

**Five Year Plan
1986-1990**



University of Pennsylvania
School
of
Veterinary Medicine

To the University Community

The following document is the second in the series of School five-year plans to be published For Comment. This draft has been considered by the Academic Planning and Budget Committee, as well as by the University administration, and it will be revised periodically by the School. Readers are urged to bear in mind the University tenets on future scale, which can be found in "Choosing Penn's Future."

Comments concerning this draft should be sent to Dean Robert R. Marshak at the School of Veterinary Medicine, 110 Veterinary/6008.

—Sheldon Hackney, President

—Thomas Ehrlich, Provost

Preface

This document is the five-year plan of the School of Veterinary Medicine. It reports on the future of the School and aims at maintaining our leadership position in the field.

This plan represents a consensus of our Faculty. Each of the chairmen prepared a report for his Department after receiving a report from each Laboratory/Section within his Department. Those activities of the School which are interdepartmental, as the Library, Graduate Groups, Financial Planning and Computers, Centers, Admissions Committee, have plans drawn by their Directors or appropriate spokesmen and were submitted as detailed appendices.

In presenting our plan and supporting data, we remind the reader of Rene Dubos' admonition that "Sometimes the more measurable drives out the most important."

School of Veterinary Medicine Five Year Plan: 1986-1990

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I. An Overview of the School and the Profession

A. The Mission

The University of Pennsylvania's School of Veterinary Medicine, one hundred years old in 1984, leads and molds the education and practice of veterinary medicine in the nation and the world.

Our School has pioneered in the development of veterinary clinical specialties and clinical investigation, in comparative medicine, and in the development of such new fields as aquatic animal medicine, and animal/-human interactions. We have successfully integrated scholarship and research into all aspects of veterinary medical education and we supply disproportionately high numbers of faculty nationwide to veterinary schools and other medical institutions. We have made continuous and significant contributions to basic and clinical research and have trained large numbers of students and faculty as biomedical research scientists. We have led the way in curriculum development, as exemplified most recently by the School's unique core/elective curriculum, and we were the first to create programs in continuing education for American practitioners. We have maintained a professional and loyal relationship with our alumni and have established strong bonds with important agricultural associations, humane societies, dog breeders, horse breeders, and other organizations and individuals concerned with animals and animal welfare. We have established a Center for the Interaction of Animals and Society in an effort to bring to the veterinary profession a heightened awareness of the social, behavioral, and cultural interactions of animals and human beings. In collaboration with the School of Social Work we provide in our Small Animal Hospital the first social work services in veterinary medicine.

We possess both a rural (New Bolton Center) and an urban campus and, owing to our biological breadth and our medical disciplines, we enjoy a special role in the University, interacting in significant ways with the Schools of Arts and Sciences, Medicine, and Dental Medicine. And, by steadfast attention to the traditional concerns of veterinary medicine, we provide, on a regional basis, the most advanced level of veterinary care and services.

As we face the future, we see extraordinary opportunities for a greater role in the mainstream of American life. Working with the livestock and poultry industries, we strive to increase the numbers and improve the health and productivity of food animals to help meet the nutritional requirements of the more than six billion people who will inhabit the earth in the year 2000. As society has become increasingly sensitive and demanding about the quality of our foods and increasingly intolerant of potentially dangerous food additives and of poisons which contaminate and defile the environment, veterinary medicine has come to assume greater responsibility and greater leadership in preventive medicine and public health.

Today, more than half the families in the United States own a pet, millions of citizens derive pleasure from horses and other sporting animals, and we are increasingly aware that, beyond companionship, pet animals may in some fundamental way protect against somatic disease and early death. As a people, we have become more accepting of our animal nature and of the fundamental qualities that unite all animals. Among other things, this has led to a vigorous animal rights movement, one element of which clearly aims to eliminate the use of animals in biomedical research. Thus, the ancient profession of veterinary medicine has responsibility for the delivery of medical care to our animal populations and for guiding society through the highly politicized thicket of animal rights vs. scientific need, to a sensible and appropriate value system on how animals may be used.

Despite austere financial circumstances and the realization that veterinary medicine lacks the third party payments and subsidizations taken

for granted in other medical cultures, we believe that our School is on the threshold of its most productive era and that we must continue to take broad responsibility for matters relating to the health and welfare of animals and man. We shall continue to amplify our contributions:

- to the health care and protection of food and fiber producing animals, companion and sporting animals, and laboratory animals;
- to the health care, protection and preservation of zoo animals and wildlife, including aquatic species;
- to the diagnosis, surveillance and control of diseases transmissible from animals to man, and to protection against environmental hazards which threaten animal and human health and safety;
- to the health aspects of production, processing and marketing of foods of animal origin;
- to veterinary, comparative and fundamental biomedical research and the application of research findings to animal and human health needs; and
- to expansion of veterinary medical interests, encompassing virtually every significant aspect of the interactions of animals with human beings and with the environment.

