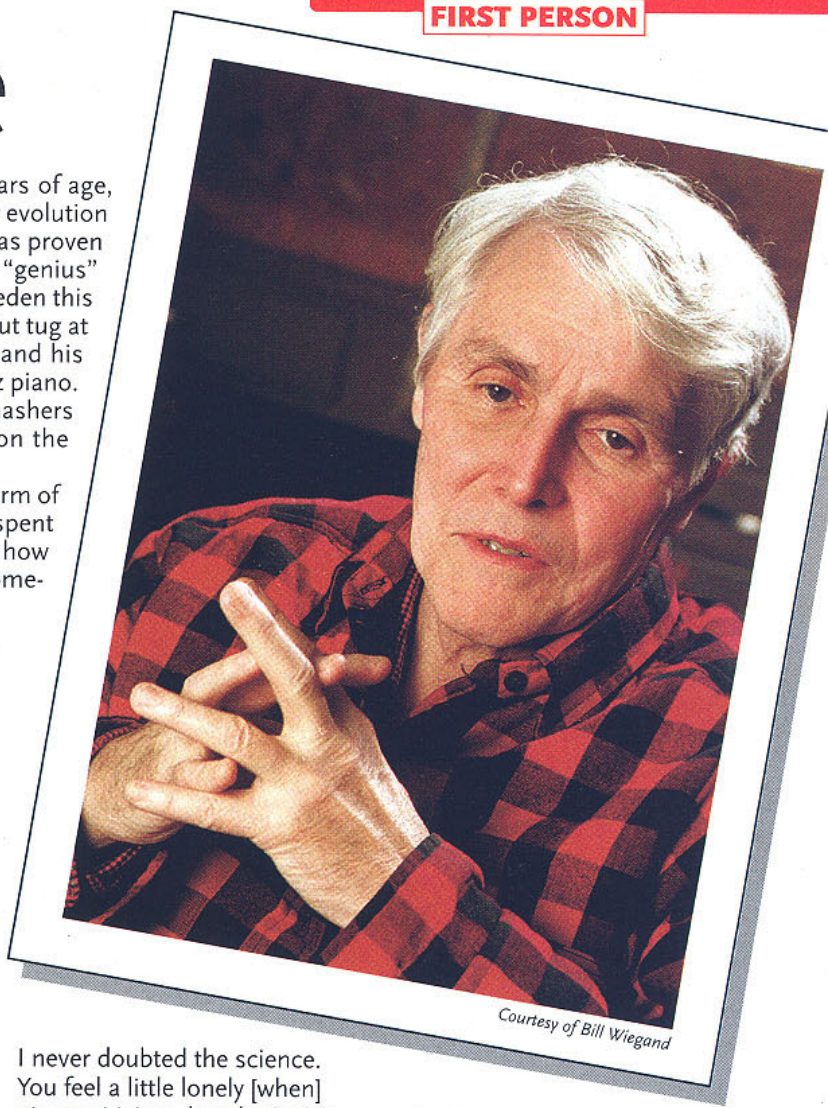
Carl Woese

He speaks with the wisdom of someone approaching 75 years of age, with a knowledge of biology acquired from studying cellular evolution for the past 40, and with the assurance of a scientist who has proven himself right, a time or two. Carl Woese, a MacArthur Foundation "genius" award recipient who will accept the $500,000 Crafoord Prize in Sweden this fall, is initially reticent about speaking about his life, and himself. But tug at the string a little, and bits unfold. His love of jazz, for instance, and his album collection that includes a teenaged Andre Previn playing jazz piano. Or his memories of visiting his relatives' brewery, with the huge mashers straining away. Or his foray into martial arts, or his summers on the untrampled areas of Martha's Vineyard.

But mostly, this loner of a biophysicist, who uncovered a third form of life, is interested in talking about biology and the decades he has spent on learning about the cell. "The question of how things evolved, how various parts of the cell came into being, have fascinated me. Something that isn't solved hasn't failed to interest me."



Courtesy of Bill Wiegand

Do you plan to retire?
Only when forced to by illness or death.

What do you want to find out?
How did we get here? You can't know where we are without knowing where we came from.

What are you working on now?
I am still plugging away, trying to understand the early evolution of the cell. I am walking backwards, inferring what preceded by direct experience. The gap between here and there is too great. The human imagination can't even begin to fill that.

When you started in the 1960s, what path was biology taking?
Reductionists were defining the game at that point, and where it should go. Then, evolution was looked at by hardcore microbiologists as a historical accident. [Now] I see biology pulling itself back together again.

You've worked at the University of Illinois for 40 years. You're someone who prefers staying in one place?
I basically am. I used to say, Illinois is very nice to be from. Martha's Vineyard, that's a nice place to be from, too. This is where I hang my hat in the summer. I like the people who are here permanently. They're an unpretentious people.

What do you read?
I don't read much. I read very slowly. I have to be terribly selective.

Does your age bother you?
Why should it? Everyone ages. There are pluses and minuses for every stage in life. When you're 75, you have a more disinterested view of things, a broader view of things, the kind of view you wish you had when you were younger. I can view my work in terms of those who succeeded me. I feel very gratified. It's a pleasure for me to watch all these younger types come up and carry it further. If I were younger, I would have felt only competition.

How did you handle your early critics?
I didn't have a lot of competition. What drove me was an idea that wasn't mainstream. But it was my vision of biology. I've run parallel to microbiology all of my life, but I never accepted it as worldview. I think it is too narrow. It's richer than what the reductionists made of it.

But you still had critics. How has your response changed?
I never for one minute doubted what we had found. This is when archae was discovered. I never doubted the science. You feel a little lonely [when] given criticism, but that's OK, because my science doesn't run on public sentiment, but on whether it's right. When we first got the pattern suggesting that something strange was happening, we first thought, "What did we do wrong?" Then we repeated it in various guises; there was nothing wrong with the experimentation. It's very exhilarating.

What are your favorite papers?
One in 1982,[1] it was the first international conference on archae. I had the lead-off article. And [another], a review in 1987.[2] Someone showed me, there was a listing of the top 10 papers of that year. All of them, save one, were on superconductivity, or on AIDS. And the 10th one was the review. This paper did what I wanted it to do; it had an impact on microbiology.

Why do you work by yourself?
The average biologist doesn't think of biology the way I do, so there isn't a lot of common ground for discourse.

How would you define yourself?
I am not flashingly brilliant; my strong point is intuition. I am able to look at a mess of things and feel what is important and then go there, and it turns out to be correct.

What kind of beer do you drink now?
Light beer. Those days with a nice head on, those days are over.

References

1. C.R. Woese, "Archaebacteria and cellular origins: An overview," *Zbl Bakt Hyg I. Abt Orig*, C3:1–17, 1982.
2. C.R. Woese, "Bacterial evolution," *Microbiol Rev*, 51:221–71, 1987.