

A LIFE PASSED WITH EVOLUTIONARY RESEARCHES AND DEFENCE OF EVOLUTION: AN INTERVIEW WITH PROF. DR. ASLI TOLUN

Interview: Zelal Özgür Durmuş

Translation: Nida Yaren Yılmaz

In this issue of the interviews, we have performed in the Journal of Matter, Dialectics and Society, our guest is Prof Dr. Aslı Tolun. She is a successful scientist who studied in the molecular biology field for long years and an academic who has important contributions to the evolution and enlightenment struggles. We discussed her childhood years in various Anatolian cities and then her youth years in Istanbul, her scientific researches, and her struggle to defend the evolution theory.



Prof. Dr. Aslı Tolun

Hello, first of all, thank you for accepting this interview. We would like to start with getting to know you. We know that you spent your childhood in Anatolia in 1950s. Can you tell us about those years?

I was the youngest daughter of a family with three children. My childhood has passed in several places of Anatolia because my father was an officer. I studied at the elementary school for one year in Gümüşhane. Even though I was very young, I have great memories about there; neighborliness, friendships, women and children walking around the famous fruit gardens in summers...



Picture 1. Artvin

Then we have moved to Artvin and stayed there for four years. Back then, Artvin was the city with the highest literacy rates, education of the children was encouraged. Crime rates were very low. Artvin, in those years, was a society that is, non-conservative, enlightened, and progressive on gender equality. Even shepherds from dis-

tant villages were able to go to school. I had a classmate like that and all of us studied together. Friendship and solidarity were always at the forefront.

If you have specific memories about the flow of daily life in those cities, we would love to hear them too.

My elementary school had a large hall because it was recently built. In this hall, the celebrations were organized such as 23'rd April, Republican Ball. A live orchestra would be there, dances would be performed, all the city would attend. We, as children, would dance around in those balls.



Picture 2. Tolun Family together in 1955
(Aslı Tolun is the youngest of the family)

When you grow up in Anatolia, you feel like you are missing the cultural life, cinema, theatre events in İstanbul. But how many families can bring their children to such places? I think, growing up in a small city like Artvin, was so much better. No one would worry about the safety of their child. We would play, walk around in the gardens, streets all the time.



Picture 3. Artvin Gazi Primary School 5th grade students and teachers, 1959.

Then you went to İstanbul to continue your education at a very young age...

Yes, I moved into İstanbul to attend Üsküdar American Academy when I was eleven. My family moved into İstanbul too, but I was onboarding school. I was going home only at weekends. Migrating to İstanbul meant opening up to the world for me. Here, everyone would watch every upcoming movie, we would see every play. We would listen to the news on the radio. It was important for us to have a political attitude.

I have joined the Social Welfare Club during those years. In fact, I was the club chairman in my senior year of high school. We would visit the villages and help to fulfill their needs. For example, we went to Kilyos and joined the building of a local school within central planning. Also, at the weekends, we would visit the Child Protection Agency and spend time with the children.

Back then, İstanbul was smaller, we would travel around with my friends in our free times. I would go to the cinema and theatre with both my friends and also at the weekends with my family. Also, I would read books a lot. Writers such as Sartre and Camus were my favorites. Although, I am not sure how much I could understand them. But, ever since I was a child, my family would always read a lot. There was a theatre club in Robert College, many of my friends were in that club, but I could never get a chance to join the club due to the intensity of my lectures.

Your high school and college years coincide with a political climate in Turkey, a period when communal life is restless and progressive movements were on the rise. Can you tell us about those years and how they have affected you?

Our generation was very political. Nowadays, young people are also interested in those matters but they are interested in a more individual manner. For instance, everyone wants to immigrate. Everyone protests when their personal rights are violated. Of course, these are all nice things. However, we would protest when people's rights are violated. It was difficult for us to be up to date since there was no internet. At weekends, when I go home, I would read the newspapers.

In addition to this, when I was 6 years old, I was in İstanbul during the September 6-7 incidents. I remember it clearly, it was an awful experience for me.



