associate professor in the Department of Chemistry, with a joint appointment on the Faculty of Arts and Sciences as a member of Graduate Groups on Biochemistry, Chemistry and Molecular Biology. In 1968 he was appointed associate professor of biochemistry in the Veterinary School, and in 1969 he became professor.

Dr. Rutman was chairman of the Laboratories of Biochemistry from 1973 to 1978, and from 1973 to 1974 was visiting professor at the University of Ibadan, Nigeria. In 1980 he served as University Lecturer to the University of Ibadan and in 1980 was named coordinator, University of Ibadan/University of Pennsylvania Exchange Program. In 1982-1983, Dr. Rutman visited six universities in the United States on the visiting Scientist Program for minority institutions, a program sponsored by the U.S. Public Health Service. He is active in various minority programs and serves as co-chairperson of the Science and Technology Division of the American Foundation for Negro Affairs.

Dr. Rutman is a member of the American Society of Biological Chemists, the American Association for Cancer Research and the American Chemical Society. His primary field of research is the investigation of the action of cytotoxic anti-cancer drugs. He has participated in sixteen invited lectures, symposia and seminars and has published over 135 scientific papers. Dr. Rutman teaches veterinary students and has supervised the Ph.D. program for twelve graduate students.

Eleanor L. Ryder, M.S.W., holds joint appointments as professor of social work in the School of Social Work and in the Veterinary School. She is a member of the Center for Interactions of Animals and Society in the School and is involved in research on the social implications of people-pet interactions, particularly the importance of pets for elderly people. Dr. Ryder has been a guest lecturer in a number of foreign universities, and has served as a consultant to numerous colleges on the social work curriculum. She is a member of the Council on Social Work Education, the National Association of Social Workers, the International Conference on Social Welfare and the International Association of Schools of Social Work, and is a consultant to the Animal Medical Center, New York City.

Leon Z. Saunders, V.S., M.S., D.V.M., Dr.Med.Vet., Ph.D., adjunct professor of pathology, received his veterinary degrees from the University of Toronto in 1943 and his masters degree from Iowa State University in 1946. He earned his Ph.D. degree (veterinary pathology) from Cornell University in 1951, and from 1951 until 1952, Dr. Saunders was pathologist, Chemical Corps Medical Laboratories, Edgewood, Maryland. During the period 1952 until 1958 he was veterinary pathologist, Brookhaven National Laboratory. In 1958, Dr. Saunders joined Smith, Kline and French Laboratories in Philadelphia as head, Pathology and Toxicology Section. He served in this position until 1967 when he became director of Pathology and Toxicology. Since 1980, Dr. Saunders has been vice president of Safety Evaluation. He became associated with the Veterinary School in 1958 when he was appointed visiting assistant professor of veterinary pathology. In 1964 he became visiting professor and in 1973 his appointment was
changed to adjunct professor. In 1968 Dr. Saunders was awarded the honorary degree, Dr. Med. Vet., by the Tierarztlich Hochschule, Wien, Austria. He was Schofield Memorial Lecturer and was awarded the Schofield Memorial Medal by the Ontario Veterinary College in 1972, and in 1980 he was recipient of the Theodor Kitt Medal, University of Munich, Germany. Dr. Saunders is a member of the American College of Veterinary Pathologists, Research Workers in Animal Disease, European Society of Toxicology, International Academy of Pathology, and the World Federation of Veterinary Pathologists. From 1963 to 1966 he was editor-in-chief of Veterinary Pathology; he presently serves on the editorial board of Cornell Veterinarian and Historiae Medicinae Veterinariae.

Dr. Saunders' primary research interests are ophthalmic pathology of animals and the history of animal pathology. He has published over seventy-five papers and has authored chapters or sections in six books.

Gerhard A. Schad, M.Sc., Ph.D., received both his masters and doctorate degrees at McGill University, Montreal, Canada, in 1952 and 1955 respectively. From 1958 until 1964 he was assistant professor of parasitology at McGill University. During the period 1964 to 1967, Dr. Schad was at the Johns Hopkins University, Baltimore, Maryland, where he became associate professor of parasitology. He joined the faculty of the Veterinary School in 1973 as associate professor of parasitology, and in 1977 became professor, with a joint appointment in the Faculty of Arts and Sciences, University of Pennsylvania.

