

1967

Identification of Skeletonized Remains by X-Ray Comparison

Harold Kade

Harvey Meyers

James E. Wahlke

Follow this and additional works at: <https://scholarlycommons.law.northwestern.edu/jclc>

 Part of the [Criminal Law Commons](#), [Criminology Commons](#), and the [Criminology and Criminal Justice Commons](#)

Recommended Citation

Harold Kade, Harvey Meyers, James E. Wahlke, Identification of Skeletonized Remains by X-Ray Comparison, 58 J. Crim. L. Criminology & Police Sci. 261 (1967)

This Criminology is brought to you for free and open access by Northwestern University School of Law Scholarly Commons. It has been accepted for inclusion in Journal of Criminal Law and Criminology by an authorized editor of Northwestern University School of Law Scholarly Commons.

IDENTIFICATION OF SKELETONIZED REMAINS BY X-RAY COMPARISON

HAROLD KADE, HARVEY MEYERS AND JAMES E. WAHLKE

Harold Kade, M.D. Senior Deputy Medical Examiner, Office of the Chief Medical Examiner-Coroner, County of Los Angeles, Los Angeles, California has specialized in Forensic Pathology for the past eleven years. Dr. Kade has been certified by the American Board of Pathology as an expert in the performance of post-mortem examinations and laboratory studies to determine the cause of death. He is a Fellow of the American Academy of Forensic Sciences.

Harvey Meyers, M.D. is Professor of Radiology at the University of Southern California Medical School and for the last ten years has served as Assistant Director of the Department of Radiology, Los Angeles County General Hospital. Dr. Meyers has been certified by the American Board of Radiology as an expert in the medical specialty of x-ray examination and interpretation.

James E. Wahlke, Detective Sergeant Homicide Detail, Sheriff's Department, County of Los Angeles has served in this capacity for the last twelve years and has been a member of the County Sheriff's Department for twenty years. Sergeant Wahlke is particularly qualified in problems of decomposed and dismembered bodies having participated in several important investigations in this field.—EDITOR.

Although the shape, size, and general contour of one or more bones may be similar in different persons of the same sex, age, and body build, x-ray examinations of the details of bone structure will reveal individual characteristics which may be compared in the same way fingerprints are compared in the establishment of identity.

Anthropologic examination of a skeleton with accurate measurements of the various bones may help to determine the chronologic age, the sex, and to a limited degree, the probable racial origin (1); however, positive identification may be accomplished only by comparison with previous x-rays of the same individual (2-10).

CASE REPORT

At approximately 2:30 p.m., on April 13, 1966, an employee of the Los Angeles County Road

Department observed a large bundle of clothing in a culvert in the Angeles National Forest. Upon closer examination he observed a human skull and other parts of a human body. Investigators from the Los Angeles County Sheriff's Department, Homicide Detail, summoned to the scene, observed a skeleton wrapped in a blanket with portions of rib bones and skull exposed between boulders and loose rock. The Office of Chief Medical Examiner-Coroner was notified, and after the body was removed, the area was checked and two pink fingernails were found. The condition of the body wrapped in the blanket, as received at the Medical Examiner's office, is shown in Figure 1.

Examination revealed complete destruction of internal organs by maggots and rodent activity. The left arm and forearm, completely missing and never retrieved, are presumed to have been carried

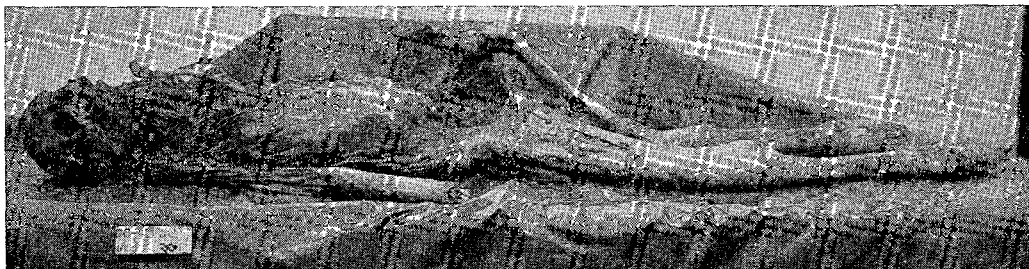


FIGURE 1
Condition of skeletonized remains as received at the office of Chief Medical Examiner-Coroner.

