

PRESIDENTIAL ADDRESS

"Aquatic Plant Management Through the Years: What Our Record Shows"¹

RICHARD COUCH², PRESIDENT, 1988-89

I've nurtured the notion for several years that our profession, aquatic plant management, has many similarities to the medical profession. Why? Because most people don't seek medical help nor advice until they're sick. Neither do aquatic plant managers see their patients; namely aquatic ecosystems, until they're sick (out of balance). For these patients, the casual agent is usually excessive growth of algae and/or one or more weedy macrophyte species.

The medical profession has searched for and used medicines, which are chemicals, for many years in the treatment of sicknesses and diseases in human beings. Likewise, aquatic plant managers use their medicines, chemicals called herbicides and algicides, in the treatment of their patients' ailments. It's only been in recent years that the medical profession has vigorously promoted the concept of health maintenance as evidenced by the proliferation of "HMO's" around the country. I gather the "HMO" concept is catching on to varying extents around the world, but is still very much in the developmental stage in most areas of the globe. Likewise, the concept of preventative management of aquatic ecosystems is still an embryonic idea. I seriously doubt that many, if indeed any, aquatic plant managers have the luxury of being true managers of aquatic ecosystems in the real sense of the word. Instead, reality dictates that most practice "cure" therapy rather than "preventive" management, just as do our medical counterparts.

About the time I was crystallizing these thoughts into written word, the December, 1988 issue of "*Aquatics*" came in the mail. In it was printed an analogy that dramatizes the dilemma that now faces our profession. I want to read it for the benefit of those that didn't read it—and ask for the indulgence of those that did read it. The analogy is most applicable to the developed countries of the world. It's entitled:

"IN THE BEGINNING

In the beginning
There was Earth; beautiful and wild; and then man
came to dwell.
At first he lived like other animals
Feeding himself on plants and creatures around him.
And this was called *In Balance With Nature*.
Soon man multiplied.

He grew tired of ceaseless hunting for food.
He built homes and villages.
Wild plants and animals were domesticated.
Some men became Farmers so that others might become Industrialists, Artists, or Doctors.
And this was called Society.
Man and Society progressed.
With his God-given ingenuity, man learned to feed, clothe, protect and transport himself so that he might enjoy life.
He built cars, houses on top of each other and nylon.
And life was more enjoyable.
The men called Farmers grew more efficient.
A single Farmer grew food for 45 Industrialists, Artists and Doctors.
And Writers, Engineers and Teachers as well.
To protect his crops and animals, the Farmer produced substances to repel or destroy Insects, Diseases and Weeds.
These were called Pesticides.
Similar substances were made by Doctors to protect humans.
These were called Medicine.
The Age of Science had arrived and with it came better diet and longer, happier lives for more members of Society.
Soon it came to pass
That certain well-fed members of Society disapproved of the Farmer using Science.
They spoke harshly of his techniques for feeding, protecting and preserving plants and animals.
They deplored his upsetting the Balance of Nature;
They longed for the Good Old Days.
And they had emotional appeal to the rest of Society.
By this time Farmers had become so efficient, Society gave them a new title: Unimportant Minority.
Because Society could not ever imagine a Shortage of food
Laws were passed abolishing Pesticides, Fertilizers and Food Preservatives.
Insects, Diseases and Weeds flourished.
Crops and Animals died. Food became scarce.
To survive, Industrialists, Artists and Doctors were forced to grow their own food.
They were not very efficient.
People and government fought wars to gain more agricultural land.
Millions of people were exterminated.
The remaining few lived like animals.

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Feeding themselves on creatures and plants around them
 And this was called *In Balance With Nature.*" (Anonymous, 1988)

There is indeed an approaching world-wide environmental crisis. The major components of this crisis are acknowledged to be exponential population growth, pollution, finite natural resources, and biological depletion. The crisis will be brought on by swelling populations of humanity bent on exploitation of natural resources without regard for limits imposed by the environment. To avoid the consequences described in the analogy requires that we achieve a sustainable relationship between earth's humanity and earth's finite resources. But how? For mankind to live "in balance with nature" would require a much diminished human population. Even present-day populations cannot be adequately sustained without the use of fertilizers, pesticides, genetically improved plants and animals, and modern farming techniques. These aids to production have been largely responsible for the dramatic increases we've witnessed occurring in recent times in both quality and quantity of food and fiber production. And I don't see how mankind can continue to feed and cloth an ever increasing population without the continued use of every conceivable, beneficial production aid. But at the same time, we must be cognizant of the fact that life on planet earth has had no prior experience with most of the 70,000 chemicals mankind has discovered and produced in the last 50 years or so. Thus it behooves us to be constantly alert to potential local and global detrimental affects brought on by the use of these chemicals. Therefore, "society's" concern as expressed in the analogy must be acknowledged so we'll be stimulated toward more reasonable stewardship of earth's natural resources.

Reading this analogy caused me to wonder what contribution, if any, our Society was making toward a better understanding of the aquatic environment. Are we striving to become better stewards of the aquatic environment? Or have we been content to simply practice "cure" using our chemical therapy alone?