Dr. Schad spent the years 1968 to 1970 in Calcutta, India as head of parasitology in the Johns Hopkins International Center. He served as head, Laboratory of Parasitology in the Veterinary School from 1974 until 1982, and since 1978 he has been chairman of the Graduate Group in Parasitology, University of Pennsylvania. Dr. Schad has served as a consultant to the Franklin Institute, Philadelphia, Pennsylvania, and from 1978 to 1982 was the University Representative (Veterinary School) to Cairo University, Egypt, for medical research and training. He has been an invited participant or discussant to several national and international expert committees, panels and working groups, including the scientific working group on Intestinal Protozoan and Helminth Infections of the World Health Organization, Geneva, Switzerland (1990), the Panel on Transmission of Disease, Dahlem Workshop on Population Biology of Infectious Disease Agents, Berlin, Germany (1982), and the Gordon Conference, Plymouth, New Hampshire (1982). Dr. Schad is assistant editor of the Journal of Parasitology, and serves on the editorial board of Experimental Parasitology. He is a member of the American Society of Parasitology, the American Society of Naturalists, the American Society of Tropical Medicine and Hygiene, the Helminthological Society, and the Royal Society of Tropical Medicine and Hygiene.

Dr. Schad teaches both veterinary students and graduate students. His primary areas of research involve studies of the ecology and epidemiology of parasitic helminths and investigations of the growth and development of nematodes. He has written chapters in seven books, and has published over seventy scientific papers and abstracts.

H. Ralph Schumacher, Jr., M.D., has been associate professor of comparative medicine since 1975. He graduated from the Medical School of the University of Pennsylvania in 1959. Dr. Schumacher is professor of medicine and acting chief, Arthritis Section, in the Medical School and is director of the Rheumatology-Immunology Center of the Veterans Administration Medical Center, Philadelphia. He is a member of the American Rheumatism Association, the American Federation for Clinical Research, and the Electron Microscopy Society of America, and is a fellow of the American College of Physicians. He is on the editorial board of The Journal of Rheumatology. Dr. Schumacher has published over 130 original papers, fourteen abstracts, and is the author of a book, Gout and Pseudogout (Med. Exam. Pub. Co., New York, 1978).

Robert M. Schwartzman, V.M.D., M.P.H., Ph.D., graduated from the Veterinary School in 1952. He earned his masters degree and his Ph.D. degree from the University of Minnesota, St. Paul, in 1953.
Dr. Robert M. Schwartzman, professor of dermatology; chief, Section of Dermatology.

and 1959 respectively. From 1953 to 1959, Dr. Schwartzman was instructor in clinical medicine in the School of Veterinary Medicine, University of Minnesota. In 1959, he was appointed assistant professor of dermatology in the Veterinary School and in 1968 became professor, and chief, Section of Dermatology. From 1963 until 1970 Dr. Schwartzman was assistant professor in the Department of Dermatology, Graduate School of Medicine. In 1957-1958 he was the recipient of a Mark L. Morris Foundation Fellowship Award. In 1973, Dr. Schwartzman received the Bourgelat Award of the British Small Animal Medical Association. He is a member of the American Association of Veterinary Clinicians, the Academy of Dermatopathologists, the American Society of Veterinary Allergists and Immunologists, the American Academy of Allergists and the Veterinary Academy of Internal Medicine. Dr. Schwartzman has presented papers at six international meetings including the International Veterinary Congress of 1967 and 1968. Dr. Schwartzman's primary field of research involves the immunological aspects of dermatology. He has published over thirty-five scientific articles, four textbooks, and has written chapters or sections in four other books. In his early years on the faculty Dr. Schwartzman worked closely with Dr. Frank Kral and together they authored two outstanding books, Veterinary and Comparative Dermatology (Lea and Febiger, Philadelphia, 1963), and Atlas of Small Animal Dermatoses (Lea and Febiger, 1968).