Picture 4. Female students preparing for the 19 May Youth and Sports Day, 1964. (Aslı Tolun standing, third from right)

When I graduated from high school, in 1967, nothing much happened. However, the last years of my college period were more dynamic. In Robert College, there was no right-wing, back then being a rightist was something to be ashamed of. There were leftist youth organizations and social democrats. Of course, there were rightists within the social democrats but there was no right-wing fraction that can reveal itself. We didn't boycott like METU back then, the atmosphere at the college was softer. Our volume was smaller compared to them, that is another factor of course.

Your undergraduate degree is on physics major but then, you have moved into the biology and genetics field. We might say that it is a transition from physics molecules to biological molecules. Can you explain how this transition occurred?

Actually, I have enrolled in college to become an engineer. After my first year, I have decided to be a scientist, not an engineer and I have transferred into the physics major. My grades were very well, too. I have also completed a minor program in mathematics. While I was graduating one of my professors directed me to the bio-

physics area. I went to America to study biophysics. Just then, the genetics researches, methods were recently developing. I have moved further in this area and get my doctorate in Sweden. It was a very good opportunity for me. Then, I have worked in California as a post-doctorate researcher for three years. When I complete it, I came to Boğaziçi University's recently opened biology, today's molecular biology, and genetics department.

How were your early days after your return to Turkey? I guess you didn't have an established laboratory, what kind of challenges you faced while setting the laboratories up?

There was not any established, not even an empty laboratory. I mean, the walls of the laboratory didn't exist, we didn't have an office. Secretaries, technicians, 3-4 academics, all of us would sit at the same office. Then, when a new building was raised at the Northern Campus, they gave us some space too. Luckily, our rector at that time has helped us a lot. It was a nice zone, but after a while, it was not enough for us.

There should be so much effort that you put into Boğaziçi University Molecular Biology/Genetics (MBG) Department. Despite all the challenges you have faced, you are a successfully known scientist, both locally and internationally. You had a journey at the Turkish Academy of Sciences (TÜBA) and in 2017 you had become the first women scientist chosen for the Europe Molecular Biology Organization (EMBO) from Turkey. Can you tell us about your scientific researches?

We study large relative families. Usually, the doctors examine, and they direct the patient to us when they couldn't diagnose from the literature. We seek the answer of "Which gene has been spoiled in this family and this disease emerged?" Then we work on revealing the function of our genes. Because, at this stage, studies can't be performed on humans. You see how it results when you turn off a gene in an animal, for example in mice. Generally, humans are similar too. Because, as a consequence of evolution, our genes are mostly similar to each other, but not necessarily the same. That is why we need to build a model based on human genes. It is usually possible on the diseases caused by the consanguineous marriage. In this manner, we have detected so many diseases. We have plenty of discoveries thus, we're in a global race. We perform all the research with our team, in our lab. For this reason, I was chosen to Europe Molecular Biology Organization.

In Turkey, different conditions in humans can be investigated. Mother ancestor can be investigated. Since mitochondria always transfer from mother to children, when you study it you can reach the sequence of mother ancestor. In Anatolia, our mother ancestor has turned

out to be from Anatolia¹. This means, there is no immigration from a different region. Then, the Y chromosome is examined. You know, it transfers from father to son. It turned out to be from Anatolia, too. Migration from Central Asia is very low. Every society's ancestors are observed to be identical to its geographical location. Our genetic structure is slightly different but similar to the adjacent regions.

You mentioned the kinship relations in Anatolia, actually, when we look back further, we see the kinship relations between all species, thus evolution. Today, in Turkey, in MBG, biology education departments, lectures about evolution are either insufficient or in some universities, they can't even be given. In 2017 theory of evolution is removed from the high school curriculum by the Ministry of Education. Actually, in Turkey, evolution has been a problematic subject ever since September 12th.

I don't understand why this is the case. When you search "evolution" on TUBITAK's website, you can't get any result. I guess because TUBITAK doesn't support it, I'm not sure. Even if evolution theory is being studied, it is invisible. Of course, "evolution" is one of the two greatest theories of science. When the student doesn't understand evolution, he/she can't understand biology, genetics. Making the student memorize some pieces of information, digestive systems, hearth structures of different animals is unnecessary. All of them are important within evolution and they can only be understood within the context of evolution. For example, why some animals are endotherm and others are not? Why some animals have two chambers in their hearth, and some animals have four? All these scientific questions can only be resolved through evolution.

