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THE AMCA—REVIEW, UPDATE, AND FUTURE COURSE

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Presidential addresses given at past Annual Meetings of the American Mosquito Control Association (AMCA) have varied in content and focus, depending on the status of the Association and on issues that were having a major impact on our profession at the time when the address was given. During my presidency (1996–97), many challenges faced the AMCA that certainly could have affected its future. These challenges were numerous and occurred in rapid succession, and some were very serious in nature. Although I tried to keep the membership apprised of issues facing the AMCA in the *Newsletter,* I feel that it is important to summarize the events of the 1996–97 year in this final report.

One of the easiest duties as President, and certainly the most pleasant, was the privilege of attending regional and state meetings of allied mosquito biology and control associations. This has given me the opportunity to cultivate a true appreciation of the professional and geographic diversity that makes the AMCA both a unique and a powerful organization. Compared to some other scientific associations, we are considered moderate in the size of our membership. However, the motivation and loyalty of individual members, coupled with an atmosphere of commonality of purpose—safe and effective mosquito abatement—provide us with the foundation to overcome both internal and external obstacles. This has certainly been true during my presidency, when many individual members, the Board, and the Central Office stepped up to help curb or minimize the many problems we faced. I deeply appreciated the assistance from all those members who not only gave advice but, more importantly, volunteered to participate in the problem-solving process.

The most critical issue encountered during this year was dealing with the events surrounding and leading up to the resignation of the former Executive Director of the AMCA. With this resignation, the business office had to be reorganized and, more importantly, our Association's financial affairs had to be reassessed. The Board directed Ms. Pamela Toups to take over the daily responsibilities of the AMCA as our Business Manager. She has done an exemplary job in a very short period of time, assisting with our financial affairs, the Annual Meeting (Salt Lake City), and membership services, just to name a few of her mandated tasks. The financial status of the AMCA was positively redirected by the following Board actions: a reduction in office staff, monthly updates of the general ledger by an accountant, the Finance Committee working directly with our Treasurer, and a proposition to change the fiscal year of the Association to be more in tune with our yearly calendar and the Annual Meeting. In addition, the committee structure of the AMCA was reorganized into a task/charge-oriented system, with an individual Board member designated as a liaison for each committee. This reorganization, coupled with a task/charge philosophy, should prevent stagnation of our committees' abilities to function, as well as expedite their charges and actions and overall efficiency.

The results of the committee reorganization were certainly apparent in the actions of the Legislative and Regulatory Affairs Committee. We saw the finalization of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Minor Use pesticides question answered by the passage of the Food Quality Protection Act. This process has been ongoing for more than 5 years, starting with the work of the late Bill Hazeltine and finishing with the fine work of George Wichterman. We have also become a working partner with the U.S. Environmental Protection Agency (U.S. EPA) through the Pesticide Environmental Stewardship Program (PESP), spearheaded by Doug Carlson, and avoided a potential major threat to our profession by curbing the disastrous language on mosquitocide labels relating to bee hazards. All of these actions have added substantially to the growing respect others have for our profession. We are rapidly becoming active participants in defining issues and establishing guidelines that affect mosquito control. In this regard, we are the professionals and the experts.

The word "professionalism" is used quite often to help define a set of circumstances that an individual or group of individuals employs to define their scope of expertise. Webster defines professionalism as the conduct, aims, and qualities that characterize or mark a profession. Using this definition, it is important to review where we as mosquito biologists or medical entomologists fit in the world of entomology. Entomology, or the discipline that studies insects, is where we fit in the scheme

of the biological world. This is sometimes forgotten in our day-to-day operations, and has been totally forgotten in instances where key mosquito biology and control positions are filled with individuals not trained in or having an appreciation for the field of mosquito biology and control. It is important to our profession that we are an association composed of people who base their efforts on sound principles of basic mosquito biology. These basic biological principles can then be used to manage mosquito populations in an effective, environmentally safe, and economically sound manner. Because our primary goal is to manage the nuisances caused by mosquitoes, as well as the pathogens they transmit to man and animals, it is very important to add the word "applied" before "entomologist," "mosquito biologist," or "medical entomologist." Robert L. Metcalf, in an article published in the *American Entomologist* (Metcalf 1996), used a quote from his father, C. L. Metcalf (Metcalf and Flint [1928]), to define the aims that characterize the field of applied entomology. I have used editorial license to modify their definition to conform to our profession, by replacing the word "insect" with the word "mosquito" to read as follows:

> To a large extent the value of entomology is based on [mosquito] control . . . while the lessening of [mosquito] nuisances or the control of [mosquito]-borne disease outbreaks is not the end and aim of all [mosquito] studies, IT IS THE MOST IMPORTANT.

This statement pertains to our profession as much today as it did back in 1928. Over the last 70 years since the above definition was first coined, the professionalism of entomology has been challenged on several fronts. The misuse and abuse of DDT, a very effective pesticide, by agricultural and medical entomologists, was the springboard for the environmental extremism and chemophobia of the 1970s, 1980s, and 1990s—a major problem still facing our Association. This public perception in part has led to either the total elimination of, or otherwise has severely minimized, our participation in policy development at city, county, state, national, and international forums pertaining to mosquitoes and their control. Gwadz (1991), in a special publication of the Entomological Society of America, provides a critical review of the status of medical entomology, which can be summed up in the following quote:

> Regrettably, the preventive approach to vector-borne diseases, which is the province of medical entomology, is being neglected in lieu of the treatment/curative approach dictated by medicine . . . . Trained medical entomologists were replaced by health care managers.

