

A Look at the Future of Aviculture and Avian Medical Management

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As aviculture settles into a new year and begins to approach the end of another decade, an evaluation of our accomplishments and our current status in the United States with relation to the global community of aviculturists is in order.

The past quarter century of avicultural experience, often as a result of trial and error, has produced tremendous gains in the understanding of the behavior and physiology of aviary birds. During this period, a quiet evolution has occurred in non-domestic avian husbandry. This process has occurred independently, through the efforts of a vast number of people who, in most cases, have worked alone, due to the lack of knowledge and governmental support as well as limited technology. A review of this information reveals some surprising conclusions.

Aviaries first built of chicken wire with wood frames have given way to the current state-of-the-art uniform wire and steel aviary rows, frequently positioned on concrete floors with controlled lighting systems. Flights of mixed species of questionable sex have been replaced by individually housed true pairs who have been correctly sexed, surgically or cytologically. Unsupplemented seed diets have been overshadowed by scientifically formulated diets produced by aviculturally sophisticated companies.

A great deal still remains to be discovered, but sufficient progress has been made to establish a definite trend. A close look at the domestic breeding of the poultry industry reveals a very similar evolution, which occurred decades ago with tremendous technical and financial aid from the government.

Now, with the interest of breeding non-domestic species becoming a wide-spread endeavor, it too has achieved the status of an industry, albeit a very young and fragmented one. Just as the backyard chicken farmer graduated into the modern day corporate poultry industry, so is cap-

tive breeding of non-domestic species heading on the same path.

As current understanding of captive bird behavior increases, coupled with decreasing numbers of wild-caught birds available, aviculturists have major incentive to redouble their efforts to salvage endangered species. To this end, better equipment has become increasingly available commercially. Additionally, the quality of medical treatment and the extent of preventive avian medicine must follow suit to offset the gaps in a slowly accelerating captive reproductive program.

A certain level of success has been achieved using greater uniformity and more control in the birds' environment, such as automatic watering systems, artificial temperature control and fully enclosed aviaries designed to minimize environmental distractions (especially effective for high stress birds). Limited success is not the answer and complacency is a dangerous companion. I have yet to find a breeder who has more babies or success than he can handle, and so the challenge continues.

As imported bird numbers continue to drop for a majority of the commercially available species, the cost of bird replacement in all but a few basic breeds will rise at an unprecedented rate. This is already evident with several more species of psittacines being added to the Appendix I list (i.e., green winged macaw). This shortage of birds is not just potential, but reality, obvious after years of speculation. Professionals in zoological centers and major bird importers are unanimously voicing the same opinion: a future of less birds, less species and higher costs. (This process is predicted to be very short when compared to the decades of abundance aviculturists previously enjoyed.)

This dark cloud does have its proverbial silver lining. As the availability decreases and the cost of exotic birds increases, the stimulus for greater breeder efforts and increased technological advances will begin to aid the common aviculturist.

Ideals aside, nothing drives an indus-

try to greater goals than the potential for financial reward. The greater the price of baby birds, the greater the incentive. A balance must be achieved to assure that the total number of babies produced be sufficient to prevent sale prices from escalating beyond the reach of the average aviculturist.

Conditions must exist wherein an adequate pool of new breeder stock is available for a healthy level of genetic variations. The means to accomplish this end has not yet been perfected, but some of the fundamentals do exist. I believe the key lies in the marriage of several disciplines of science for this common goal.

My personal involvement is primarily medical, but to an extent also avicultural. Some of my conclusions are prejudiced to my viewpoint, but the obvious need for interaction with experts contributing from other vantage points can only serve to create a balance for the benefit of us all.

Specifically, I am convinced that we should alter our views of domestic aviculture and its survival to acknowledge that there are really two main facets to our industry: a pet segment and a production segment. These must co-exist and support each other while retaining very different needs.

To further elucidate, the production faction includes both the hobbyist and the livestockman, who must be accurately identified in order to provide for each one's specific needs.

