

## OBITUARY

### Leo Pine 1922–1994

Leo Pine renowned biochemist at the Centers for Disease Control and Prevention (CDC) died 29 December 1994 after a short illness. Leo's early interests concerned the application of his knowledge of microbial physiology to nutritional and physiologic studies on *Actinomyces* spp. and *Histoplasma capsulatum*, a commitment that occupied a major part of his scientific endeavor throughout his productive career. Leo was born 13 February 1922 in Tucson, Arizona. Growing up and being educated in Arizona deeply influenced Leo, and he acquired an everlasting love and curiosity for nature, the outdoors, the desert and the science of biology.

After receiving his M.S. from the University of Wisconsin and Ph.D. from the University of California, Berkeley, Leo had appointments at the National Institutes of Health and then Duke University where he respectively worked with Drs. Chester Emmons and Norman Conant. In 1962 he had the opportunity to work at the Pasteur Institute with the great mycology triumvirate Drs E. Drouhet, F. Mariat, and G. Segretain. There with Dr Drouhet he initiated biochemical and morphological studies on *H. capsulatum* which eventually led to development of the highly acclaimed 'Pine's medium', which is widely used today for maintaining stock cultures of the yeast-form of the pathogen and for converting the mycelial form to the tissue form. In 1976 Drs L. Haley and P. Standard reported that no medium unequivocally surpassed Pine's medium for it's ability to facilitate the *in vitro* conversion of the mycelial form of *H. capsulatum*.

In 1963 Leo took an appointment at the CDC where he began a long association and productive career with Drs L. Ajello, L. George, W. Kaplan and L. Kaufman. It was here that he further pursued his studies to biochemically and antigenically characterize the actinomycetes and the dimorphic *H. capsulatum*. With



Lucille Georg he intensely studied and classified the actinomycetes. His interest in histoplasmosis continued and he developed methods for separating and purifying the diagnostically useful histoplasmin H and M antigens. The reagents which evolved from these studies were accepted by the World Health Organization as international references and are widely used in histoplasmosis immunological assays.

Leo was a tireless researcher and loved working in the laboratory. He sponsored many doctoral candidates and published extensively. Always looking for challenges, during the last decade he even undertook bacterial studies concerning the identification of *Legionella* and *Listeria* spp. His colleagues and friends appreciated his availability, perception, and counsel. In 1987 his peers in the Medical Mycological Society of the Americas awarded him the prestigious Rhoda Benham Award in recognition of his numerous research contributions, and dedication to furthering the science of medical mycology. For those fortunate enough to know him he was exceedingly interesting, an avid reader

and lover of music. During World War II Leo served in the European Theatre and was one of the first to reach the Buchenwald concentration camp where he witnessed the Nazi atrocities. The impressions were painful and indelible and he testified in numerous holocaust inquiries.

Leo is survived by his devoted wife Geraldine, six children, and five grandchildren. All who knew him were touched by his wisdom, warmth and kindness. He

will not only be missed by his family but by his fellow scientists and friends.

Leo Kaufman, Ph.D.

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