In Memoriam: Lewis E. Braverman (1929–2019)

The thyroid community has lost a leading researcher and a great personality. Lewis E. Braverman, Professor of Medicine in the Section of Endocrinology, passed away peacefully on Monday, June 10, 2019. Dr. Braverman is survived by his wife Miriam (Mimi) Braverman, his two sons and five grandchildren. At an interview he noted that his first son “is a German” born in Landstuhl, across the border in Lorraine, France, where Dr. Braverman served as a Medical Officer in the US army for 2 years.

Starting as an undergraduate at Harvard College Boston, he graduated from Johns Hopkins University Baltimore in 1955, and then returned during his Internal Medicine Residency to Boston City Hospital for an Endocrinology Fellowship under the direction of Sidney H. Ingbar. He was a thyroid clinician for 54 years until 2018, secretary of the American Thyroid Association (ATA) from 1978 to 1983 and became ATA president in 1985. He was a recipient of numerous scientific national and international awards, including the Berthold Medal of the German Endocrine Society in 1994, and the ATA created “Lewis E. Braverman Distinguished Award Lectureship.” He was Editor-in-Chief of leading endocrine journals such as the *Journal of Clinical Endocrinology and Metabolism*, *Current Opinion in Endocrinology, Diabetes and Obesity*, and *Endocrine Practice*.

A milestone in his scientific career and for the whole field of thyroid hormone-related research was his seminal publication in 1970 – together with his colleagues Sid Ingbar and Kenneth Sterling (also celebrities in the thyroid

Professor Lewis E. Braverman.

world, but with personalities and scientific approaches differing completely from Lew's). For the first time they demonstrated T3 formation via deiodination in athyreotic patients from exogenously administered T4. Thus, they created a new concept in thyroid (patho-)physiology, dealing with systemic and local production of the thyroid-mimetically active T3 from thyroxine, which has since been considered as an almost “inactive” prohormone. This remarkable achievement boosted the whole thyroid world, led to the subsequent discovery of T3 receptors and recently to that of transmembrane transporters for thyroid hormones in addition to their known binding proteins in blood. For clinicians, patients, researchers, students and the pharmaceutical industry, the “thyroid hormone picture” got more complicated but also much

more exciting. This and several further achievements, e.g., the identification of familial dysalbuminemic hyperthyroxinemia, brought him worldwide invitations, travel, and recognition. Dr. Braverman's work has been published in over 600 articles in leading clinical and research medical journals.

When I (J.K.) arrived in Worcester as a postdoc and visiting professor at UMASS to work with Dr. J.L. Leonard and Dr. Braverman, I was assigned to a lab space just cleared by Dr. Vagenakis returning to Athens. But I was immediately instructed not to touch, open or use a large freezer there. OK, I thought – there are rules everywhere. A few lab meetings later, the secrets of the freezer were slowly disclosed: this was the Hamburger freezer, which once in a while was opened by Sam Pino and Shih Lih Fang. This work turned into a real detective story, when Dr. Braverman and his team discovered the cause of the enigmatic “Hamburger Thyrotoxicosis” somewhere in the Midwest. These “extra-lean” Hamburgers turned out to contain beef thyroid, which should have never been abused for human food preparation. An instructive example of applied science led by Dr. Braverman, who always cared about the biological role of iodine, adequate iodine intake, as well as environmental and nutritional factors such as perchlorate and other goitrogens interfering with iodine and thyroid hormone homeostasis.

“Uncle Lew,” as he was called by some friends, swiftly humanized his relationship with guests who got the great chance to work in his unit and lab. This was always a hub with a worldwide reputation, where an internationally mixed group of clinical and basic research scholars, fellows and colleagues from all continents quickly integrated with the endocrine department's teams. They were all eager to absorb the wisdom, critical spirit, encyclopedic knowledge, ample experience and educational atmosphere during the joint weekly lab meetings (at that time always with donuts and coffee) and in small project teams, when Lew's sharp-minded reasoning on hypotheses, scientific or practical relevance was faced with either convincing or limited data sets obtained so far. The subse-

quent process of paper writing then really unveiled the high hurdles necessary to meet his rigorous scientific standards. During his professional career, he trained more than 200 fellows who reside all over the globe. It was well known that the most probing questions and comments during the open discussions at international meetings very often came from Dr. Braverman.

Dr. Braverman also immediately forged a personal connection to the families and kids of his team members. When he and Mimi became grandparents some years ago, he was as happy as after publishing a new thoroughly updated edition of *the* benchmark textbook in our research community “The Thyroid,” which he edited together with Bob Utiger over decades, ensuring the highest quality, up-to-date-ness, succinct presentation, scientific basis as well as clinical applicability and relevance.

Promoting education in endocrinology and in particular in thyroid physiology and thyroid diseases was one of Dr. Braverman's primary concerns. His passion for mentoring endocrine trainees lasted for all of those 50 years of clinical practice. He was always friendly and helpful to fellows, students and foreign colleagues. He came to Europe almost every year, mostly to his Italian friends, as several of them had been his fellows in Boston or Worcester. He himself had stayed for a sabbatical at Aldo Pinchera's lab in Pisa. He also visited Germany quite often and especially Berlin. The latter was partly due to Mimi Braverman's interest in Berlin's culture and its museums, as Mimi used to be a lecturer at the Fine Art Museum in Boston.

On our side of the ocean, many of us Europeans experienced the hospitality of the Bravermans – “real east coast liberals” – their helpfulness and their cheerfulness as well as the great scientific collaboration with Lew. Thus, we say in the name of the whole European thyroid community a big “Thank you, Lew!”

We all will miss a brilliant clinician, an assiduous scientist, a great mentor and warm-hearted friend.

Klaus-Werner Wenzel and Josef Köhrle
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