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Interview with Dr. Rod O'Connor

(In this special issue on toxicology, we have interviewed world famous toxicologists. The first two to be interviewed were Dr. Donna Seger and Dr. Tim Tracy. This is the third and final interview in this special series.

Dr. O'Connor retired as a Professor of Environmental Studies at Baylor University in Waco, Texas in 1999. Since that time he has been employed by his own company, Chemical Consulting Services, in College Station, Texas as a consultant and expert witness, specializing in chemical safety and exposure reconstruction. His most recent paper, to be published in March 2005 by Environmental Forensics, is titled "Transformations, Air Transport and Human Impact of Arsenic from Poultry Litter". Dr. O'Connor holds 42 patents, including methods for removing arsenic from water and from soil, and is an author of 38 books and booklets and 123 technical reports and published papers. He received his Ph.D. in physical organic chemistry from the University of California at Berkeley in 1958.).

Rod O'Connor



We at the "Anil Aggrawal's Internet Journal of Forensic Medicine and Toxicology" approached him for an online interview and he graciously agreed. The interview was conducted by the guest editor of this issue Professor V.V.Pillay for well over two months. Some excerpts.. ..)

Q. 1) You seem to have had a long and distinguished career in the field of Chemistry. What exactly are your achievements in relation to Toxicology??

A. My academic training was in chemistry, physics and mathematics, and I have never taken a biology course. Accordingly, my work in the field of Toxicology has been limited to chemical and biochemical areas. I did teach both upper division and graduate courses at Baylor University in Waco, Texas on the subject of Environmental Toxicology. As part of those courses I taught students how to prepare Toxicological Profiles and how to do exposure reconstruction for both acute and chronic exposures to toxic chemicals. In the 1960s and 70s, my work in the chemistry and toxicology of insect venoms resulted in papers on Death from Insect Sting and a Comparison of Whole Insect Extracts, Venom Sac Extracts and Pure Venoms for Treatment of Insect Sting Allergies. The latter was a key element in the subsequent U.S. ban on whole insect extracts for hyposensitization treatments. Dr. Arun Basu from Burdwan University worked with us on some of the insect venom studies.

Q. 2) Could you tell us something more about the Chemical Consulting Services that you have started?

A. Chemical Consulting Services is a sole proprietorship that I started several years ago as a part time consulting activity, primarily for consulting to environmental engineering firms. When I began doing more forensic consulting in 1996, the emphasis of the company changed, and it is now about 90% forensic consulting and expert witness work. I am the sole "employee", but I work with a number of independent contractors and other consultants, many of whom are MDs or PhDs with specialties that complement my own.

Click here to download Dr. Rod O'Connor's CV.

Q. 3) You have been instrumental in developing a number of patents. Anything that has a direct impact on toxicology?

A. Most of my patents deal with environmental chemistry, so I suppose one could consider that an aspect of toxicology. In that respect, my most important patents are:

" **Process for Removing Arsenic from Water** " **,** with Mark O'Connor, ***U.S. Patent No. 5,182,023*** (01/26/1993)

" **Process for Removing Arsenic from Soil** " **,** with Mark O'Connor, ***U.S. Patent No. 5,290,528*** (03/01/1994)

...My older son, Mark, and I designed a system for removing arsenic from water by high-efficiency reverse osmosis. One of the units that Mark built has been used for several years in treating groundwater near Atlanta, Georgia contaminated by arsenic, chromium and copper...
Q. 4) Could you elaborate on that?

A. My older son, Mark, and I designed a system for removing arsenic from water by high-efficiency reverse osmosis. One of the units that Mark built has been used for several years in treating groundwater near Atlanta, Georgia contaminated by arsenic, chromium and copper. Those patents were sold several years ago, and I do not know where else they may have been used.

Q. 5) What do you think of the situation with reference to environmental toxicology in the USA? Is it something that is being tackled effectively, or do you feel that a lot more needs to be done?

A. Environmental toxicology in the U.S. is a subject of a large number of papers in a variety of journals. However, official groups, such as the U.S. EPA and the Agency for Toxic Substances and Disease Registry (ATSDR), and many environmental engineering firms, sometimes appear to be overly concerned with avoiding public alarm. For example, the practice of performing risk assessments on "wipe" samples of house dusts (which cannot distinguish between high loadings of slight contamination and small loadings of high contamination) is generally used to assure people that there is little or no problem. In fact, the risk assessments frequently consider only current and future exposures to the measured dust - which may vastly underestimate health risks from inhalation and ingestion of the contaminants during the time the dusts were being deposited.

