

Letters to the Editor

Commentary on "Black Talon," JFS. Vol. 39, No. 6, Nov. 1994

Dear Sir:

In their letter entitled "Black Talon" in the November 1994 issue of the *Journal of Forensic Sciences*, Peterson and Wilber reported using "Duxseal" as a "flesh simulant" to "test expansion" of hollow point bullets.

"Duxseal" is a puttylike compound used as a sealant for air ducts (one maker is Uniseal, Inc., Evansville, IN). A decade or more ago this substance was popular with gun writers and bullet merchants who claimed it to be a valid "flesh simulant," that is, bullets shot into it were said to expand identically to those shot into flesh. Actually, bullets shot into "Duxseal" expand much more than they do in flesh. A 22 Long Rifle 40 grain round-nosed bullet shot into "Duxseal" (at about 1100 ft/s) expands to about 40 caliber. This same bullet shot into 10% ordnance gelatin does not expand at all (Fackler, ML, unpublished data, 1986). Additionally, it is common knowledge among forensic pathologists and trauma surgeons that this bullet does not expand in penetrating human soft tissue.

The widespread use of 10% ordnance gelatin for bullet testing by forensic laboratories, law enforcement groups, and bullet manufacturers in the past decade has fostered an increased understanding of bullet effects. Even in the popular gun press we no longer find "Duxseal" used as a flesh simulant. It is indeed surprising to see Peterson and Wilber's use of it appear in a well respected scientific journal.

Readers can find valid tests of the "Black Talon" bullets' effects, done in scientifically calibrated and validated 10% ordnance gelatin, in bullet tests done recently at the Royal Canadian Mounted Police Forensic Laboratory in Regina, Saskatchewan (1), in tests done at the California Highway Patrol Academy (2), in tests from the Indianapolis/Marion County, Indiana Criminalistics Laboratory (3) or in tests done at the Firearms Training Unit of the FBI Academy—and others.

References

- [1] Dahlstrom DB, Powley KD. Comparative performance of 9mm Parabellum, .38 Special and .40 Smith & Wesson ammunition in ballistic gelatin. Forensic Laboratory, Royal Canadian Mounted Police, Regina, Saskatchewan, Canada, pp 183 [1994].
- [2] Roberts GK. Comparison of the terminal performance of 9mm, 40 S&W & .45 ACP JHPs. *Wound Ballistics Rev* 1(4):32-37, 1994.
- [3] Jason A, Thompson EJ. Ammunition performance: Testing data and acceptance criteria. *Wound Ballistics Rev* 1(4):26-28, 1994.

Martin L. Fackler, MD, FACS, President,
International Wound Ballistics Association
RR4 Box 264
Hawthorne, FL 32640

Author's Response

Dear Sir:

Thank you for the opportunity to respond to the letter by Fackler who, in this issue, comments on the letter of Peterson and Wilber (JFS, Vol. 39, No. 6, Nov. 1994).

We have found that "duxseal" is a convenient and reliable medium in which to evaluate *comparatively* various firearm cartridges. The "temporary" cavity made by a bullet in duxseal is permanent and permits a direct measure of comparative volumes by the simple technique of pouring water to fill the duxseal hollow; the water is then poured into a measuring cylinder and a direct reading of the volume results.

Additionally one can obtain excellent illustrative material for use in court, class, or controversy. (Fig. 1) Plaster of paris in water can be poured into the duxseal bullet cavity, allowed to harden and then cut out of the medium. A permanent exhibit results. Figure 1 shows 6 of such castings. The configurations also reveal the comparative rate at which energy from the moving bullet is transferred to the test medium. In court testimony, it is quite valuable to have jurors examine and feel (and take to the jury room, if allowed) such castings to clarify for them the action of missiles on human tissue.

It was helpful to read the useful comment by Fackler: "... bullets shot into "Duxseal" expand much more than they do in flesh". In our study of the "Black Talon" we wanted to have the worst possible case presented. It is clear from our data that the Black Talon round is no more destructive than other hollow point bullets of like caliber; nor does it pose a greater hazard to surgeons than the run of hollow points in the wounded do.