We have matured as an industry to the point where veterinary services for the avian livestockman is both current in the latest technology as well as economically feasible. This has been achieved in limited form in a few private operations, but has no active counterpart in the private sector.

As birds command higher prices, improved reproductive rates and more intense breeding will be demanded. The exotic bird industry will maintain greater bird population density per farm, with the ensuing new disease and management problems.

The result is increased risk factors that facilitate spread of disease and

stress-related health conditions. Our new industry will spawn new diseases not previously seen and new challenges not previously thought of.

This is exactly the same phenomenon which occurred in the swine, cattle, and poultry industries when their animals were moved from ranges and into intensive confinement systems with high densities and high tech management. Rewards can be much greater, but so can the risks.

Agricultural livestock has many proven vaccines and other preventive medicine, whereas there are very few such drugs available to the aviculturist. Vaccines are one of the biological wonders of the twentieth century, that allow for high density livestock production to exist with some guarantee of disease control. The future of aviculture will be strongly dependent on them.

Unfortunately, the commercial production and testing of these vaccines will not be easily accomplished. This is due to the complexity of the many serotypes of the currently identified and emerging viruses, as well as governmental guidelines.

In the meantime, some ongoing testing programs can be put to immediate use to further the understanding of a particular flock or aviary. This can serve to conquer ongoing health problems, thus preventing needless waste of lives or money.

The key to a clear understanding depends heavily on blood screening, serum antibody levels (serology) to monitor exposure levels to viruses and chlamydia, as well as cultures to identify the presence and shedding of potential pathogens.

Some of these tests can be accomplished easily at this time with minimal cost, though some tests cannot be relied upon completely due to the nature of the organisms and our current technology.

Another aspect which must be addressed, in order to remain technically accurate and economically feasible, is the extent of testing necessary to assure a high level of confidence in the interpretation of the test results. Ideally, 100% of the flock should be checked for each disease. However, the cost of this, added to the stress to the birds and the total blood volume needed from each bird, must be balanced against the information gained. There exists a break-even point for the percentage of an aviary tested needed to statistically evaluate its health status.

Unfortunately, the percentage

required for lab work can vary from disease to disease, species to species and for different housing and management systems, as well as the method of testing chosen. Also note that certain diseases are of greater interest than others (i.e., *Candida* vs. Pacheco virus). A greater degree of bird contact and age (such as infants or juvenile birds) may also have a profound influence on how the flock testing is approached.

A great amount of this information is not known and will probably not be determined until a large number of flock results are available for statistical analysis.

Cost efficiency must also be maintained to assure the breeder's financial capacity to both pay for services and recoup a profit, making it advantageous to him.

This task is a formidable one, but with the aid of the proper computer programs, the veterinarian possesses a powerful tool to speed up the process. The introduction of the computer program also allows for the participation of the veterinary epidemiologist to correctly identify disease trends, both in their appearance and in their control.

The ultimate goal is to compile all the pertinent data to create a disease projection model, which would be unique for each aviary. This would combine medical data with the sum of the environmental influences such as daily humidity and temperature changes, diet, age, species, season, state of reproduction, etc. No two aviaries are identical in their construction, management or goals.

Some excellent work has been accomplished in some private institutions (i.e., Avicultural Institute in Newhall, California), but none has been attempted commercially or on this scale. Initial planning is currently ongoing to evaluate the feasibility of such a program, conducted at the epidemiology department of one of the major veterinary schools. This project has unlimited potential, but will realistically require several years to be available to the average aviculturist. The links of cooperation have been established and a start has been initiated.

Concisely, what is being discussed is a routine preventive avian medical program, set up on a scheduled basis, patterned after dairy or poultry layer flock preventive health programs, with the same emphasis on monitoring and therapy before problems become visible.

