DENTAL EVIDENCE IN THE POSTMORTEM IDENTIFICATION OF ADOLF HITLER, EVA BRAUN, AND MARTIN BORMANN

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GENERAL INTRODUCTION

Adolf Hitler, Eva Braun, and Martin Bormann were treated by one and the same dentist from shortly before the outbreak of World War II until the collapse of Nazi Germany in the Spring of 1945. The dentist, Hugo Johannes Blaschke, D.D.S., was allowed to depart from the Fuehrer's Berlin bunker on Hitler's last birthday, April 20, 1945, but was captured a month later by American forces in Salzburg. During the ensuing interrogation, Dr. Blaschke prepared descriptions and diagrams regarding his dental treatment and related problems of Adolf Hitler, Eva Braun, and Martin Bormann. These antemortem data were potentially of great forensic interest, but received no attention at that time, for one obvious reason: the Americans had no postmortem data for comparison.

Although Dr. Blaschke died in 1957, his dental data remained in confidential files of the Captured Records Branch of the United States Archives and Records Service, Washington, D.C. Then, in 1968, the Russian author Lev Bezymenski, was permitted to report on potentially pertinent, but previously "unknown documents from secret Soviet archives." These suggested that, among the charred remains that had been recovered in and around the rubble of the Nazi Reich Chancellery in Berlin, as the Russians invaded the bombed and burned area in early May, 1945, there were two cases, designated as Autopsy Records No. 12 and 13, which allegedly could be the bodies of Adolf Hitler and Eva Braun, his wartime mistress and wife for a night; ie, the fatal night of April 30, 1945. However, there could be no positive identification, for another obvious reason: the Russians had no antemortem data for comparison.
Only recently has there been some clarification regarding the whereabouts of Hitler's right-hand man and would-be-successor, Reichsleiter Martin Bormann, missing since his condemnation to death in absentia at the Nuremberg trials. Whereas his dentist, Dr. Blaschke, had summarized Bormann's wartime dental treatment history for American archives, these antemortem dental data were simply filed away as being of no practical forensic interest, because, here again, *the Americans had no postmortem data for comparison.*

Then, in early December 1972, West Berlin German construction workers accidentally unearthed two skeletons across from Invalidenstrasse bridge next to Lehrter Railroad Station, where Bormann and one of Hitler's military surgeons had been seen alive for the last time, as they tried to escape from the invading Russian forces. Now, after 27 years of confusing rumors, here was finally a potential opportunity to get "one's teeth" into something concrete for the evaluation of Bormann's fate. However, *the Germans had no ante-mortem data for comparison.*

In retrospect, it should be recalled that among the Allied Powers it was the British who provided the most detailed research on the local circumstances surrounding the last days of the Nazi Regime (see below). But beyond the solicited eyewitness testimonies regarding Hitler, Braun, and Bormann, *the British had neither ante-mortem nor postmortem data for comparison.*

The following presentations will primarily review forensic research in which the author has been directly involved. Beyond that, the attached bibliography includes supplementary references to other literature and comprehensive diagrammatic, tabular, and photographic illustrations for comparison of antemortem and postmortem data pertinent to the forensic identification of Hitler, Braun, and Bormann, respectively.

THE CASE OF ADOLF HITLER

Preamble

General Dwight Eisenhower, in early May, 1945, was informed that one of the burned bodies unearthed outside the Nazi Fuehrer bunker and examined by Russian doctors following the fall of Berlin, could almost certainly be attributed to Hitler. However, four weeks later, on June 9, Soviet's Marshal Zhukov made a new statement to the Press that the Russians had been unable to identify Hitler, and that nothing definite could be said about Hitler's fate (*Pravda, June 10, 1945*).

At the Potsdam Conference, July 17, 1945, Stalin surprised the American Secretary of State, Mr. James F. Byrnes, by saying that Hitler was believed to be alive, probably in Spain or Argentina. Years later, when I wrote to the retired President Harry Truman to check this point, I received confirmation through his library archives confirming Stalin's stated contention that Hitler had escaped.17

An exhaustive investigation of the circumstances surrounding the last days of the Nazi regime was first published by Oxford's Regius Professor of Modern History, Dr. H.R. Trevor-Roper in 1947, re-edited and updated in 1956 and
1962. This comprehensive study provided considerable circumstantial evidence that Adolf Hitler was dead and that his remains must have come into the hands of Russian troops, which in early May 1945 surrounded Hitler's Berlin Chancellery.

Then in 1965 a brief American reference was made to the existence of antemortem dental data. A colleague of mine at our sister school in San Francisco, former U.S. Army Captain Elsworth Kelly, D.D.S., extrapolated a dental chart from the U.S. Army's interrogation of Hitler's captured dentist. But there was at that time no available postmortem information with which to make a forensic comparison.

The American dental annotation did not mention the British footnote on medical data and neither the British nor the American report made any cross-reference to the alleged Russian autopsy data from 1945, about which the world was still kept in the dark a whole generation after the end of the war.

As late as 1965, Soviet's General Boltin, one of the coeditors of the Russian War History, stated to the "Spiegel" correspondent Eric Kirby, that Moscow had no certain evidence of Hitler's death. Others have also attributed the Soviet uncertainty regarding Hitler's death to Chairman Stalin. If we are to believe that Khrushchev Remembers (1970) remembered correctly, when recalling (footnote p. 219) that, "Stalin, of course, for a long time insisted that Hitler was not dead at all." Thus, for a quarter of a century, a variety of speculations continued to appear regarding Hitler's fate, dead and/or alive—far too many to be alluded to or otherwise pertinent to the present documentary analysis of available forensic data.

Even as late as 1968, when the Russians finally did permit release of their 1945 autopsy reports of various charred bodies unearthed in and around Berlin's burned Fuehrer bunker, the Soviet authorities still lacked antemortem dental data by which they otherwise might have been able to provide forensic evidence whether or not Adolf Hitler in fact was among the identifiable remains.

During the summer of 1971, while visiting my native Norway, one of my senior colleagues, Ferdinand Ström, former head of forensic dentistry in Oslo, informed me that after the Russian alleged postmortem data on Hitler became known, in the late 1960s, he had tried to contact both the British and American sources regarding their references to antemortem information on the Nazi leader. However, my Norwegian colleague was greatly disappointed in having had no productive response, especially considering the potential forensic importance of the missing x-rays alluded to in a footnote of the British report.

Under these circumstances it seemed important, first, to reexplore available reports by American, British, and Russian authors recorded in the published literature; and, second, to seek out original archives through which further research might contribute to a conclusive settlement of controversial questions regarding Hitler's identification.

After a brief orientation regarding the source and nature of the material at hand, the following report will deal with an evaluation of the major combined documentation now available from American and Soviet archives, respectively, and a forensic comparison pertinent to a definitive postmortem identification of the Nazi dictator.
Material

The following types of observations served as evidence for the conclusions reached in this study:

1. Documents from American archives, originally recorded during a 1945 interrogation of Hitler's dentist, the late Dr. Hugo Blaschke, and placed in the confidential files of the Captured Records Branch of the USA National Archives and Records Service, Washington, D.C.³

2. Roentgenologic evidence in the form of five authenticated head and jaw x-ray plates, originally taken of Hitler following the assassination attempt in 1944 and reexamined in early 1972 when a series of cross-references finally led me to wartime medical files at a satellite U.S. archive facility in the small town of Suitland, Maryland.¹

3. Previously unknown documents from Soviet archives, originally recorded during autopsy of Hitler's alleged remains in May 1945, and published for the first time by Lev Bezynenski in 1968².

4. Specially prepared plaster casts, gold and plastic reproductions of Hitler's dentition, initially used as study models and subsequently for roentgenologic and other comparative observations.

AMERICAN ARCHIVES

Before presenting the origin and nature of the American contributions to the documentary evidence regarding Hitler's identification, it is of interest to record the sequence of events, which, after a discouraging beginning, culminated in a successful completion of the documentary search and forensic research.

Background Information

According to Trevor-Roper's The Last Days of Adolf Hitler,¹⁵ "the Western Allies obtained copious medical records from Hitler's doctors, including x-ray photographs of his head, which would have been conclusive for the identification of the skull." On December 9, 1971, I quoted this statement in a letter to the Historical Division of the Department of the Army, Washington, D.C., requesting, if possible, some more specific information regarding the missing x-rays. The letter was referred to the United States General Services Administration, from which a reply was received on January 6, 1972 (NNMC 72–327), through the National Archives and Records Service, signed by the Chief of the Captured Records Branch of the Military Records Division. However, it was discouraging to learn that "we do not have Hitler's x-rays among our holdings."

Having the above negative information in writing from the highest U.S.
authorities on such matters, the case seemed closed in an unresolved state. However, I immediately addressed a letter, January 11, 1972, to Professor H.R. Trevor-Roper at Oxford University. Though my Norwegian colleague, Ferdinand Ström, had already done so in vain, I could now follow-up the case and refer to the negative response from USA authorities, thus suggesting that perhaps the vital x-rays in fact may still be in Europe, perhaps even in England. In his reply of January 20, 1972, Professor Trevor-Roper recalled that at the end of the war he had once seen the "x-ray photographs of Hitler's skull taken by Dr. Giesing, the ear, nose, and throat specialist who treated Hitler for sinus trouble in September, 1944." However, beyond that, as far as the x-ray photographs were concerned Trevor-Roper regretted that "there is nothing I can add to what I set out in my book."

It now appeared evident that all potential sources for recovery of this vital kind of information had been exhausted. Certainly, there was no official word on the x-rays as far as could be determined by remote correspondence. But I was now so deeply involved that I decided to pursue my direct search of the U.S. National Archives, having been granted a researcher identification card for access to potentially pertinent wartime records.

The first U.S. document of primary concern for forensic study was of course the interrogation of Hitler's dentist, Dr. Hugo Blaschke, conducted by the American officers following Blaschke's capture (1945), and containing antemortem dental data which now could be compared with postmortem information from the Soviet autopsy report later released by Bezmyski (1968). In the absence of any documentation in the form of x-rays attached to Blaschke's data, it was next of greatest importance to examine all original captured documents in detail to see if any cross-references might have been made to earlier x-rays presumed to have been recorded and used either by Hitler's own dentist or any of the several physicians assigned to the Nazi leader.