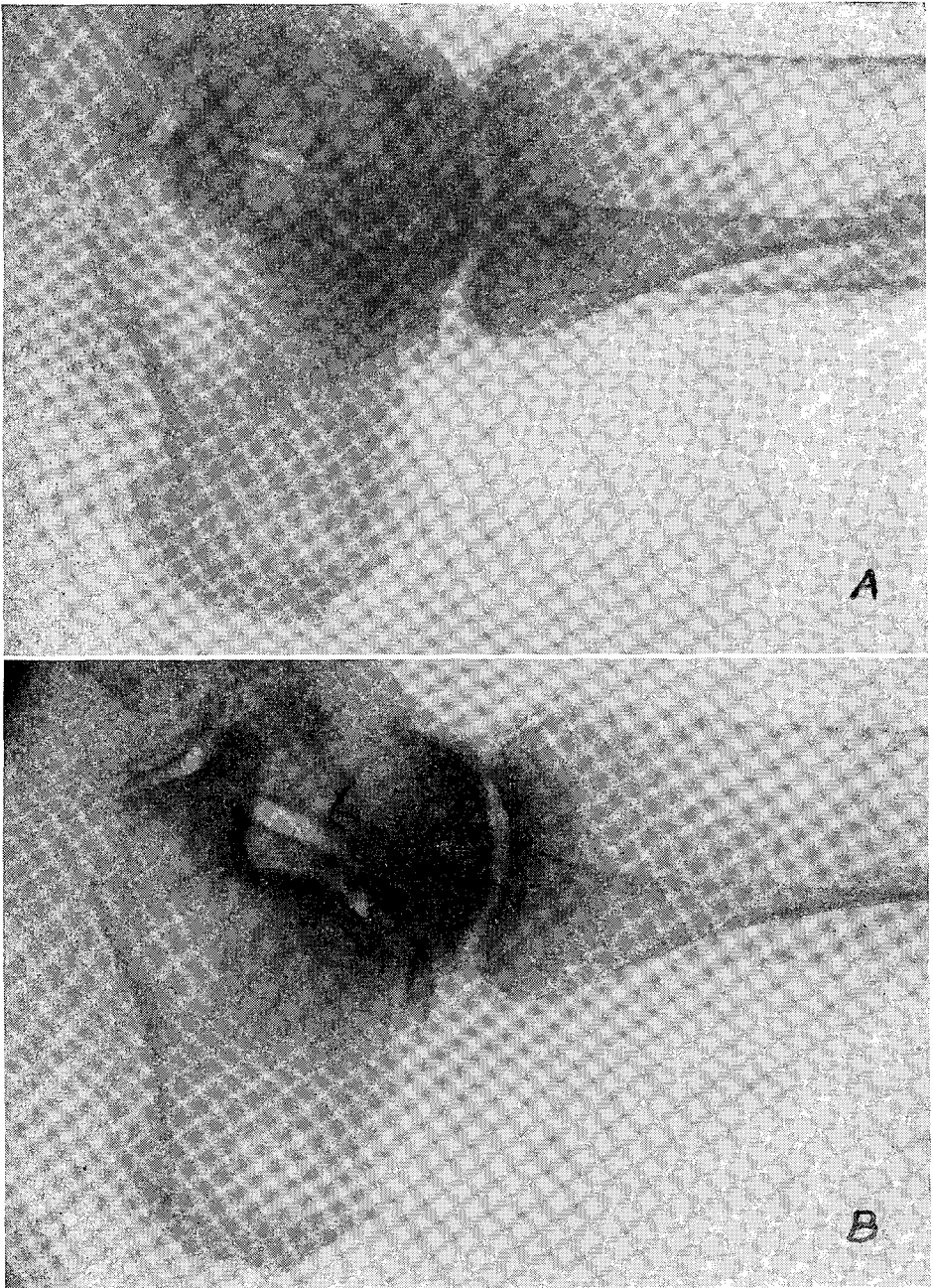


FIGURE 2
(A) X-ray of left ankle of deceased. (B) X-ray of left ankle of subject during hospitalization.

away by animals since marks of gnawing were evident also in the region of the left hip with fragments of bone chipped away.

