The Past and the Future of Veterinary Education, Part Two: A Look to the Future

Fred C. Davison
Iowa State University

David E. Tyler
Iowa State University

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That we live in an age of fantastic change is a fact which no one will dispute. Equally prominent is the fact that we must change many of our time tested programs and policies in order to survive in our constantly changing scientific environment. This advance makes different demands of different disciplines. It is our purpose to view those that it has and will place on veterinary education and to explore possible solutions that can bring us into our "golden era." This age of opportunity is no longer on the horizon — it is here with us waiting and challenging us for acceptance.

We must remember, however, that this is a competitive age that guarantees nothing and that our future rests in our own hands. It is an age that says, "be static and perish or be dynamic with me and prosper." It is the purpose of this article to bring again to the readers attention our areas of promise and to offer our ideas on an approach to their fulfillment. This is done with the realization that many other people are engaged in this same process and with the hope that our suggestions will add to or bolster their ideas and programs. It is also done with a feeling of great urgency. This urgency stems from cold hard statistical facts. These facts are given in a very forthright manner by Dr. C. A. Brandly in his guest editorial in the March 1 issue of the AVMA Journal (1). Doctor Brandly demonstrates that at our present rate of graduating veterinarians we will produce only 45 per cent of those needed by 1975. This is only to keep pace and will not provide trained personnel to fill the voids that are present in our service today. He also states that "overcoming the deficiencies in numbers would require, in addition to doubling the enrollments in the 19 schools now in full operation, the establishment of at least 5 new schools of a size equal to that at Purdue University." This again would only allow us to keep up.

With these facts in mind can we deny that this is the time for dynamic and far reaching and even revolutionary changes to be made in veterinary medical education? Let us look at some of the new areas which are challenging us and then let us talk about a solution.

* Dr. Davison is an assistant professor in the Department of Physiology and Pharmacology at Iowa State University.

* Dr. Tyler is an assistant professor in the Department of Pathology at Iowa State University.
I. The Opportunities and Needs of the Veterinary Profession

Practice

“Authorities conservatively predict an increase of \(\frac{1}{3}\) in the population during the 15 years through 1975 (1).” All prognostications indicate that our population boom will be a very real thing, and the immediate implications to veterinary medicine are obvious. Increased amounts of people will require increased amounts of food and will keep an increased number of pets.

As of January 1961 there were 97 million cattle, 55 million swine and 33 million sheep in the United States. All indications point to an overall increase of 45 per cent in this total by 1975. The greatest proportion of this increase will be in numbers of cattle. Continued growth of the poultry industry can be expected with a definite trend toward larger flocks (5). As the size of flocks and herds increases the risk of disease increases and the demand for veterinary service also increases. The population of dogs as of September 1960 was estimated at 26 million and was increasing at the rate of 750 to 900 thousand per year prior to 1959. The estimated population of cats as of September 1960 was 28 to 29 million and their increase is probably as great as that of dogs (2).

These increases will demand not only expanded service from our profession but they will demand a different type of service. It is true that the advent of contract farming, large feeding operations and other advances in agriculture will mean that veterinarians will care for many more animals and that in this aspect the numbers of practicing veterinarians will not increase in a linear relationship with the increased animal population as far as livestock is concerned. However, the need for additional small animal practitioners will increase in a linear relationship. The problems of herd diagnosis and treatment, preventive medicine, and sterility that are sure to be encountered in contract veterinary services will open new areas and make new demands on the fields of clinical laboratory diagnostic procedures, herd immunization, herd medication, herd hygiene, and basic research. The large animal practitioner will have to become one of the most highly specialized members of the medical community, and he will have to be backed by excellent diagnostic facilities and armed with the latest information that good research can provide.

Teaching

The marked increase in student numbers that must come in the next few years and the radical changes that will be made in the veterinary curriculum will create a demand not only for more teachers, but most certainly better trained teachers. It can be safely estimated that our present faculties will be increased by at least 100 per cent by 1975. If present trends continue, the majority of these positions will be filled by graduate students or recent recipients of graduate degrees (9).

One of the most hopeful trends at the present is the increasing number of young men who are entering directly into graduate work with the sole purpose of preparing for a career of teaching veterinary medicine. This situation, however, points up a serious problem. A recent survey revealed that in spite of the large numbers seeking careers in teaching, very little is being done by our graduate schools to prepare them for such careers (9). If we are to meet the challenge of the revolutionary years at hand, we must have teachers with imagination and enthusiasm and who are well trained in the art of communication. In order to obtain this type of teacher, we must place teaching on an equal basis with research and give adequate recognition to good teaching as we do for good research. We can no longer tolerate the mediocrity in our class rooms which so often results when an instructor must serve in the dual role of teacher and researcher. He cannot serve both adequately. His only course left has been to slight the least remunerative, which has nearly always been his teaching duties. It is long past the time that we recognize that teaching, if it is properly performed, is a full time job.