Discovery of the Lost X-Rays

The initial research on the original archive sources again proved discouraging as far as intraoral dental x-rays were concerned. During the interrogation with the American officers, Dr. Blaschke made an important statement regarding Hitler's dental records (Annex I, OI FIR 31). In the Berlin Reich Chancellery, on the night of April 20/21, 1945, Dr. Blaschke had been ordered to be ready for movement, with a minimum of baggage, within an hour: "I was helped in packing the little portable dental station, which I wanted to take with me, by my dental helper, Mrs. Kaethe Heuermann, and my assistant, Dr. Rohkamm. It is possible, and even likely, that the files were put in the same box as the dental station. My baggage was then supposed to be sent from the Tempelhof airfield to Salzburg in a transport plane carrying baggage exclusively. This plane never arrived at Salzburg, and from the Obersalzberg it could never be ascertained what had become of it."

Thus it seemed regrettably confirmed in writing from this additional source
that no x-rays were any longer to be found, at least not in Washington, D.C. Yet, a crosschecking of various records in the Washington Archives was continued with the full cooperation of Mr. Robert Wolfe, Chief of the Captured Records Branch, and his assistants, Mr. John Mendelsohn and George Wagner. This ultimately led to an examination of the files in a new satellite Archive Center, namely, at the Modern Records Branch of the U.S. Archives, inaugurated by President Lyndon B. Johnson in the small town of Suitland, Maryland. Here, through the further custodial cooperation of Mr. Joseph Avery, an additional document was located, namely a bulky medical report (OI CIR 4), dealing with the interrogation of Hitler's personal physician, Dr. Theo Morell, and several consulting physicians.¹

Among sixteen supplements to this latter report, which included various organ and body fluid examinations, there was listed in the table of contents a so-called “Annex II: Five x-rays of Hitler’s head.” This initially exciting news on the missing link proved quickly disappointing when it was discovered that the sought after “Annex II” was missing from its stated context, e.g., between Annex I and III. However, separate from the document itself was found a very worn and torn rough pink wartime paper envelope. This, at long last, did indeed reveal the missing links, five x-ray plates marked September 19, 1944, and October 21, 1944, respectively (Fig. 1). On January 26, 1972, I could telephone to Norway and give the good news to my forensic colleague Ferdinand Ström, with whom in the final forensic analysis I was to develop a close collaboration. For with these several resources in hand, it was now possible to supplement the alleged postmortem information from the Soviet Archives with the several antemortem documentary data from the American Archives, including roentgenologic, descriptive, and diagrammatic information.

Once the latter observations were fully accounted for, explained and illustrated, I also decided to reconstruct in my UCLA laboratory a working model of Hitler's jaws and teeth suitable for further cooperation and final comparative analysis and conclusions regarding Hitler's odontologic identification.

Interrogation of Hitler's Personal Dentist

Hitler's wartime dentist, Dr. Hugo Johannes Blaschke, received his D.D.S. degree from the University of Pennsylvania, class of 1911. Returning to practice in Berlin, he served as a prominent dentist to barons and bankers and became well-known to the Nazi leaders. He was Hitler's dentist from 1934 to 1945, and by dictatorial edict was rewarded by being advanced to the titles of Professor and SS Brigadier General. Blaschke died in Germany in 1957.

Following Dr. Blaschke's capture on May 28, 1945, an eight-page document was prepared during November/December of that year at the headquarters of the United States Forces, European Theatre, Military Intelligence Service Center, APO-757, known as a “Final Interrogation Report” (OI FIR 31). This document also included several dental diagrams and an appendix (Annex I) of three pages in which Dr. Blaschke gives detailed supplementary data on the dental treatment
history of Hitler; and three additional appendices contained information regarding Eva Braun's and Martin Bormann's teeth, and about Dr. Blaschke's professional and personal background.

As a preamble to the interrogation report regarding Hitler's dentistry, three reasons are listed for the American interrogation, namely, to provide: (a) data useful in the "identification of Hitler or his remains," (b) information to expose what might be future "frauds," and (c) research material for "the historian, the doctor, and the scientist." The interrogators stated in connection with the ensuing report, that "information of Hitler's teeth is considered reliable."  

Descriptive Dental Information

In describing the characteristics of Hitler's teeth, the Blaschke testimony first enumerates each individual natural tooth that was present during Hitler's last dental examination in early 1945. From the listing of each jaw quadrant, it is indicated that the only teeth remaining without complete or partial prosthetic replacement were the mandibular incisors and also the first right premolar in the lower jaw. Next, the report describes the complete replacement of missing teeth in toto, by means of so-called pontics, and partial replacement of rooted teeth by means of crowns and so-called Richmond crowns (or Dowel crowns) with a "pivot" or post in the root canal to make what in German terms becomes a "Stift-Zahn."

Maxilla. In the upper jaw a bridge is described which extends from a Richmond crown on the upper right central incisor to a full gold crown on the right canine tooth, terminating with a cantilevered premolar crown. Between these units of the bridge, the right lateral incisor is recorded as being a pontic made from a gold-backed porcelain facing.

In the left upper jaw quadrant, the bridge continues, beginning with the left central incisor which carries an incomplete crown covering three-fourths of the tooth enamel, identified as a "window" crown. This is followed by another Richmond crown (Dowel crown) on the lateral incisor and culminates again with a freely suspended porcelain-faced, gold-backed left premolar.

In describing this whole maxillary nine-unit bridge, a footnote is added to the effect that the bridge originally extended on the left side with two additional units "until the end of October, 1944." At that time, Dr. Blaschke had to remove the second left premolar which was loose and aching, by cutting the bridge "between the first and second bicuspids." The report adds that "the straight edge produced by the cutting is strikingly characteristic."

Mandible. In the lower jaw, two prosthetic replacements are described. On the right side, a bridge extends from a three-quarter gold crown on the canine, "leaving in view most of frontal part of natural tooth." To this gold backing, there was attached a "golden arch behind the first bicuspid," which in turn was attached to a full gold crown on the second premolar. Terminating the right distal portion of the bridge was a cantilevered ("freely suspended") replacement for the missing first molar.
Another bridge extended over most of the left jaw quadrant, namely, from the canine to the third molar, both covered with full gold crowns. As a pillar in between, the report also lists a gold crown on the second premolar. Between these three bridge attachments, the missing first premolar was replaced by a pontic consisting of a gold-backed porcelain facing and the missing first and second molars replaced in gold.

The descriptive aspect of the dental interrogation report also calls attention to a few other problems of restorative dentistry afflicting Hitler as follows: (a) "extensive caries existed for several years at the distal-lateral corner of the upper left central incisor," and (b) in the lower left jaw "a porcelain-cement filling of the lateral incisor with pulp involvement."

Tooth colors. Following the description of these morphologic features, Dr. Blaschke was given an opportunity to consult with a dental color shade guide in order to indicate characteristic variations, if any, in the shade of Hitler's natural teeth not covered by gold crown and porcelain facets. Judging by the lettering and numbers involved, they evidently used a so-called S.S. White dental color ring. Dr. Blaschke indicated that Hitler's own natural teeth were rather yellowish, corresponding to or being a little darker than the shade designated by the letter "K." To this, however, one very important exception was added, namely, the upper left central incisor, the so-called "window" crown, the exposed labial enamel of which presented an exceptionally dark brownish color, nearly as dark as the shade designated as No. 17 on the same S.S. White color shade guide. As far as the artificial teeth were concerned, whether replaced as porcelain-faced pontics or Dowel crowns, Dr. Blaschke again indicated that the color chosen was the one corresponding to the majority of Hitler's remaining natural teeth; namely, the yellowish shade, designated by "K" on the S.S. White color scale. I have compared these colors with several other dental shade guides to assist in preparing a three-dimensional colored model of Hitler's dentition (see Fig. 4).

Diagrammatic information. In addition to the descriptive portion of the above report on Hitler's dentistry, Dr. Blaschke was instructed by his interrogators to prepare a total of eight diagrams or charts of Hitler's teeth as viewed from various projections (pages five to seven of the interrogation report).3

Maxilla. The upper jaw diagram clearly reflects the profile of a nine-unit bridge, the distal ends of which are cantilevered, freely suspended pontics. Besides the shaded areas of crowns and pontics, the rooted tooth attachments have been indicated by dotted lines. Thereby, we find clear evidence that the so-called Richmond crowns ("Stift-Zähne"), which were attached by metal posts in the root canals, were limited to two of the upper teeth; namely, the upper right central incisor and upper left lateral incisor.

From the frontal view of the maxillary bridge, one notes that the upper left central incisor is the only tooth which included the sketch of a narrow band at the junction between the crown and root, documentary evidence in keeping with a "window"-crown type of restoration. Also, this same tooth has a short oblique line drawn across the distal incisor corner, evidently confirming the problem of dental decay to which Dr. Blaschke made reference in the descriptive portion of his report.

In conventional dental practice, the use of the so-called cantilevered,
"freely suspended" bridge extensions are only resorted to if absolutely necessary or demanded by the patient in order to avoid removable dental replacements, as Hitler in fact did, according to Dr. Blaschke. We note that in order to fill a few more empty spaces, the sketch, supported by the descriptive text, indicates that such was the case, not only on one side, but indeed on both terminal ends of Hitler's nine-unit maxillary bridge.

**Mandible.** The diagrams depicting the teeth and their replacement in the lower jaw are somewhat simpler to interpret. Occlusal profile drawings indicate the presence of either natural or replaced teeth in fourteen tooth positions, only the lower right second and third molars being recorded as absent and unreplaced. Anterior dental profiles, which depict the root portion of the teeth by dotted lines, indicate that ten of the mandibular teeth were rooted and that five of these, the four incisors and the first right premolar, were completely uninvolved in the prosthetic bridge replacements. The replaced missing teeth were the lower right first molar, a cantilevered extension, and the lower left first premolar and first and second molars. The lingual version shows the profile of a bypass between the lower right canine and second premolar, circumventing the intact first premolar by a curved "bar." Distally, this unusual bridge construction is then shown to connect and culminate with a cantilevered suspension, as a pontic substitute to replace the first right molar.