It might be informative to repeat the fact that "ballistic gelatin" is a genuinely monophasic substance. In this respect it is unlike the human or animal body each of which is totally polyphasic. Even separate organs tend toward polyphasey. When a bullet moves from one phase to another its behavior is inclined to change: tumbling, curving, skewing, etc.

Gelatin and duxseal (kept at 70 degrees F. or warmer) are monophasic. We have modified such in duxseal by wrapping it about bone, by encasing water in it, etc. These tactics are helpful when explaining the problems of a polyphasic target to an audience.

Duxseal has a useful place among the testing media used in the evaluation of firearm cartridges. NONE of the media represent human flesh completely; they serve best when used for comparative work.

Explanation of Figure 1

Photographs of plaster paris castings of several cavities made in "duxseal" by 38 caliber bullets fired from a distance of 8 feet. All

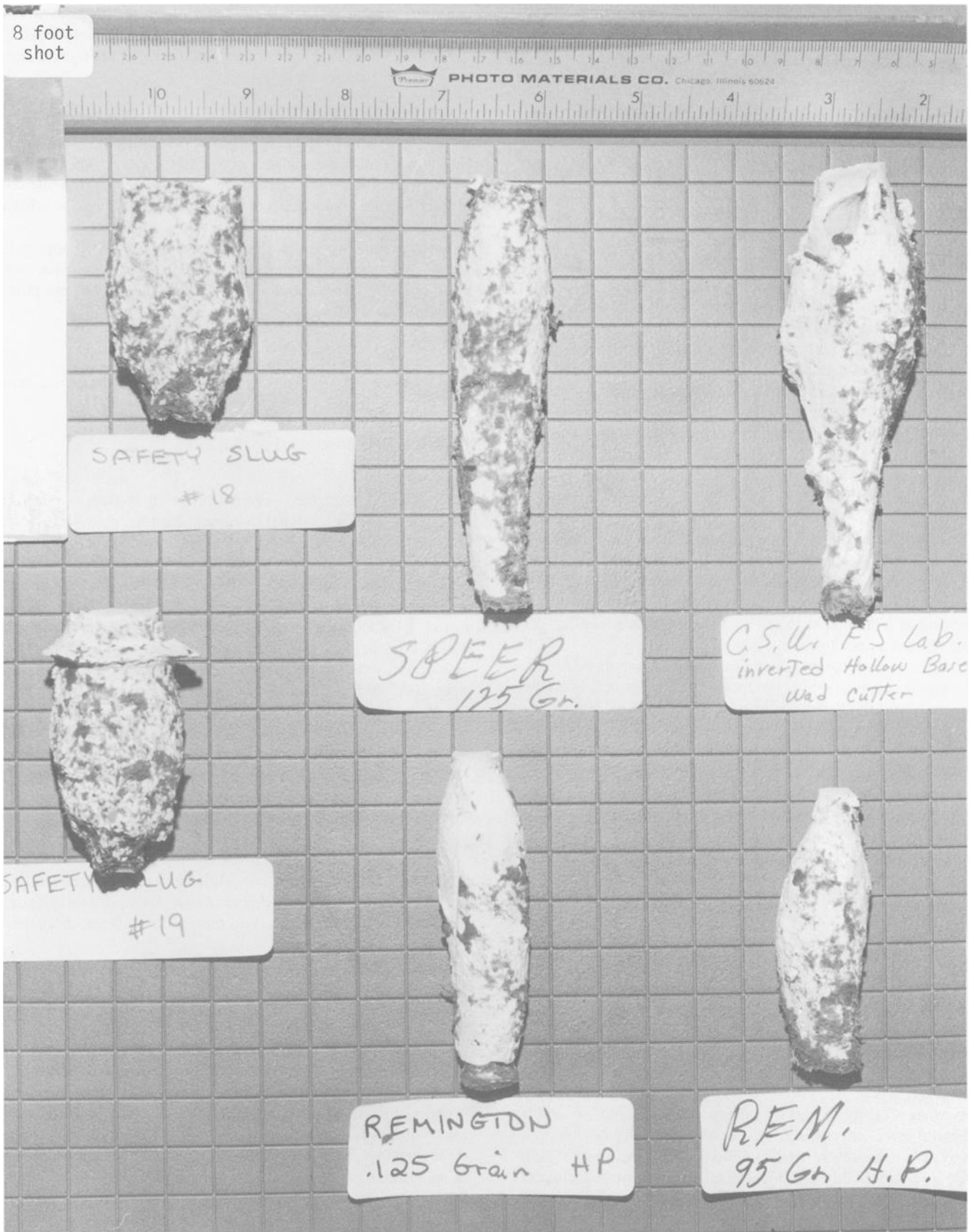


FIG. 1

were fired from 4 inch barrel revolver. Reference grid is made up of 0.5 inch squares.

Charles G. Wilber, Ph.D.
Director, Forensic Science Laboratory
Colorado State University
Ft. Collins, CO 80523

Further Commentary on "Proficiency of Professional Document Examiners in Writer Identification" (*Journal of Forensic Sciences*, Vol. 39, No. 1, Jan. 1994, pp. 5-14)

Dear Sir:

In the above referenced commentary Professor Kaye raised issues relating to the wording the original paper's authors made regarding the statistical significance of the study. Additionally, he questioned what the participants knew of the study and their level of performance of the assigned tasks. Finally, he wonders if the task resembles a typical forensic case. Professor Kaye's concerns were not without merit.

I would also like to question the degree to which the participants task resembled a typically forensic case and further whether the study even resembled a scientific experiment. I do so, based on the description of this study which was offered as testimony by one of the study's participants in *the United States v. James Smyth*, before the Honorable Barbara A. Caufield, in the United States District Court, Northern District of California and January 28, 1993. Special Agent Richard M. Williams of the Federal Bureau of Investigations appeared as an expert witness for the government, testifying as a document examiner to a certain handwritten document offered as evidence.