Stated in simplest terms, the academic goals of the School of Veterinary Medicine are to:

- train a highly qualified body of general practitioners, appropriate numbers of specialists, and biomedical scientists equipped to meet society's present and future needs;
- create new knowledge through fundamental and applied biomedical research, including behavioral research, with particular emphasis on diseases of domestic animals and on animal homologues of human disease through continuing development of the School as a center for comparative medicine;
- develop and maintain facilities and systems for the delivery of veterinary medical services on a regional basis, especially highly sophisticated care not generally provided by veterinarians in private practice;
- offer quality continuing education programs aimed at refreshing and advancing the knowledge and skills of practicing veterinarians; and
- broaden the contributions of veterinary medicine to society through the development of new disciplines and specialties—for example, aquatic veterinary medicine, veterinary dentistry, veterinary social work, and advanced animal technician training.

B. Organization and Curriculum

The Veterinary School is organized into departments. But instead of the dozen or more departments characteristic of most schools of medicine and veterinary medicine, this School has but four: Animal Biology; Pathobiology; Clinical Studies (Philadelphia); Clinical Studies (New Bolton Center). Each of our departments is subdivided into Laboratories or Sections. Animal Biology, for example, has four Laboratories: Anatomy, Biochemistry, Physiology, and Pharmacology/Toxicology. Each Laboratory represents a traditional biomedical discipline. They were joined into one Department because several of the Laboratories were too small to justify full departmental status and because, owing to overlapping interests, available resources can be utilized more efficiently. Each of the Laboratories has a Head (in the Clinical Departments, a Chief of Sections) appointed on a yearly basis by the Dean on advice of the Chairmen. With only four Chairmen, the Veterinary School Administration (Dean, Associate Deans, and Chairmen) is relatively small and efficient. And as Heads of Laboratories or Section Chiefs share administrative responsibilities with their respective Chairmen, significant time is left to Chairmen for scholarly work and nondepartmental affairs.

The School has always led the way in veterinary curriculum development. This is exemplified most recently by a unique (among veterinary schools) core-elective system which is adapted to the diversity of backgrounds and career goals of individual students. It avoids the lock-step of

a traditional curriculum and provides each student with his/her individual program. It permits significant expansion of the School's educational program through the utilization of elective opportunities.

All students are required to complete a set of 50 core courses—foundation courses deemed essential for the education of a veterinarian. Students build on this foundation by selecting appropriate electives. There are approximately 100 organized electives to choose from. This enables students: to sample subject matter which is often unavailable in a traditional curriculum; to emphasize subjects which best fit their career goals; and to make better informed career decisions.

The core-elective curriculum favors student research, and Pennsylvania was the first veterinary school to offer a combined degree program (V.M.D.-Ph.D.) and is the only veterinary school to receive NIH grants for its V.M.D.-Ph.D. program. In cooperation with the Wharton School, veterinary students may also enroll in a combined V.M.D.-M.B.A. program, the only one of its kind in existence.

The core-elective curriculum encourages faculty to develop new courses. The independent study option, for example, often leads to a new structured elective as both students and faculty discover the broader benefits of a particular independent study offering. Further, as a significant body of new knowledge is generated in a particular field, or as new biomedical sub-disciplines emerge, they are easily incorporated into the curriculum as electives. There are numerous examples: veterinary dentistry, laboratory animal medicine, aquatic animal medicine, animal health economics, and the interaction of animals and society.

The Veterinary School faculty also participate in undergraduate courses, e.g. in anthropology, astronomy, microbiology, the biological basis of behavior, and the honors programs. A significant number of undergraduate students interact with veterinary faculty and students in the School's research programs and teaching hospitals where, for example, they volunteer for work in the Hospitals' Emergency Rooms.

The Faculty's contributions to graduate and post-doctoral training have significantly increased over the years and the Graduate Groups in Pathology, Comparative Medicine, and Parasitology are currently chaired by Veterinary School professors.

C. Outstanding Characteristics

As the School of Veterinary Medicine enters its second century, it hopes to maintain its top position among the world's veterinary schools. Many factors have contributed to the School's present stature. Among these are:

- An outstanding faculty, many of whom are recognized as world authorities in their fields. We were the first veterinary school in the United States to have an endowed chair and we now have eleven such chairs, more than any other veterinary school. The most recent chair, in Humane Ethics and Animal Welfare, is the first of its kind in the nation.

- An outstanding student body from very diverse backgrounds. Student data for each of the past five years is presented in Table I.

- The emergence of the School as an international center for comparative medical research. Many faculty are continuously involved in studies that not only improve animal health, but also make important contributions to human health. Noteworthy are the development and study of animal models of human disease by the Comparative Cardiovascular Studies Unit, the Section on Medical Genetics, the Laboratory of Parasitology, the Laboratory of Experimental Hematology and Cell Biology, and the Bovine Leukemia Research Unit.

- The strong commitment of the School to the basic sciences. The Laboratory of Parasitology is internationally known for its work in immunoparasitology; the Laboratory of Anatomy has a group of outstanding neuroscientists and cell biologists; the Laboratory of Biochemistry is noted for its investigations of biochemical phenomena associated with muscle contraction and carcinogenesis. The Physiology group is known for its work in cardiovascular physiology and for the world's foremost laboratory for the introduction of new genes into mammalian species.

- The development of New Bolton Center as the world leader in equine surgery and medicine and in food animal medicine and animal health economics.