Several of the sketches indicate considerable periodontal bone destruction around the roots of the lower incisors, particularly toward the left side. One diagram shows an oblique line along the distal-incisal corner of the lower left lateral incisor, suggesting the presence of some defect, presumably caused by either tooth decay or traumatic fracture.

**Past History of Hitler’s Dental Treatment**

The interrogation of Hitler's dentist, Dr. Hugo Blaschke, included a separate section, Annex I, regarding Blaschke's earlier care of Hitler, a supplement to the overall report (OI FIR 31). Made available through the U.S. National Archives, this Annex represents "notes written for this report by BLASCHKE, giving Hitler's abridged case history as a dental patient in the years 1934 to 1945."³

With regard to the positive treatment situations which Dr. Blaschke himself had handled, special reference is made to three problem areas, namely, in connection with trouble arising from the lower left lateral incisor, the upper left central incisor, and the upper left second premolar.

It was in connection with his very first professional contact with Hitler (at the instigation of Goering) that Blaschke was called upon to remedy, in 1934, an infection, swelling, and pain arising from the area of the lower left lateral incisor. In treating this condition Blaschke states: "The tooth was filled with iodoform-paste (Walkhoff)* and temporarily closed."

*Walkhoff's endodontic method involves a resorbable root-canal paste of chlorphenol, camphor, menthol and iodoform and a nonresorbable filler of zinc oxide and eugenol. (For original reference, see Walkhoff, O. Mein System der Medikamentosen Behandlung Schwerer Erkrankungen der Zahn- pulpa und des Periodontiums. (Meusser Verlag, Berlin, 1928)
In the upper jaw, "much more extensive work was necessary," requiring the removal of a right and left defective bridge, and the construction of a new single fixed bridge, because "Hitler rejected a removable prosthesis."

Dr. Blaschke states that fairly regular checkups of Hitler's teeth were made until the outbreak of the war, after which all subsequent dental care had to wait until requested, which was not before pain arose. This did occur at least once as a result of "extensive caries" in the distal corner of the upper left incisor. This tooth, partly covered by the "window" crown, already had a pulp involvement. However, this could only be treated in a temporary fashion because of Hitler's impatience, as a result of which Blaschke states: "a conclusion of the treatment, i.e., filling of the root and final filling of the cavity, was never achieved."

The next and apparently last major episode in Hitler's dental care followed shortly after the assassination attempt in 1944. Dr. Blaschke explained it this way: "Towards the end of September (1944) I was called to the headquarters. Hitler complained about slight tenderness of the gingiva of the upper left jaw. He was bedridden. He was, as Professor Morell told me, suffering from an inflammation of the nasopharyngeal area." Blaschke's clinical and roentgenological dental examinations revealed a deep pocket around the root of the upper left second premolar. Apparently, this had not caused much direct pain, or as Blaschke put it, "The pain—wrongly diagnosed as neuralgic—was killed through obtundents." He adds that he was unable to get a clear picture of the history of these pains from Hitler, who "disliked intensely talking about his health." Not until the end of October 1944, did Dr. Blaschke get permission to perform the necessary treatment as follows: "The old bridge on the left upper jaw was then cut in front of the gold crown on the 2nd bicuspid. The tooth, together with the cut-off part of the bridge, came out very easily."

From the middle of January 1945, Hitler was constantly in the Berlin Reich Chancellery where Dr. Blaschke had installed an office, but Hitler only "came once to the dental station for a short while in mid-February for a superficial examination." From that time on, Dr. Blaschke gives no indication of any additional treatment.

Interrogation of Hitler's Physicians

During the search for pertinent information in the United States National Archives and Records Service, three additional documents were located regarding Hitler's health problems, namely, those originating from Hitler's several physicians.

Two of these reports deal specifically with the head and neck examinations of Hitler following the assassination attempt during the summer of 1944. In these two reports are recorded observations by two ear, nose, and throat specialists, Dr. Erwin Giesing, who in 1945 became subject to extensive interrogation by the American officers, and Dr. Karl von Eicken, who contributed a day by day record (in German) of the times he was consulted in connection with Hitler's sinusitis and vocal cord tumor (which Dr. Eicken had removed). These two documents were
Dental Evidence in Postmortem Identification

located and examined in the captured Records Branch of the central Washington office of the U.S. National Archives.

But the most elaborate medical report, compiled from original treatment records and interrogation of Hitler's principal personal physician, Professor Doctor Theo Morell, was located together with several consultant supplements in the new satellite division of the U.S. National Archives in the town of Suitland, Maryland.

Dr. Erwin Giesing et al. Interrogations by the U.S. Military Intelligence Service (APO–757) of three medical consultants entitled, "Hitler as Seen by His Doctors," were consolidated into interrogation report No. OI CIR 2, signed October 15, 1945. This 23-page report concluded with the biographic sketches of the physicians involved: Dr. Erwin Giesing, ear, nose, and throat specialist, military surgeon; Dr. Karl Brandt, commissioned to the German Public Health Service; and Dr. Hanskari von Hasselbach, military surgeon, prewar deputy of Dr. Brandt, and later attached to and then dismissed from Hitler's headquarters.

With regard to the oral aspect of this medical report, it was noted that the two latter physicians were unable to comment on Hitler's dental condition. Only one of them, Dr. Erwin Giesing, even attempted to recollect anything at all about Hitler's dental status. Yet, Dr. Giesing's part of the above document is otherwise the most detailed of all. It is, therefore, appropriate to cite his comments on oral diagnosis ("Mouth") in full, as follows:

*Mouth.* No abnormality or pathology of upper or lower lips was observed. The upper, lower right and left second and third molars were missing. The upper right lateral incisor, the lower left lateral incisor had a porcelain jacket. The upper right second bicuspid, the upper left first molar and the lower left first bicuspid had gold crowns. The lower right cuspid and lower right first molar were replaced by a fixed bridge. Gingivae were slightly retracted and necks of left and right upper cuspids and first bicuspid were somewhat exposed. No evidence of paradentosis or caries was noted—no fetor ex oro was present.

Limited to this preceding short dental paragraph, Dr. Giesing could only recall that Hitler had lost most of his molar teeth, and had several teeth covered with gold crowns and others replaced by porcelain jacket crowns or gold bridges. As it turned out, the closest to a specific diagnosis is his recall that the lower first molar on the right side was replaced and that a fixed bridge on that same side also involved the lower right canine ("cuspid"), i.e., merely qualitative data.

The last item added to this particular medical report makes reference to *x-rays.* Because of the importance of such objective documentation in forensic science, this last item will be quoted in full:

*X-rays.* X-rays of Hitler's sinuses were taken on September 1944, at the Reserve-Lazaret, RASTENBURG, and are now in the files of this unit. The x-rays and other objective data will appear in a later report. X-rays of Hitler's teeth were taken by his dentist, Dr. Blaschke (present address not known) during the Spring of 1942, and again during the Fall of 1944.¹
As indicated before, neither this document by the ear, nose, throat specialist, nor the one by the dentist were found to contain any of the x-rays themselves. Furthermore, there is no evidence that any of Hitler's x-rays were subject to subsequent intelligence study or treated in any special "later report."

*Dr. von Eicken.* In addition to the above documents, the U.S. National Archives and Records Service has provided a copy of an eight page transcript dated October 23, 1945 (retyped by the U.S. Modern Military Records Division as items ML 125, 125a, and 131), concerning consultations by Dr. Karl von Eicken, a head and neck specialist, regarding patient "M.F." (Mein Führer). In 1935-36, Dr. von Eicken had been called upon for removal of a polyp on Hitler's right vocal cord. During July-November, 1944, Dr. von Eicken recalls that he was consulted at the Rastenburg headquarters a dozen different times in connection with Hitler's deteriorating health status following the assassination attempt of July 20, 1944. The document, written in German by Dr. von Eicken, also makes several references to head x-rays, some of which Dr. von Eicken indicates he had occasion to discuss on September 20, 1944, with other physicians, Drs. Giesing and Morell, as well as with Hitler's dentist, Dr. Blaschke. Reference is lastly made to x-ray evidence available in November regarding a previously suspicious shadow in Hitler's left maxillary sinus, which—upon examination on November 11—was stated as being "negative." In these records of Dr. von Eicken, even though he operated literally by way of the mouth, there was otherwise no attempt at all to recall or record anything about Hitler's intraoral or dental condition.

*Dr. Morrell et al.* A comprehensive interrogation by the same American service center (APO-757) was carried out after capture of Hitler's principal personal physician, Dr. Theo Morell, entitled, "Hitler as Seen by His Doctor,"1 and classified as O1-CIR consolidated interrogation report 4, dated November 29, 1945. This large document was located in the Suitland, Maryland Center of the U.S. National Archives (see Fig. 1).

Attached to this 15-page document is a chronology of the career of Dr. Morell, who held the title of Professor, and several specialty reports with details on Hitler's blood and urine chemistry, electrocardiogram, etc. (Annex I-XVI), a total of 33 pages. These special reports were prepared on the basis of additional interrogation of several specialists, including again Dr. Erwin Giesing, as well as Drs. Walter Loehlein, Karl Weber, A. Nissle, and E. Brinkmann.

With so many consultants, we do find a great deal of detailed information—literally from top to toe—regarding Hitler's various organs and organ systems. By contrast, it was very disappointing to again find only very limited information regarding the oral cavity ("The Mouth"). What was there, for the sake of completeness, will be cited verbatim:

*The mouth.* "Labia were normally red in color and rather small. Lip mucosa showed no pathology. Teeth were orthognathous but defective. Gingivitis in 1936, was completely cleared up by treatment with Vitamin C and antiseptic mouthwashes. Tongue was of medium size and during 1935-36 was frequently furred as a result of gastric disturbance. Cicatrization of tonsils was probably due to childhood tonsillitis (see Annex V). Uvula and palate showed no abnormality. Nasopharynx, oropharynx, and larynx were often inflamed as a result of upper
respiratory infections. Feto ex oro was present in March, April 1945. Nasolabial folds were rather prominent."

