Obituary

Enrique Balech (1912–2007)

More than a dinoflagellate taxonomist

As an eminent taxonomist and a pioneering scientist worried about the damages that human beings are causing to the planet Earth, Enrique Balech left an indelible mark. A man of great integrity died on 26 August 2007 in Necochea, Argentina, a few days after his 95th birthday.

Balech was born in Telên in the province of La Pampa, Argentina, on 17 August 1912. In 1937 he finished his studies at the Instituto Superior del Profesorado “J. V. González” in Buenos Aires where he became a high school teacher of Natural Sciences. At the beginning of his career he worked on freshwater protists at the Museo Argentino de Ciencias Naturales “B. Rivadavia” (MACN), first as an honorary associate and later as a chief of the Protistology Laboratory. During this period he worked on testate amoebae, ciliates and euglenoids. In the 1940s, he left Buenos Aires and moved to Necochea where he worked in marine sciences at the Estación Hidrobiológica de Puerto Quequén until 1947 when he was fired due to political reasons, three years after he was given an award by the Argentinean National Academy of Exact, Physical and Natural Sciences. Then, Balech worked as a high school teacher and continued his scientific research while working at home. He was internationally known as a scientist, and just as importantly he was a teacher, who mentored generations of students in biological sciences.

Although he has worked with many plankton groups, like tintinnids, his most important contributions were on thecate or armored dinoflagellate taxonomy. In order to achieve more experience, during the 1950s he traveled abroad. In 1951, he spent two boreal summer months at the Station Biologique de Roscoff, France, thanks to a fellowship from the French Government. As a result, he published a pioneering paper on sand-dwelling dinoflagellates. Later, he traveled to the Scripps Institution of Oceanography, CA, USA, where he spent several months in 1957 and 1958 working on plankton of the Pacific Ocean funded by a grant of the Simon Guggenheim Memorial Foundation. During that stage he described two new genera of dinoflagellates, *Fragilidium* and * Scrippsiella*, the latter dedicated to Scripps. He returned to the United States in 1964 to work for a year at Texas A&M University. During this time he increased the number of known dinoflagellate species of the Gulf of Mexico from 76 to 262 and reported on their distribution.

He developed great knowledge and understanding of dinoflagellate morphology by examining samples from very diverse origins, from cold waters like Antarctica, temperate waters like the SW Atlantic, California current or France to tropical waters like the Caribbean Sea and the Gulf of Mexico. He characterized the circular and sulcal plates of many genera that were not known and considered that they were necessary for a modern diagnosis. Balech’s plate interpretations and modification of Kofoid’s plate tabulation system is widely accepted. Based on sulcal and circular characters he moved all the marine species of the genus *Peridinium* to the new *Protoperidinium*, which became the dinoflagellate genus with the most described species. This represented an important change in dinoflagellate systematics. Balech revised many genera from different families (*Podolampas, Goniodoma, Pyrodinium, Pyrophacus, Pulaeophalacroma* and * Dinophysis*). He proved the existence of a sulcus in *Podolampas*, and was the first to recognize the heterogeneity of the genus *Gonyaulax*. He concluded as Abé, that *Dinophysis* and *Phalachroma* have great similarities in their theca. He also validated many old dubious taxa with more complete redescriptions. Using dinoflagellates as bioindicators to identify different water masses and currents, he contributed to a better understanding of dinoflagellate occurrence and distribution.

Regarding harmful algae, in 1973 he warned about the possibility of an outbreak of PSP in Argentina and he identified the cause of some human fatality cases as well as the causative species and provided assessment. Since then he focused his work more on toxic dinoflagellates. Using his own samples as well as others provided by colleagues from all over the world, he carried out an impressive study of the genus *Alexandrium* describing many of its species and redescribing the type species of the genus, *A. minutum*. He transferred many species previously considered to be in other genera, e.g., *Gonyaulax*, to this genus. His important monograph on *Alexandrium* provided essential information on how to identify and differentiate species, some of which are toxic. Balech made important contributions to the taxonomy of many other harmful dinoflagellates in the genera *Pyrodinium, Dinophysis, Prorocentrum* and *Ostreopsis*. Due to his outstanding work on the taxonomy of harmful dinoflagellates he was recognized for his achievements at the Third International Conference on Toxic
Dinoflagellates held in St. Andrews in 1985. As he did much of his work at home, when he retired as a teacher in 1982, he became a full time researcher, as he used to say. Despite being officially retired he carried out and published some of his most relevant works, e.g., the monograph on *Alexandrium*, the book “Los Dinoflagelados del Atlántico Sudoccidental” (his magnum opus, as he called it), and, among other studies, two new contributions to the genus *Protoperidinium*.

All those who have had the privilege of meeting him, appreciate his interesting and stimulating letters written on very thin paper or typed with a typewriter given to him by Matt Murphy of Sherkin Island, Ireland. Often his letters were accompanied by detailed drawings of some species. He also used his skill as an illustrator and artist to draw caricatures of his colleagues where he showed his great sense of humor. Enrique Balech had a very serious concern about the environmental degradation of the Earth as he showed in his book “Geocide. Destruction of the Planet” published in 1978 and in short articles about, for example, topics like how overfishing can affect marine resources. As he grew up in La Pampa, he was also an expert in horses. At a workshop on taxonomy in Sherkin Island, Ireland, when he was 77 and observed riding a horse. Enrique could talk with you about anything and the conversations went from science to cultural history, wars, and even languages. He was a great proponent of anything and the conversations went from science to cultural history, wars, and even languages. He was a great proponent of Esperanto and would encourage all that he met to learn it. As a person he was warm, humorous, and giving. As a scientist he was referenced. Reference list of publications of Enrique Balech


Balech, E., Motti, F.A., 1941. Breves observaciones planktonicas realizadas en la Estacion Hidrobiologica de Puerto Quequén. Physis (Buenos Aires) 19 (51), 75–76.


Balech, E., 1966. Some norwegian *Dinophysis* (Dinophyceae) with a discussion on *Scrippsiella subsalsa* (93), 25–32.


Balech, E., 1967. Palaeopelachalona Schiller, otro miembro de la Familia Cladopyxidae (Dinoflagellata), Neotropica 13 (42), 105–112.


Balech, E., 1967. Some norwegian *Dinophysis* species (Dinoflagellata), Sarsia 61, 75–94.


Balech, E., 1967. Some norwegian *Dinophysis* species (Dino- flagellata), Sarsia 61, 75–94.


Balech, E., 1967. Some norwegian *Dinophysis* species (Dino- flagellata), Sarsia 61, 75–94.


Balech, E., 1967. Some norwegian *Dinophysis* species (Dino- flagellata), Sarsia 61, 75–94.


**Posthumous**


[Rut Akselman]

**INIDEP, Mar del Plata, Argentina**

[Santiago Fraga]

**IEO, Vigo, Spain**

[Karen Steidinger*]

**FIO/FWC, St. Petersburg, FL, USA**

*Corresponding author

E-mail address: Karen.Steidinger@MyFWC.com

(K. Steidinger)