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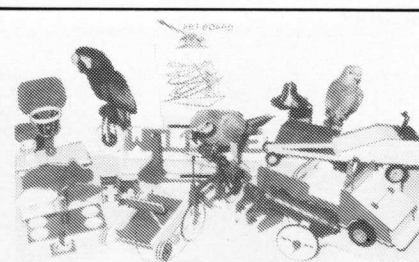
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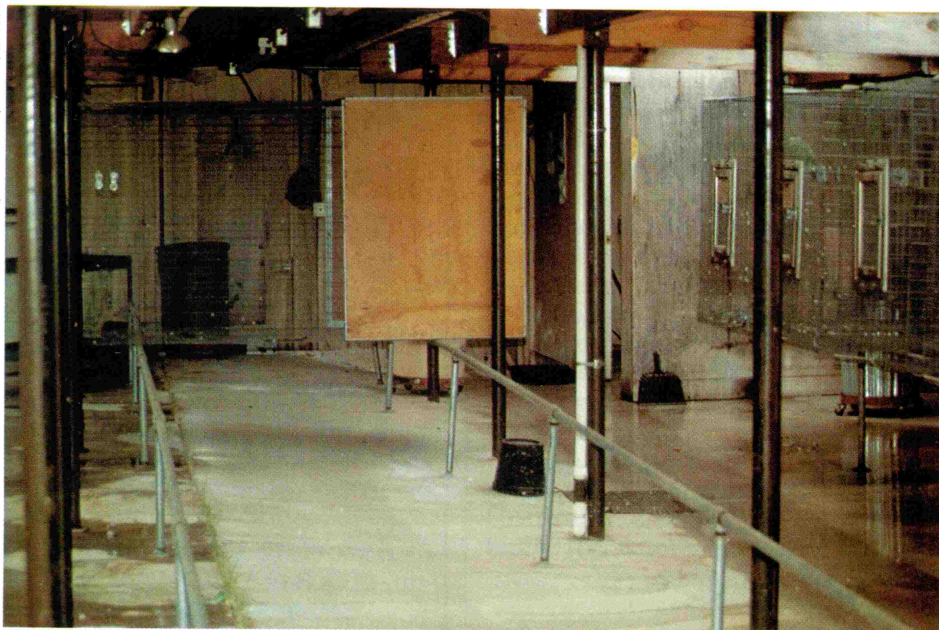
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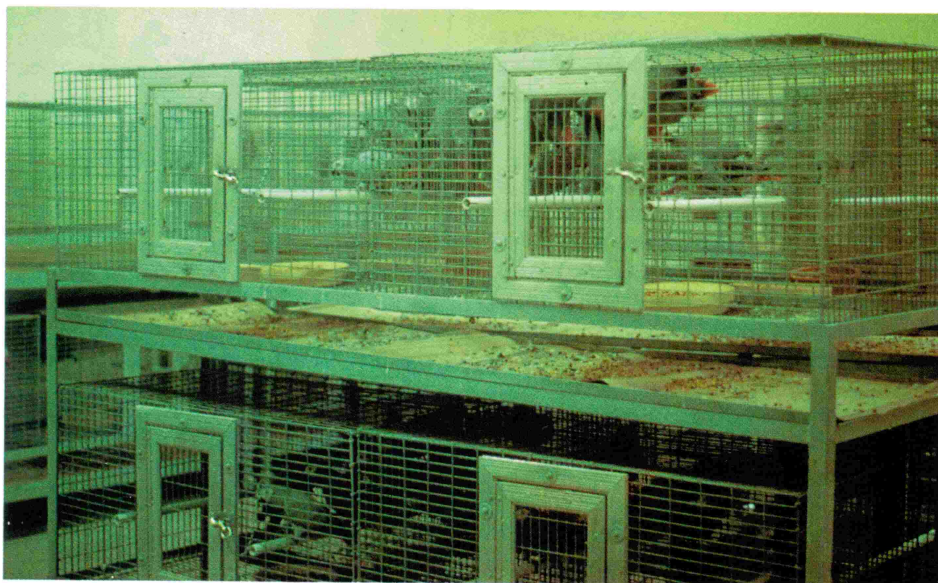


