

# General Session I

Symposium on Future of Food Animal Practice

Dr. Jenks Britt, *presiding*

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## The Future of Food Animal Practice



**Dr. Robert H. Dunlop, Dean**  
*College of Veterinary Medicine*  
*University of Minnesota*  
*St. Paul, Minnesota 55108*

### Arnold Toynbee: A Study of History

*"Growth is achieved when an individual or a minority or a whole society replies to a challenge by a response which not only answers that challenge but also exposes the respondent to a fresh challenge which demands a further response on his part."*

As keynote speaker I see my role to look very broadly at some of the issues facing the profession, particularly as it relates to animal agriculture. This paper will examine some of the factors in the international and domestic setting that relate to this issue. It will also touch on some of the achievements of the profession to date and some of the challenges that lie ahead.

Veterinary Medicine needs to develop a comprehensive plan for its future that will form a basis for formulation of strategies and recommendations to ensure improved quality and effectiveness of the profession in its service to society. Instead of this, in my view, the practicing arm of the profession has tended to look too narrowly at its traditional roles of private practice for livestock producers and owners of horses and companion animals. The result is that it tends to relate any economic pressures on its members directly to a perception that the colleges are overproducing new veterinarians and thereby threatening their survival. Thus the practitioners call for reduction in intake into the Colleges. The Colleges, on the other hand, facing similar economic pressures

and tending to be underfunded for the standards they strive to meet, expanded their intakes dramatically through the 1960s and 1970s in response to Federal, State and University financial incentives. In addition, the number of colleges approximately doubled during the period. Since all the Colleges have quotas for access and since the veterinary profession was perceived to be an attractive career, there was no problem in filling the places available during those two decades. Today the situation is changing and outstanding students are starting to question the desirability of entering a long, challenging and expensive professional education for what is clearly an inadequate financial opportunity at the end of the road in many cases. The profession desperately needs to study the changing environment for deployment of its special qualifications in the future. Perhaps a joint task force of the AVMA and AAVMC would be the best way to address this problem. I foresee that such a study would require about two years and might well involve a need to develop a stronger data base in such topics as the nature and distribution of animals, of animal diseases, their economic implications, the identification and magnitude of veterinary public health issues, utilization rates for veterinary services, consumer attitudes and expectations, the changing nature and magnitude of veterinary services mandated by government regulations and services (e.g. military, APHIS, laboratory animal, State veterinary services, CDC, FDA-BVM etc.), educational and scientific career opportunities, the demand for specialists and administrators, and international programs.

The veterinary profession is an adaptable profession. It has

survived the demise of the horse as a source of energy, despite many misgivings and doom-sayers in the 1920s. It was too specialized and focused on equine medicine and surgery up to that time. Today, perhaps, it has become too focused again on its two major career avenues—food animal practice and companion animal practice. There are many alternative careers for persons with the extraordinary training of a veterinarian in research, education and service in the U.S.A. There are challenges out there for those who are prepared to respond and compete. The problem of restoring a balance in human and agricultural ecology in Africa is an awesome task. The lack of preparedness to handle veterinary roles in disasters such as the Three Mile Island nuclear error (1), natural or industrial catastrophes or the ultimate horror of nuclear war must give us pause.

Several aspects of the environment for food animal practice seem to rate special attention:

*I. The demand, national and world wide, for animal food and fiber products—the “consumers”.*

Two forces can be identified under this heading. The first is the aspiration of people generally to have a good life style which includes animal products in the diet. As the world population expands and where their economic circumstances improve, the demand for livestock products increase if they can afford it. The second is an opposing trend, restricted to a proportion of those who are better off, to be very selective about what they eat because of perceptions about health implications often linked to a fad or dieting as part of a quest for glamour. Some of these concerns have been selectively directed against foods of animal origin.

Looking first at population, the world population growth rate continues to give cause for concern as it is currently about 2% per annum or 80 million a year on the present base. This is chiefly a result of declining death rates without matching decline in birth rates in many developing countries. World population growth in the decade prior to the second world war was only slightly over 1% per annum. The current global stocking rate for planet earth of just over 4 billion people is projected to reach 6.5 billion by the end of this 20th century. Birth rates have dropped in the most developed nations but not in the densely stocked fertile regions of the LDCs. If the balance between births and deaths does not change in the LDCs it is estimated that the world may be looking at how to feed an incredible 13 billion people by 2050. Even to maintain current levels of animal protein intake would require about a tripling of livestock productivity.

