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Obituary

Beyond the Clouds: B.R. Brinkley (1936-2020)

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The foundation of a cell biologist is defining cell structure and function. Its highest practitioners have "the ability to think with the eyes and see with the brain" (Daniel Mazia), as Porter, Palade, and Mazia did in the mid-twentieth century, laying the modern foundation of cell structure, metabolism, and cell division, respectively. B.R. Brinkley followed the greatest generation and looked beyond the eyes to reveal mechanics of cell structure. His cellular images took your breath away, as cellular mysteries that eluded many were solved with the most elegant of approaches. While examining stereo-pair images with Bill, I was having issues even with the aid of a viewer. He simply held the micrographs and found a clear 3D image. That day he shared how he could see what others missed: "Growing up I often dreamed while looking beyond the clouds of rural East Texas". This approach was not so different from Mazia's vision, and both revealed the truth beyond the microscope. Bill accomplished all this with modesty and never breaking focus while at the same time telling a humorous story.

Bill revealed the cytoplasmic microtubule complex, freeing microtubules for more function than spindles and flagella and opening a conceptual revolution in cell structure and the continuing evolution of the cytoskeleton as encompassing the function of every organelle. All this springing from the application of antibodies and fluorescence microscopy to cell biology, and Bill's vision.

Appreciating these structures, Bill revealed their assembly was controlled by cellular precursors, centrioles – kinetochores, and even more that cellular structure was not a homogeneous gel but rather a universe of determinants that specify what happens, when, and where. Others guessed it, but it was Bill's vision that revealed cell function through elegant experimentation of seeding tubulin on permeabilized cells.

Bill was inspirational to many in our field as mentor and friend ([1] and https://neurotree.org/neurotree/tree.php?pid=9502&fontsize=1&pnodecount=4&cnodecount=2).

His lessons in cell structure are foundational to cytoskeletal abnormalities in neurodegenerative diseases. Bill's contributions will endure as he continues to look beyond the clouds.

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REFERENCES

[1] Gerbi SA, Palazzo RE, Earnshaw WC, Schrader WT. William R. Brinkley (2021) A giant in biomedical research and public policy. *J Cell Biol* **220**, e202106102.