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FORENSIC SCIENCE

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During the afternoon of December 15, 1975, the Howard County, Md., Police Department received information that a human skeleton had been discovered in Columbia, Md., in an isolated wooded area adjacent to an industrial park. Investigators responded to the scene, located the badly decomposed remains, and began a search of the immediate vicinity.

The crime scene investigation disclosed that the skeleton had been dragged a few feet from its original location and was not intact. Police theorized that this disarrangement was the result of animal activity. An intensive search produced only a few strands of long hair, a medium-sized sweater, and a few pieces of women's jewelry—scant clues to the identity of the decedent, a suspected rape-homicide victim.

The physical remains were taken to the office of the medical examiner in Baltimore, Md., where the time of death was estimated to be from 3 to 6 weeks prior to discovery. A subsequent review of missing persons reports for the pertinent time period produced no additional clues.

With the question of the victim's identity still unresolved, the remains were forwarded to coauthor Dr. J. Lawrence Angel, Curator of Physical Anthropology at the Smithsonian Institution in Washington, D.C. After a painstaking examination of the skeletal remains, it was concluded that the skeleton was that of a Caucasian female, approximately 17 to 22 years of age, who was of less than average stature. She had broader than average shoulders and hips and was believed to be right-handed. Her head and face were long; the nose high-bridged. Also noted was subcartilage damage to the right hip joint, a condition which had probably caused occasional

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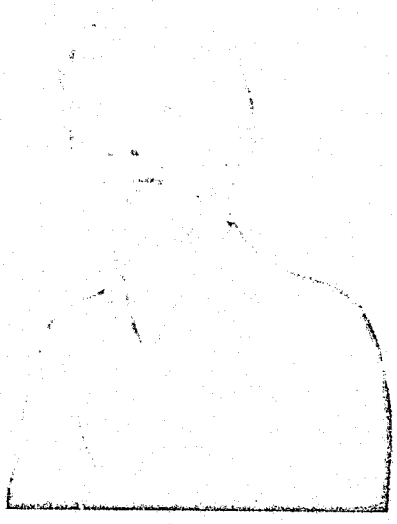
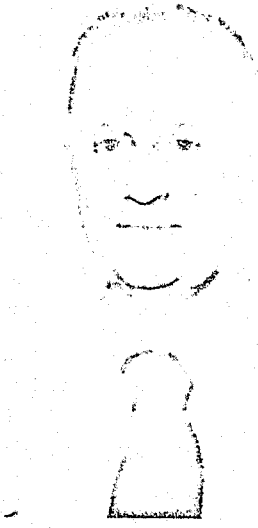


Donald G. Cherry



J. Lawrence Angel

pain and suggested occupational stress. An irregularity of the left clavicle (collarbone) revealed a healed childhood fracture.

At the Howard County Police Department's request, Dr. Angel and coauthor Donald G. Cherry, a police artist with the Metropolitan Police Department in Washington, D.C., began a social and personality profile of the deceased based upon an analysis of the physical evidence obtained through the crime scene search and related photographs, medical examiner's reports, and reports from the FBI Laboratory. Scale front and profile photographs of the victim's skull in standard eye-ear plane orientation were taken. Tracings of the skull were also made. Several meetings between the scientist and the artist insured that the artist remained within the limits established by the anthropological study—mainly, the tissue depths and probable placing of eyes, ears, mouth corners, and nasal tip.

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Although science has not yet enabled us to reconstruct personalities based solely upon the fragmentary remains of an individual, scientific examinations of this nature can sometimes provide meaningful indicators of sex, race, age, stature, body build, nutritional history, congenital variations, occupational manifestations, pregnancies, and previous medical history, such as fractures, dental work, and anomalies, if present. In some in-