Turning to consumer attitudes as they affect diet selection, a more detailed examination of the sub-sets of such attitudes is required. It seems there is no “Average Consumer” according to a recent study carried out at Michigan State University (2). Five categories of consumers were identified: 1) “meat lovers”, about 22%; 2) “creative cooks”—also heavy meat users—about 20%; 3) “price driven”—enjoy meat but buy cheaper products mainly on a basis of price, about 25%; 4) “active lifestyle”—dual income in many cases, not cost-limited but

want quick, easily prepared meals, weight control with some health concerns, meat consumption tends to be light—about 16%; 5) “health oriented”—scrutinize fat, cholesterol, salt and additive levels and eat only low amounts of meat, selecting fresh, lean products—about 17%. The meat industry is adapting and tailoring its products to meet the different demands more selectively.

**One of the most controversial areas of biomedical research continues to be the investigation of relationships between diet and disease. Having focused in the first half of this century on identifying specific essential nutrients that may be deficient or imbalanced in the human diet leading to malnutrition, the pendulum has now swung over to examining the consequences of general over-indulgence or of the possibility that specific nutrients may be hazardous. Allegations about assumed risks from ingestion of animal products have been exploited over the years in campaigns against these products but the conclusive experimental evidence of a risk to health at normal levels of intake has never been obtained. Obviously more and better research is necessary if credibility is to be achieved.**

Particular areas requiring clarification include the diet-cardiovascular relationships; diet-cancer incidence correlations; and the significance of sodium, phosphate and other preservatives or flavorings used in animal products. Even more important may be the need to study genetic predisposition to cardiovascular disease or cancer. For example a recent report in *Scientific American* (3) identifies a very high incidence (about 50%) of impaired ability to remove low density lipoproteins (LDL) from the blood as a crucial factor in susceptibility to atherosclerosis. The LDLs are the major vehicle for cholesterol transport in the blood and failure to remove them increases the risk of its deposition in the vessel wall. People whose cells are deficient in receptors for LDLs may need to be more careful about dietary lipids than other persons. However it seems anomalous to always identify “animal” fats as the culprits. It would seem more appropriate to address the issue of total fat intake or specific lipid components that may be selectively hazardous, regardless of the source. Total fat intake as a proportion of the diet has increased steadily since World War I and this needs attention. The spectrum of foods ingested by different cultures is vast and incidence of vascular disease is not well-correlated with diet. For example there are African tribes that subsist very largely on dairy products but are virtually free of heart and vascular disease. The contributions of stress, sedentary lifestyle, prosperity, drugs, and artificial stimulation of intake of fatty foods by addition of sugar and flavorings no doubt play important roles in what must be a very complex equation leading to vulnerability. The problems of cardiovascular disease and cancer are real and must be addressed but the animal industries are entitled to factual evaluation of the role their products play.

Perhaps one facet of consumption of animal products that deserves reevaluation is the net ingestion of red meat

components in the human diet. A recent report (4) of some calculations by Burdette Breidenstein, director of Research and Nutrition Information for the National Live Stock and Meat Board, is very revealing. He notes how data on meat consumption can be misinterpreted. For example the USDA reports an average (among all adults and children) consumption of 7.5 oz. of red meat per day. However this figure was based on carcass weight and translates to 6.1 oz. per day of retail weight. But retailed meat contains bone and fat that are discarded along with further losses during cooking, spoilage before or after cooking, incomplete consumption and scraps fed to pets. Actual meat ingestion was found to be only 4 oz. per capita and fat consumed was quite low. The public has been conditioned to believe that saturated fat is animal fat which can be quite erroneous as only 35% of pork fat and 47% of beef fat are actually saturated while some plant fats such as coconut oil are about 85% saturated. Also the record shows that over the past 70 years or so the percentage of animal fat in the human diet has fallen from 83% to 58%. The average intake of red meat contains less than 100 mg of cholesterol (about 30% of the American Heart Association's recommended ceiling), while providing most of the body's needs for essential vitamin B<sub>12</sub> along with other B vitamins, trace minerals and protein of high biological value. On the basis of the above data Breidenstein concludes that a false picture of the biological cost-benefit of red meats has been painted for the gullible consumer.

Perhaps the future will allow individual profiles of metabolic capacity so that personal limits can be set for intake of specific nutrients.