Bernard H. Shapiro, M.S., Ph.D., received his masters degree from the University of New Hampshire, Durham, in 1965, and his Ph.D. degree in 1970 from Rutgers University, New Brunswick, N.J. From 1968 to 1970 he had a teaching assistantship in the Department of Zoology, Rutgers University, and from 1971 to 1973 was research associate in Children's Hospital of Philadelphia. During the years 1973 to 1981 Dr. Shapiro was associate, and then assistant professor of pediatrics in the Medical School, University of Pennsylvania. He joined the Veterinary School in 1978 as assistant professor of biochemistry and in 1981 became associate professor. Dr. Shapiro's research involves a study of the developmental controls of sexual differentiation of reproductive structures and an investigation of how hormones direct the differentiation of sexual tissues at the molecular level. He has published about fifty scientific papers and abstracts.

Michael B. Simson, M.D., graduated from Harvard Medical School in 1970, and from 1970 to 1973 was an intern and resident in the Hospital of the University of Pennsylvania (HUP). He was a fellow in cardiology at HUP from 1973 to 1975 and a research fellow in cardiology from 1975 to 1976. In 1976 he became assistant professor of medicine in the University of Pennsylvania Medical School, and assistant professor of physiology in the Veterinary School. Dr. Simson works with Drs. E. Neil Moore and Joseph F. Spear in the field of electrophysiology on cardiac function and disease. He has published about forty-five scientific papers and abstracts.

Gail K. Smith, V.M.D., Ph.D., participated in the elite Veterinary Medical Scientist Training Program from 1971 to 1976. He received his veterinary degree in 1974 and his Ph.D. degree in 1982 from the Department of Metallurgy and Materials Science, University of Pennsylvania in 1982. Dr. Smith spent the year, 1976 to 1977, as a postdoctoral fellow at the Institut Staumann, Waldenburg, Switzerland. From 1977 to 1979 he was a surgical resident (orthopedics) in the Veterinary School; in 1979 he was appointed assistant professor of orthopedic surgery. In 1983 he served as acting chief, Section of Small Animal Surgery. Dr. Smith has combined his unique educational background to develop research in-
Dr. Lawrence R. Soma, professor of anesthesiology; chief, Section of Anesthesia.

Gene B. Solomon, B.S., Ph.D., came to the Veterinary School in 1969 as research associate in the Department of Pathobiology. He earned his Ph.D. degree in 1964 at the University of Maryland. In 1971 he became assistant professor of parasitology and remained in this position until 1979 when he left the faculty. While at the School, Dr. Solomon’s research involved work on the evolution of nematode granuloma, and specifically, investigation of the progressive events involved in the pathologic process correlated with the associated immunological and non-immunological phenomena leading to granuloma formation and resolution. At the time he left the School, Dr. Solomon had published twenty-five papers.

Lawrence R. Soma, V.M.D., graduated from the Veterinary School in 1957 and for the next year interned at the Animal Medical Center, New York City. From 1958 until 1960 he served in the U.S. Army Veterinary Corps, and then returned to the University of Pennsylvania in a resident-fellowship program in the Departments of Anesthesia and Pharmacology of the Medical School. He was appointed instructor in anesthesia in the Veterinary School in 1963, and in 1964 became assistant professor and chief, Section of Anesthesia. In 1972 Dr. Soma became professor and from 1975 to 1979 served as chairman of the Department of Clinical Studies. From 1975 to 1978 he was acting director of the Small Animal Hospital. At present Dr. Soma is chief, Section of Large Animal Anesthesia and is a staff member of the Department of Anesthesia in the Medical School. He works primarily at New Bolton Center.

Dr. Soma has served on several Veterinary School committees and teaches courses in anesthesia and pharmacology. He is active in the Boy Scouts of America program.

Dr. Soma’s research interests include the fields of anesthesiology, pulmonary function, analgesia, and clinical pharmacology, especially in large animals. He has published over fifty scientific papers and abstracts. In 1972 he authored the Textbook of Veterinary Anesthesia (Williams and Wilkins, Baltimore, Maryland) and has prepared chapters or sections in seven other books.

Jane H. Speaker, B.S., M.S., Ph.D., was appointed adjunct associate professor of pharmacology in 1977 and lectures to veterinary students on forensic toxicology. She is chief toxicologist in the office of the Medical Examiner of the City of Philadelphia and is an expert on forensic and analytical toxicology. Dr. Speaker is a member of the Graduate Group in Pharmacology, University of Pennsylvania.