- The School's responsiveness to the changing responsibilities of the profession and to the diverse career opportunities now open to our graduates in such fields as public health and environmental medicine (including toxicology), in laboratory animal medicine, epidemiology and animal health economics, in aquatic veterinary medicine and aquaculture, in embryo transfer, in zoo and wildlife medicine, in the behavioral sciences (including animal/human interactions), in comparative medical research, in the rapidly expanding field of biotechnology, and in the various clinical specialties. To meet these

demands, we have created a special summer course in aquatic veterinary medicine (Aquavet) at Woods Hole and we have established a Center for the Interaction of Animals and Society. In recent years the faculty at New Bolton Center have focused the attention of the profession and the agricultural community on the need to improve the productive efficiency of the nation's animal industries. To meet the challenge, we have created a Center for Animal Health and Productivity. The mission of the Center is to develop, implement and evaluate on-farm programs for the prevention of disease and for improvement of productivity in herds and flocks at a level of excellence and sophistication already reached in the diagnosis and treatment of individual sick and injured animals in the Large Animal Hospital. The Center serves to integrate and amplify the School's current commitment to food animal medicine and provides a focus for expansion.

The approach is interdisciplinary. Existing expertise in such disciplines as Clinical Nutrition, Reproduction, Large Animal Medicine, Mammalian Pathology, Poultry Pathology, Parasitology, Epidemiology, Health Economics, and Computer Science, is being integrated to provide exemplary teaching programs in food animal preventive medicine for veterinary students and in continuing education for large animal practitioners. We are establishing integrated outreach programs to improve herd health and productivity, field investigations of serious herd and flock disease outbreaks, and research investigations to solve important problems related to herd health and productivity.

These activities are being coordinated with the College of Agriculture at the Pennsylvania State University to avoid duplication of efforts and to focus on problem-solving on a state-wide or regional basis.

Funding is available or being sought for three separately identifiable programs within the Center. While each program can exist as a "stand-alone" entity, the three together form an integrated whole with clear linkages among them and with programs at other institutions, particularly Penn State and the Pennsylvania Department of Agriculture. The three programs are:

(1) Training and Applied Research in Epidemiology and Food Animal Health Economics. (The Center has a \$300,000 per year epidemiology and health economics training grant from the Pennsylvania Department of Agriculture.)

(2) A Computer Network Facility at New Bolton Center (a \$275,000 grant from the Pennsylvania General Assembly).

(3) Field investigations of disease outbreaks or productivity problems that threaten the economic viability of farms.

Table I
School of Veterinary Medicine Enrollment

I. 1981-82 Academic Year		II. 1982-83 Academic Year	
1. Total enrollment	429	1. Total enrollment	441
2. Pennsylvania students	284	2. Pennsylvania students	293
3. Contract students	123	3. Contract students	117
4. Number of men	228	4. Number of men	223
Number of women	201	Number of women	218
5. Number of minority students	23	5. Number of minority students	27
6. Mean GPA at matriculation	3.30	6. Mean GPA at matriculation	3.42
III. 1983-84 Academic Year		IV. 1984-85 Academic Year	
1. Total enrollment	436	1. Total enrollment	436
2. Pennsylvania students	295	2. Pennsylvania students	297
3. Contract students	109	3. Contract students	102
4. Number of men	208	4. Number of men	190
Number of women	228	Number of women	246
5. Number of minority students	26	5. Number of minority students	23
6. Mean GPA at matriculation	3.30	6. Mean GPA at matriculation	3.41
V. 1985-86 Academic Year			
1. Total enrollment	437		
2. Pennsylvania students	293		
3. Contract students	112		
4. Number of men	171		
Number of women	266		
5. Number of minority students	22		
6. Mean GPA at matriculation	3.46		

Because agriculture is Pennsylvania's largest industry, and because epidemics such as avian influenza and rabies have heightened state government's awareness of the economic dangers of devastating animal disease outbreaks, future funding prospects are excellent. To meet the growing need for veterinarians with a business background, we have the Wharton School V.M.D.-M.B.A. program. Individuals with this combined expertise are invaluable in dealing with problems of agro-economics and in improving the management of veterinary practices.

At New Bolton Center the faculty is establishing a fully staffed computer facility which physically links and functionally integrates the academic and service operations of the Center, communicates with the University and statewide agricultural and diagnostic computer network systems, and provides access to computerized diagnostic and herd health management information systems to veterinary practitioners and farmers.

Computer work stations are being installed in each of the academic sections, clinical service units, administrative offices and student classrooms to be hardwire networked into an integrated system of central processing, data storage and communication units of sufficient size and power to meet projected computing requirements for the foreseeable future.

Software is being developed to automate the operations of hospital services, including medicine, surgery, anaesthesiology, radiology, clinical laboratory, microbiology, pathology, pharmacy, and outreach services

(including field service, nutrition, reproduction, epidemiology and health economics), and the poultry diagnostic unit. All services involved with a clinical case or herd health problem enter information into a common data base. These data then become accessible for case management, for disease surveillance and for retrospective statistical analyses, and are compatible with Commonwealth diagnostic information systems. Teaching applications will include computerized tutorials of topics in veterinary medicine, interactive video and expert systems programs for diagnostic and therapeutic management. Research applications include computerized literature searching, experimental design, data capture and reduction, statistical and mathematical analysis, and generation of scientific reports.

