IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
SAN ANTONIO DIVISION

JOHN A. PATTERSON, et al.,	)	
	)	
Plaintiffs,	)	
	)	
v.	)	No. 5:17-CV-00467
	)	
DEFENSE POW/MIA ACCOUNTING	)	
AGENCY, et al.,	)	
	)	
Defendants.	)	

DECLARATION OF PAUL D. EMANOVSKY

I, Dr. Paul D. Emanovsky, pursuant to 28 U.S.C. § 1746, declare as follows:

1.   I am currently a supervisory forensic anthropologist in Defense POW/MIA Accounting Agency's (DPAA) Scientific Analysis Directorate, and has served in that position since 2014. I am responsible for "Special Projects", including management of the Scientific Analysis Directorate's portion of the disinterment program. I also conduct scientific analysis of human remains, and serve as the scientific recovery expert for DPAA missions to recover remains from aircraft crashes and battlefield burial sites.

2.   I have been employed by DPAA or its predecessors, the Joint POW/MIA Accounting Command (JPAC) and the Central Identification Laboratory-Hawaii (CILHI), since 2005. Prior to my employment with DPAA, I was a forensic anthropologist and archeologist/analyst in the Oak Ridge Science and Education (ORISE) Fellowship Program, working at DPAA. In 2005, I was hired as a federal forensic anthropologist, and served in that position until being promoted to my current position in 2014.

3.   I received a Ph.D in Anthropology from the University of Florida. I am a Fellow

of the Physical Anthropology section of the American Academy of Forensic Sciences, and was

elected section secretary in 2018, and Chair of the section in 2019. I am a Diplomate of the

American Board of Forensic Anthropology (ABFA), and was elected onto the ABFA Board of

Directors in 2018. I am a member of the anthropology subcommiteee of the Organization of

Scientific Area Committees (OSAC) administered by the National Institute of Standards and

Technology to create national standards for forensic science.   I have presented and published on

numerous topics related to forensic anthropology and am an associate editor of the journal

Forensic Anthropology. *See* Exhibit 1, Curriculum Vitae.

4.   The statements contained in this declaration are based on my personal knowledge

and DPAA records and information made available to me in my official capacity.

5.   I have reviewed the document titled Expert Opinion Report of John J. Eakin

(Eakin Report), dated September 14, 2018 and will address its statements regarding stature

estimation from human long bones.

6.   The Eakin Report misstates the historical state of stature estimation science in the

1940s and 1950s and its effects.

7.   In its recovery and identification efforts after World War II, the Army Graves

Registration Service (AGRS) used then-current scientific methods to estimate stature, which

generally involved measuring certain long bones and using regression tables developed by

various researchers from a 100-person sample measured by Etienne Rollet in the 1880s.

8.   Limitations of these methods were observed, including by Dr. Mildred Trotter, an

anthropologist from Washington University in St. Louis, Missouri, who took a leave of absence

in 1948-1949 to work with AGRS at CILHI. In 1952, Dr. Trotter coauthored and published

further refinements to the regression formulae based on her study of larger and more representative reference population—American casualties of the Korean War and the Terry Collection of human remains. *See* Trotter M. and Gleser G. Estimation of stature from long bones of American Whites and Negroes. *American Journal of Physical Anthropology*, Vol. 10, No. 4: 463–514 (December 1952). Dr. Trotter continued to refine her work through the 1970s.

9.   DPAA currently uses the computer program *FORDISC 3: Computerized Forensic Discriminant Functions* (Jantz and Ousley 2005) for stature estimates. For World War II cases the "Trotter" database is used for the reference population, with options for "White" "Black" and "Any" (combined) populations. This approach essentially uses Dr. Trotter and Gleser's reference population and formulae with some additional refinements.

10.   DPAA has found that, while Dr. Trotter's refinements and subsequent refinements have improved the accuracy of height estimation, the earlier methods used by AGRS were not wildly inaccurate, especially for Caucasian servicemembers. Nor is the Eakin Report correct in stating that prior methodologies "significantly understated the true height."