Joseph F. Spear, Ph.D., received his Ph.D. degree in physiology from the University of Pennsylvania. In 1970 he received joint appointments as instructor in physiology in the Medical and Veterinary Schools. Dr. Spear became associate professor of physiology in the Veterinary School in 1975, and professor in 1979. He holds a joint appointment in the Medical School and is a member of the Graduate Groups in Physiology, and Comparative Medical Sciences of the Faculty of Arts and Sciences, University of Pennsylvania. Dr. Spear serves on many committees in the Veterinary School, and is very active in continuing education programs in both the Veterinary School and at other institutions. His primary research includes the study of cardiac arrhythmias using electrophysiologic techniques. One study, in collaboration with the cardiovascular section of the Hospital of the University of Pennsylvania involves electrophysiologic studies on diseased cardiac tissues removed from human patients at the time of cardiac surgery. Another investigation focuses on the use of canine models of arrhythmias associated with the acute and chronic phases of myocardial infarction. Dr. Spear has published over ninety scientific papers.
Sheldon A. Steinberg, V.M.D., D.M.Sc., is a 1959 graduate of the Veterinary School. In 1968 he received his D.M.Sc., degree from the Division of Graduate Medicine, School of Medicine, University of Pennsylvania. Dr. Steinberg was appointed assistant instructor of medicine in the Veterinary School in 1960. He became assistant professor in 1964, and chief, Section of Neurology, in 1965. From 1972 to 1973 he was a Dorothy Harrison Eustis Fellow and spent the year on sabbatical leave at the Institut fur Vergleichende Neurologie, University of Bern, Switzerland. Dr. Steinberg became professor of neurology in 1976, and in 1978 was visiting professor, Department of Comparative Medicine, Ben Gurion University, Beersheba, Israel. Since 1965 he has been director of nursing in the Harcum Junior College/School of Veterinary Medicine Program; this a program for training veterinary technicians. Dr. Steinberg's research involves the characterization of spontaneous nerve and muscle disease in animals, the interaction of pets and society, and the diagnosis of central nervous system tumors. He is a member of the Graduate Group in Comparative Medical Sciences, and has served on a number of University and Veterinary School committees, including the University Council. Since 1977, Dr. Steinberg has been the affirmative action officer for the Veterinary School, and during 1980 to 1982 he was chairman, Committee for Intercollegiate Athletics of the University. He is accredited by the American College of Veterinary Internal Medicine, and is a member of the American Veterinary Neurological Association, which he served as president in 1975. Dr. Steinberg has delivered twenty-two invited lectures, and he has published twenty-two scientific articles and authored chapters in three books.

Elizabeth A. Stone, D.V.M., M.Sc., graduated in 1976 from the School of Veterinary Medicine, University of California, Davis, and earned her masters degree in 1980 from the Department of Physiology and Pharmacology, University of Georgia, Athens, Georgia. Beginning in 1976 she was an intern and resident in medicine and surgery at the University of Georgia, and in 1980 she joined the Veterinary School faculty as assistant professor of surgery. Dr. Stone received an appointment as visiting research assistant professor (thrombosis research), in 1981, at Temple University Medical School, Philadelphia. In the relatively short time that she has been at the Veterinary School, she has been active on a number of committees, and in 1983, became Secretary of the Faculty. Dr. Stone was certified by the American College of Veterinary Surgery in 1982, and is a member of the Society of Veterinary Urology and the Veterinary Cancer Society. She serves on the editorial review board Veterinary Surgery. Dr. Stone's primary research areas are in studies on thrombosis, investigation of renal changes secondary to pyometra in the dog, and the surgical approach to ureterocolonic anastomosis in the dog.

Bert E. Stromberg, Jr., M.A., Ph.D., received his masters degree in zoology from the University of Massachusetts in 1968, and earned his doctorate degree in parasitology from the University of Pennsylvania in 1973. In the same year he joined the faculty of the Veterinary School as associate in parasitology, and in 1974 became assistant professor. Dr. Stromberg was a member of the Graduate Group in
Parasitology and taught both veterinary and graduate students. He served on several important committees in the Veterinary School and from 1978 to 1979 he was secretary of the faculty. Dr. Stromberg’s research centered on immunoparasitology, and before leaving the School in 1979 he had published thirty-four scientific papers and abstracts.