## II. *The users of veterinary services—the livestock producers.*

Animal agriculture is, collectively, a huge industry. It is often beset, as it is today, by price-cost squeezes and hence it must keep adapting to survive economic pressures. Some commodity groups, such as dairy products, are heavily subsidized. This has helped stabilize profitability in this sector but it is now under political pressure. Also the U.S. livestock industries are plagued by what has been called "the paradox of success", really a term for supply exceeding demand.

The current livestock populations, which are moving targets as "crops" of animals are harvested are roughly as follows: cattle 111 million with a slaughter offtake of about 40 million a year. About 10% of the national herd is comprised of dairy cattle, i.e. 11 million. Swine run at about the same number, 110 million a year but offtake is much higher at 90 million. Sheep stocks are about 13 million and goats 1.4 million. Poultry production is about 4.5 billion broilers a year while 400 million hens produce our eggs and there are 120 million turkeys and 60 million domestic waterfowl (ducks and geese). The poultry meat industries are still expanding dramatically, pig meat more slowly while the beef industry is in a decline. We import cattle from Mexico and Canada, fresh meat from Australia and New Zealand and canned meat from Argentina and Europe. "America is chicken"—the USA produces almost 30% of the world's poultry meat.

**How do we relate these figures to future and world demands for livestock products? Should we be preparing now to supply other parts of the world with livestock products? Will they be able to pay for them? Already there is evidence that Japan and the more successful LDCs want our genetic material to help expand their own livestock industries. A lot of veterinary tests are required for such international movements of stock.**

What are the utilization rates for veterinary services in the domestic livestock industries? By and large, as the financial investment in a livestock enterprise enlarges, the need for animal protection programs as a form of health insurance increases. This is a great opportunity for the food animal veterinarian but, at the same time, the pressure to be able to demonstrate a cost-effective health management program heightens. The Bovine Practitioners are at the forefront of this adaptive process. It is foreseen that the preventive and management-related aspects of veterinary services will continue to grow while demand for response to specific health problems will continue (5). The manipulation of the animal, genetically and physiologically as well as through enhanced host resistance to disease will become more precise. It will demand more specialized expertise in its supervision to avoid residue problems and build up of pathogens resistant to chemotherapeutic agents. Controls over veterinary prescribing will increase.

We need to define veterinary workloads in terms of stock numbers and types or sizes of enterprises. It is also necessary to attempt a more precise definition of the minimum combination of academic curriculum and field experience for a veterinarian to be capable of entering the high-pressure food animal arena. The colleges have not done a very good job of addressing this issue, particularly as it relates to understanding the livestock industries and their economics or to the business aspects of veterinary practice as it relates to successful career development.

The very difficult issue of recognition of the need for a better financial reward structure for food animal practitioners is still not satisfactorily resolved. The crucial issue of being paid appropriately for professional competence and time remains a challenge. Addressing it through other components of the fee such as travel, drugs and supplies, etc. is not a satisfactory long term solution. Work from California suggests that veterinarians there have been too slow in gearing up to meet the needs of the giant corporate farm as it displaced the small family farms.

It has become clear over the last decade that animal health must be managed with emphasis on prevention and health maintenance wherever possible. Both ecological and economic efficacy must be addressed (6) along with safety to consumers. There has been a new wave of literature and computer software promoting herd health programs and it would be redundant to review it here although this is without doubt a growing area that represents scope for major expansion in veterinary services in the future. A valuable workshop was held last March on Dairy Health Management Databases (7).

**Fred Troutt (8) called for the profession and the colleges to focus on the needs for Production Management Medicine in 1980. He challenged the system with a series of important questions and a list of tentative proposals. Special curriculum needs of food animal medicine leading to problem-solving skills in the herd setting and an appreciation of economics were identified. When H.F. Troutt speaks....**

Another advocate of preventive health management, Roger Eddy in the U.K., asked the question "Large Animal practice—is there a future?" His answer (9) was a resounding "YES". It has been my repeated experience that those in the vanguard of this field are uniformly optimistic. A recent Dutch study (10) is presented in four papers that gives "the proof of the pudding". After an in-depth study lasting 3 years covering 30 dairy farms, dramatic benefits were demonstrated. The study clearly showed that such an approach leads to a favorable situation where both the farmers and the veterinarians are competent. Training is required for both groups. Special aspects that influence success of such ventures are reported in the fourth article of the series (11). Programs for health management have been developed for dairy cattle and swine with beef cattle and sheep in the mill. That a much more satisfying and rewarding veterinary service will be the outcome seems a safe prediction.