In the course of Agent Williams' cross examination, he produced a document, identified as a product of a contract between Drexel University and the Federal Bureau of Investigation. His proffered document, twelve pages in length, begins with a page titled—"Appendix A—Proficiency of Professional Document Examiners in Writer Identification—Moshe Kam and Joseph Wetstein—ECE Department—Drexel University—76—" and ends with a page titled—"References—(ten numbered citations)—87-". The text and data in this document conforms in substance, if not always in format, with the contents of "Proficiency of Professional Document Examiners in Writer Identification," Moshe Kam, Joseph Wetstein and Robert Conn, *Journal of Forensic Sciences*, Vol. 39, No. 1, 1994, pp. 5-14.

During recross examination on 3 February 1994, Agent Williams revealed the fact that he was one of the seven FBI participants in the "Drexel Study". In the course of extensive testimony he described the study as a "separation test", stating—

"The documents were laid out on a table, multiple documents. You were not in a classroom type situation or in a laboratory situation where you sit down and simulate what the Drexel examiners or the Drexel technicians were looking for, and if I can use this expression, was a *quick and dirty how do you separate documents?* (italics added) They were not looking for in depth analysis. They wanted to see how a document examiner went about separating out or putting together documents. The same documents were given to the graduate students of Drexel. They were allowed to do the same thing. This was done around the table, *no notes were made, no comparisons in depth were made. This was strictly a visual comparison, standing not even sitting, and what they found*

in this circumstance that were substantial different between document examiners. Now, of course, what they were looking for was how is this done so they could enter it into a computer program." (italics added)

When asked if he was interviewed by the authors of the study following its completion, Agent Williams testified—"We were not interviewed after the test, we were interviewed as we were doing it. We were asked—we were surrounded by people in white coats with clipboards. And we were asked to verbally describe what we were doing while we were doing it."

I was previously not in a position in which I felt it appropriate to comment on the original article. The recent conclusion to the case of *United States v. James Smyth* has permitted me now to offer my observations.