Richard M. Thorn, Ph.D., is assistant professor of viral oncology and participates in the research program of the Comparative Leukemia Studies Unit at New Bolton Center. His special field of work is in immunology. Dr. Thorn received his doctorate degree (immunology) from the University of Pennsylvania in 1974 and from 1976 to 1979 he was staff scientist, Immunobiology and Physical and Chemical Carcinogens Project, Frederick Cancer Research Center, Frederick, Maryland.

Donald E. Thrall, D.V.M., M.S., Ph.D., received his veterinary degree from Purdue University, West Lafayette, Indiana in 1969, and was granted his masters and Ph.D. degrees in radiation biology from Colorado State University in 1971 and 1974 respectively. From 1969 to 1974 he was an instructor and resident in radiology at Colorado State University and from 1974 to 1976 he was assistant professor in the College of Veterinary Medicine, University of Georgia. Dr. Thrall joined the faculty of the Veterinary School in 1976 as assistant professor of radiology and in 1977 received a joint appointment as assistant professor of radiation therapy in the Medical School, University of Pennsylvania. Dr. Thrall remained at the Veterinary School until 1981 and carried out some excellent research on the use of radiation therapy for treatment of tumors. When he left the faculty he had published about forty scientific papers and had prepared chapters for eight books.

Victoria Voith, D.V.M., M.Sc., Ph.D., received her veterinary degree from Ohio State University in 1968. In 1970 she received an M.Sc. degree in animal behavior from Ohio State and in 1975 an M.A. degree in psychology from the same school. In 1982 Dr. Voith was granted a Ph.D. degree by the University of California at Davis. In 1972-1973 she was director and leader of East African Field Trips under the aegis of Capital University, Columbus, Ohio. Dr. Voith’s research is in the fields of animal behavior and human companion animal interactions. She is in charge of the Animal Behavior Clinic of the Veterinary Hospital of the University of Pennsylvania. Dr. Voith has twenty-two publications to her credit and is currently instructor in veterinary medicine.

Wilfried T. Weber, D.V.M., Ph.D., received his veterinary degree from New York State Veterinary College, Cornell University in 1961 and his Ph.D. degree from the University of Pennsylvania in 1966. In 1961 he was appointed assistant instructor in medicine in the Veterinary School. In 1962 his appointment was changed to assistant instructor in pathology and in 1966 he became assistant professor. Dr. Weber was appointed professor of pathology and in 1977 and became head of the Laboratory of Pathology. From 1978 to 1983 he was acting chairman, Department of Pathobiology and in 1983 he became chairman. Dr. Weber is a member of the Graduate Groups in Pathology, Parasitology, Comparative Medical Sciences, and Immunology, and serves on a number of Veterinary School and University committees. From 1976 to 1978 he served on the University Council. He has trained over thirty graduate students and his contributions as a teacher have been recognized through the Norden Award for Distinguished Teaching in both 1971 and 1978, and the Lindback Award by the University of Pennsylvania in 1975. Dr. Weber’s areas of research involve studies of lymphocyte functional capacity and the immunopathology of cancer. He has published about fifty scientific papers and abstracts. Dr. Weber is on sabbatical leave at the Basel Institute of Immunopathology, Switzerland, for the year 1983-1984.

Donald W. Webert, D.V.M., M.Med.Sc., received his veterinary degree from the School of Veterinary Medicine, Washington State University in 1961 and in 1970 earned his masters (veterinary epidemiology, biomedical engineering) from the Graduate School of Medicine, University of Pennsylvania. From 1961 to 1963 he was research veterinarian at the National Animal Disease Laboratory, Ames, Iowa, and from 1963 to
1965 he was engaged in meat inspection. Dr. Webert was appointed instructor in epidemiology and public health in 1969 and in 1971 was promoted to assistant professor. He served in this position until 1979 when he left the faculty.