Evidently, Dr. Morell et al. did not attempt to explore and record details of Hitler's oral and dental health. Aside from the remark that the teeth were defective and that Hitler at times had suffered from gingivitis and halitosis, there was no reference to any useful forensic identification features, such as specific missing teeth, intact teeth, restored teeth, or replaced teeth, i.e., quantitative data.

This deficiency turned out to be far outweighed by a very significant appendix to the document, namely, "Annex II." This Annex to Dr. Morell's interrogation report gave a clue, at long last, to some of the "missing" x-rays of Hitler. As a result, it now became possible for the first time to make direct comparative documentations, and evaluate conclusions based on subjective vis-à-vis objective data.

Importance of Roentgenologic Information

The human mouth, which with its 32 teeth has the variety of 16 opposing pieces of a chess board,* is commonly subject to dental malformation, decay and repair, so as to provide additional dimensions to normal individual variety.

Consequently, the mouth represents one of the most definitive, as well as durable, organ systems for forensic identification. One of the best objective types of supporting evidence in this regard is provided by x-ray diagnosis of jaws and teeth. Such information would be considered among the most conclusive types of documentation, were it available in the case of Hitler.

Several of the many volumes published to date regarding Hitler's fate have volunteered recognition of the importance of such x-ray evidence; yet none of these books have included the objective documentation illustrating the actual demonstration of any roentgenologic reproductions. This was not only true of the classical study on The Last Days of Adolf Hitler by H.R. Trevor-Roper,15 first published in 1947, with several additional editions and printings through 1970. Neither did any x-ray documentation accompany the otherwise extensively illustrated presentation of the Soviet autopsy report published by Bezymenski in 1968 in The Death of Adolf Hitler.2

Authenticity of Hitler's Head and Jaw X-rays

Evidently, it had become of extraordinary importance to locate the actual material pertaining to objective roentgenological evidence obtained while Hitler

*In its cover story on the 1972 Spassky-Fisher World Chess Championship, Time magazine (July 31, 1972) made the following statistical conclusion: It has been calculated that if every man, woman and child in the world were to spend every waking hour playing at the superhuman rate of a game a minute, it would take 217 billion years to exhaust all the variations on the first ten moves. Perhaps this also gives some idea of why it is impossible to find two human beings with completely identical dental conditions, matching each other tooth-by-tooth for each row of the sixteen opposing teeth.
was still alive, especially x-rays that included his jaws and teeth. In previous reports, several statements suggested that x-rays had indeed been taken. Among such references to x-rays were the following:

1. Dr. Giesing’s interrogation\(^1\) (OI CIR 2, page 18, item 20—x-rays), already referred to before, states: “X-rays of Hitler's sinuses were taken on September 1944 at the Reserve Lasserette, RASTENBURG, and are now in the file of this unit.” (The "unit" refers to U.S. European Forces Military Intelligence Service).

2. Dr. Morell's interrogation report\(^1\) (OI CIR 4, page 10, item 20: x-ray Examinations) states: “The three plates marked 19 September 1944, were made at the Army Hospital at RASTENBURG, East Prussia, while Dr. Giesing was treating Hitler for injuries suffered in the assassination attempt of 20 July 1944. The two plates marked 21 October 1944, were found among Morell's records, but he can no longer remember when or why they were made.”

3. Dr. von Eicken’s original German notes, listing 12 consultations between July 23 and December 12, 1944, make several references to roentgenologic examinations, with special regard to the diagnosis and treatment of Hitler's left maxillary sinus. His notes also suggest that possibly there may exist some additional head x-rays taken of Hitler after October 21, 1944. Dr. Eicken refers to a left maxillary x-ray shadow followed through November 1944 (November 11: “Roentgenaufnahme: "Linke Kieferhöehle: Negativ"). Dr. Eicken also indicated that he provided Eiterballen.”—November 21: “Linke Kieferhöehle: Eiterballen.”—November 24: “Linke Kieferhöehle: Negative”). Dr. Eicken also indicated that he provided Hitler with “consultation in Rastenburg” on October 16, 17, 20 and 21, the latter date being the one marked on two of Hitler's head x-rays that I located in Suitland, Maryland (see Fig. 1).

In addition to these head x-ray plates, it is clear that Hitler's dentist, Dr. Hugo Blaschke, obviously needed dental x-rays in order to deal with Hitler's complicated dental diagnosis and treatment. However, in this regard, no effort to locate these x-ray films has proven productive. On the contrary, when Mr. Robert Wolfe indicated on January 6, 1972, that the Washington Military Archives did not have Hitler's x-rays among its holdings, he certainly was correct with respect to the missing intraoral x-rays.

It is probably unlikely that individual dental x-ray films will ever be located, if they exist at all any longer, anywhere. It is fortunate, therefore, that it was finally possible in January 1972 to locate the five antemortem head and jaw x-ray plates which had been considered of little or no forensic value for a whole generation, there being no postmortem data available for comparison until after release of the Russian autopsy data in 1968.

The Individual Head X-ray Plates

Before analyzing the five x-ray plates located in 1972 in the U.S. National Archives, it seems appropriate to cite verbatim the explanatory note attached to these five films when placed on file in 1945:
Fig. 1. Hitler's head and jaw x-rays located by author in the U.S. Archives and Records Service in Suitland, Maryland, January 1972. The x-ray plates were originally taken following the 1944 assassination attempt.
Annex II. Five x-rays of Hitler's Head. Sources: GIESING AND MORELL. The five x-ray plates attached are copies of originals found among Dr. Morell's records. They have been positively identified by him as well as by Dr. Giesing as x-rays taken of Hitler. The three plates marked with the day 19 Sep 44 were made by Dr. Giesing at the Army Hospital at Rastenburg, East Prussia, using German army portable equipment (plate-target distance app 1 m.). This was during the period when Dr. Giesing was treating Hitler for ear injuries suffered at the time of the assassination attempt on 20 Jul 44. (See also Annex IV, eg, "Results of Ear Examination.") The plates were made to assist in diagnosing pain complained of in the sinus regions. Four views were taken including a left lateral of the sinus cavities. This, however, could not be found. The three plates available include one each of the frontal sinuses (nose-forehead position), the sphenoidal sinuses (mouth-chin position), and the maxillary, ethmoidal and frontal sinuses (chin-nose position). The two plates marked 21 Oct 44 were also found among Dr. MORELL'S records, but he can no longer remember the circumstances under which they were made. These views are both of the maxillary, ethmoidal, and frontal sinuses (chin-nose position).

X-ray No.1. Dated September 19, 1944 (European style: 19. 9. 44), this x-ray photograph was taken in a manner referred to as a "mouth-chin position." With a submental-vertical beam direction, one notes that an occlusal view of the teeth is seen to best advantage.

All of the large back teeth on the right side appear to have been lost without being substituted by any radiopaque prosthetic replacement. On the left side, on the other hand, there are very radiopaque areas all the way back toward the ramus of the mandible, suggesting the presence of teeth or their artificial replacements all the way up to the third molar region. In the anterior portion, there is a radiolucent zone in the front portion of the upper left central incisor. This has created the view of a "window" suggestive of a so-called open-face crown, where the x-rays have passed through the root and the anterior portion of the crown, otherwise surrounded by radiodense material.

Posterior to the upper jaw profile, there appears a very radiolucent connecting link or bar corresponding to the lingual aspect of the lower right canine-premolar area (Fig. 2.).

X-ray No. II. Also dated September 19, 1944 (19. 9. 44), this anterior-posterior head plate reveals the following: Whereas the lower incisors do not show any radiopaque prosthetic involvement, the surrounding alveolar jaw bone appears very radiolucent, suggestive of periodontal bone resorption.

In the anterior part of the upper jaw can be seen two radiopaque posts, somewhat short in length, extending into the root canals of the upper right central incisor and the upper left lateral incisor. One can very clearly see, on the left side of the mandible, three roots carrying a long bridge replacement, beginning with the radiopaque coverage of the left canine and ending with a crown on the mesially tilted posterior molar tooth.

In the root canal of the right canine tooth, there is a barely visible thin radiopaque central zone or line extending about halfway down the root length. This could either be a radiopaque root canal filling material necessitated by pulp
exposure due to decay or trauma, or a very thin post to help support the bridge carrying the radiopaque restoration on the canine tooth (see Fig. 3).

X-ray No. III. The third x-ray, dated September 19, 1944 (19. 9. 44), is the least satisfactory from a dental standpoint, having a relatively low contrast in connection with the prosthetic replacements. It is also the least elegant from a photographic standpoint.

Nevertheless, even if not of crucial importance, this x-ray did serve to confirm two singular dental features already noted in the first x-ray (No. I). Taken in the chin-nose position, we noted again, first of all, the radiolucent "window" in the upper left central incisor and, secondly, the radiopaque bar or bypass from the mandibular right canine to the second premolar area.

Aside from the above, there is a very special importance to this x-ray, for a nondental reason. For we are fortunate to know for sure that this x-ray plate was taken on September 19, 1944, by the instigation of one of Hitler's surviving physicians, Dr. Erwin Giesing. Dr. Giesing was consulted regarding Hitler's head and neck problems following the assassination attempt during the summer of 1944, as already noted in Dr. Morell's interrogation report. With the confirmed authenticity of this particular x-ray, attributed to Giesing, we are now able to turn with special interest to a comparison with the next headplate taken one month later.

X-ray No. IV. Taken October 21, 1944 (21. 10. 44), this head x-ray, also a chin-nose position, shows excellent contrasting reproduction of the dental resto-
Fig. 3  Anterior-posterior x-ray of Hitler's head reveals extensive radiopaque bridge constructions, crowns, and root fillings.
rations. A direct comparison with x-ray No. III (19.9.44) indicates the identical nature of the individual of whom these two x-rays were taken. Thus, we note a concordant configuration of the very exuberant frontal sinuses which, for identification purposes, could be shown to precisely overlap each other when the transparencies of these x-rays were placed on top of each other.