In this process, a struggle has been shaped to defend the evolution that you are a part of. For instance, insufficiency of the literature in Turkish in evolution subject was an important problem for elementary schools, high schools, and the universities with Turkish education. "Evolution Hard workers" organization started to do translations to Turkish. In the 2000's symposiums on evolution and research areas were began to be organized. We, as the University Councils Association (Üniversite Konseyleri Derneği) started organizing the Evolution, Science and Education Symposium in 2007. After the first symposium, with your lead, the symposiums took place at Boğaziçi University. It has been over 10 years. Could you share your impressions from that period?

Actually, it was your lead. We have done so much to-

¹ Mitochondrial DNA is passed only from the mother to offspring. Haplogroups are defined by the mutation patterns having accumulated on this haploid genetic material. The variations of the human's mitochondrial DNA living in Anatolia show that the large displacement movements haven't occurred in Anatolia. Likewise, the Y-chromosome is inherited from the father to his son.

gether, and it was very nice. We went to high schools to give seminars together. Surprisingly, even foreign high schools couldn't mention the word "evolution". For the announcements of the seminars, they would name the event "molecular changes" etc. when one Turkish-based high school wrote the title "evolution" I was amazed. It seems that, when you call it like that, and you ask for the Ministry of Education's permission for the speech, you can't get any answer for weeks. But instead, when you write different terms, the event can be approved.

The symposiums in Boğaziçi were very successful. I remember the halls were overflowing. When you invite foreign, famous guests and you add Turkish subtitles and vocalizing to the English speeches, I thought it was very successful. Because students and even teachers from all around Turkey were attending these seminars.

Did you ever run into anti-evolutionist activities in your own university?

One day, in Boğaziçi, I saw an announcement of an event that is hosting the Adnan Oktar group. The speech was going to be served in Boğaziçi, the library. The name of the event was "Collapse of the Theory of Evolution". I sent a letter to the rectorate and objected to this event. I requested it to be canceled. Even people that studied abroad, I know they are open-minded, in fact, the ones that invite me to give evolution lectures reacted against me and said: "How could you prevent the right of speech of the scientist?" I answered them by saying "I don't have a problem with them, they may go speak at the park across the street. However, the university can't let them in". Ultimately, this event was canceled. After a while, a CD has been distributed to all academics. Again, with the "Collapse of the Theory of Evolution" title, they have sent the same presentation. I realized at that moment if they could have come to Boğaziçi and performed that speech, the title of the CD would be "Boğaziçi University Conference".

I know this group, actually. If you check the internet, they have a video named "The moment which Aslı Tolun is ashamed". They have done this for all evolutionists, they have deleted the video later. I didn't, it's still there. They claim that they asked me a question and I pretended to answer my phone and ran away. If they have asked me a question that irrational, I would have totally remembered it. Something like that didn't happen, they're making it up. Although, evolution was banished from the books because of them, right?

Now, they started to organize a "Genesis Conference" with the cooperation of ministries of education and religion, though I don't know how there can be any scientific thing in it. In fact, science is a method that puts the miracle out of a miracle.

Finally, as a scientist, especially as a woman scientist or an evolution defender scientist, did you faced any challenges in the scientific world? If you have, we would like to hear about these challenges and how you could overcome them.

Being a woman in Turkey is already a challenge. You don't feel much difference in the chattering classes but it is clear that there is a difference. A male professor can stop visiting the university for years but women researchers can be oppressed by any kind of mobbing. I've discussed this with TUBITAK and asked, "How many women are applying, how many of them can take the projects? How many men are applying and how many of them can take the projects?". I told them that we should investigate these questions. The ratios are right-ful or not should be checked. Besides, when you search "women" in the TUBITAK website, you again get no results. Yet, EMBO, as an example, organizes programs to support women. It supports women who gave birth and returned to work after a few years or actualizes projects to help them to return.

Sometimes I think if I were lucky, but I guess every person can get opportunities like me in their life. Approval for biophysics MS was a milestone for me. These things also require so much effort. I mean, If you want to be a scientist, even if you're very intelligent, you should work hard. Of course, discovering new things, witnessing the student's excitement are very delightful.

Thank you for your answers.