Duayne J. Dillon, D. Crim.
Document Services
Post Office Box 488, Courthouse Station
Martinez, CA 94553

Author's Response

Dear Sir:

Dr. D. J. Dillon has written to you in regard to our paper "Proficiency of Professional Document Examiners in Writer Identification" (*Journal of Forensic Sciences*, Vol. 39, No. 1, January 1994, pp. 5-14). The letter also refers to subsequent correspondence on that paper between Professor D. H. Kaye and me (*Journal of Forensic Sciences*, Vol. 39, No. 6, November 1994, p. 1344 and p. 1346). Dr. Dillon's letter purports to discuss the conditions under which a proficiency test, the subject of our January 1994 paper, was conducted. The letter is based on testimony given by FBI Special Agent Richard M. Williams in *the United States vs. James Smyth* on January 28, 1993. Special Agent Williams is identified in Dr. Dillon's letter as one of the seven FBI document examiners that took our test. A direct quotation from Mr. Williams' testimony follows. If this quotation indeed described our proficiency test, one could not avoid the following two conclusions: (i) our testing methodology was fundamentally flawed; (ii) our January 1994 paper is defective in its entirety.

Fortunately, nothing is farther away from the truth. Special Agent Williams never took our proficiency test. Consequently, the testimony in *the United States vs. James Smyth* does not describe and is not related in any way to the proficiency test discussed in our January 1994 paper.

During our work on a computerized support system for document screening we had meetings and conducted interviews of FBI Document Examiners for the purpose of determining what they do and how they do it. This information was necessary to develop rules for an expert system. Mr. Williams, along with very many other Document Examiners in the FBI Laboratory, was interviewed in this regard and was asked to demonstrate and explain the logical process of document examination. We think it is this event which Mr. Williams refers to in the transcript of his testimony. Many of these meetings were informal, were never summarized or reported in an official paper and were never used in scientific studies of any kind whatsoever. Mr. Williams evidently misinterpreted this interview-and-demonstration process as the formal proficiency test which was later administered to seven FBI document examiners. Our work on the support system continues, and, when completed, will be documented in accordance with the highest professional standards.

Since Special Agent Williams did not take our proficiency test, Dr. Dillon's letter is irrelevant, totally and in its entirety, to the issues discussed in our January 1994 paper (and in our subsequent correspondence with Professor Kaye). Needless to say, we bear no ill-will towards Dr. Dillon. With no first-hand knowledge of the matter, he could rely only on the information that he had. The information that he had was definitely a cause for alarm. As we have explained, this information is totally immaterial to the proficiency test described in our January 1994 paper. We thank both Dr. Dillon and the editor of the Journal of Forensic Sciences for the opportunity to set the record straight.

Moshe Kam, Ph.D.
Associate Professor
Drexel University
Philadelphia, PA

Help Requested in Identifying Human Remains

Dear Sir:

The Coroner of Stark County, Ohio, and the Canton-Stark County Crime Laboratory are asking for your assistance in the identification of unknown human remains. On February 26, 1995, the following remains were discovered lying on the ground, off the side of a rural road: the skull with the lower jaw, one (1) rib, two (2) vertebrae, and the sacrum. A special feature of the teeth is that the right upper incisor is pegged, meaning it is narrow and tapered.

Forensic anthropologists have provided the following information:

Age: 42 plus or minus 10 years

Race: white

Sex: male

Time of Death: 1991 to Fall, 1994

Figures 1 and 2 are two forensic artist drawings of the likely physical attributes of the face.

Publishing of these sketches would be appreciated, since local efforts to identify this subject have failed and for this reason lead us to believe this is a homicide.

If anyone should recognize this subject please contact:

Dr. James R. Pritchard
Stark County Coroner
400 Austin Avenue
Massillon, OH 44646
(216) 837-9299

or

Robert E. Budgake
Director
Canton-Stark Co. Crime Lab
3530 Central Ave., S.E.
Canton, OH 44707
(216) 484-4801

Thank you for your assistance in this matter.