Q. 6) You are an expert in Arsenic poisoning. I need to ask you a question which several of our readers would like to know. Why is it that sea food contains arsenic in appreciable quantities. Is it true that bottom eating fish have greater quantities of arsenic than the fishes which thrive at surface?

...Writing reports and papers is just a normal part of my work, which I enjoy very much, so a long work-week is a joy, not a problem...

A. I do not know the specific answer to your question, but I have a reasonable idea as to why bottom feeders might accumulate more arsenic. It is well established that a very high percentage of inorganic arsenicals in water are adsorbed onto colloidal particulates, rather than being in true solution. Accordingly, bottom feeders are probably in an area of higher colloid concentrations, and thus greater arsenic intake.

This theory would also suggest that fish in muddy waters would have higher concentrations of arsenic than fish in clear waters, assuming equal total arsenic concentrations in the waters.

Q. 7) Great! That makes sense. Tell me, you have been such a prolific writer, having authored numerous books and scientific papers. How do you find time for that amidst your hectic schedule?

A. Writing reports and papers is just a normal part of my work, which I enjoy very much, so a long work-week is a joy, not a problem.

Q. 8) Any plans of writing fiction?

A. I have thought of writing fiction, but I don't think I have the skill for that.

Q. 9) You have visited India sometime in the past. What do you remember of that visit, and your impressions about this country?

...I remember many things from my eight weeks in India in the summer of 1965. I found the people to be remarkably friendly. I found that I truly enjoyed Calcutta curry - if I had plenty of water to cool my tongue (ha!)...

A. I remember many things from my eight weeks in India in the summer of 1965. I found the people to be remarkably friendly. I found that I truly enjoyed Calcutta curry - if I had plenty of water to cool my tongue (ha!). I had the adventure of riding in a trishaw on the Grand Trunk road at 2:00 am on a morning when a column of Indian tanks roared along and knocked us off the road (by accident). Perhaps most important, I became friends with Dr. Arun Basu, a young assistant professor at Burdwan University who got ammonia in both eyes. We could not in those days find a doctor in India who could do cornea transplants, except on children, so as soon as I returned to the U.S., I hired him as a postdoctoral fellow and we got him the cornea transplants. We worked together for three years, after which he returned to India. We corresponded for many years, but I have now lost track of him.

Q. 10) What are your future plans, particularly in the field of toxicology?

A. My future plans depend very much on the work requested by my clients. I will be working a lot for the next couple of years as an expert witness in cases involving multiple toxins from poultry litter, dioxin exposures from industrial sites, and from the burning of chemically-treated wood in homes in southern Mississippi, and exposures to toxic emissions from coal burning power plants. In all of these cases, I do extensive literature searching and I typically perform calculations for exposure reconstruction analysis.

...Many years ago, I prayed for "interesting work". That prayer has been granted abundantly, and I enjoy my work more than any "leisure activity"...

Q. 11) Could you tell us something of your leisure activities? What is your preferred method of relaxation, of unwinding from the pressures of work?

A. Many years ago, I prayed for "interesting work". That prayer has been granted abundantly, and I enjoy my work more than any "leisure activity". When we were younger, my wife and I used to love hiking in the mountains of Montana and Colorado. Now that we are in our seventies, our activities are considerably less vigorous. My usual method of relaxing is to work three or four crossword puzzles from the New York Times.

Q. 12) Could you share with us some experience (personal or professional) that has left a deep impression in your mind?

A. In September of 1998, my older son, Mark, and I were contacted by the WHO group that was concerned with arsenic pollution of water in West Bengal and Bangladesh. When I got home that night from teaching at Baylor, I called Mark about 10:30 pm and asked him how he would like to go to India with me to help with the arsenic problems. He was very excited, since he had heard many of my stories of my 1965 adventures, and since he had known Dr. Basu. Mark died in his sleep that night at about midnight. He is listed as a coauthor on our forthcoming paper on arsenic from poultry litter.

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Interviews : Collective Index Interviews in our sister publication : Collective Index

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