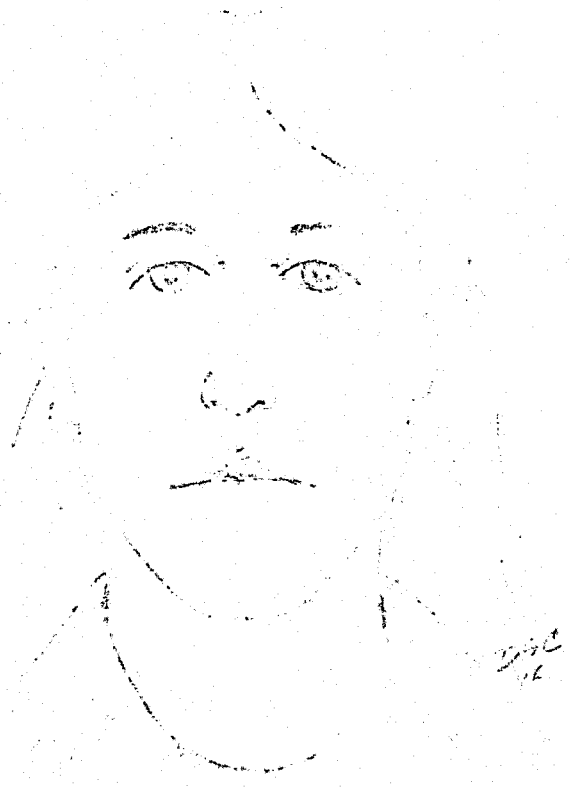

Figure 1. Police artist's sketch of facial features reconstructed from unidentified skll.

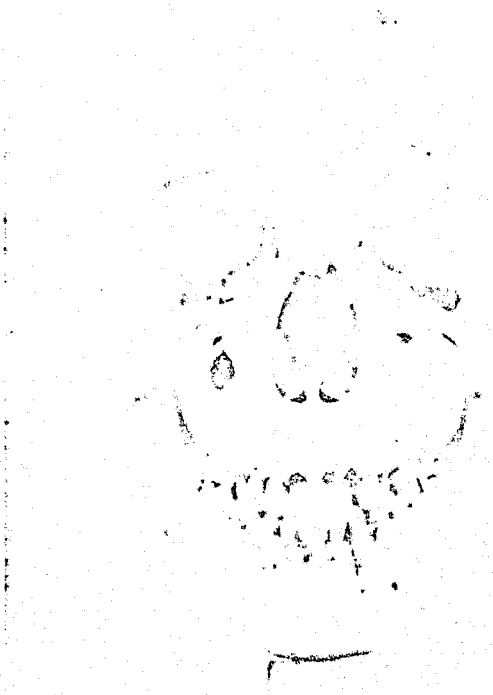

Figure 2. Recovered skull subsequently identified as that of Roseanne Michele Sturtz.

stances, these indications may suggest personality traits. For example, several healed fractures could be indicative of a hasty, accident-prone person; or they may suggest an occupational pattern, just as injuries sustained frequently by cowboys, for instance, reveal themselves in calcaneal (heelbone), knee, clavicle, and forearm fractures.

Obviously, the reconstruction of a personality involves considerable conjecture, but with the proper blend of science and artistic skill, it may be possible to produce a reasonable likeness of an individual under certain circumstances. Of course, the thoroughness of the crime scene search is a critical factor, for the success of the scientist and artist will depend largely upon the recovery, preservation, and careful analysis of all available evidence.

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In the case under discussion, a sketch (fig. 1) was prepared after a deliberate study of the evidence, including not only the skull (fig. 2) and skeleton, but also the hair, jewelry, sweater, and the area where the remains were found.

On March 17, 1976, the finished sketch was published in a local newspaper, and police officials immediately received calls from three readers stating that the sketch closely resembled a young woman, Roseanne Michele Sturtz, a friend who had not been seen since August 1975.

A search of the Baltimore Police Department records disclosed that an individual of this name had been previously photographed (fig. 3) and fingerprinted by the department. Rolled fingerprint impressions were then compared at the FBI Identification Division in Washington, D.C., with the badly decomposed prints from one of the victim's fingers, and it was established that the victim was indeed Roseanne Michele Sturtz.