Robert E. Budgake

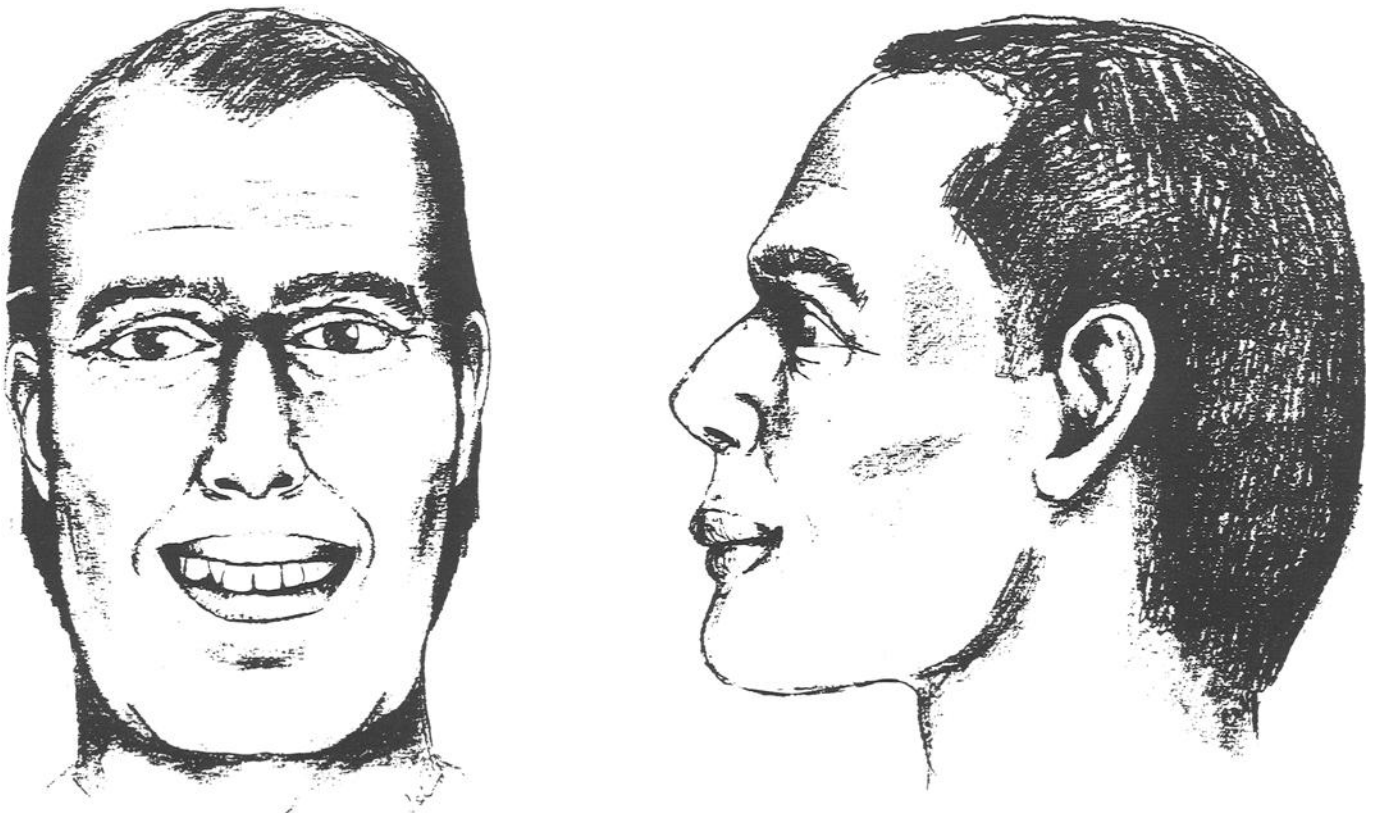


FIG. 1—Forensic artist's drawings of the likely physical attributes.