David J. Weiner, M.S., Ph.D., received his masters and doctorate degrees in parasitology from the University of Florida, Gainesville. From 1972 to 1976 he was a postdoctoral trainee in the Veterinary School and in 1976 became assistant professor of parasitology. In 1979 Dr. Weiner received a joint appointment in the Graduate School of Arts and Sciences. He is active on a number of Veterinary School committees and in 1979-1980 served as secretary of the faculty. Dr. Weiner is presently chairman of the Seminar Committee for Parasitology and in addition to teaching core and elective courses for veterinary students he is responsible for graduate training and participates in the Continuing Education Program. He is a member of the American Institute of Biological Science, the American Society of Parasitologists, the American Heartworm Society, the Pennsylvania Academy of Science, and the New Jersey Society of Parasitologists. Dr. Weiner’s main areas of research involve studies of the host-parasite relationship in filarid infections and the immunodiagnosis of helminth infections. He has published over thirty scientific papers and abstracts and has prepared chapters for two books. Dr. Weiner has presented twelve invited lectures.

Dr. Leon P. Weiss, M.D., joined the faculty in 1975 as professor of cell biology and chairman, Department of Animal Biology. He received his medical degree from Long Island College of Medicine in 1948, and from 1950 to 1952 was a postdoctoral research fellow in the Department of Anatomy, Harvard Medical School. From 1953 to 1955 Dr. Weiss served in the U.S. Army Medical Corps, and from 1957 to 1975 he was assistant professor, associate professor and professor of anatomy at Johns Hopkins University Medical School, Baltimore, Maryland. In 1982 Dr. Weiss was named the Grace Lansing Lambert Professor of Cell Biology, the first occupant of this endowed chair. He holds a joint appointment as professor of Medicine (division of hematology) in the University of Pennsylvania Medical School. Dr. Weiss is an excellent teacher and an exacting researcher. His teaching contributions have been acknowledged through the Norden Award for Distinguished Teaching in 1980, and the prestigious Lindback Award by the University of Pennsylvania, in 1982. He has served as editor or on the editorial board of a number of scientific publications including *Histology*, 5th Edition (Elsevier, North Holland, 1982). Dr. Weiss is active on a number of Veterinary School and University committees. In 1981 he received the unique distinction of being elected an honorary member of the Pennsylvania Veterinary Medical Association. He has prepared chapters or sections in over one dozen books and has published about eighty scientific papers.

Robert H. Whitlock, D.V.M., Ph.D., received his veterinary degree from Cornell University in 1965, and until 1967 was an intern and resident in the Department of Large Animal Medicine, Obstetrics and Surgery in this institution. During the period 1967 until 1970 he was a National Institutes of Health trainee and then special postdoctoral fellow in nutritional pathology at Cornell University. In 1970, Dr. Whitlock received his Ph.D. degree.

Dr. Whitlock was assistant professor of medicine in the New York State Veterinary College at Cornell from 1970 until 1972, and from 1972 until 1973 he was visiting scientist in the Department of Functional Pathology, Compton, Berkshire, England. He returned to Cornell in 1973 and served as assistant professor of medicine until 1976 when he went to the School of Veterinary Medicine, University of Georgia, as associate professor of medicine and pathology. In 1978 Dr. Whitlock joined the faculty of the Veterinary School as associate professor of medicine and in 1982 became professor. From 1978 until the present he has served as chief, Section of Large Animal Medicine, at New Bolton Center. Dr. Whitlock is a diplomate of the American College of Veterinary Internal Medicine, and served as president of this group for 1982-1983. He is a member of the American Association of Veterinary Clinicians, the American Association of Equine Practi-
tioners, the American Association of Bovine Practitioners, and the American Association of Veterinary Clinical Pathologists. He served as president of the Comparative Gastroenterology Society for the years 1982-1983. While at Cornell University, in 1972, he received the Norden Distinguished Teaching Award. Dr. Whitlock has served on a number of Veterinary School committees and is active in many professional organizations. He maintains a very active speaking schedule at professional meetings and participates in the Continuing Education Program. Dr. Whitlock’s research focuses on comparative gastroenterology and especially on diarrheal diseases of horses and cattle. He has prepared chapters in three books and has published nearly seventy scientific papers and abstracts.