The facility enables New Bolton Center to assume a leadership role in the integrated applications of computer technology in large animal veterinary medicine. It significantly enhances the faculty's ability to communicate knowledge to veterinary students and practicing veterinarians, to improve and expand the School's ability to serve the agricultural community, and to facilitate the discovery of new knowledge related to the diagnosis and management of diseases of domestic animals.

A similar computer network has been established on the School's Philadelphia campus.

Both networks are designed to be compatible with the University-wide computer spine. This will increase greatly the computing capabilities of our educational and research programs and business operations.

II. Concerns

A. Admissions, Tuition and Financial Aid

Tuition for veterinary students is a grave concern, particularly in view of a declining applicant pool (Chart I). Penn students pay tuition and fees roughly two and a half times the median for all veterinary schools in the United States. It is not surprising, then, that approximately three quarters of our students require some form of financial aid. Many graduate with heavy debt burdens. With increasing educational costs and the decline in traditional sources of aid, we are concerned about our ability in the long run to attract outstanding students. The median loan debt of fifty members of the 1985 graduating class was approximately \$40,000. This figure is alarming when one considers that the average starting salary of veterinary practitioners is about \$21,000. Even established private practitioners do not enjoy the advantages and facilities of a large nonprofit hospital, as in human medicine; typically, practitioners must build their own hospitals and are obliged to finance and manage them while practicing veterinary medicine.

B. Understaffing

While we have been creative and innovative, we continue to have certain unacceptable deficiencies in staffing. We have so few faculty in anatomy, cell biology, pathology, pharmacology and some clinical disciplines that our teaching and service missions are continually at risk. Indeed, there are deficiencies in every department. While we clearly recognize that growth in faculty can only be achieved if the University's financial exposure is not increased, some expansion of the faculty is not merely desirable, it is essential if the School is to meet the needs of its students, provide state-of-the-art medical care for its patients, remain competitive with other veterinary schools, and maintain its premier status.

C. Research and Graduate Training

In the Gramm-Rudman environment, we are concerned that traditional sources of support (for example, the annually awarded Biomedical Research Support Grant) may disappear or diminish. This would adversely affect: start-up research projects for new faculty; our ability to respond to unique research opportunities; interim support during temporary lapses in grant support; and research training for graduate students, postdoctoral fellows and residents.

D. Library

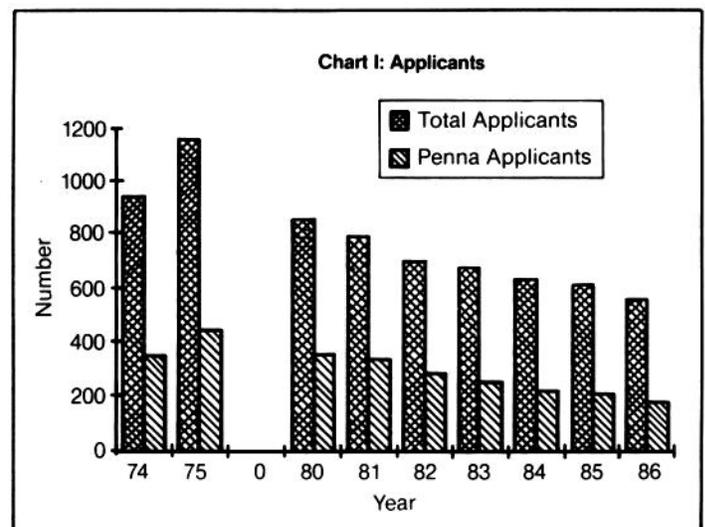
The C. J. Marshall Library, built in 1964, is now much too small to meet the needs of the School's expanded faculty and student body. A

regional resource, it also serves the general biomedical community and practicing veterinarians of the entire mid-Atlantic region as well as many other groups, e.g., part-time faculty, interns and residents; zoo personnel; livestock, poultry, horse and companion animal owners and breeders; the Pennsylvania Department of Agriculture; pharmaceutical companies; and the armed forces.

Two areas of primary concern are the seating capacity and the stack space.

In a report by the Association of American Medical Colleges entitled *The Health Science Library: Its Role in Education for the Health Professions*, it was recommended that a medical library should provide seating for 20 to 25 percent of the full-time student body, faculty and research staff and 10 percent of the part-time faculty and house staff. A Public Health Service Report, *Medical Education Facilities*, specifies that a medical library should provide seating for 25 to 50 percent of the total enrollment of students and others who need to use the library.

At the Veterinary School, less than fourteen percent of the student body can be accommodated at any one time and stack space for books and journals is now so completely filled that part of the collection has been moved out to other libraries on campus.



III. General Plan

A. Admissions, Tuition and Financial Aid

Obviously students admitted to Pennsylvania's Veterinary School are a dedicated and determined lot. There are still many applicants for each opening in the entering class, but the applicant pool has been decreasing each year since 1975 and we worry that many future students will hesitate to shoulder the enormous costs of education at our School. If we are to continue to attract outstanding students, more financial relief must be provided and, for the first time, we are planning a major recruiting effort.

The School proposes to establish a large scholarship fund to ensure that the most talented students will continue to be able to afford the type of veterinary medical education offered at Pennsylvania. This is a major goal of the Second Century Fund campaign. Other relief will have to come from Harrisburg through increases in our State appropriation. We believe that Pennsylvania's powerful agricultural interests will continue to press the General Assembly for future increases in our appropriation.