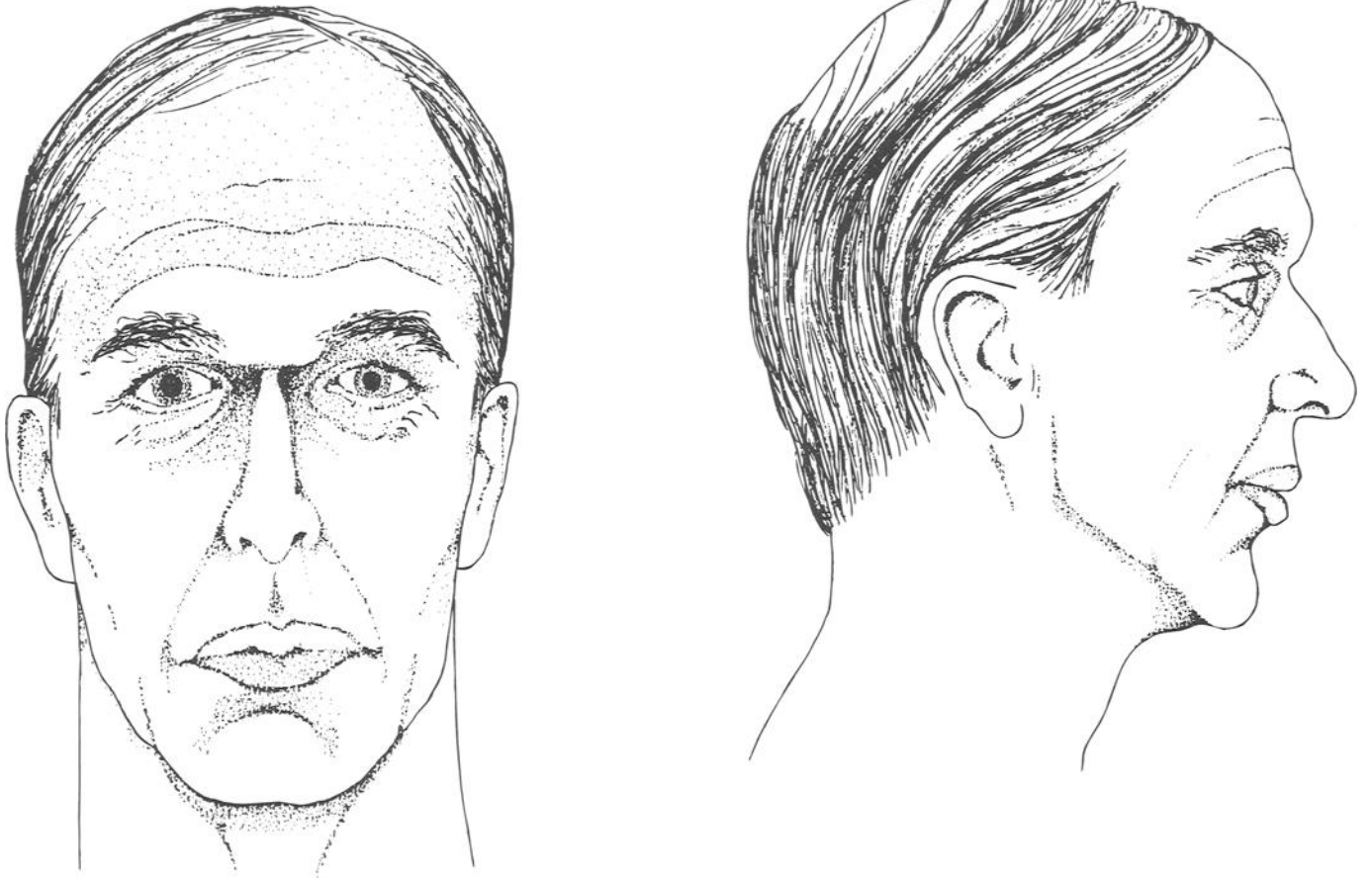


FIG. 2—Forensic artist's drawings of the likely physical attributes.