

Ask an Acoustician: Arthur N. Popper

Arthur N. Popper
and Micheal L. Dent

Meet Arthur N. Popper

In this, the last “Ask an Acoustician” essay, we feature Arthur N. (Art) Popper. I thought it was fitting that Art, as editor of *Acoustics Today* (AT), write the final article in this series of interviews. Art received his BA from New York University, The Bronx, New York, and his PhD from the City University of New York. He had faculty positions at the University of Hawai‘i, Honolulu, and Georgetown University, Washington, DC, before moving to the University of Maryland, College Park, in 1987 (where I got to know him when I was a graduate student). Art is a Fellow of the Acoustical Society of America (ASA) and has served on many committees of the ASA over the years. Currently, in addition to serving as the AT editor, he is the coordinating editor for animal bioacoustics for *The Journal of the Acoustical Society of America*. I will let Art tell us the rest.

A Conversation with Arthur N. Popper, in His Own Words

Tell us about your work.

I am “semiretired” in that I no longer have a regular appointment at the University of Maryland where I worked for over 25 years. But I continue to be very active professionally, doing research, writing, editing, and a bit of consulting. Perhaps the thing I enjoy most is editing AT. Indeed, AT takes up a good deal of my time since I not only work with authors to develop topics but also review and edit all articles and essays.

Of the time I spend on AT, the most time consuming and interesting is working with the authors to hone their contributions. By this, I mean that our goal for AT is to have scholarly content while communicating science and technology in ways that every member of the ASA can read and understand. The “problem” is that most of us are trained to write for peers and at very technical levels, and so communicating complex material to a broad audience is a challenge. Fortunately, most authors are responsive to my



Figure 1. Art Popper with his grandkids (left to right) Emma, Sophie, and Ethan.

“pushing” them to communicate with our very broad ASA audience, but this may take anywhere from 3 to 12 iterations of a manuscript. I am pleased, however, that authors not only thank me for working with them but also often tell me that they learned a good deal about how to communicate their work to a broader audience, which might include a dean, a CEO, the public, or their grandparents.

I also continue editing a series of books, the Springer Handbook of Auditory Research (volume 74 is in press) (Fay and Popper, 2014), I have also been writing several scholarly papers each year, mostly related to my interests in the effects of anthropogenic sound on fishes and other aquatic life (e.g., Popper and Hawkins, 2019), and I am part of several research projects on the potential effects of anthropogenic sound on fishes.

Describe your career path.

My path is one of serendipity, which I discussed in Popper (2014). Opportunities arose and I followed their trail. Indeed, I keep being amazed that if I’d made a different decision at various points, my career might be very different.

Just as a few examples, I got started doing research on fish because, on my way to school one day (New York University), I had a few minutes to spare before my bus would come and so I stepped into a new pet shop. I found a tank holding fish without eyes, Mexican blind cave fish. I got very curious about these fish and asked one of my professors, Douglas Webster (who later became a good friend), about them. He invited me to do research on hearing in his laboratory. This led to my working in the world-renowned Ichthyology

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Department at the American Museum of Natural History (AMNH; New York) where, one day, one of the investigators happened to show me an otolith (a fish “ear bone”); little did I know then that otoliths would become an integral part of my future research. Ultimately, my time as an undergraduate working at the AMNH led me to the museum’s Department of Animal Behavior where I met William N. Tavolga (see <https://www.ahukini.net/tavolga>). Later, Bill became my doctoral advisor, life-long mentor, and very close friend to my wife Helen and myself. And Mexican blind cave fish became the subjects of my doctoral research and my first two research publications!

More recently, I was called by a researcher for the US Congress and asked about the response of salmon to sound. She then asked me to review the literature on how sounds can be used to control fish movement. That path led me to other opportunities that ultimately resulted in a substantial shift in my research from doing basic science to applying the work I’d done for the first half of my career to real-life problems.

I could go on, but my point is that I have been truly fortunate to not only have a great career but to also be able to take advantage of opportunities that arose unexpectedly.

What is a typical day for you?

Unlike when I was “working,” my day starts with reading *The New York Times*. A positive thing about semiretirement is that I no longer must attend department meetings, sit on tenure committees, or seek grant funding. (Although I do miss teaching and working with students.) Most of my day is devoted to writing and editing, meeting with colleagues on joint research and writing projects (via Zoom), or working with groups around the world on issues related to the effects of anthropogenic sound on the aquatic environment.

I do interrupt my day with various nonwork things. I am reasonably active in the community in which we live, and so I work with various community groups dealing with such things such as strategic planning and development of electric car charging stations. I also try to get to our local fitness center to work out or swim at least four days a week.

How do you feel when experiments/projects do not work out the way you expected them to?