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Research

Research is one of the most promising fields now open to veterinarians. Not only are veterinarians needed to investigate problems of strictly veterinary significance, but also a great demand for veterinarians has developed in all phases of medical research. The veterinarian's broad background is being recognized as a valuable asset to any biological investigation. For example, veterinarians are serving as an integral part of various research teams in fields of aero-space medicine, biological warfare, radio-biology, agricultural medicine, and many similar areas. The financial support of medical research gives a good indication of the direction in which it is headed. In 1960 the estimated federal support for medical research was 379 million dollars. This was an increase of nearly 300 per cent over the 1957 estimate. Comparable increases have occurred in non-federal sources of support (8).

The attitude of the government toward the agricultural aspects of veterinary research is shown by the construction of two federally supported multi-million dollar research laboratories within the last few years; the Plum Island Laboratory and the National Animal Disease Laboratory at Ames, Iowa. Grants for veterinary research, not only from the federal and state governments, but also from private industry, show marked increases each year.

Ours is not a problem of developing a need for veterinarians in research nor of obtaining funds for research, but one of providing personnel. As General Wayne O. Kester points out, "—the greatest deficiency and greatest problem confronting our profession today is in the field of research. The best way to solve this problem and get necessary research done is to concentrate on developing more and better research people ... (4)."

The responsibility for filling this demand falls primarily on our schools of veterinary medicine. Graduate programs must be greatly revised and expanded.

Regulatory Work

The field of regulatory work is broad and not new to the reader. This is an area that overlaps many of the others already named. It will be mentioned for emphasis that at the present time these veterinarians inspect 20 billion pounds of meat and meat products for safety and wholesomeness, make health inspections of 34,500,000 dairy animals, including 23,028,000 milk cows, aid in establishing and enforcing pure milk and food laws, supervise and produce 150,000,000 dollars worth of biological products and drugs for use with man and animals, enforce import and export health regulations on 125,000 animals, exclusive of poultry, annually, and help regulate and enforce intrastate and interstate traffic in animals (10). All of these functions are necessary and will require increasing numbers of veterinarians as our population grows.

Armed Forces

Although it appears that there will be little increase in demand for military veterinarians in the areas of food hygiene, the opportunities in military medical research are constantly developing. The veterinary officer is utilized as a principal investigator, consultant, or as a member of a team effort in any number of projects for which he has the necessary interest or talent. As Dr. R. P. Mason, director of Walter Reed Army Institute of Research, states, "Medical research today is, for the most part, a team effort involving individuals with detailed knowledge in many biological sciences. The background of clinical knowledge and experience provides the doctor of medicine and the doctor of veterinary medicine an opportunity for research in an area which, for the most part, is closed to biologists who have not studied medicine or veterinary medicine."

"The doctor of veterinary medicine has as many opportunities in medical research as does any other well-trained biologist. These opportunities are expanding rather than contracting, and opportunities for a career in medical research are greater for the doctors of veterinary medicine in the military service than they are for those in civilian medical research (6)."

Public Health

One of the most important and opportunity-laden fields open to the veteri-
narian today is that of public health, for it is in this field that human and veterinary medicine both become components of a larger "comparative medicine (7)." The need for trained veterinarians in this area is recognized as being acute. Senator Humphrey on April 20, 1960, in the introduction of a bill into the U.S. Senate asking for authorization of 35 million dollars in federal grants to help finance a 10-year program of construction of veterinary medical educational facilities stated that at that time there was a current need for 250 veterinarians in public health work. He also made the observation that, "even if it were from the standpoint of public health activity alone, we could not afford a shortage of veterinarians (3)."

Only a cursory review of the literature reveals that the veterinarian's opportunities are so legion in this area of endeavor as to be limited only by his personal abilities. In addition to the control of the zoonoses and sanitation, the public health veterinarian is expected to make contributions in the fields of military veterinary medicine, biological and pharmaceutical production and control, dental diseases, radiation and civil defense, disease geography and laboratory administration and services including general research.

It must be realized that in this area our responsibilities not only necessitate that we provide a tremendous number of additionally trained personnel but also that we increase the public health training that our undergraduates receive. The practicing veterinarian will find himself more and more closely allied to the world public health team in the future.

Laboratory Animal Medicine

All of the phases of veterinary medicine briefly touched on above reflect directly on the extremely important and neglected field of laboratory animal medicine. It is an accepted fact that most biological research utilizes one or many species of laboratory animals. It is also a recently accepted fact that valid conclusions can be drawn from this research only when qualified people choose the species to be used. The relative health including the state of parasitism, state of nutrition, housing, degree of freedom from specific organisms, and the genetic predispositions of the animals used must be known. The veterinarian is the only person with the background and training to suitably meet these qualifications. Medical schools, and major government and commercial research facilities have asked us to produce people with specialized training in this area. We must meet this challenge and supply them.

The veterinarian specializing in laboratory animal medicine is not an animal caretaker. Rather, he is an integral part of any research endeavor involving laboratory animals. He is responsible in part for the design of the experiment to be undertaken, for the design of the physical facility housing the experiment, and for interpretations of the results of the experiment. Training in this field should not only qualify the veterinarian for an important position in team research, but it should also open to him areas of individual opportunity such as experimental surgery.