### *III. The incidence and economic importance of livestock diseases.*

This is an area where the profession has been very slow in taking the initiative except in the case of the major pandemic diseases and some major zoonoses. It is timely to develop the data base for animal diseases comprehensively. It is pleasing to see that pilot schemes have recently been launched in several states to start this process (12) of disease surveillance. This data base is a necessary prerequisite for setting priorities for research, for changes in regulatory programs, for public health and for focusing practice services.

The Joint Council of Food and Agricultural Sciences has started to examine the factual basis for setting priorities for federal funding of research, extension and education programs. Its report (13) based on 1981 data indicates that animal disease losses are estimated to be 20% of livestock income to the farmer. A similar level of losses was attributed to reproductive failures. The issue of losses due to subclinical production diseases related to stress was not quantified and could be a very large factor.

One could conclude that veterinary medicine has not been very successful at influencing the health of US livestock. However that would not be an accurate conclusion as the achievements have been many. Without veterinary input the situation would be much worse. However, the data do indicate that a great deal remains to be done. It is a multifactorial issue—the producer must want to improve, the veterinarian must be competent in problem solving and

health management, backed by advanced diagnostic technology, field consultation and research.

Great accomplishments have been made, particularly in regulatory aspects of veterinary medicine leading to disease eradication. Tuberculosis was widespread in cattle in the last century. It was the major cause of human mortality, taking about 1900 lives per million of population annually. Combined efforts of the veterinary and medical professions have virtually eliminated this frightful hazard from the U.S.A. Similar progress has been made with brucellosis although not yet as close to completion, particularly in some States. Eradication of Texas Fever, Foot and Mouth Disease and Hog Cholera have been remarkable achievements but has the profession received its due of public and political recognition for them? A look at the chronology of progress in Minnesota is impressive. The official achievements of the Board of Animal Health (formerly the Livestock Sanitary Board) of the State of Minnesota over the past 50 years include:

- 1934 Modified accredited for tuberculosis.
- 1957 Modified accredited for brucellosis.
- 1963 Sheep Scabies free.
- 1968 Pullorum-Typhoid clean (qualified since 1963).
- 1970 Brucellosis free.
- 1972 Hog cholera free.
- 1973 Pullorum-Typhoid free, turkeys.
- 1975 Brucellosis validated.
- 1976 Tuberculosis free.
- 1980 Mycoplasma gallisepticum clean for turkeys.
- 1982 Brucellosis class A status.
- 1984 Brucellosis free.

The achievements, collectively, of routine food animal practice are impossible to measure but they are very great. The mere fact that they have not been recorded is a great disservice to the progress of the profession. Ways need to be found to address this problem so that the veterinarian's contribution can be assessed in both biological and economic terms. The profession has become progressively more skillful at diagnosing diseases and defining the multiplicity of syndromes that occur. Many vaccines have been developed with varying degrees of efficacy. Development of successful control measures and treatments has been less impressive. Concerns about human safety of chemicals entering the food chain or the ecosystem have not yet been adequately addressed. New products of modern genetic manipulation will have to withstand rigorous evaluation before receiving approval.

**The importance of the environment and the animal management practice in determining stress levels as a major factor in disease resistance is starting to be recognized. Workers at Minnesota (14) have given leadership in this important aspect of disease control, particularly in the areas of housing design and ventilation, with dramatic improvements in performance. Combination of veterinary insights with the expertise of an agricultural engineer was the**

key to this successful development.

**Most veterinary curricula fail to provide an adequate training for problem-solving in animal management, environmental stress, housing evaluation or production-related metabolic problems.**

*IV. Status of major diseases of international concern.*

International aspects of food animal medicine that are going to demand an increase in manpower and level of sophistication include the following but this is certainly not an exclusive list:

A. Diagnostic testing for specific pathogens in livestock proposed for international (and interstate?) shipment. Experiences such as the alleged introduction of the "hot" virus strain of Infectious Bovine Rhinotracheitis Virus (Bovine Herpes Virus 1 or BHV1), as reviewed by Wiseman et al 1984, (15) and of Bovine Leukosis Virus to Europe via carrier Holstein cattle from North America have led to a dramatic increase in the number of tests required by many countries for livestock importation. This is a result of research into etiologic agents and the development of strain-specific immunologic tests. The necessary sampling recording, supervising and certification of stock for shipment creates a large increase in workload for practitioners and regulatory veterinarians. Processing the samples requires upgrading and expansion of diagnostic laboratory services. Despite the concerns about the risk of introducing infections, there is a growing international demand for highly-productive strains of livestock.