Part of doing science is that things don’t always work out. Indeed, I try to teach students that one of the most important things they can learn while they are a student

is that experiments often do not work the first, second, or even fifth time and that they must accept this and come up with ways to solve problems. So, I try to figure out why things may not have worked and ask whether I was asking the wrong question or if I’d tried to answer the question in the wrong way. And then I explore other approaches. I try not to give up but to be creative.

Do you feel like you have solved the work-life balance problem? Was it always this way?

As a semiretiree, my focus is on family and work comes second. So, my work-life balance now is primarily life-work. When I was working, this was harder, but I think I handled things pretty well and that my priority was always Helen and our girls, Michelle and Melissa. Of course, I am truly fortunate that Helen has always been extraordinarily supportive of my work, and, as a biologist herself, she has some appreciation of the work I do¹.

What makes you a good acoustician?

I want to rephrase this question: What makes me a good scholar? I say this because I don’t classify myself as an acoustician per se but rather as a biologist (or neuroscientist or neuroethologist or ichthyologist, depending on who I’m talking with) interested in how biological systems deal with sound. Then, the answer to the question is curiosity, looking at issues with an open mind, and enjoying being a problem solver.

But the other part of the answer is that my work has benefited immensely because I have been fortunate to have a great network of colleagues (many who have become close friends) with whom I’ve collaborated for much of my career. A critical part of these collaborations is that each participant brings a different skill set and way of thinking to our work, and this strongly enhances what we are doing. I’ve actually written about my collaborations in a recent paper (Popper, 2020).

My point is one of the things that has made me good at what I do is being able to collaborate and share ideas. This is not only productive but is perhaps one of the most enjoyable parts of my career.

How do you handle rejection?

I cannot recall how I dealt with rejection early in my career, but at this stage in my life, I expect it and try not to get too upset (although I don’t like it and never have).

¹ Full disclosure: Helen is the copy editor for AT.

In some cases, I say fine and just go on. In other cases, I will “stew” on the rejection for a long time, especially if there is nothing I can do about it. In other cases, especially with papers, I try to evaluate why the paper was rejected and make corrections.

So, the answer to the question is that I handle rejection in different ways depending on the circumstances. The only rejection I cannot handle is when one of our grandkids asks that she or he would rather pal around with a friend than spend time with grandpa (Figure 1)!

What are you proudest of in your career?

I think it is the way my work has evolved. I started out asking questions about what fish hear, and over the years, the questions I asked and the research approaches I have used have evolved: first to asking questions about the evolution of hearing (a topic that still holds great interest to me) and most recently to being heavily involved, on an international scale, in setting guidelines and criteria for the potential effects of anthropogenic sound on aquatic animals. The point is that I am proud that the questions I have asked and the approaches I have taken to answer the questions were never static. Indeed, I think that an evolution in research questions and approaches is critical for any good scholar.

At the same time, there are a couple of specific things I’ve done that I think have been of considerable value. My discovery of the organization of sensory cells in the ear of fishes (which was simultaneously discovered by several others in Europe) has had a significant impact on understanding fish hearing (Popper, 1976). And my being able to cochair an international group developing criteria and guidelines for the effects of sound on fishes has become an informal standard around the world. Knowing that our group has had a real impact is quite a nice feeling.

What is the biggest mistake you’ve ever made?

I’m sure I’ve made mistakes in both science and life. I do think these were mainly where I made the wrong choice when I had options. However, I try never to go back and ask “what if” because I know that I cannot change where I’m going. For example, what if I’d chosen to take a post-doc with Arthur Myrberg at the University of Miami, Coral Gables, Florida, rather than take the job offered me at the University of Hawai’i (my first job)? I’ll never know but I am really pleased where this decision took me.

What advice do you have for budding acousticians?

Find great mentors at every stage of your career and be a great mentor to others. Develop great networks. Value and enjoy collaboration. Read what other authors of “Ask an Acoustician” essays have said about this and figure out what will work best for you.

Have you ever experienced imposter syndrome? How did you deal with that if so?

In hindsight, I suspect so. Mostly in terms of collaboration, wondering whether I’m contributing equally to the collaborations. However, over the years, I realized that collaborations are really a sharing of ideas and skills and my collaborators keep “coming back for more,” so I feel comfortable in saying that, despite how I might feel, I am giving as much as I get to our shared endeavors.

What do you want to accomplish within the next 10 years or before retirement?

Since I am already semiretired, I am now contemplating a second retirement where I actually learn to not work and find fun things to do. I have no idea what those things will be, but I will be entering full retirement on December 31, 2024. Of course, everyone who knows me, from colleagues to Helen to grandkids, laughs at the idea that I will “really” retire!

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