This critical situation has led to a significant decrease in medical entomologists at the university, governmental, military, and mosquito district levels, as stated by John Edman in his 1996 Presidential address to the AMCA in Norfolk, Virginia (unpublished). The ramifications of this downward trend have already critically reduced the field of mosquito systematics and identification and will certainly affect the training of the next generation of applied medical entomologists and mosquito biologists. This comes at a time when we are in dire need of new technologies that can be applied under field conditions to abate nuisance mosquitoes and minimize the pathogens mosquitoes transmit.

Many may say that the Gwadz statement does not affect nuisance management of mosquitoes, which may be by far the major mandate of mosquito control districts in the USA these days. However, whenever a district or any mosquito control operation is not governed by entomological principles nor led by individuals having a high degree of training and experience in these principles as they pertain to mosquitoes, our profession is compromised. We tend to think that this may occur only in small communities where mosquito control is delegated part-time to a public works employee, who only sprays by day of the week, at times when traffic is minimal, or when the public or city councilman complains. However, how many mosquito control operations, irrespective of their size, maintain an active mosquito surveillance system for adults and larvae? How many of these operations know the species composition of their mosquito populations by site, and how many actually determine the control measure to be used by using entomological data such as mosquito species, larval instar, biting adult population, aggregation sites of adults, nature of the habitat, etc.? Dr. William R. Horsfall, during his long and distinguished career as a medical entomologist at the University of Illinois, always stressed that mosquito control operations are similar to a military operation, in that the intelligence about the enemy (mosquito) must dictate action (control method) but with an overlying respect for the environment. Similarly, we must ensure internal respect for our profession before external respect can be gained.

How do we address these issues? First, we must recognize, understand, and utilize the structure and composition of the AMCA. We are a strong and diverse organization that deals with every aspect of mosquito biology and control. The 3 components of the AMCA are illustrated in Fig. 1, with research, industry, and application each represented by the edge of an equilateral triangle. The common denominator is mosquito management. All 3 components must work in unison for the profession and Association to succeed. We, as a group, have already shown how effectively this triumvirate can work through our legislative actions on FIFRA, the partnership with the U.S. EPA through PESP, and the bee warning label issue. However, the research and training component should now have a high priority. We continue to lose through attrition our university, military, and governmental research and training partners. This is truly ironic because, at this time, while we continue to lose the arsenal of tools

Applied Mosquito Biology

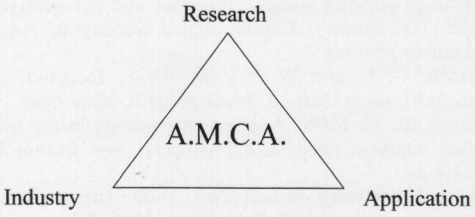

Fig 1. Applied mosquito biology: research, application, and industry are the foundation of the American Mosquito Control Association.

(especially insecticides) to control mosquitoes, we are seeing a global increase in emerging and reemerging arthropod-borne diseases. Also, environmental concerns continue to predominate policy (source reduction/environmental contamination challenged), and we need to apply new technology (especially molecular biology) to benefit and enhance our needs. But, what we *really* need to meet and satisfy all these *other* "needs" is a next generation of bright, dedicated, and well-trained applied mosquito biologists. Without people who can generate good empirical field data and first-line, top-quality development of new methods and technologies, we will continue to be open for attack or be ignored by both the parasites of our concern and the political entities that impact our profession.

Additionally, we, as an Association, must strive to implement the working dynamics of integrated mosquito management into mosquito control operations based in the USA and elsewhere in the world. Integrated mosquito management, based on a modification of the definition by the National Academy of Sciences (1969), is:

> an ecologically based system in which all variable techniques are evaluated and consolidated into a unified program to manage mosquito populations so that the quality of life and human and animal health standards are enhanced while minimizing adverse effects on the environment.

As you can see, this definition is based on a strong ecological and entomological foundation, where the total biology of the mosquito or mosquitoes in question is used to select the appropriate single or multiple action(s) to be included in a given mosquito control program, whether these actions be chemical, biological, genetic, habitat modification, or educational in nature. In fact, the AMCA has a standing policy on integrated pest management (IPM) of mosquitoes, which was adopted at the 35th Annual Meeting in 1979. This policy was published in the AMCA journal, *Mosquito News,* the same year (Axtell 1979). I strongly suggest that members read and review this policy and examine

Fig 2. Dr. Robert J. Novak. President of the American Mosquito Control Association, 1996–1997.

whether operations they know about or are affiliated with are in compliance. The guidelines provided by IPM are our first line of defense regarding our stewardship of the environment, and also provide the foundation for our mandate to abate mosquito problems. We as professionals should always deal with biological facts, not suppositions and fiction.

In summary, the AMCA during the 1996–97 year has had to overcome several serious problems. The strength and character of the AMCA was certainly tested and has overcome these various difficulties with flying colors due to the dedication and perseverance of the membership. We have made great strides that I feel have changed the AMCA into a very proactive Association. We must continue to work together. Based on my perspective, there are 6 areas in which continued work needs to be done: 1) the implementation of accreditation; 2) the reversal of the trend of medical entomology positions being lost at universities and within other agencies; 3) the international expansion of our membership; 4) an increase in mosquito abatement districts and programs; 5) the conduct of significantly more applied research to develop new methods and technologies for mosquito control; and 6) enhancement of public education at all levels.

I want to thank the Board of Directors, Commit-

tee chairs and members, the AMCA Central Office staff, and the general membership for all of their dedicated support during my presidency. I would also like to thank the staff of my laboratory for their endurance and support and Drs. Jimmy Olson and Robert Washino for their advice and shoulders. It has been my privilege to be President of the AMCA—an honor I will never forget.

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