B. Curriculum Revision

The faculty remains committed to the core-elective curriculum now in its sixteenth year, because of its basic soundness and because it can be modified readily to meet contemporary and future needs. In 1981, faculty and students participated in a three-day retreat to review the curriculum's structure and content. Student-Faculty committees established then continue to work on ways to improve the curriculum, addressing such matters as redundancy, the ratio of core to elective courses, the incorporation of new essential material into core courses, increased clinical exposure early in the curriculum, and ways to reduce student stress.

The faculty believes that the ratio of required to elective courses should be increased to reflect the emergence and maturation of such new fields as molecular genetics and to incorporate into the core, elective courses which supply new essential knowledge.

C. Research and Graduate Training

Among the goals of the Second Century Fund campaign is a \$2 million endowment fund for research and graduate training.

D. Growth

Before describing plans for modest growth, it is well to address certain factors, past and present, which have a direct bearing on the School's future.

In October, 1983, the University Trustees approved a five-year Second Century Fund campaign, with a \$41.5 million goal. At the end of two and a half years, over half this sum has been raised and prospects for the remainder are considered favorable. The campaign has as its central goal a significant increase in the School's endowment. Indicative of the success and future promise of the campaign are three new endowed chairs.

During the last eight years, we have increased our state appropriation 186.1 percent, as compared to 22.4 percent for the rest of the University. As the only veterinary school in the Commonwealth, we enjoy the enthusiastic support of agriculture, Pennsylvania's largest industry. Owing to this support and to the support of members of the General Assembly, we have done better in recent years than state-owned or state-related colleges or universities. Indeed, in President Hackney's 1986-87 budget request to the State, he asks for an increase in the Veterinary School appropriation of 13 percent as compared to 9.5 percent for General Maintenance, Medical Instruction, and Dental Clinics.

Our School, with unique non-competing and extremely wealthy constituencies, e.g., the equine industry and the dog fancy, has an outstanding record of private sector support. During the University's five-year *Program for the Eighties* campaign, which concluded in 1980, the School established a goal of \$11 million, but in fact raised nearly \$19.5 million, exceeding its goal by a greater percentage than any other part of the University. Trustee approval for a \$41.5 million, five-year Second Century Fund Campaign, announced publicly in October 1983, is clear evidence that the Veterinary School is regarded as having "great access to external resources."

The Veterinary School is the only school in the University with contracts from various state governments for the education of non-Pennsylvania residents. Non-residents comprise 30 percent of the student body.

The Veterinary School has attracted a significant percentage of the University's total grant funds from industry and this is only the beginning. Because it is likely that some of the biggest commercial payoffs from biotechnology research will come in agriculture, the Veterinary School, with its excellent basic science faculty, is in a strong position to exploit this prospect. Pennsylvania's most important genetic engineering contributions to date have come from the School of Veterinary Medicine.

Against a national trend, the Faculty of the Veterinary School has been increasingly successful in obtaining research monies and overhead from the NIH and other granting agencies (Table II). We have had a significant increment in support during the last two years.

To bolster our research enterprise and teaching programs, we have put in place a unit of Laboratory Animal Medicine, staffed by two veterinarians, both specialists in laboratory animal medicine. Adequate administrative and technical assistance has been provided so that, in addition to the Veterinary School, they service the research colonies in Biology, in the Dental School and in the School of Engineering and Applied Science.

Total revenues from our hospitals and clinical services (Table III) have increased over 80 percent during the past five years and we have been collecting 93 percent of our charges. In 1986-87, anticipated hospital/clinic income is expected to increase further by 10 percent. The potential for significant future increases in hospital income clearly exists and can be realized, in part, through the appointment of additional clinician-educators. The outlook for increased clinical income from our large animal operations has brightened further as a result of the recent opening of new equine training facilities near New Bolton Center. Between FY '81 and FY '86, the total case load has increased by 78 percent (Table III).

The Veterinary School is not among the University's tuition-driven schools. Only approximately ten to fourteen percent of our revenues are derived from tuition. It is more accurate to state that the Veterinary School's income is driven by its Commonwealth appropriation, its research enterprise and its clinical operations. Any significant increase in revenues from any of these sources is dependent largely upon some growth in the size of the faculty. The Commonwealth gauges the School's