II. A Program of Action

The tremendous challenges enumerated above can be met only through our educational facilities. This will entail a great amount of study and planning, trial and error, a willingness to make changes and the dynamic support of all veterinarians whether they be engaged in institutional work, commercial enterprises or private practice.

First and foremost we must institute an active and effective recruitment program. We must realize that in order to gain the numbers of students necessary we must compete in the basic market place which is the high school or even the junior high school. We can no longer afford to sit back and wait for the best students to come to us. We must go to them. This program of bringing the opportunities of veterinary medicine to the more gifted and interested young people of our society will be the responsibility of all of us — institutions, associations and individuals. Here at Iowa State University a program of counseling has been initiated in which the junior and senior students of the Veterinary College will be actively engaged. These young men will also accept part of the responsibility.
for carrying our program to the high school career day. This is excellent, and this effort should be supplemented by the local associations and practitioners. It is imperative, however, that this most important task be turned over only to those individuals who are aggressive and dedicated to our profession. It will be our job to initially excite the interest of these young men and young women. Should this be difficult? Certainly not! We must take the offensive — there is no science as glamorous as that dealing with medicine. Nor does our responsibility stop with the career day. The nurturing of interest must be continued regularly. It must be reinforced through every contact with a veterinarian. Parents must be made aware of the opportunities through talks to civic clubs and other groups. We must be realistic, for it is necessary that we have these capable, interested and versatile young people whom we are frequently losing through default if our profession is to prosper and offer the services upon which our very existence depends.

It is imperative that this need come to the attention of all of our associations immediately and that action be taken.

Once the student matriculates in the college or university of his choice the responsibilities of the colleges or schools of veterinary medicine become even more profound. Close and sympathetic counseling must be continued through the pre-veterinary years of study and alternate plans of electives must be provided to insure a better background in sociology, business and psychology than has been stressed in the past. This must not be done at the expense of mathematics, chemistry, physics or other necessary subject material but in addition to them.

The transition into the professional veterinary curriculum must be made as smooth as possible and in this curriculum it will be necessary to institute revisions through which we can graduate a veterinarian who is capable of moving into one of the many areas which will be open to him or her. This program will demand better integration between our subdisciplines in veterinary medicine. And though we can never allow ourselves to lose sight of the fact that our primary responsibility is to graduate a clinically oriented person, we must have integrated the basic sciences into the last two years of study to the point that our students do not lose contact with them. In order to do this it will be necessary to place basic science staff people in the clinic on a rotation system and in turn to bring the clinicians back periodically for a review in the basic sciences. A rotation program involving one month out of the year would do much to give continuity to our teaching program. Teaching in clinical sciences must become uniformly one of closely supervised participation rather than one of observation. Research opportunities for people in their last two years of professional study must be expanded and their participation must be encouraged. Basic courses in laboratory animal medicine will have to be made an integral part of the clinic's teaching responsibility. Of great importance is the necessity for producing a well rounded person who will take his enthusiasm for veterinary medicine out into his chosen area with him.

Educational responsibility cannot be allowed to terminate on the day of graduation. Rather, it will be necessary to open a whole new field of endeavor at this point. The graduating veterinarian should have several roads open to him.

It is our suggestion that a strong post doctoral program be initiated to supplement the existing opportunities. This program should be two-pronged. The graduate could enter a one year internship in which he would specialize in the problems of large animal and small animal or mixed practice. One half of his day would be taken in assuming actual clinic responsibilities and the other half in advanced study including agricultural economics, business, nutrition and other related courses. The post doctoral graduate could enter a period of advanced studies in the basic sciences which would qualify him for a specialty board examination or an advanced degree in the discipline of his choice. This program would prepare veterinarians for the fields of teaching, basic research, public health work or related areas.

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Many graduates going directly into the armed forces or other government employment will undoubtedly be directed back into this program through training opportunities.

Nor does our responsibility end here. We must maintain a program of continuing education for our graduates, particularly the practitioner. This should be approached from two directions. First, our extension service must be expanded and improved. This segment of our profession must be proficient at both selling and education. Second, in our expanded teaching program a limited number of openings for graduates who wish to return for short periods of from 2 weeks to 6 months must be provided. This program will offer an opportunity far greater than our short course program and will be made more and more feasible as the number of group practices and partnerships increases. It will give the practitioner an opportunity to re-enter an academic environment and to bring himself up to date in areas of his interest.

The accompanying chart presents this program in an abbreviated form.

What will be the benefits of such a program? We hardly feel that it is necessary to itemize them. Suffice it to say that it would allow us to meet directly the challenges of today and to be versatile enough to meet those of tomorrow. Let no reader confuse what we have said with naivete. We are the first to recognize the heroic effort that must be made, the problems of administration, finance and scheduling. However, if the future, indeed the day, demands it the question ceases to be academic and becomes one that requires not an answer as to whether we will do it but rather one of when we will do it. We must start immediately.

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