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B. The more typical "exotic" disease will continue to be a real threat to domestic livestock producers while continuing to devastate herds and flocks where they are endemic. The resurgence of rinderpest in Africa since

the JP15 eradication campaign was halted by the Ethiopian revolution is nothing short of staggering. Politics, pastoral nomadism, droughts and lack of an adequate local veterinary infrastructure have "brought to nought" one of the boldest international projects in veterinary medicine. Between 1962 and 1969, 81 million animals were vaccinated against rinderpest with the Plowright vaccine to no avail despite its proven efficacy. Griffiths (16) cites several recent developments in the international spread of exotic diseases that indicate the need for increased efforts. His examples include the spread of Rift Valley Fever from sub-Saharan Africa to Egypt in 1977, the dramatic spread of African Swine Fever in 1978 to Malta and other Mediterranean islands followed by trans-Atlantic transfer of separate strains to Brazil and the Dominican Republic before moving into other countries such as Haiti. The entire swine populations of Malta and Haiti had to be destroyed to eradicate the disease. An earlier outbreak in the Iberian Peninsula spread to France, Italy and Cuba (1971) and has persisted in the Iberian Peninsula to this day. Rift Valley Fever is a serious zoonosis and caused many human deaths in Egypt. Africa is a focal point for many of the exotic diseases and is also the most deficient in veterinarians and veterinary diagnostic services. Without the efforts of the network of international agencies (Food and Agricultural Organization, Office Internationale Epizootiques, World Health Organization) and of National groupings or governments that support research, surveillance and eradication efforts (e.g. U.S. Department of Agriculture, U.K., EEC, DAAD, among others) the global situation would be much worse than it is today.

Foot and Mouth Disease has been eradicated from a few countries. Most of the rest of the world attempts to control the disease through vaccination. South American data for 1979 showed that 117 million head of cattle were vaccinated or 63% of the collective bovine population of that continent (17).

C. The major hemoprotozoal diseases are a special case because they require specific vectors and cause intractable chronic infections. Trypanosomiasis alone prevents livestock production and human settlement from succeeding in large (about  $10 \times 10^6$  km<sup>2</sup>) areas of Africa. Chemical weapons against the flies or the parasites have not succeeded. The extraordinary ability of these organisms to modify their surface glycoprotein coat to foil the host animal's immunological memory is now being studied by molecular biologists at leading research institutes (18). The International Laboratory for Research on Animal Diseases in Nairobi is a center for research on the various forms of animal trypanosomiasis and on theileriosis, the cause of East Coast Fever. Progress in knowledge to allow biological control of the hematophagous tsetse flies (*Glossina* spp.)

that act as vectors of trypanosomiasis and/or of the various species and strains of the trypanosome parasites has been despairingly slow. Therefore it is a welcome event to learn that some of the most avant garde biological research scientists are becoming involved in the problem.

A somewhat better situation exists with respects to *Theileria parva*. It has been known for a considerable span of years that control can be achieved by faithful adherence to tick control measures. New chemotherapeutic agents (parvaquone and halofuginone) are showing considerable promise (19) and steady progress is being made on the immunological front. Nevertheless East Coast Fever remains one of the great constraints on cattle production in East and Central Africa, killing an estimated 2 million head of cattle and several hundred thousand sheep each year.

#### *V. Societal concerns for veterinary public health, the legislative environment and regulatory consequences.*

Public concern about zoonoses varies with the perceived level of hazard. Thus it used to be very high for tuberculosis but that has dropped into insignificance as the disease has been controlled. Rabies continues to be a major concern because of the horrible nature of the disease and its persistence in this country. Over 200 diseases have been shown to be transmissible from animals to man so there is room for concern. In the late 1970s Rift Valley Fever killed many people in Egypt, over 700 in a single year.