The pelvis was that of an adult female estimated at 40 to 60 years of age, judging from the fusion

of cranial sutures. Bone structure indicated a stature of approximately five feet and weight was estimated at 100 pounds. The foot measured eight and three-fourths inches in length, corresponding with a size five shoe. The degree of decomposition

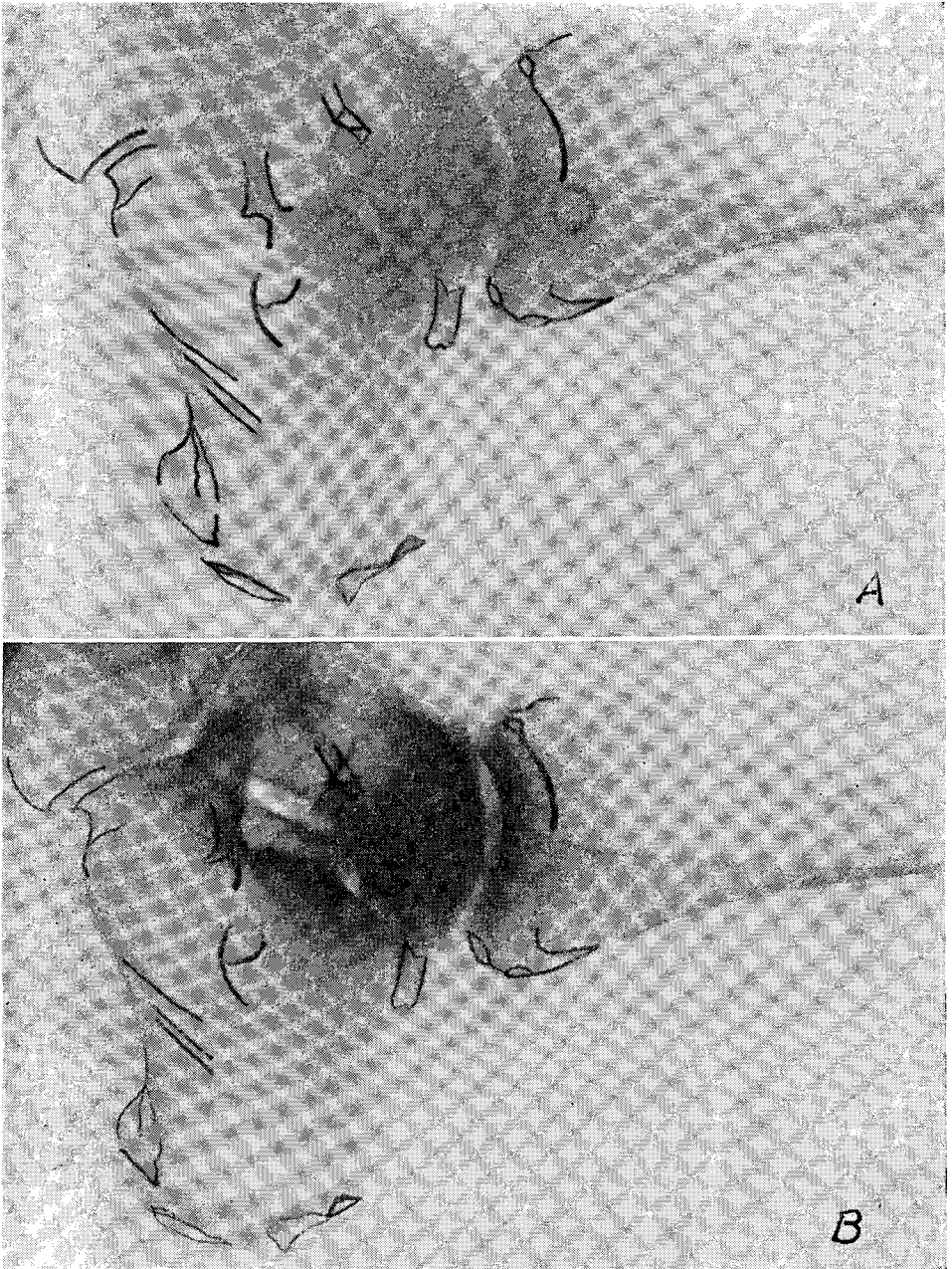


FIGURE 3

Same x-rays as Figure 2A and 2B with lines added to indicate points of similarity establishing identity.

suggested a period of perhaps one month or more between death and discovery of the remains. No teeth were present in either the upper or lower jaw. No clothing was present to assist in identification. The fingers were in such a condition that no satisfactory fingerprints could be obtained for positive

identification. Victim's hair was dyed brown and rather short.