**Table II: Five Year Financial Summary
Research And Other Restricted Funds
(Amounts Shown In Thousands of Dollars)**

	FY 1985	FY 1984	FY 1983	FY 1982	FY 1981
Revenues:					
Financial Aid					
Endowment	114	108	0	20	53
Gifts	102	55	37	44	107
Federal Sources	310	377	337	324	236
Other	13	0	81	5	2
Total Financial Aid	539	540	455	393	398
Grants And Contracts					
Federal	3260	2906	3126	2926	3160
Private	1514	1698	1382	1018	526
Other	663	340	258	308	270
Total Grants & Contracts	5437	4944	4766	4252	3956
Investments	288	419	370	1013	259
Gifts	1375	1392	1332	1563	1567
Sales & Services	37	48	34	0	-23
Miscellaneous	-34	-99	-2	0	22
Total Direct Revenues	7642	7244	6955	7221	6179
Expenditures:					
Compensation					
Academic Salaries	1565	1630	1631	1421	1410
Admin Salaries	787	579	449	639	383
Clerical Salaries	899	891	836	744	578
Service Wages	309	295	355	371	256
Total Salaries & Wages	3560	3395	3271	3175	2627
Employee Benefits	929	847	726	662	598
Total Compensation	4489	4242	3997	3837	3225
Current Expense	2867	2675	2489	3084	2463
Equipment	815	519	583	433	359
Expense Credits	-980	-633	-442	-398	-209
Financial Aid					
Undergrad Guarantee	77	50	0	1	6
Undergrad Special	0	0	0	0	0
Grad & Professional	374	391	328	264	335
Total Direct Expenditures	7642	7244	6955	7221	6179
Performance	0	0	0	0	0

value in terms of the size and quality of our services to agriculture; future research grant/contract income is dependent, in part, upon how well prepared we are in terms of scientific manpower to exploit veterinary medicine's special opportunities in biomedical research and biotechnology; and, obviously, the opportunity to increase clinical income is largely dependent on the manpower necessary to service a growing patient load.

These factors were all important in supporting the growth of the Veterinary School during the past three decades. In 1955, we had a full-time faculty of 34. At present, there are 124 full-time professorial positions (109 tenure-track, 15 clinician educators).

The following capital projects are under way, planned or contemplated.

Philadelphia

Under way or funded:

- (a) Animal facilities in Old Quad for transgenic research*
- (b) Lab animal facility renovations in Old Quad and Rosenthal Building (NIH compliance)*
- (c) Renovations for Pathobiology Research Laboratories in Old Quad*

Planned:

- (a) Library in south side Old Quad*
- (b) Conversion of existing library in Rosenthal Building to Administrative Services Center*

New Bolton Center

Under way or funded:

- (a) Intensive Care/Neonatal Unit¹
- (b) Infectious Disease Research Containment Unit¹
- (c) Lab Animal Facility Renovations (NIH compliance)*

Planned:

- (a) Contagious Disease Isolation Unit¹
- (b) Biomechanics Laboratory
- (c) Dairy Cattle Facility¹²
- (d) Radiology Unit¹
- (e) Hospital Barn(s)¹
- (f) Farriery¹
- (g) Diagnostic Unit¹²³
- (h) Eye Research Animal Facility¹

There are a number of considerations which support the faculty's position that the Veterinary School should grow modestly in the next five years. Among these are:

- Veterinary schools generally are in a period of sustained growth, developing many new specialties. A recent National Research Council study, published by the National Academy Press, pointed out that, although the number of board-certified veterinary specialists had increased steadily over the last decade, the total number of such specialists in the entire profession is still too small. The report recommends that "veterinary schools place more emphasis on the production of specially-trained veterinarians of all kinds, especially in those disciplines in which schools have particular faculty expertise." Persons in the fields of "clinical medicine, epidemiology, laboratory-animal science, microbiology, pathology, and toxicology" are "predicted to be most in demand." The report also recommends that schools of veterinary medicine "adjust their curricula, admissions criteria, and clerkship programs to meet societal needs in environmental health protection, food production and protection, economic productivity in animal-related industries, biomedical research, and animal welfare, as well as needs for clinical patient care of animals." The report goes on to recommend "that economic models be developed for the application of animal-health expertise to the livestock industries . . ." and that "multidisciplinary research involving veterinarians and agricultural economists should be encouraged." Extraordinary opportunities exist for the advancement of basic sciences and their application to patient care and to other practical spheres of the animal world. We will need some additional faculty in teaching and research to take advantage of these new opportunities. We are regarded among veterinary schools as leaders and innovators. In order to maintain this position, some growth is essential.

* Not expected to increase indirect costs.

¹ Income producing; will cover additional O & M.

² Partially funded.

³ To be funded by Commonwealth appropriation.

Table III: Five-Year Clinic History

(dollars in thousands)

	1980-81	1981-82	1982-83	1983-84	1984-85
Veterinary Hospital (Small Animal Hospital)					
Income:	1,414	1,743	2,063	2,284	2,598
Expense:	1,748	2,114	2,302	2,609	2,873
Surplus (Deficit)	(334)	(371)	(239)	(325)	(275)
Case Load:	17,598	18,956	20,462	22,348	23,589
George D. Widener Hospital for Large Animals					
Income:	1,957	2,118	2,348	2,855	3,495
Expense:	2,059	2,121	2,592	3,144	3,741
Surplus (Deficit)	(102)*	(3)*	(244)	(289)	(246)
Case Load:					
Equine	3,382	3,334	3,438	4,524	5,096
Bovine	519	530	557	558	526
Field Service (visits)	4,000	4,209	4,686	3,658	3,479
Total:	7,901	8,073	8,681	8,740	9,101

*restricted funds applied in these years.

- Our faculty is responsible for teaching all of the basic sciences and virtually all of the clinical disciplines taught in schools of medicine, but staffing in every Department is at bare-bones level, and some important disciplines are completely unrepresented.

- In addition to our teaching, research and service obligations in newly emerging specialties, the faculty must deal with many species on two separate campuses.