Today the concerns in the U.S.A. are turning to newer problems that can cause serious "image" difficulties for the profession. Where this can have implications for human health the focus gets much sharper. Examples include the spread of salmonellosis and other infections with pathogenic enterobacteria, particularly where antibiotics have been prescribed and antibiotic-resistant strains have emerged. A great deal of damaging publicity for the livestock industries has been generated by a recent study (20) that attributed an outbreak of human infections with antibiotic-resistant *Salmonella newport* to consumption of hamburger from cattle fed subtherapeutic levels of chlortetracycline. The evidence was not considered to be conclusive by a review panel (21). The use of antibiotics for growth promotion is an extremely complex issue that will require further study. Any outbreak of food poisoning leads to a rapid amplification of public alarm. *Campylobacter* infections from milk have become a significant cause for concern. Growing use of unpasteurized milk is a particular cause of concern, with cases of salmonellosis, campylobacteriosis and toxoplasmosis being attributed to this source. There are also public worries about the possibility of acquiring cancer from animal products e.g. leukemia, although none of the controlled studies seeking such an association have yielded positive findings. However it is worth noting that milk from cows infected with bovine leukosis virus (BLV) may contain

BLV-infected lymphocytes whose infectivity is destroyed by pasteurization.

Obviously, problems like the presence of antibiotic-resistant human pathogens in meat or milk cannot be detected by traditional procedures of meat inspection and milk hygiene evaluation. A recent article (22) has called for a complete rethinking of the approach to food hygiene of animal products, introducing physiological and epidemiological principles and new technology. Kempelmacher noted in discussion at the AVMA convention at New Orleans that steps are being taken in Europe to meet growing consumer concerns about poultry hygiene. One proposal is to require that a veterinary clinician oversee broilers throughout their growing period, recording their health situation and any drugs and vaccines used. The veterinarian would issue a certificate of health to accompany the birds to the plant. Then only a sample of 20-30 birds would be inspected. If no certificate was issued a longer and more costly inspection procedure would be required. This system is now on trial in Germany and The Netherlands.

#### *VI. Concern for the individual animal.*

Political activism and militancy by extremist groups waving a banner of Animal Rights and dedicated to the termination of the exploitation of animals by man has aroused public interest and created concerns among the livestock industries and biomedical research communities. It should be recognized that this is not a new concern. Keith Thomas (23) has reviewed the modern history of a human sensibility to the natural world and to the organisms that inhabit it. It is a fascinating story of the development of the environmental movement, of which man's interactions with and concern for animals forms a significant part. We cannot escape the inherent contradiction between developing sensibilities on the one hand and the material benefits of exploitation on the other. Even the extremists in this argument find themselves forced into inconsistencies of stance on different issues.

The veterinarian's goals must always be to benefit the comfort and health of animals but the profession's role demands interventions that may require restraint and infliction of pain or even the ultimate atrocity of terminating life. The future will see the progressive developments of standards for animal care and treatment. The veterinary profession will be intimately involved in establishing appropriate standards and overseeing their implementation. Some of the most controversial areas are in the field of intensification of livestock production and the boundaries of acceptable practice. Farmers, veterinarians and those concerned about animal welfare have a common interest in defining acceptable procedures.

Michael Fox (24) has expressed the view that the profession needs to formulate a new philosophy to guide its members in acceptable ethical behavior with respect to exploitation of animals. This view has been challenged (25) and it has been noted that in earlier times in some parts animals were perceived to have rights, were accorded trials and sentenced if

found guilty (26). Spedding has emphasized the need to adopt a system approach that encompasses the need of the individual animal. Noting that the individual chicken, and often the sheep or pig, do not appear to merit individual medical care on the farm, he concludes that economic issues have been allowed to govern our standards of care. Consequently very high rates of neonatal mortality are tolerated in many production units as the number of animals supervised by one person has increased. He feels that the production-line mentality reaches a breaking point in livestock enterprises and that there can be a cost-benefit from increasing the labor input. He sees the long-term solution involving a better understanding of the complex production system supervised by a highly competent management team, including health specialists. (27)

#### *VII. Research imperatives to sustain progress in food animal medicine.*

A meeting was held in May 1980 at Boyne Mountain, Michigan, to identify for Animal Agriculture the research to meet human needs in the 21st century. It was a planning meeting that was quite remarkable, bringing together 210 people representing the fields that impact on livestock production. The participants were divided among 11 topics, one of which was animal health. The research imperatives identified by this task force were prioritized as follows: 1. Integrated food animal health systems; 2. Genetic engineering for disease resistance and immunity; 3. Hazards to food animals from chemical agents; 4. Elimination of human health hazards. Food animal veterinarians should obtain and read the Executive Summary (28) of that meeting. The Full Report is also of considerable interest. The importance of that meeting was that it showed the power of the planning mode and generated a platform from which we could go forward and seek support for increased research funding.