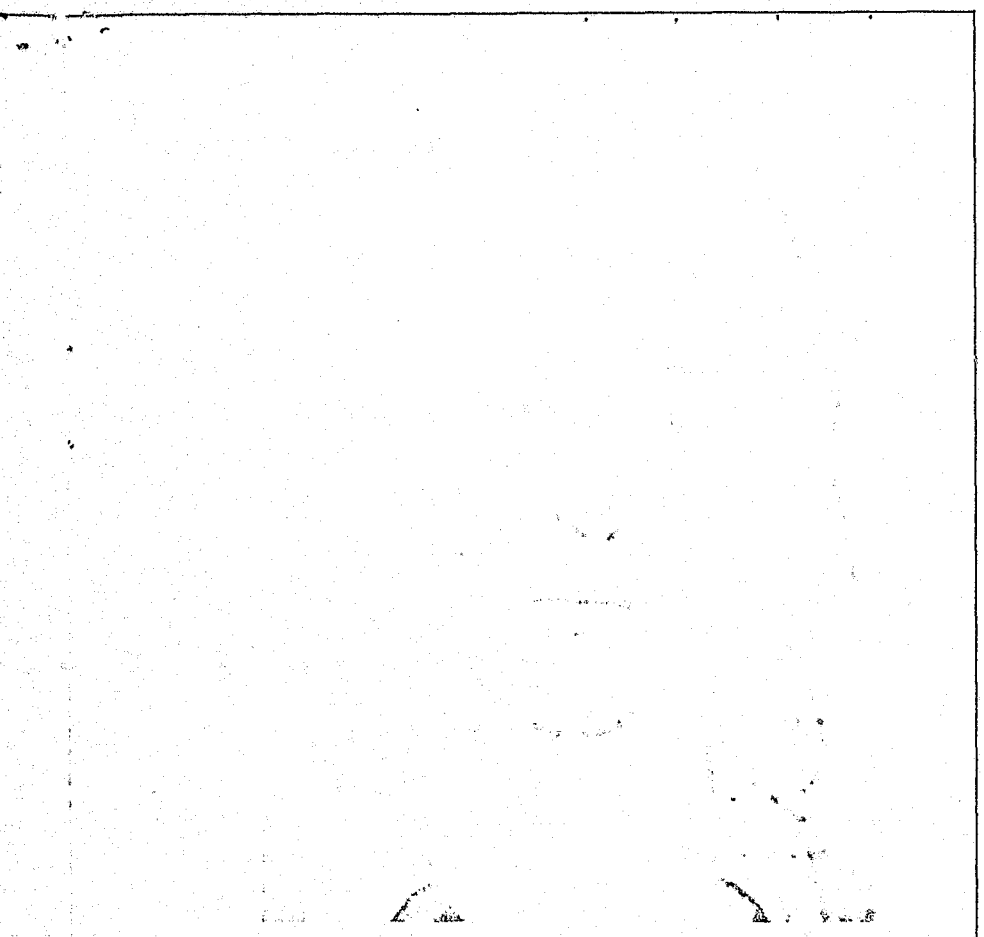

Figure 3. Roseanne Michele Sturtz (photo taken July 1975).

Further investigation by police determined the victim was 20 years of age when reported missing in August 1975. Associates related that, when she was working as a nightclub dancer, she occasionally favored one leg. It was further determined that she had suffered a fracture of the left clavicle at the age of 6.

In this manner, the unknown homicide victim, whose scattered remains had been found on a bleak December day 4 months before, received a name and a history.

The lessons learned from this case have meaningfully contributed to the fields of forensic anthropology and crime scene technology. When police investigate a crime scene where skeletal remains are located, extreme caution should be exercised in the search. Because animals may have disturbed parts of the body, the search should be conducted over a fairly large area. It may be significant to know that dogs, coyotes, or pigs consume bone, while rodents gnaw or nibble skeletal remains. Although murderers may scatter or perhaps burn parts of a victim, it should be understood that, even after such treatment, enough bone fragment may survive to be useful in achieving identification. A victim's facial features, however, can be reconstructed only in circumstances in which the skull is virtually complete with lower jaw and teeth.

Depending upon the composition of the ground surface beneath the remains, there may be an outline of the original fleshy body. If so, this area should be recorded with precise measurements and photographed, and if at all possible, plaster casts of the site should also be considered. Through the use of such techniques, valuable clues regarding tissue thickness may be found, indicating whether the deceased was plump or thin. Clothing sizes are obviously helpful.

If a skeleton is situated on an incline, a very careful search should be conducted downhill from the original site since the action of rain, wind, animal activity, and even gravity might well cause some parts to separate from the main skeletal frame after the connecting tissue has decomposed.

> ***"The case in point provides an excellent example of what can be accomplished when the police artist, scientist, and investigator pool their talents and experience in a cooperative effort to successfully reconstruct a face, former lifestyle, or personal history—a personality—from skeletal remains."***

The skeletal remains themselves must, of course, be carefully measured and photographed. After the bones have been recovered, the ground under them should be sifted for additional bits of evidence.

The scientist/artist team, having made a thorough analysis of the physical evidence in its entirety, must then strive to recreate a living likeness just to the point of caricature.

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