- We are continually pressured in our hospitals and clinical departments to expand existing services and to provide new services, particularly for Pennsylvania agriculture. When disease outbreaks occur among the Commonwealth's livestock or poultry populations, the agricultural community invariably turns to the School as its principal source of help. This is borne out by our recent experience in dealing with the devastating epidemic of avian influenza and with the appearance of a new, highly fatal disease of horses, Potomac Horse Fever. New Bolton Center's resources are severely strained by equine patients referred in for abdominal and other highly sophisticated surgical procedures, and we are in the forefront of work on the serious outbreak of rabies in Pennsylvania. Often we are at the breaking point in dealing with these problems.

We understand that in attempting necessary growth, we must remain realistic. We have struggled, and succeeded, in balancing our budget during the past eight years (Table IV)*. We know we must continue to be fiscally responsible in the difficult matter of maintaining our School at its present level, and in the very difficult matter of expanding our faculty to a more desirable level. Our major sources of revenue are the Commonwealth appropriation, hospital and clinic income, overhead on research grants, tuition, state contracts, and private gifts. We shall continue to work to enlarge our funding from each source, understanding that we have excellent prospects for large increments from some sources but not from others. Only with assured monies will we propose new appointments. And we plan most appointments at junior levels.

Over the next five to ten years, financial circumstances permitting, we propose to increase the present standing faculty** by six (low growth) to sixteen (high growth) professors.

* FY '81 to FY '85 data.

** 109 with tenure or in tenure track, and 15 clinician-educators.

**Table IV: Five-Year Financial Summary
Unrestricted Income And Expense
(Amounts Shown In Thousands Of Dollars)**

	FY 1985	FY 1984	FY 1983	FY 1982	FY 1981
Revenues:					
Tuition					
Undergrad Guarantee	15	13	20	19	22
Grad & Professional	3321	3178	2737	2337	2261
Special Fees	28	30	32	34	36
Total Tuition & Fees	3364	3221	2789	2390	2319
Investments	112	98	86	88	78
Gifts	335	282	373	194	170
Indir Cost Rec Grants & Contr	1279	1249	1162	963	1030
Indir Cost Rec Other	178	212	222	175	137
Sales & Services	6976	5962	5104	4800	5149
Contract Students	1151	1180	1200	1209	1296
Total Direct Revenues	13395	12204	10936	9819	10179
State Appropriation	9534	7984	7677	6902	5472
General University Program	1139	1195	1228	1013	608
Financial Aid	31	16	11	14	9
Intercenter Bank	-172	-195	-212	-208	-237
Total Revenues	23927	21204	19640	17540	16301
Expenditures:					
Compensation					
Academic Salaries	4815	4344	4023	4075	3414
Admin Salaries	2130	1991	1935	1639	1545
Clerical Salaries	2748	2304	2107	2096	1903
Service Wages	399	329	301	273	321
Total Salaries & Wages	10092	8968	8366	8083	7183
Employee Benefits	2906	2548	2077	1895	1834
Total Compensation	12998	11516	10443	9978	9017
Current Expenses	6354	5828	4785	4378	4791
Equipment	193	233	103	57	118
Expense Credits	-856	-743	-422	-919	-868
Financial Aid					
Undergrad Guarantee	4	5	8	5	6
Undergrad Special	0	11	11	0	0
Grad & Professional	93	103	75	61	136
Total Direct Expenditures	18786	16953	15003	13560	13200
Indirect Expenses	5141	4251	4637	4021	2959
Total Expenditures	23927	21204	19640	17581	16159
Performance	0	0	0	-41	128

IV. Prospects and Supporting Data

As in the past, we find that a multi-tiered planning strategy, using fixed and variable assumptions, works best for us. In this planning document, we present three possible scenarios, Cases A through C. Table V shows the assumptions used for each case and the resultant deficits or surpluses. The variables with the greatest effect are debt service, the Commonwealth appropriation, and expenses for salaries and benefits. These are followed closely by clinical income and allocated costs.

A and B represent the most likely cases. Salary and current expense increases are in the six to seven percent range and are closely matched by growth in aggregate income, even though a few items remain flat. Case A assumes that debt service will not be billed until 1988-89, but would cause problems then and in future years. A detailed breakdown of income and expenses for Case A are given in Table VI. In case B, by assuming a percentage point higher rate increase in clinical income and appropriation, coupled with a point less in compensation and current expense (compensation still increases at six percent), the School would have a small problem in 1986-87, but thereafter would begin to develop surpluses. In Case C, everything goes right. The 13 percent increase in appropriation requested by the University for 1986-87 is granted and, thereafter increases by 10 percent. Clinical revenue grows by 10 percent (it has exceeded that rate during the past two years) and most expenses increase by only six percent. This situation would produce surpluses, permitting us to address our most pressing student financial aid and deferred maintenance problems. In addition, the School would be in a position to add faculty positions where most needed.

Because reality probably lies somewhere between Cases A and B, short-term planning is carried out within that context. Flexibility continues to be a key element in the School's financial planning, giving us the ability to act prudently under any set of circumstances.