It is well known that there is fingerprint quality with regard to the special anatomic patterns of these sinuses in each individual human being. To further signify the similarity of these x-rays, there is also a certain related pathologic aspect to be noted; namely, a sclerotic reaction exhibited by the margins of the sinus cavities. This phenomenon, which may be assumed to have been due to chronic sinusitis, was noted in both of the latter x-rays (Nos. III & IV), as evidenced by a characteristic radiopaque blurring along the edges of the sinus cavities.

Observing other details of x-ray No. IV, the identity of the odontologic forensic evidence is equally convincing. We found again the same general outline of the radiopaque and radiolucent portions of the dentition, that is, where it is either intact, restored or replaced. From an anterior vantage point, previously concluded from the occlusal view (No. I), both the upper right lateral incisor and the upper left canine, in fact, are pontics replacing lost teeth, rather than crowns on rooted teeth.

The sharpness of these latter x-rays also confirmed one more dental detail not readily seen in the other films. Looking closely at the upper left central incisor, the one with the window crown, there was a small shadow which, by extrapolation, evidently must result from a radiolucent defect in the distal-incisal area of this incisor tooth. In the other x-rays this may not have been seen either because of the nature of the projections (No I & II) or because of inadequate quality of the x-ray film (No. III). Yet, it is also a possibility that this shadow had in fact grown somewhat more pronounced between September 19 and October 21, due to the progress of the untreated caries to which Dr. Blaschke made several references.3

X-ray No. V. The fifth available x-ray was also dated October 21, 1944 (21.10.44). In this case, projected in the so-called chin-nose position, the mouth was evidently slightly open when the x-ray was taken. It was noted that the profiles of the three bridges fall precisely into place as indicated in the x-ray taken on September 19, 1944 (No. III). Thus, if the transparencies of these two x-rays are placed so as to compare the patient's dentition, one can demonstrate perfect overlapping of the two dentition profiles of the upper and lower jaws. While this last x-ray is not as sharp as the other one taken on the same date (No. IV), one can, at least on the transparency, once again detect a shadow on the upper left central incisor, but mainly in the distal aspect, whereas the incisal portion, because of the slightly different projection, is obscured by the radiodense restoration.

Principal Roentgenologic Interpretations

In comparing the five x-ray plates located in the U.S. National Archives, several principal observations emerge, which are considered of major significance
in correlating subjective and objective evidence regarding the forensic identification of Hitler.

First, it became clear that toward the end of the war Hitler had only four remaining teeth which were not involved in either bridging a gap or supporting a bridge between adjacent teeth. These four teeth were the right and left mandibular incisors. However, while they were free from dental decay, as far as could be seen in the x-ray, there was considerable bone resorption around the roots of these anterior teeth. These "naked" portions of the root cementum would have tended to expose the necks of the teeth to the injuries of erosion and abrasion.

Second, the x-rays indicate that the maxillary right central incisor and left lateral incisor, while completely opaque to the x-ray beam, do show short metallic posts for insertion into the root canals. This suggests the type of dental crown restoration known as a "Richmond crown," frequently used in the past and precisely the type of restoration described by the American interrogation reports on Hitler's antemortem dental condition.

Third, the x-rays show a very peculiar and quite unusual dental bridge construction on the right lingual aspect of the mandible. This involves a lingual high-density (metallic) crown on the second premolar. From that point, an additional metallic extension evidently had been constructed as a cantilevered distal extension of the bridge (In this connection, it is noteworthy that Hitler's dentist made very special verbal reference to this unique prosthetic construction while being interrogated by the American officers).

Fourth and last, the x-rays of Hitler's left maxillary incisor shows the very characteristic feature of a high-density metallic restoration, typical of the now outmoded, but in times past, not infrequently used "window-crown." In this case, it is of interest to note that such a restoration not only may be detected by an appropriately directed x-ray beam, but actually becomes very conspicuous to the naked eye, even to that of a layman. It is not surprising, therefore, that this particular feature had been emphasized in the descriptive and diagrammatic data provided by Hitler's dentist, Dr. Blaschke, during the American interrogation.

Summarizing the above antemortem information, the author has prepared full scale models of Hitler's jaws, teeth, and dental work. Thereby, it could be demonstrated to what extent these types of crown and bridge reconstructions, when experimentally recreated, and placed together in a similar occlusal relationship, in fact, produced comparable x-ray patterns to those found in the x-rays of Hitler's own jaws described above.

SOVIET ARCHIVES

Previously secret Berlin autopsy documents from Soviet Archives, originally recorded in May, 1945, were not reported until 1968 by the Soviet journalist, Lev Bezymenski, with simultaneous English and German editions. The discussion to follow will concentrate on three subtopics: namely, descriptive, photographic, and diagrammatic information.
Descriptive Information

According to Bezynenski, the descriptive data "concerning the forensic examination of a male corpse disfigured by fire" is recorded verbatim from a portion of the Soviet autopsy report known as "Document No. 12." Alleged to be the probable body of Hitler, the pathology report is cited in full by Bezynenski.

Dated May 8, 1945, the autopsy findings originated from Mortuary CAFS (Surgical Army Field Hospital) report No. 496, and commenced with the composition of the commission with their ranks and titles, followed by a brief description of the charred remains. From the cranium were recovered parts of the occipital bone, the left temporal bone, the lower cheekbones, the nasal bones, and the upper and lower jaws. The upper jaw bones had "many small cracks." Between the upper and lower teeth the charred tongue was firmly locked (this is not an uncommon feature of burned bodies and may account for the relatively good preservation or protection of the teeth, as we shall see later).

Maxilla. A bridge consisting of 9 units was found in the upper jaw fragment, reaching from the second premolar on the right side and ending with the first premolar on the left, in keeping with what was "indicated in the sketch." This sketch of the dental arches, drawn by the pathologists, indicates that the bridge was anchored to four teeth, namely, the right canine, the right and left incisors, and the left lateral incisor. Special mention is made in the text regarding the left central incisor because of the open "visible" front of the crown, which exhibited cracks and a black spot in the enamel "at the bottom" (incisal edge).

The right canine is described as being fully capped by a gold crown. Importantly, it is noted that the end of the left side of the bridge showed a "sawed off" premolar surface. From the tooth count and diagram, this surface must be behind the left premolar and thus in front of the second left bicuspid. This same point was stressed by Rzhevskaya in "Hitler Ende Ohne Mythos" (Deutsche Militär Verlag, 1965), when she stated that "the bridge in the left upper jaw behind the first premolar ("kleinen Backenzahn-4") is cut off vertically."

Mandible. The lower jaw bone, which was found lying loose in the singed oral cavity, had been scorched and charred both on the posterior and inferior surfaces. Yet the remains of the dentition itself and the alveolar supporting bone were recovered in relatively better condition, presumably due to protection by the tongue and lips. A total of five natural mandibular teeth remained without any prosthetic involvement, namely the four incisors and the right first premolar.

In the left jaw fragment, a bridge was fastened to crowns on the canine, second premolar, and third molar, thus replacing the spaces formerly occupied by the lost teeth in between, namely, the first premolar and the first and second molar. In the right jaw fragment a more unusual and very characteristic bridge construction is described. This bridge consisted of a metal cap on "part of the masticating surface and the posterior surface" of the right canine tooth, which obviously describes a so-called 3/4 crown. Then, bypassing an intact first premolar, a full
crown on the right second premolar was linked to the right canine tooth by an “arching plate” and carried also a pontic for the first molar.

In addition to these descriptive details, the autopsy report indicates that the following objects were taken from the corpse and handed over to the so-called SMERSH Section of the 3rd Soviet Shock Army on May 8, 1945; namely, “1) a maxillary bridge of yellow metal consisting of nine teeth; 2) a singed lower jaw consisting of 15 teeth.”

The Soviet autopsy report placed great weight on the significance of the odontologic findings, and the conclusion of the report culminates with the following statement: “The most important anatomic finding for identification of the person are the teeth, with much bridgework, artificial teeth, crowns, and fillings (see documents).” The report is signed by the five members of the Autopsy Commission, headed by Lieutenant Colonel F.I. Shkaravski, Chief Expert, Forensic Medicine (1st Byelorussian Front, Medical Service), and by Lieutenant Colonel N.A. Krayevski, Chief Anatomical Pathologist (Medical Service, Red Army), now a recognized cancer research professor in Moscow.

Photographic Illustrations

One of the most important exhibits recovered from the Soviet Archives concerns the objective photographic evidence illustrating the remains of the dentition of the corpse described in autopsy document No. 12. Included were two photographs of a fixed dental prosthesis, namely, a 9-unit bridge, and the charred fragment of a mandible, the latter with several intact anterior teeth and two bridges, one on the right and one on the left side.

Maxilla. The maxillary bridge, photographed from the lingual view, indicates a distinct curvature of this large bridge. One photograph shows to advantage those seven elements of the 9-unit bridge which happen to culminate with the right second premolar, namely, a solid metal pontic replacement not prepared for any direct tooth or root attachment. This pontic is next followed by a similarly independent replacement, a metal back with a suggestion of a different front facing. Continuing in a mesial direction, there follows then what is obviously a full gold crown for the canine tooth. This, in turn, connects with another pontic for the lateral incisor, and then the large right central incisor, in the center of which there is barely visible what appears to be a metal post.

Moving toward the left jaw quadrant, there then follows an open crown for the left central incisor, the anterior portion of which appears dark. Lastly, the seventh tooth seen in this view is again a crown with a barely visible central post emerging from the middle (typical of a so-called Richmond crown). Another view of the same bridge completes the photographic record in that the remaining portions of this nine-unit bridge can be readily identified. Thus, the left lateral incisor shows the lingual “eyes” caused by the platinum posts typical of a porcelain facing, as well as a relatively short central post or dowel, typical of the Richmond crown or “Stift-Zahn.” This crown is then attached to the left canine replacement, evidently a porcelain facing, i.e., a pontic rather than crown. Finally, this pontic is
in turn attached to an additional cantilevered replacement for the left first premolar. The distal left termination of this bridge is not smoothly polished, but has some rough striations in keeping with the previously mentioned observation that it was "vertically sawed off."

**Mandible.** In the lower jaw, several of the natural teeth were remarkably well preserved, being attached to the charred remnants of the mandible, together with a lower left bridge, depicted from a buccal view, and a right bridge, shown from a lingual view.