11.   For example, the calculations conducted by AGRS for the remains designated X-1130, while they did not employ Dr. Trotter's refinements or DPAA's current methodology, resulted in height estimates that are in the same range as those obtained from current methodology.

        a.   Two sets of calculations were conducted for the remains designated X-1130. On January 24, 1949, the humerus, radius, and tibia were measured in centimeters, compared to regression tables, and then averaged, resulting in a height estimation of 5 feet, 2 1/8 inches. *See* QMC Form 1044, Identification Data at 3 (Jan. 24, 1949) (attached as Exhibit 2). On September 8, 1950, the femur, humerus, radius, and tibia

were measured in centimeters, compared to regression tables, and then averaged,

resulting in a height estimation of 5 feet, 1 inch. *See* QMC Form 1044, Identification

Data at 3 (Sept. 8, 1950) (attached as Exhibit 3).

       b.   I entered the femur measurement of 41.9 centimeters from September

1950 into *FORDISC 3*. The system provided a point estimate of 63.8 inches, and a 95%

prediction interval of 61.0 inches to 66.6 inches. This means that assuming the accuracy

of the femur measurement, there is a 95% likelihood that the individual whose remains

were designated X-1130 was between 5 feet, 1 inch and 5 feet, 6.6 inches tall.

       12.   This height estimate based on the 1950 femur measurement is sufficient under

DPAA's current standards to exclude 1LT Alexander Nininger, whose height was measured at 5

feet, 11 inches, from being considered a reasonable candidate for identification from X-1130.

The femur measurement would have to have been 47.0 centimeters to produce a prediction

interval that includes 1LT Nininger's recorded height. There is no reason to expect that the

measurement taken in 1950 could have been so inaccurate, especially where the other long bones

consistently resulted in a much shorter height estimation.

       13.   In my professional judgment, it is unwise to entirely disregard long bone length

and height estimates in seeking to determine whether unidentified remains could be those of a

specific servicemember. Stature estimates are one of the cornerstones of biological profile

development and a key data point for human identification projects. I am not aware of any

forensic anthropologists who would argue that they are not a validated, reliable, and useful tool.

       14.   I am not aware of any instances in which AGRS simply "disregarded" height

discrepancies. Given the method in use at the time, where a point estimate was given rather than

a prediction interval, it would have been common for the estimate not to be an exact match to the

individual. If other evidence, such as positive dental identification and material evidence (e.g. identification tags etc.) lined up, the individual could be identified despite the absence of an exact match between the statures. But where the height discrepancy was significant, I understand that AGRS would consider the candidate less likely or entirely ruled out. In the case of comparing X-1130 to 1LT Nininger, the statures are so far off from each other that a match is highly implausible and it was reasonable for identification to be rejected on this ground alone.

15.   In DPAA's identification program, and in forensic anthropology more generally, biological profile generation from the physical evidence (i.e., age, sex, stature, ancestry, individuating traits), has proven to be reliable for excluding implausible candidates for comparison to unidentified remains. Without some means of winnowing the field of candidates, other tests used for identification, such as DNA testing, would be impractical and cost-prohibitive due to the large numbers of unidentified remains and potential servicemembers. It also can make DNA testing more effective. For example, a common DNA sequence might leave a pool of candidates that can be further winnowed by stature comparisons.

16.   I do not believe that one could, without substantial education or experience in forensic anthropology, and past- conflict accounting efforts in particular, learn sufficient relevant information from reviewing individual deceased personnel files (IDPFs) and related Department of Defense documentation from World War II and the Korean War to draw meaningful conclusions regarding physical evidence in any particular IDPF.

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Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct.

Executed this 14th_ day of March, 2019.

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Paul D. Emanovsky, Ph.D.
Supervisory Forensic Anthropologist

6

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