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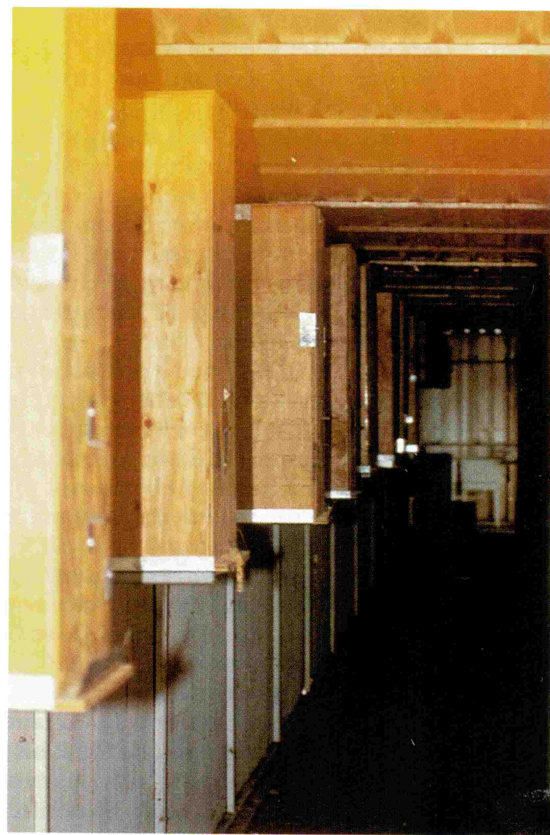
Concrete flooring is mandatory to control disease problems in these high density facilities.



A commercial holding station load. This sight will become increasingly rare in years to come.



Large, enclosed flights with environmental control are becoming state-of-the-art aviaries. There is a minimum of distraction for the birds.



These nest boxes mounted behind a flight row also serve as a collection system for eggs to be incubated.



Uniform feed bins along a service aisle allow for this mini-macaw breeder to control diet type and volume.

These identical Amazon parrot flights can be interchanged or removed for disinfection.



Uniform flight rows lend themselves to high efficiency regarding construction and labor costs.



A conure aviary with above-floor free-standing cages so spoiled food and fecal contact is minimized.

On-sight aviary labs allow for rapid diagnosis of certain problems on a daily basis.



mize sampling efficiency. This would also allow for some lab sample processing to occur on site, which would improve both lab sample quality and speed of results. On site vet visits would allow for improved data input quality and quantity, which is frequently less than desired in flock health analysis.

So what does all this forecasting mean for you and aviculture's future? Without an immediate and forthright effort to initiate this process, or another with similar goals, we may well find ourselves in an indefensible position. Given that we may have a few years to continue our current approach, the time required to implement these programs is available if we seriously undertake the effort now. The benefit to us is a preventive aviary program which can pay off handsomely in babies, profits and the future of aviculture.

Hopefully, the days of chasing some dread disease just to see it wind down before diagnosis and cure can be effected, with disastrous results to the flock, will end in this century. Perhaps the greatest challenge is to commit time, money and effort to something we cannot see and, if successful, will never see by virtue of being one step ahead of aviary infirmities.

Aviculture is now in a position to take advantage of previously untapped resources, especially from well established herd health programs.

It helps to re-emphasize some old axioms that bear re-examination from time to time. With all these new diseases and management aspects appearing, being discovered and requiring control measures, one common denominator becomes very evident. Stress plays a critical role in disease onset and control. Birds with reduced stress levels are at a lower risk. The single greatest tool for stress reduction is good husbandry. Therefore, good management and high quality care is good medicine.

A good veterinarian must also act as a top manager consultant. Probably the greatest measure of success for a vet should be of the amount of forethought and not the number of drugs he uses.

What is needed to accomplish this goal is a hard re-evaluation of our knowledge and our long term plans, as well as the level of cooperation needed to pursue these advances in the future of aviculture at an unprecedented level of excellence.

Special thanks to Laurie Parker for her unselfish contribution to this article. ●

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