In that same issue of *Aquatics*, Stan Nichols, Sandy Engels, and Tom McNabb (1988) summarized a workshop they prepared and conducted for the Portland North American Lake Management Society meeting. It was entitled "Developing a Plan to Manage Lake Vegetation". This article reminded me of the training program I developed a few years ago for training individuals interested in acquiring state certification in the "Aquatics" category of the Oklahoma Department of Agriculture pesticide applicators certification program. My program outline was very similar to the one reported by Nichols, Engels, and McNabb. Reviewing this material in turn reminded me of the report Louis Decell (1987) gave at the 25th annual meeting of the Aquatic Plant Management Society in Vancouver he entitled "The printed word: A mirror for reflection". I began to wonder how our published word in the *Journal of Aquatic Plant Management* would fit if categorized into those management techniques acknowledged as being sound management tools for aquatic ecosystems. So I searched all the issues of the *Journal of*

Aquatic Plant Management, categorizing the printed articles into the appropriate category. I decided to add a category called "Restoration" inasmuch as this management option seems to have a bright future in aquatic plant management. As I began the categorization process, I quickly found the need for an additional category. I called this one Research with three subdivisions; namely Biological, Ecological, and Operational. Into these categories I placed articles dealing with basic research about the biology of aquatic plants, about the ecology of aquatic ecosystems, and those "how we do it" kinds of operational research. I categorized all these articles into the three decades the *Journal of Aquatic Plant Management* has been in existence. The information is summarized in Table 1.

Aquatic plant managers have never been involved in those aspects of aquatic plant management deemed important to the prevention of aquatic plant problems such as the selection of good sites for the construction of new lakes, in the proper design of lakes to prevent problems, etc. Or if we have, it's something we haven't written about in the *Journal of Aquatic Plant Management*.

About a third of our members' activities over the years I classified as "control measures". As with the medical profession, we remain basically in the business of treating sick patients. But what might be as surprising to you as it was to me is the research attention we've devoted to our "medicines" (herbicides and algicides) has steadily declined over the years, from about 34% of our research attention in the 1960's down to about 16% in the 1970's with a further decline to about 14% in the 1980's. Accompanying this decline has come a corresponding emphasis, starting in the 1970's, upon the use of other control measures; namely habitat manipulation, harvesting, and biological control using fish, insects, and pathogens. Furthermore, we more than doubled our utilization of "integrated" measures for the management of excessive growths of problems plants. I was also surprised by the number of reports, as

TABLE 1. SUBJECT MATTER OF ARTICLES PUBLISHED IN THE JOURNAL OF AQUATIC PLANT MANAGEMENT, 1962-1988.

Aquatic Plant	Research Subject Matter (%)			
	Management Techniques	1960's	1970's	1980's
A. PREVENTIVE MEASURES (Site Selection, Construction, etc.)		0	0	0
B. CONTROL MEASURES				
1) Habitat Manipulation			4.5	4.2
2) Harvesting		1.7	7.3	3.0
3) Biological - Fish		5.6	3.0	
- Insects		0.9	5.6	6.6
- Pathogens		2.2	3.6	
- Other		0.9	2.2	1.8
4) Chemical - Algicides		1.7	1.2	
- Herbicides		33.9	16.3	13.8
C. INTEGRATED MEASURES		3.5	7.3	8.4
D. RESTORATION		0.9	3.4	3.0
E. RESEARCH - Biological		12.2	16.9	26.9
- Ecological		16.5	17.4	25.7
- Operational		29.6	9.6	2.4
TOTAL NUMBER OF MANUSCRIPTS		115	178	167

early as the 1960's, describing what we would now classify as "restoration" of aquatic ecosystems. I predict we'll have a proliferation of restoration projects in the 1990's.

My biggest surprise came with the discovery of the emphasis we've placed upon basic research during the years our Society and Journal have been in existence. Operational research reports have decreased over the years. This would be expected since the early years of aquatic plant management required a great deal of emphasis upon solving the myriad of practical problems necessary for the implementation of a successful management program. The decline of operational research reports, from about 30% in the 1960's to less than 3% in the 1980's, in the Journal of Aquatic Plant Management has been accompanied by dramatic increases in both biological (12 up to 27%) and ecological (16 up to 26%) research reports. Again, here's a similiarity to the medical profession. As applicators, we're practicing our kind of medicine as do MD's. As researchers, we're doing what PhD's in medicine do. Then there are many in this Society that are both applicators and researchers, the equivalent of the dual MD/PhD degree holders.

Finally, note the numbers of manuscripts published in the Journal of Aquatic Plant Management during the three decades. But remember, the Journal of Aquatic Plant Management was first published in 1962. And the 1980's numbers included information published just through 1988.

What does all this information mean to the members of the Aquatic Plant Management Society today? For one

thing, we can take pride in the fact that our management techniques research, from the very beginning, has been leading us in the direction of learning how to better manage aquatic ecosystems. We're doing what we can and should be doing to learn to become good stewards of those ecosystems for which we claim some expertise and to which we've dedicated our careers. It takes time to achieve worthy goals. Just as the medical profession has not achieved its goal of complete health maintenance for its clientele, neither have we in aquatic plant management. And we've been practicing our brand of medicine a lot less time than have the MD's. We may never achieve the lofty goal of complete preventive management of aquatic ecosystems. But we can and must keep learning. In the interim, we can be proud we're headed in the right direction. And so long as we keep our sights set upon the lofty goal, we can take satisfaction in the fact we're doing all we can of what we should be doing. So I conclude with "congratulations members of the Aquatic Plant Management Society". The records show you've been doing a good job. Just keep up the good effort!

LITERATURE CITED

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