An ALL-POINTS BULLETIN was broadcast, giving the above information and numerous responses from various police department missing persons bureaus were checked out. Los Angeles

Police Department records showed that a person of similar description (who will be referred to as Mary Austin) was reported to have disappeared on March 19, 1966, under mysterious circumstances. Sheriff's investigators retrieved samples of Mary Austin's hair from her hairbrush and also obtained the bottle of fingernail polish she had used. Her dentist was contacted and stated that according to his records, all of her teeth had been extracted six years ago and that she wore full dentures.

Investigators also learned that Mary Austin had been a patient at the Los Angeles County General Hospital and that x-ray photographs had been taken of her pelvis and left ankle in February 1966. Investigators brought these films to the Medical Examiner's office and x-rays were taken of corresponding parts of the unidentified remains. Figure 2A shows an x-ray of the left ankle of the deceased taken at the office of the Chief Medical Examiner and figure 2B shows an x-ray of the corresponding part of Mary Austin taken at the General Hospital shortly prior to her disappearance.

Comparison of these x-rays revealed sufficient distinctive features and points of similarity to establish positive identification of the remains as being the same person as Mary Austin, the former hospital patient, on the basis of the ankle x-ray alone. Figures 3A and 3B are the same x-rays with lines added to show the most conspicuous distinguishing features and individual points of similarity which establish the positive identification.

Additional extraordinary characteristics were found in the x-rays of the pelvis of Mary Austin, persisting and distinctly recognizable in the x-rays of the skeletal remains.

A comparison of the fingernail polish by chemical analysis and microscopic comparison of the hair further corroborated the identification. Fragmentary fingerprints obtained from the right hand, while inconclusive, are similar in pattern and show a few points of identity.

The autopsy failed to disclose any definite cause of death because of the advanced deterioration of the internal organs; however, due to the circumstances of the surreptitious disposition of the body,

this case is considered a probable homicide and is still under active investigation.

Although the use of dental charts is well established as a means of positive identification, this is the first time, as far as we are able to determine, that x-ray comparison of normal bones has been applied for establishing the identity of a homicide victim.

SUMMARY

X-ray examination of the bone structure of deceased persons may provide a means of positive identification when compared with x-rays taken during life. This can be of particular value where fingerprints or dental charts cannot be obtained.

ACKNOWLEDGMENTS

The authors are grateful to: Theodore J. Curphey, M. D., Chief Medical Examiner-Coroner, County of Los Angeles. William Evans, M. D., Medical Director, Los Angeles County General Hospital. Peter J. Pitchess, Sheriff of Los Angeles County.

REFERENCES

1. KROGMAN, W. M., *THE HUMAN SKELETON IN FORENSIC MEDICINE*; C. C. Thomas, Springfield, Illinois, 1962.
2. CULBERT, W. L. and LAW, F. M., Identification by Comparison with Roentgenograms of Nasal Accessory Sinuses and Mastoid Processes; *JAMA*, 88: 1634-1636, 1927.
3. LAW, F. M., Roentgenograms as a Means of Identification; *AMERICAN JOURNAL SURGERY*, 26: 195-198, 1934.
4. MAYER, J., Identification by Sinus Prints; *VIRGINIA MED. MONTHLY*, 62: 517-519, 1935.
5. SINGLETON, A. C., The Roentgenologic Identification of Victims of the "Noronic" Disaster; *AM. J. ROENTGENOLOGY*, 66: 375-384, 1951.
6. BROWN, T. C., DELANEY, R. J. and ROBINSON, W. L., Medical Identification in the "Noronic" Disaster; *JAMA*, 148: 621-627, 1952.
7. MORGAN, T. A., and HARRIS, M. C., The Use of X-rays as an Aid to Medicolegal Identification; *J. FORENSIC MED.*, 1 (1): 28-38, 1953.
8. GREULICH, W. W., Skeletal Features Visible on the Roentgenograms of Hand and Wrist Which Can be Used for Establishing Individual Identification; *AM. J. ROENTGENOL. RAD. THERAPY AND NUCLEAR MED.*, 83(4): 756-764, 1960b.
9. NEISS, A., Roentgen Identification by Comparison of Pictures; *DEUTSCH. Z. GESAMT GERICHTL. MED.*, 55: 135-136, 1964.
10. HUELKE, D. F. and LALLI, A. F., Identification of Human Remains; *MICH. MED.*, 65: 25-26, Jan. 1966.