Table V

	Case A:	Case B:	Case C:
Income:			
Tuition & Fees	7.0%	7.0%	6.0%
Investments	6.0%	6.0%	6.0%
Unrestricted Gifts	75 Flat*	75 Flat*	75 Flat*
Overhead Recovery	6.0%	6.0%	6.0%
Contract Students	Flat @1280	Flat @1280	1280+60/Yr (=\$500 increase)
Annual Giving			
NBC Farm	5.0%	5.0%	5.0%
Small Animal Hospital	6.0%	6.0%	6.0%
Large Animal Hospital	8.0%	9.0%	10.0%
Other Sales & Service	8.0%	9.0%	10.0%
Bank	6.0%	6.0%	6.0%
Subvention	Scheduled	Scheduled	Scheduled
Appropriation	Flat	Flat	Flat
	8.0%	9.0%	13.0%; 10.0% After FY 87
Expense:			
Academic Salaries	7.0%	6.0%	6.0%
Non-Academic Exempt	7.0%	6.0%	6.0%
Non Exempt	7.0%	6.0%	6.0%
Benefits	7.0%	6.0%	6.0%
Current Expense	7.0%	7.0%	6.0%
Student Aid	225+7%	225+7%	150 Flat
Campaign Expense	Scheduled	Scheduled	Scheduled
Allocated Cost	8.5%	8.5%	7.0%
Debt Service	0,0,590,590,590	580	0
14th Month	250 Flat	250 Flat	250 Flat
Surplus (Deficit)			
FY87	(13)	(270)	908
FY88	(62)	54	1665
FY89	(675)	458	2564
FY90	(721)	900	3570

* Rosenthal

Table VI

Case A: Five Year Planning (amounts shown in thousands of dollars)

prepared October 1985

	Actual FY82	Actual FY83	Actual FY84	Actual FY85	Budget FY86	Proj FY87	Proj FY88	Proj FY89	Proj FY90	Proj FY91
Income:										
Tuition & Fees	2,390	2,789	3,221	3,357	3,553	3,802	4,068	4,353	4,657	4,983
Investments	88	86	98	112	118	125	133	140	149	158
Unrestricted Gifts	180	182	100	185	135	75	75	75	75	75
Overhead Recovery	1,139	1,385	1,461	1,457	1,589	1,668	1,768	1,874	1,987	2,106
Contract Students	1,209	1,200	1,180	1,151	1,180	1,280	1,280	1,280	1,280	1,280
Annual Giving	194	191	182	189	210	223	234	246	258	271
NBC Farm	120	143	112	153	130	138	146	155	164	174
Small Animal Hospital	1,743	2,063	2,284	2,598	2,940	3,175	3,429	3,704	4,000	4,320
Large Animal Hospital	2,118	2,348	2,855	3,495	4,113	4,442	4,797	5,181	5,596	6,043
Other Sales & Service	429	550	711	728	523	554	587	622	660	699
Total Direct	9,610	10,937	12,204	13,425	14,491	15,482	16,518	17,630	18,826	20,110
Percent Change	8.7%	13.8%	11.6%	10.0%	7.9%	6.8%	6.7%	6.7%	6.8%	6.8%
Bank										
Bank	(208)	(212)	(195)	(172)	0	(130)	(120)	(84)	(74)	(65)
Subvention	1,726	2,060	1,211	1,170	1,099	1,099	1,099	1,099	1,099	1,099
Appropriation	6,902	7,677	7,984	9,534	10,793	11,656	12,589	13,596	14,684	15,858
Total Income	18,030	20,462	21,204	23,957	26,383	28,107	30,086	32,241	34,534	37,002
Percent Change	18.8%	13.5%	3.6%	13.0%	10.1%	6.5%	7.0%	7.2%	7.1%	7.1%
Expense:										
Academic Salaries	4,075	4,023	4,344	4,810	5,319	5,691	6,090	6,516	6,972	7,460
Non-Academic Exempt	1,639	1,935	1,991	2,135	2,305	2,466	2,639	2,824	3,021	3,233
Non Exempt	2,355	2,408	2,633	3,146	3,554	3,803	4,069	4,354	4,659	4,985
Total Salaries	8,069	8,366	8,968	10,091	11,178	11,960	12,798	13,694	14,652	15,678
Benefits	1,891	2,077	2,548	2,905	3,296	3,527	3,774	4,038	4,320	4,623
Total Compensation	9,960	10,443	11,516	12,996	14,474	15,487	16,571	17,731	18,972	20,301
Current Expense	3,679	4,195	5,026	5,431	5,574	5,964	6,382	6,828	7,306	7,818
Total Direct	13,639	14,638	16,542	18,427	20,048	21,451	22,953	24,560	26,279	28,118
Student Aid	66	94	113	94	114	225	241	260	281	303
Campaign Expense	0	0	0	0	150	200	200	200	200	200
Allocated Cost	4,720	5,114	4,251	4,571	5,524	5,994	6,503	7,056	7,656	8,307
Debt Service	0	345	0	570	335	0	0	590	590	590
14th Month	(354)	271	298	302	204	250	250	250	250	250
Total Expense	18,071	20,462	21,204	23,964	26,375	28,120	30,147	32,916	35,256	37,768
Percent Change	18.1%	13.2%	3.6%	13.0%	10.1%	6.6%	7.2%	9.2%	7.1%	7.1%
Surplus (Deficit)	(41)	0	0	(7)	8	(13)	(62)	(675)	(721)	(766)