More selectively for veterinary research needs, the Council of Deans of the American Association of Veterinary Medical Colleges struck a Committee in 1983 to develop a basis for seeking increased research support for veterinary medicine. The Committee's report "Animal Health Research in American Agricultural Research" was published earlier this year (29). It too set out priorities for animal health research under the heading "Animal Biotechnology" and "Health Management Systems." The Report also drew attention to the inability of current Federal funding levels of animal health research to meet the goals. A program is laid out to develop funding levels that will allow the continuing animal disease problems to be addressed effectively. This document will form the basis of a campaign to generate support for major increases in veterinary research funding from the grass roots at the producer and practitioner levels right through the academic organizations and institutions to the USDA, the OMB and the Congress. Your support of this program will be essential if it is to succeed. One significant development is that the Administrator of the Cooperative State Research Service, Pat Jordan, has recently established a Committee to evaluate

animal health research funding.

**The profession must become cognizant of the fact that its future depends on achievements in research. The practitioners need the tools to guarantee efficacy in health management. The routes to the development of these tools are becoming charted. A cadre of competent scientists is being developed to do the job. Great achievements in basic biological science have set the stage for their application to the health problems of livestock. As the necessary technology becomes available, the lack of funds becomes the critical constraint.**

The extraordinary attitude of the entire system responsible for planning agricultural research is illustrated by a recent publication on Agriculture Research Policy by one of this country's leading agricultural economists. The index does not list animal health, animal diseases, veterinary medicine or any related topic and I was unable to find reference to them in the text. The economic impact of disease is well known to the producer and the veterinarian. The point is that Veterinary Medicine simply does not register in the thinking of many senior planners of agricultural policy despite the fact that it is obviously vital to their mission. In view of this the veterinary profession and the livestock industries have a massive communication effort ahead of them.

Another issue that has been raised is whether the Universities and academic science have diverted their efforts towards formal graduate training and research at the expense of the mission of the Land Grant system. This is a controversial issue but it is one that needs to be aired.

#### **Conclusions**

The future of food animal practice is dependent on the success of the livestock producing industries. Despite the current difficult financial situation for some segments of agriculture, there seems to be a promising future for the well qualified farmer's livestock enterprises. The problems faced by the producers are analogous to those of their veterinarians—they must be good at the biological aspects of their job but they must also be adroit managers and businessmen. I urge every one of you to read thoroughly the outstanding Keynote Address by Dr. Mayer for the World Buiatrics Congress (30).

The balance of the veterinary profession today seems too heavily weighted towards practice. It is time to make a major effort to develop the research mode to the highest quality so that the massive continuing losses attributable to health problems in livestock can be overcome. There are other fields relating to administration, communication, data processing and business management that must also receive a higher priority than they have in the past.

**Leaders of the veterinary profession must sit down and set their goals and aspirations. By undertaking a comprehensive planning exercise on the desired future of the profession and the options on how to attain it, as has been done by our sister profession of Dentistry (31), a course can be charted that will**

attract general support. No single person can be visionary enough to foresee the future for a diversified profession like ours. However a team of our best planners and thinkers can do this. The profession's future will continue to depend upon its being able to recruit young people of outstanding talent into its ranks.

