

# A True Pioneer

## *Looking at the life of Prof. Enrique Balech*

By Matt Murphy

GOING through life I have always been impressed and influenced by people with humility, kindness and understanding. I have been fortunate in meeting many who fit into that mould. However, there are few that I can say have always been the ultimate master in the field they work. One such person was Professor Enrique Balech from Argentina – the world authority on certain phytoplankton.

In 1987, we organised a workshop at the Marine Station “The Problems of Toxic Dinoflagellate Blooms in Aquaculture” on the island. I invited 12 scientists from around the world who were involved in red tide research. Most were experts in their field. Amongst those was a 79-year-old Argentinean Professor who I was told by Prof. Barrie Dale of Oslo University, who helped organise the workshop that he was a world authority on dinoflagellates (an important group of plankton causing many red-tides). Because of his age, I insisted he stay in my home. Oh, what a wonderful decision on my part as he, like me, was an early riser. We had breakfast together around 6am each morning and he talked to me of his long life as a scientist.

As a student he had decided to study bats but he became enthusiastic about the microscope and this began his life-long love for phytoplankton. This was away back since 1934 in the Museum of National Science in Buenos Aires, Argentina. Freshwater phytoplankton was his first research but he soon moved on to marine research.

At the same time he taught in a high school for a livelihood. In 1941 he began studying marine phytoplankton, especially tintinnids and dinoflagellates.

He returned to teaching in a high school from 1947 to 1961 to earn a salary. All this time he continued with his phytoplankton work. In 1961 he was appointed to the Mar Del Plata Institute which was created for marine researchers by three universities. In 1962 he resigned and was immediately appointed by the



The career of Prof. Enrique Balech (second from left), a world authority on dinoflagellates, spanned nearly 70 years.

President to the National Council of Science as an investigator with full independence and a salary. He retired in 1981 as a principal investigator as he found himself becoming too much of a bureaucrat. As he said, he became an amateur scientist again! Listening to him talk-

ing I wondered was he ever anything but an amateur, given the difficulties he had in earning a salary.

I asked him had he a modern microscope? Smiling, he said: “I still use the same one for over 50 years, but I do need a good typewriter; the one I have is not very good.”

He left Sherkin with a new electric one, with the compliments of some of us at the workshop. He said that when looking at phytoplankton he drew much as drawings gave him time to look at detail; with the photographs one misses a lot. He made his own camera lucida (an optical device used to make accurate drawings from images seen in the microscope) from string, a mirror, a can and pieces of timber. As he spoke I started to think of the other scientists at the workshop who were from major institutes world-wide, and who worked on microscopes costing thousands and thousands of pounds. Yet despite their sophisticated equipment, when we all sat around the table for dinner in the evenings and discussed marine matters, all present let the final word to the man they recognised as the true master.

In our hours of talking this great man never once bemoaned the fact that he had so little of the material things in life. One thing is sure, he had an abundance of contentment and happiness. As he talked I mentally compared him with some of those scientists in his field world-wide who were so convinced of their own greatness and so full of arrogance.

Enrique being the humble man that he was did not tell

me fully of his achievements as a scientist. I found out later that he worked on plankton from many areas of the world. In his Antarctic work based on samples from 12 cruises he discovered 60% of the species accepted today from that region. His studies from the Gulf of Maine and the Caribbean increased the records from 76 to 262 species. From the south-western Atlantic he produced the most important monographic work for the Southern Hemisphere and one of the greatest for any oceanic region, in which 375 species are described, most not mentioned before in the region.

More of Enrique’s studies were on plankton from the Mediterranean, the Arctic, Baltic, North Java and Philippines Seas.

In 1980 he was the first to recognise that two men in Argentina who had eaten shellfish had died from the paralyzing shellfish poison (PSP), produced by dinoflagellates and transmitted by mussels. He guided the investigations and from then on he devoted his work to the study of the dinoflagellates which produced the toxins, included in the genus *Alexandrium*. He gathered material from around the world, such as Thailand, Borneo, Sumatra, Kamchatka, New Zealand, Tasmania, Turkey and many other places. Of course as he was the world authority on this work, numerous specialists from South America, Mexico, USA, Canada, Europe and Australia were guided by him.

Another side to Enrique’s studies was oceanography. In 1957, he had undertaken oceanographic work on the California coast whilst at the famous Scripps Institute and Hopkins Marine Station. In 1964 he spent time at the Department of Oceanography of Texas University on further oceanographic work.

In his oceanic studies of the seas off Argentina he was able to show that those seas were poor for fish production – much less than the seas off Peru and Africa. He felt that Argentina was at risk of over-fishing and that this called for attention. He was a prophet before his time. The above is but the tip of the iceberg of the oceanic studies Enrique carried out.

My great privilege was to publish his monograph on the genus *Alexandrium*. Whilst on Sherkin he mentioned he had finished this work but no one had offered to publish it. I immediately said I would, not of course telling him I had no idea where the money would come from. The manuscript had to be translated into Eng-

lish so I had time to put together the funding. At the back of my mind I hoped the sales would bring back the cost of printing. With such a specialised book, it took a while for the sales to equal the costs but I was so happy I did what I did.

Enrique died on 27th August 2007 at the age of 95. He still had students studying under him almost to the end. Incredible to think he had a career that spanned nearly 70 years. He wrote a number of books and published over 130 scientific papers but his greatest achievement was as a teacher – as Dr Karen Steidinger stated in a tribute to him in the monograph we printed for him: “He is a skilled scientist who willingly shares his knowledge and time to explain how to look for and recognise the smallest detail. He is careful and meticulous in his approach and technique, and most importantly he is a teacher. He recognises that we will always be students and need to continually learn.”

Red tide research world-wide has many researchers. No one has replaced this great genius. Sadly a few believe they can but they are more interested in their image and spend little time over the microscope. What is so sad is that some of these seem to be able to command much funding, yet no one questions the results. The worrying thing is that there are some hardworking scientists in institutions world-wide who want to try and follow in the footsteps of Enrique Balech but in the modern world so many funding agencies are taken in by image, and worthy scientists don’t receive funding. To them I say, remember Enrique Balech who carried out his work of almost 70 years on not very modern microscopes, which in today’s institutes would be museum pieces. To the funding agencies I say that identifying phytoplankton may not have a prestigious image within science, but the fanciest of molecular investigation of phytoplankton is of very limited use unless the species is correctly identified (otherwise the investigators literally don’t know what they are talking about!).

He never wavered his own flag but in 50 years time his work will still be the reference for scientists needing to identify certain phytoplankton species. The likes of Enrique we will not see again.



Enrique Balech in 2002.

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