With regard to the natural teeth, the lower incisors evidently exhibit a good deal of dental erosion, mainly below the enamel-cementum junction. In the case of the lateral incisors, the right one shows considerable incisor wear, if not even a partially fractured incisal edge, whereas the left lateral incisor shows some dark areas possibly suggestive of dental decay. The latter may in part be superimposed upon the erosion (such seemingly incompatible conditions are not necessarily mutually exclusive). Both the anterior and posterior views of these incisor teeth suggest that, aside from any postmortem destruction, there appears to have been considerable alveolar bone resorption during life, indicative of periodontal disease.

The left lower bridge spans a space from the canine to the last molar. In addition to the full crown attachments on these terminal ends there is a middle pillar where a full crown appears to be attached to what must be a distally drifted second premolar. The missing teeth, which have been replaced by the pontics between these three bridge attachments, are the first premolar and the first and second molar.

The right lower bridge involves three teeth directly, but bypasses one seemingly uninvolved tooth, the right first premolar, due to a very special type of bridge construction. As seen from the lingual view, there is a distinct fixed connecting bar between the restorations on the canine and the second premolar. The canine restoration does not involve the labial portion of this tooth except for a considerable slice out of the mesial-incisal corner (this may have served to restore a serious defect in this area caused either by a fracture or caries). Covering the lingual and interproximal surfaces, this canine restoration, classified as a so-called 3/4 crown, served as attachment of the lingual metal bar connecting with the crown of the second premolar. Distally, a free-hanging cantilevered extension was added for replacement of the lower right first molar tooth.

**Diagrammatic Representation**

To chart a person's dentition with its characteristically individualized anatomic, pathologic, and restorative features, various preprinted diagrammatic forms are commonly used. Apparently no dentist or ordinary dental charts were available to the pathologists who performed the autopsy of Hitler's alleged body. But fortunately an effort was made to sketch some of the dental configurations in diagrammatic form as a supplement to the descriptive and photographic data.

**Maxilla.** The Soviet dental sketch shows in the upper jaw a 9-unit bridge
attached to four teeth with roots, namely, the right canine, the right central incisor and the left central and lateral incisors. Among the pontics of the bridge are the upper right lateral incisor and the upper right first and second premolars. The latter are cantilevered crowns on the right distal extension of the bridge.

Similarly, the upper left side of the bridge terminates with two cantilevered distal extensions, namely, for the replacement of the left canine and first premolar. Distally to the profile of the first premolar, a sharp black line has been drawn as the termination point. This, according to the text description, is where the maxillary bridge was “vertically sawed off.”

**Mandible.** With regard to the lower jaw, the sketch indicates that the right second and third molars were missing without having been replaced. The remaining fourteen teeth are included in the diagram as being either present or replaced by bridgework.

The lower right first permanent molar is sketched together with the second premolar in the shape of a figure “8,” as if the two were made in one piece. The first premolar, however, is drawn in a completely independent, isolated fashion, without any bridge connection on either side, indicating that this particular tooth was not involved in the adjacent bridge construction. Similarly, the four lower incisor teeth were each drawn independently. Unlike the maxillary incisors, these teeth were thus completely separated and thus not involved in any kind of bridge construction. On the other hand, on the lower left side, there were six teeth diagrammed in complete contact with each other, much like the maxillary bridge, suggesting that a fixed bridge extended from the lower left canine through the premolars and molars finally culminating distally with the third molar or wisdom tooth.

All in all, while apparently there was no dentist and no standard dental chart involved in the autopsy or in the postmortem review of the dental status, there can be no question that the diagrammatic sketch, despite its limitations, could prove to be a very important kind of supplementary exhibit in forensic odontology.

**Comparative Analysis**

Based on the roentgenologic, diagrammatic and descriptive documents from Hitler's files, uncovered in 1972, through the United States National Archives and Records Service, it is now possible to make a concluding comparison, tooth by tooth, between this information and that deduced from the photographic, diagrammatic, and descriptive autopsy data uncovered through the “Unknown Documents from Soviet Archives,” reported by Bezynenski in 1968. Every one of the 32 individual teeth normally present in the adult human jaws has been accounted for, whether present, absent, restored, or replaced in the form of bridgework in the maxilla and mandible. Each individual unit of the bridges has been identified, whether constructed as a pontic replacing a lost tooth, or as a crown fastened to an existing tooth. Concordance versus discrepancy, as judged by the various types of descriptive and illustrative documentation, has been evaluated from each available source.
Where the material at hand permitted definitive conclusions, there exists a remarkable conformity between the individual tooth identifications established through the comparative analysis of the American and Soviet data. In addition to the individual teeth which were present, absent, restored or replaced, as the case may be, a few other special areas were noted, namely, the unique lingual bar serving as a fixed bridge bypass between the lower right canine and second premolar and also the alveolar bone resorption around the roots of the incisor teeth. (See Table 1 and Fig. 4.)

From this overall comparison of the odontological material, it is evident that the individual identified by means of the Hitler files located in the U.S. National Archives in 1972, corresponds to the same person whose autopsy report was published in 1968 on the basis of the previously unknown documents from Soviet

Fig. 4. Reconstruction of Hitler’s dental status prepared in the author’s UCLA laboratory for three-dimensional observation and radiologic comparisons.
Table 1. Comparative conclusions regarding Adolf Hitler's dental condition

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<td>Crown</td>
</tr>
<tr>
<td>23 (32)</td>
<td>LL I-2</td>
<td>Involved pulp</td>
<td>Intact</td>
<td>Involved</td>
</tr>
<tr>
<td>24 (31)</td>
<td>LL I-1</td>
<td>Intact</td>
<td>Intact</td>
<td>Intact</td>
</tr>
<tr>
<td>25 (41)</td>
<td>LR I-1</td>
<td>Intact</td>
<td>Intact</td>
<td>Intact</td>
</tr>
<tr>
<td>26 (42)</td>
<td>LR I-2</td>
<td>Intact</td>
<td>Intact</td>
<td>Intact</td>
</tr>
<tr>
<td>28 (44)</td>
<td>LR P-1</td>
<td>Intact</td>
<td>Intact</td>
<td>Intact</td>
</tr>
<tr>
<td>29 (45)</td>
<td>LR P-2</td>
<td>Crown</td>
<td>Crown</td>
<td>Crown</td>
</tr>
<tr>
<td>30 (46)</td>
<td>LR M-6</td>
<td>Pontic</td>
<td>Pontic</td>
<td>Pontic</td>
</tr>
<tr>
<td>31 (47)</td>
<td>LR M-7</td>
<td>Missing</td>
<td>Missing</td>
<td>Missing</td>
</tr>
<tr>
<td>32 (48)</td>
<td>LR M-8</td>
<td>Missing</td>
<td>Missing</td>
<td>Missing</td>
</tr>
</tbody>
</table>

*For detailed footnotes comparing antemortem and postmortem data see Sognnaes and Ström, 31 Acta Odontologica Scandinavica, 43–46 (1973).14

Archives of 1945. There was a remarkable concordance between data provided by the antemortem x-rays and the interrogation report from Hitler's dentist and by the alleged autopsy report, when we compared all available information (Fig. 5).

Resume

The postmortem identification of Adolf Hitler has been based on several sources of documentary dental evidence and analysis:

1. Complete testimonies were released to the author by the U.S. National Archives as recorded by American intelligence officers during the 1945 interrogations of Hitler's dentist and physicians.
2. Attached to one of the abovementioned reports were five head and jaw x-ray plates taken on two different occasions in 1944, and revealing several very characteristic dental conditions. These included: (a) a maxillary left central incisor with a radiopaque (metallic) restoration covering all surfaces except the labial area which shows as a radiolucent zone typical of a so-called window crown; (b) a special dental bridge construction in the right mandibular area, in which a radiopaque (metallic) restoration on the right canine is connected by means of a metallic lingual bar to the second premolar with a cantilever extension to replace the first molar; (c) several other definitive types of dental restorations and; (d) evidence of periodontal bone breakdown around the mandibular incisor roots.

3. Interpretation of the above observations were compared with the various dental features previously depicted in the Russian autopsy report, published by Bezymenski in 1968, and discussed in terms of a number of other reports on Hitler's health and personal history.

Conclusion. Reappraisal of all documentary data—discounting legends, myths and speculations—now provides definite odontologic proof that Hitler did
indeed die during the Berlin collapse of the Nazi dictatorship in 1945, and that the Russians did in fact recover and autopsy the body of the real Hitler.

THE CASE OF EVA BRAUN

Preamble

Based on postwar interviews by Trevor-Roper\textsuperscript{15} there is considerable circumstantial evidence of Eva Braun's death and burning next to Hitler, her husband of a night, at the Fuhrer's Berlin bunker in 1945. With a view to seek a positive forensic identification, the purpose of the following analysis is (a) to evaluate American and Soviet documents, (b) to interpret the forensic findings, and (c) to compare the USA and USSR data.

AMERICAN DOCUMENTS

Eva Braun's Dental Status

During his 1945 interrogation, Dr. Hugo Blaschke, Eva Braun's wartime dentist, helped the American officers to formulate a supplementary report ("Annex 3") entitled "Eva Braun's Teeth." This was part of a larger report obtained through the U.S. European Forces Military Intelligence (U.S. Archives No. OI-FIR - 31). In the interrogation report Dr. Blaschke states that he "treated Eva Braun at irregular intervals from 1935 to 1945."\textsuperscript{3, 12}

According to Blaschke's further statement to the American interrogators, he must have seen her teeth shortly before her alleged Berlin bunker suicide. For he notes that he treated Eva Braun "for the last time at the Berlin Vice Chancellery in March, 1945." Before that Dr. Blaschke also had Eva Braun as a patient when she stayed at the mountain retreat at Obersalzberg. In addition, she received some emergency dental care from a local dentist when she stayed in Munich during the earlier period of the war while Hitler was travelling or at his field headquarters. The following characteristics were indicated by means of description and sketches of Eva Braun's dentition by Dr. Blaschke while questioned by the American officers in 1945 (see dental chart, Fig. 6).