#### References

1. Smithcors, J.F. Veterinary Medicine. In Encyclopedia Britannica 1981 Year Book of Science and the Future. pp. 360-363. 2. Gnatzig, Bill. There is no "Average Consumer". BEEF, August 1984, pp. 57 and 60. 3. Brown, M.S. and Goldstein, J.L. How LDL receptors influence cholesterol and atherosclerosis. Scientific American, 251:58-66, 1984. 4. Switzky, Debra. An untold story: The meat we don't eat. National Hog Farmer, Oct. 15, 1984, pp. 6 and 8. 5. Dirksen, G. Die Zukunft der buiatrischen Praxis in Westeuropa. Tierarztl. Umschau, 38:3-11, 1983. 6. Morris, R.S. The epidemiological approach—fad or strong foundation? 3rd International Symposium on Veterinary Epidemiology and Economics. Washington, D.C., September 6-10, 1982. Proceedings, pp. 7-13. 7. North Central Dairy Health Management Database Workshop, Itasca, Illinois, March 26-28, 1984. North Central Computer Institute, Madison, Wisconsin. 8. Troutt, H.F. Epilogue: Whence (an assessment) and Whither (a consideration). J. Vet Med. Educ., 7:25-27, 1980. 9. Eddy, R.G. Large animal practice: is there a future? Irish Vet. J., 36:68-71, 1982. 10. Sol, J. and Renkema, J.A. A three year herd health and management program on 30 Dutch dairy farms. I. Objectives, methods and main results. The Veterinary Quarterly, 6:141-148, 1984. 11. Sol, J., Renkema, J.A. and Brand, A. A three year herd health and management program on 30 Dutch dairy farms. IV Special aspects. The Veterinary Quarterly, 6:163-169, 1984. 12. King, L.J. The national animal disease surveillance program: unique characteristics. Paper presented at Am. Vet. Med. Assn. Annual Meeting, New Orleans, Louisiana, July 16-19th 1984. 13. Joint Council on Food and Agricultural Sciences. FY 1985 Priorities for Research, Extension and Higher Education; a Report to the Secretary of Agriculture. USDA, Washington, D.C., 1983. 14. Anderson, J.F. and Bates, D.W. Medical design for a total animal health care system.

The Bovine Practitioner, No. 19:26-32, Nov. 1984. 15. Wiseman, A., Allan, E.M. and Selman, I.E. A study of the respiratory diseases of adult cattle in Britain 4.IBR. Irish Vet. J., 38:141-151, 1984. 16. Griffiths, R.B. Global and regional animal disease control strategy. Proc. XXII World Veterinary Congress, Perth, Australia, 1983, pp. 8-10. 17. Acha, Pedro N. From concepts to programs: three decades of progress for veterinary public health and animal health in Latin America and the Carriibbean. Bull. Pan-Am. Health Org., 14:356-375, 1980. 18. Kolata, G. Scrutinizing sleeping sickness. Science, 226:956-959, 1984. 19. McHardy, N. Recent advances in the chemotherapy of theileriosis. In Riemann, H.P. and Burrige, M.J. Impact of Diseases on Livestock Production in the Tropics. Elsevier, Amsterdam, 1984. pp. 179-192. 20. Holmberg, S.D., Osterholm, M.T., Senger, K.A. and Cohen, M.L. Drug-resistant salmonella from animals fed antimicrobials. New Engl. J. Med., 311:617-622, 1984. 21. Hays, V.W. and Black, C.A. Update: antibiotics in animal feeds. News from CAST, 11 (No. 6), pp. 3-4, 1984. 22. Blackmore, D.K. A new approach to meat inspection. Nord. Vet.-Med., 35:184-189, 1983. 23. Thomas, K. Man and the Natural World. Pantheon, New York, 1983. 24. Fox, M.W. Towards a philosophy of veterinary medicine. Vet. Rec., 115:12-13, 1984. 25. Jacobs, F.S. A perspective on animal rights and domestic animals. J. Am. Vet. Med. Assn., 184:1344-1345, 1984. 26. Hannah, H.W. Animal trials. J. Am. Vet. Med. Assn., 185:955, 1984. 27. Spedding, C.R.W. Concern for the individual animal. Vet. Rec., 111:345-349, 1982. 28. Pond, W.G., Merkel, R.A., McGilliard, L.D. and Rhodes, V.J., editors, ANIMAL AGRICULTURE: Research to meet human needs in the 21st Century. Executive Summary. Westview Press, Boulder, Colorado, 1980. 29. Animal Health Research in American Agriculture Research. Report of a Workshop held at Winrock International Conference Center, Petit Jean Mountain, Morrilton, Arkansas. Published for Assn. of Am. Vet. Med. Colleges, Council of Deans, Feb. 24th 1984. 30. Mayer, E.V. The challenges of the world's increasing food shortage and optimal milk and meat production capacity confronting the veterinarian in bovine practice and research in the coming decades. The Bovine Practitioner, No. 19:xvii-xxx, 1984. 31. American Dental Association: Strategic Plan. Report of the A.D.A.'s Special Committee on the future of dentistry: issue papers on dental research, manpower, education, practice and public and professional concerns. A.D.A., Chicago, Illinois, 1983.

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### Profile of the President



*Jenks and twin brother Jack — now which is Jenks?*



*Well this one of course!*