Tadeusz J. Wiktor, D.V.M., earned his veterinary degree, in 1946, at the National Veterinary College, Alfort, France. In 1961 he joined the Wistar Institute, an affiliate of the University of Pennsylvania, as associate member. In 1967, Dr. Wiktor received an appointment as associate professor of epidemiology and public health in the Veterinary School. He became Wistar Institute Professor of Epidemiology and Public Health in 1974 and serves in this capacity on the Veterinary School faculty. In recent years Dr. Wiktor has investigated the antigenic variants amongst different strains of rabies virus.

Wesley C. Wilcox, M.S., Ph.D., is professor of microbiology and head, Laboratory of Microbiology. He received his masters degree from the University of Utah, Salt Lake City, in 1955, and his doctorate degree in 1958 from the University of Washington, Seattle. From 1960 to 1963, Dr. Wilcox was associate in microbiology and then assistant professor in the School of Medicine, University of Pennsylvania. From 1963 to 1964, he was associate professor of microbiology at the School of Medicine, University of Vermont, Burlington, and in 1964 was named professor in the Veterinary School. Dr. Wilcox is chairman of the Graduate Group for Microbiology in the Faculty of Arts and Sciences, University of Pennsylvania and serves as director, Diagnostic Bacteriology Service in the Veterinary School. He carries a heavy teaching load in both core and elective courses and in teaching graduate students. He is active on many major committees in the Veterinary School, and serves on the International Advisory Committee on Nomenclature of Adenovirus Subunits. Dr. Wilcox’s field of research for a number of years has involved studies on the genetic expression of certain herpes virus proteins active in eliciting defense mechanisms in the host.

Benjamin Wolf, M.S., Ph.D., joined the faculty in 1959 as instructor in microbiology and has been professor of microbiology since 1973. He earned his masters degree in bacteriology from the University of Michigan in 1949, and his Ph.D. degree (microbiology) from the University of Pennsylvania in 1959. From 1959 until 1962 Dr. Wolf was a Pennsylvania Plan Scholar, and from 1962 until 1972 he was the recipient of a Research Career Development Award from the National Institutes of Health. In 1970 he spent nine months at Cambridge University, Cambridge, England where he did research on the expression of immunoglobulin allelic markers on the surface of lymphocytes. In 1980, Dr. Wolf was awarded a Fogarty International Fellowship, and spent six months at the University of Birmingham, Birmingham, England where he performed research on latent allotypes in rabbits. He serves on the Graduate Groups in Immunology, Parasitology, and Microbiology and teaches core and elective courses on immunology to veterinary students. Dr. Wolf’s present research includes the activation of latent immunoglobulin genes by Trypanosome infection as a means of studying immune regulation, and the induction of rheumatoid factors by injection of cartilaginous collagen. He has published about forty scientific papers.

Jeffrey A. Wortman, V.M.D., Ph.D., graduated magna cum laude from the Veterinary School in 1969, and earned his Ph.D. degree, in 1979, from the School of Medicine, University of California, Sacramento. From 1971 until 1976 he served an internship and residency at the School of Veterinary Medicine, University of California, Davis. In 1976 he received joint appointments of assistant professor of radiology in the College of Veterinary
Dr. Wortman joined the faculty of the Veterinary School in 1982 as assistant professor of radiology. He is a diplomate of the American College of Veterinary Radiology, and is a member of the Society of Nuclear Medicine, and the American Association of Veterinary Clinicians. Dr. Wortman has published over fifteen scientific papers.

The group of individuals who serve in adjunct or research positions continue to add great strength and diversity to the faculty. In many cases these individuals bring to the School special areas of expertise that are not represented on the regular faculty. The following listing also contains individuals who served in full-time positions for short period of time. In general, residents and interns are not listed.

**Anatomy**


**Animal Reproduction**


**Biochemistry**


**Biomechanics**


**Cardiology**

Cytology

Dermatology

Epidemiology and Public Health

Medical Genetics

Medicine

Microbiology
Walter K. Butterfield, M.S., Ph.D., adjunct associate professor of microbiology,

Neurology

Nutrition

Oncology

Ophthalmology

Parasitology

Pathology

Pharmacology

Physiology

Radiology

Research, General

Surgery