Upper jaw. According to Dr. Blaschke's diagrammatic presentation of her upper teeth, Eva Braun was missing three maxillary molar teeth, which from the diagram appear to have included the first and second molar on the left side, and the third molar on the right side. Dr. Blaschke indicates, however, in a descriptive annotation, that though there was close contact between the upper right molars and premolars, he wisely qualified his judgment in that he considered it "possible
that the upper right first molar was lost in early youth, causing the second and third molars to move forward and close the gap."

In his diagram for the missing first and second molars Blaschke did not indicate any bridge replacement on the left side of the upper jaw. On the other hand, there are markings on the diagram which indicate that four of the maxillary teeth had received individual restorations. The largest one was outlined in a manner in keeping with at least a three-surface restoration, namely, on the upper left second premolar; that is, covering the mesial, occlusal, and distal surfaces, if not the whole crown. Anterior to this tooth, the markings indicate a distal restoration on the left first premolar, apparently retained by an occlusal extension.

Between the two molars on the right side of the upper jaw there are other markings suggestive of either defects or of restorations involving the interproximal surfaces which face each other, namely, mesially on the posteriorly located molar and distally on the adjacent anterior one. The precise extent of these two latter lesions is somewhat obscure.

Lower jaw. In the mandible Dr. Blaschke records three molars as missing, namely two on the right and one on the left side. Complete contact is indicated at the premolar-molar interface on the left side. However, Dr. Blaschke again suggests the same alternative as in the upper jaw, as follows: Instead of the third molar being missing, there could have been a mesial drifting of the second and third left molars if one assumed that the lower left first molar had been lost when Eva Braun was very young. On the right side of the lower jaw it is clearly indicated
that the first and second molars are missing. Here the diagram also shows some mesial tipping of the third molar and a reduced space remaining after the loss of the other two molars. There is evidence of only one dental restoration having been inserted in the lower jaw, namely, a fairly large distal restoration on the lower right second premolar. This part of the sketch does not suggest a simple small filling, but rather some type of an inlay. This in turn could possibly have been made preparatory to some unfinished prosthetic replacement of the two missing molars, a matter to which I shall return in a later paragraph below.

Tooth colors. Once Dr. Blaschke had provided descriptive and diagrammatic information regarding the teeth that were present, decayed, restored, loose, lost, extracted, and replaced, he was next asked—with the aid of a dental color-shade guide—to record for the sake of identification purposes the shades of Eva Braun’s natural teeth and/or their replacements.

According to the American interrogation report, the color symbols used were those of the so-called S.S. White color ring for dentists. That shade guide is more specifically labeled as “S.S. White Filling Porcelain Color Matching Guide.” It has 18 so-called blended tooth colors, marked A to W; four so-called modifiers, marked 15 to 18; and eight general tooth colors, marked 20 to 27. Unlike the uneven colors, including some very dark and unattractive yellow shades, which Blaschke had noted in the case of one or more teeth of Hitler and Bormann, Dr. Blaschke states that Eva Braun had a generally even-colored dentition, corresponding to the S.S. White’s Tooth Color No. 21, a shade which is one of the lightest and most attractive tooth colors in the particular dental shade guide used.

Color equivalents. For the sake of comparison with the more familiar dental shade guides commonly in use today, the color of Eva Braun’s teeth, as judged by her dentist previously, appeared to have been equivalent to the shade marked No. 62 in the newer “Trubyte-Bioform Shade Guide” of the Dentists Supply Company of New York. That color is one of the lightest shades available. It is also the color which the “Trubyte New Hue” scale of the same company classifies as generally appropriate for denture replacement of the average dentition in the age group between 21 and 30 years. As another familiar cross-reference, the color equivalent for Eva Braun’s teeth would be closest to shade No. 20 in the so-called “Caulk Toothmatcher for Syntrex” as used for selection of silicate filling material for anterior teeth.

Supplementary dental charts and casts. In the records located within the United States Archives regarding the interrogation of Dr. Blaschke, his sketches provided a diagrammatic profile of the teeth as viewed from the labial and buccal aspects of the upper and lower jaw. It is, however, useful and important for forensic identification to consider more of a three-dimensional model by means of plaster casts, dental charts, or both. This approach permits a view of the dentition from more than one vantage point. Such a projection has been achieved in my laboratory by means of dental diagrams as well as by reconstructed tooth-colored casts made from plaster of Paris to reflect the number and type of teeth present or absent, as the case may be, in the upper and lower jaws. When observed from the occlusal surfaces, one can more readily appreciate the presence of the larger restorations of individual teeth in the lower right and upper left segments of the
jaws. Lastly, it seemed evident according to Eva Braun’s dentist, Dr. Blaschke, that none of the lost teeth had been replaced by dental bridgework.

The preceding analysis will serve as a preamble to the following comparison with what has been learned from a postmortem examination of the remnants of a charred female body allegedly uncovered by the Russians in 1945 at the Berlin bunker, next to the body of Adolf Hitler.

SOVIET ARCHIVES

Among the several Russian autopsy records revealed and reviewed by Lev Bezynenski in 1968, besides Hitler’s own, was a so-called document No. 13 said to be “concerning the forensic-medical examination of the partially burned corpse of an unknown woman (presumably the wife of Hitler).” The autopsy was performed on May 8, 1945, in a field hospital mortuary in the Berlin suburb of Buch.

Condition of the Remains

Evidently the charred bodily remains of this particular female individual were burned to an extent beyond recognition by any direct external visual means. Not only were the soft tissues destroyed, but even the bones of the cranial vault and the upper parts of the frontal cranium were missing, while only charred and broken fragments of occipital, temporal, and facial bones were present. The destruction was especially severe on the right side of the head.

Upper jaw. The maxilla was extensively charred and destroyed to the point where the alveolar processes were missing. Hence, there were in fact no teeth retained in the original jaw positions where they could be identified as having belonged during life. On the contrary, on the right side of the upper jaw, most of the teeth appeared to have burned up, or had otherwise disappeared, with the exception of a dislodged molar and the root of one tooth found lying between the palate and the tongue. On the left side of the tongue were found a similarly loose canine and two premolars. Also dislodged was a piece of yellow metal 6 × 3 mm., “presumably a (gold) filling.”

Lower jaw. The mandible was so destroyed on the right side that “no teeth were found, probably because of burning.” From the left side of the lower jaw six teeth were recovered, namely, “the second incisor with a dark point, the canine tooth, 2 bicuspids, and 2 molars.” All of the latter teeth, it states, “show visible changes due to dental caries.” Under the tongue was found “a bridge of yellow metal (gold).” This bridge did not have any natural teeth attached to it, but is stated as having connected “the second right bicuspid and the third right molar by means of a gold crown.” It is further indicated that the molar teeth replaced by this bridge apparently had porcelain facings in front and that these “artificial white molars” appeared to be “almost undistinguishable from natural teeth.”

Concluding comments by the Soviet autopsy commission. At the end of the Rus-
sian autopsy report described in the so-called document number 13, it is con-
cluded: "In view of the fact that the body parts are extensively charred, it is
impossible to describe the features of the dead woman." The Russian autopsy
commission finally made the following three concluding statements regarding the
autopsy evidence: (a) determined the approximate age of the "unknown woman"
to have been between 30 and 40 years, based partly, it is added, on the relative
degree of dental wear; (b) estimated the approximate stature of the person
involved as probably about 150 cm in height; and (c) concluded that "the most
important anatomical findings for identification of the person are the gold bridge
of the lower jaw and its four front teeth" (see Bezymenski, 1968). The word front
in the reference to "front teeth," as used in the English edition of Bezymenski's
book, actually should have read outer or external to match the "äussere Zähne"
used in his German edition. The expression evidently must refer to the buccal
white facings on the molar teeth replaced by the bridge allegedly found under the
tongue of the burned corpse.

FORENSIC INTERPRETATION

With a view to comparing the descriptive and diagrammatic information
presented previously, it was necessary to attempt a reconstruction of the most
significant skeletal remains of the "unknown woman," namely, the skull, jaws, and
teeth identified in the Soviet autopsy report. Therefore, these dislodged frag-
ments were placed in anatomical juxtaposition in an artistic rendering used for the
forensic comparison as shown in Figure 7.

The Skull

Evidently, the upper part of the skull and the right part of the face were most
extensively burned and destroyed. Even the alveolar processes of the upper jaw
had become consumed by fire. The few scattered teeth which survived the fire
evidently were isolated from the original positions in the jawbone. Consequently,
for comparison with Blaschke's dental record of the living Eva Braun, I have, in
this attempt to reconstruct the skull, let the dental remains be repositioned into
their probable position on the right and left sides of the upper and lower jaw. With
this effort to recreate a semblance of the remaining dentition found during the
autopsy, it now becomes clear that there are many missing links for any conclusive
identification, as will be further shown by the following analysis.

The Maxillary Teeth

In the upper jaw of Eva Braun, who was seen by Dr. Blaschke as late as March
1945, it was indicated in the dental diagram that she had thirteen of her natural
teeth remaining in the upper jaw. Yet, during the autopsy only four teeth and one
root remnant could be recovered and identified as having their anatomic origin from an upper jaw. To make it even less valid for analysis these teeth were lying helter-skelter between the tongue and palate. Furthermore, in the left segment of the maxillary arch, Dr. Blaschke indicated that both of the left premolars had large restorations, whereas the autopsy report suggests that these two teeth ("Backenzähne") when found lying dislodged on the top of the tongue, appeared to be intact. Similarly, the upper right molar ("Mahlzahn"), which was also found on top of the tongue, is recorded as having no defect of filling—again in contrast to Dr. Blaschke's diagram of the living Eva Braun's dental diagnosis. In this connection it stands to reason that there can easily occur problems of translation between several languages when it comes to technical dental terms. In the German edition of Bezymenski's book² (p. 128), the original text distinguishes between the recovery of an upper right "Mahlzahn" or grinding tooth and two left "Backenzähne" or cheek teeth. In the English edition,² however (p. 111), both terms have been translated so as to identify molar teeth. Fortunately, in a parallel edition in a later Swedish language the matter is corrected and clarified by clearly distinguishing between the right molar ("Oxeltand") and the two left premolars ("Kindtänder").
The Mandibular Teeth

On the left side of the lower jaw the teeth of the corpse appeared to be preserved in better anatomical relationships after the fiery funeral than those in the other jaw segments. A total of six left mandibular teeth were recovered and ranged from the lateral incisor through the second molar. However, again we are faced with a potentially important conflict in the dental data recorded in the case of the living versus the presumed dead. Whereas Dr. Blaschke’s diagram failed to show any evidence of carious cavities or other dental defects, past or present, in the six left mandibular teeth of the living Eva Braun, the Soviet autopsy report states that all of the six left mandibular teeth of the living Eva Braun showed “visible changes due to dental caries.”

