

The Fortieth Anniversary of the Founding of the Laboratory of Biological Anthropology

Michael H. Crawford^{1*}

In 1975 the Laboratory of Biological Anthropology (LBA) was established at the University of Kansas in Twente Hall, on the first floor, in the north wing of the former student hospital. This building contained a blood chemistry laboratory, a computer room, and former hospital rooms that served as offices. The laboratories and office space were needed because the LBA received seven awards, including four from the National Institutes of Health:

- A US Office of Education grant to study environmental influences on learning in an African-American community.
- A National Institute of Dental Research grant on “Dental evolution of transplanted Mexican populations.”
- A National Science Foundation grant focused on genetic microdifferentiation of indigenous populations of northeastern Siberia and northwestern Alaska.
- A National Institute of Aging grant on “Development of methods for the study of aging.”
- A National Institute of Aging three-year grant to study “Aging among Mennonites of Kansas and Nebraska.”
- A National Cancer Institute contract titled “Genetic study of leukemia in baboons (*Papio hamadryas*) of the Institute of Experimental

Pathology and Therapy of Sukhumi, USSR”—this was the largest primate center in the world, housing a total of 7,000 monkeys of 20 different species.

- A Public Health Service Career Development Award to the director of the LBA for a five-year study of genetic analyses of dentition in Eskimo and Mexican populations.

These grants and projects provided the foundation for an ongoing research program in biological anthropology and anthropological genetics spanning 40 years at the University of Kansas (for details, see Crawford 2007).

The anniversary of the founding of the LBA was celebrated during the spring of 2015 by a lecture series of the following former members of the laboratory, plus one research collaborator, all of whom contribute an article to this special issue of *Human Biology*:

- Phillip Melton, University of Western Australia
- María de Lourdes Muñoz, Polytechnical University, Mexico
- Norberto Baldi, University of Costa Rica
- M. J. Mosher, Western Washington University in Bellingham
- Francis McMahon, Human Genetics Branch, US National Institute of Mental Health

¹Laboratory of Biological Anthropology, University of Kansas, Lawrence, Kansas.

*Correspondence to: Michael H. Crawford, Laboratory of Biological Anthropology, University of Kansas, Lawrence, KS 66045. E-mail: crawford@ku.edu.

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These visiting lecturers represented some of the regional and topical foci of research programs conducted by LBA faculty, graduate students, and postdoctoral fellows during its 40-year history. The earliest research program began while I was at the University of Pittsburgh in 1969 and continued until 1976 at the LBA. This was a study of admixture and the genetic effects of population transplantation from the Valley of Tlaxcala in Central Mexico to Cuanalan in the Valley of Mexico and Saltillo in the north. The Tlaxcaltecan field teams from the LBA included Paul Scuilli, Robert Halberstein, Francis Lees, and Dennis O'Rourke—all went on to distinguished careers in biological anthropology (Crawford 1973). Among the guest lecturers of this series, Lourdes Muñoz and Baldi both report current collaborative research programs with the LBA in Central America—in Mexico and Costa Rica. Lourdes Muñoz has examined origins and migration of ancient Maya based on mitochondrial DNA sequences extracted from human remains of six ceremonial centers. Baldi reports on the genetic structure of Central American populations in Nicaragua and Costa Rica based on DNA analyses.

In 1979, a grant from National Institute of Aging funded a research program on the genetics of biological aging of Mennonite populations of Kansas and Nebraska. The original project morphed into a longitudinal study of aging and longevity but also examined the genetic structure of Mennonite congregations that split off the original founding population of Alexanderwohl (Crawford 2000). This long-term Mennonite project involved several generations of doctoral students and postdoctoral fellows from the LBA, including Mosher and Melton, as well as Janis Hutchinson, Ravindranath Duggirala, Rector Arya, Meredith Uttley, Tibor Koertvelyessy, Dario Demarchi, Eric Devor, Joan Stevenson, Laurine Rogers, Lisa Martin, and Sobha Puppala. All of these researchers participated in this Mennonite program and published numerous articles and book chapters (Crawford 2000). Melton, first as a graduate student and later as a visiting scientist to the LBA, applied molecular genetic markers to decipher the genetic structure of Mennonite populations. His lecture in 2015 and article (coauthored with Kristine G. Beaty) in this special issue focus on the nonrecombinant Y chromosome markers. In 2004 Mosher conducted postdoctoral research at the LBA on nutrition and

biological aging in the Mennonites of Kansas and Nebraska. She followed up the original research program by examining the actions of epigenetics on the leptin gene as a possible archive of past environmental influences.

In 2015 I was contacted by McMahon, director of genetics at the National Institute of Mental Health, to discuss collaboration on the Mennonites of Kansas and Nebraska. His research group was searching for genes associated with bipolar depression in populations with small numbers of founders. The Kansas and Nebraskan Mennonites originated in the Molotschna region of the Ukraine from a single congregation, Alexanderwohl. This congregation was transplanted to the United States but split into two parts in 1874: one portion relocated to Goessel, Kansas, and the other half bought land and settled in Henderson, Nebraska. These congregations underwent further fission along familial lines, based on doctrinal disagreements. This collaboration has resulted in whole genomic sequences of deidentified Mennonite DNA samples.

The future looks bright for the research programs at the LBA with the addition of two new researchers: Dennis O'Rourke and Jennifer Raff. They bring unique expertise in ancient DNA and contemporary DNA variation with a strong emphasis on the peopling of the Americas and Arctic populations of Alaska. These research emphases coalesce with the Siberian and Aleut foci of the current director of the LBA.

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