On the right side of the victim’s lower jaw no alveolar bone, natural teeth or even root portions thereof were found at all. However, the bridge which was found under the tongue, though unattached to either tooth crowns or roots, is stated to have been designed with pontics to replace the lower right first and second molars, these presumably anchored by crowns on the third molar distally and on the second premolar mesially. However, in his own dental diagram Blaschke did not indicate any such bridge replacement; nor did he show any restoration or appropriate preparation for a bridge abutment designed to retain either a fixed bridge or a removable prosthesis on the lower right third molar, whereas the anterior tooth, the first premolar, did show a disto-occlusal inlay.

COMPARISON BETWEEN AMERICAN AND SOVIET DATA

In the preceding evaluation of American and Soviet documents all observations have been recorded at face value. This is not to suggest that every finding was necessarily based on ideal circumstances of location and observation. For example, one notes that the Russian autopsy report revealed several general postmortem diagnostic ambiguities related to the pathological examination of the body attributed to Eva Braun Hitler. The charred corpse presumed to be hers was the most severely destroyed among the total of 13 corpses identified among the last group of individuals located in and around the Berlin bunker in early May, 1945. In fact this female body, when allegedly found next to that attributed to Hitler, was so damaged that “only shell splinters could have caused the injuries and hemorrhage in the pleura,” and as a cause of death, the autopsy report states that “on the extensively charred corpse there were found traces of a splinter injury to the thorax with hemothorax, injuries to one lung and to the pericardium as well as six small fragments” (p.114). The latter damage was concentrated on the left side of the body, whereas the destruction by fire was much more evident on the right side of the body, including the skull and jaw.
Table 2. Comparative conclusions regarding Eva Braun Hitler's dentition

<table>
<thead>
<tr>
<th>Reference Number</th>
<th>Comparable Jaw Segments</th>
<th>Antemortem Information</th>
<th>Postmortem Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Mandible R.P-2</td>
<td>Inlay (in place)</td>
<td>Inlay (dislodged)</td>
</tr>
<tr>
<td>2.</td>
<td>Mandible R.M-1</td>
<td>Not present (unreplaced)</td>
<td>Not present (replaced?)</td>
</tr>
<tr>
<td>3.</td>
<td>Mandible R.M-2</td>
<td>Not present (unreplaced)</td>
<td>Not present (replaced?)</td>
</tr>
<tr>
<td>4.</td>
<td>Mandible L. Teeth</td>
<td>Present (intact)</td>
<td>Present (caries?)</td>
</tr>
<tr>
<td>5.</td>
<td>Maxilla R. &amp; L. Teeth</td>
<td>Mostly in place (some filled)</td>
<td>Mostly burned up (some dislodged)</td>
</tr>
</tbody>
</table>

On the other hand, there is not known to exist any better or alternative documentary information than the dental data related above for the potential solution of the enigma of Eva Braun's demise. Therefore, if the dental status, according to Russian judgment, was considered the most important anatomical clue for the identification of Eva Braun Hitler, then it is essential to make a concluding comparison between the above documentary evidence available from the alleged postmortem and antemortem dental observations. While it is not necessary in such an identification to recover, record and account for every single tooth of an individual, it is well known that the strength of an identification rests on the degree of concordance between data from the living and those from the remains of the dead in question. In the following are enumerated inadequacies in the recovery of the dentition in question as well as discrepancies between antemortem and postmortem data (see Table 2).

1. According to her dentist's diagram prepared in 1945, Eva Braun had retained 26 of her own natural teeth. On the other hand, the Russians recovered only 11 natural teeth from her alleged body.
2. In his diagram of Eva Braun's dentition, Dr. Blaschke indicated that Eva Braun possessed all of her anterior teeth. The Russian autopsy report, on the other hand, indicated recovery of only one single incisor tooth (the lower left lateral incisor).
3. In the mouth of the charred body were found only a few maxillary teeth, dislodged from their natural anatomical relationship; and a comparison between the American and Soviet records revealed that there were several other important inconsistencies with regard to pathological features of individual teeth.
4. Her dentist's dental diagram showed that Eva Braun's left maxillary premolar had large restorations. However, no such evidence of past dental pathology was reported in such teeth located during the autopsy of her alleged body.
5. The Russian autopsy report indicated that all of the left mandibular teeth of the "unknown woman" showed evidence of dental caries. But in Dr. Blaschke's dental diagram of the living Eva Braun the very same kinds of teeth were recorded as being intact.
6. According to the postmortem report there was found, under the tongue of the dead woman, a dental gold bridge replacing the right mandibular first and second molars. By contrast, Dr. Blaschke's dental diagram of the living Eva Braun
indicated that these teeth had not as yet been replaced by such a bridge by the spring of 1945.

In quoting the Soviet autopsy report, this mandibular gold bridge was considered "the most important anatomic finding for identification of the person." However, some mysteries surround Eva Braun's dental bridgework. When the Russians, in May, 1945, entered the dental office of the Fuehrer's Berlin Chancellery, Dr. Blaschke's chairside assistant, Frau Käthe Heusermann, located a box showing that "crowns and bridges for Hitler and Eva Braun had been prepared by a dental technician named Echtmann," except that "time to put them into use had run out on dentist and patient" (Rzhevskaya, 1967). There are other indications that when an effort was made to prepare a bridge for Eva Braun's mouth, she did not like it and did not wear it, and Blaschke himself has stated that he found her difficult to work on.

Dr. Blaschke's dental technician, Mr. Fritz Echtmann, in testimony to the Soviet authorities, is said to have made two bridges for Eva Braun, one evidently unacceptable, the other a construction which he proudly labeled as his "own invention." According to his own diagram, Dr. Blaschke apparently never inserted a gold bridge in Eva Braun's mouth. Frau Heusermann has confirmed this to me in two interviews and by letter. The alleged postmortem examination referred to the recovery of such a bridge as having had "artificial white" facings; so white that their "appearance is almost indistinguishable from natural teeth" (cited from autopsy report by Bezynmski, p. 112), an observation hardly compatible with remains from a body so severely charred by a fiery Viking funeral.

**RESUME**

The author has reviewed American documents regarding diagrams and descriptions of Eva Braun's teeth, which her dentist, Dr. Hugo Blaschke, D.D.S., prepared after he was captured and interrogated by American officers at the end of the war in 1945. There appears to be inadequate concordance between the American and Soviet archives, respectively, to provide a positive identification of Eva Braun. The problem stems in part from the limited dental remains recovered from the fragmented skull of the severely burned body of the "unknown woman" thought to have been the corpse of Hitler's wife (Document No. 13, Bezynmski, 1968). A comparison between the American and Soviet data has revealed that there were several important inconsistencies with regard to the dental pathology. Most importantly, the Russians reported that they found under the tongue of the dead woman a dental gold bridge replacing the right mandibular first and second molars. However, Dr. Blaschke's dental diagram of the living Eva Braun indicated that these teeth, while missing, had not been replaced by such a bridge, as is also supported by my recent interviews and correspondence with Dr. Blaschke's chairside dental assistant, Frau Käthe Heusermann.
Conclusion. It is concluded that the present forensic analysis does not warrant a positive identification of the alleged body of Eva Braun, wife of Hitler, and that this is in contrast to the similar analysis of Hitler's case, reported previously, which indicated a very satisfactory concordance between the antemortem and postmortem data attributed to American and Soviet archives, respectively.

THE CASE OF MARTIN BORMANN

Preamble

Martin Bormann’s postwar whereabouts has been the subject of considerable controversy ever since Hitler’s right-hand man was condemned to death in 1946 in absentia at the Nuremberg trials. However, dental evidence presented below now indicates that Bormann’s body has been unearthed and identified. Bormann, it now appears, actually committed suicide—more than a year before being sentenced to die on the gallows—by biting into a potassium cyanide poison vial when Berlin was surrounded by Russian forces and he became trapped between enemy crossfire during his attempt to escape from Berlin on 2 May 1945.

My presentation will summarize observations which I have made in connection with skeletal remains unearthed by Berlin construction workers on December 7, 1972, near Lehrter Railroad Station, where local post office workers, on May 9, 1945, under Russian orders, claim to have buried next to that RR station two deteriorating bodies found on the Invalidenstrasse Bridge across from the station. The taller of the two bodies appeared to be that of one of Hitler’s physicians, Dr. Ludwig Stumpfegger. The other body, that of a shorter stocky man, has in retrospect—due to the postmortem company he kept—been considered attributable to Reichsleiter Martin Bormann. The two were known to have tried a last minute escape, together with Jugendleiter Artur Axmann, from Berlin’s burning Fuehrer bunker following Hitler’s suicide on April 30, 1945. Axmann, who did escape, appears to have been one of the last persons known to have seen Bormann and Stumpfegger alive as they parted company after jumping off the Lehrter Railroad tracks. Later on that same date, May 2, 1945, Axmann also is believed to have passed his two companions’ dead—but otherwise surprisingly intact—bodies across from the Lehrter station. I had occasion to review the essence of this sequence of events during an interview with Axmann in Berlin during the summer of 1974.

Thus, on the basis of my comparison of the alleged postmortem Bormann remains unearthed in Berlin (see Figs. 8–11) to antemortem dental Bormann data uncovered in the USA National Archives and Records Service in Washington, D.C., I propose to demonstrate a sufficient number of concordant forensic observations to conclude that Bormann’s postmortem odontological identification may now be considered a fait accompli.
Fig. 8 Initial appearance of the skull from the shorter of two skeletons unearthed next to Berlin's Lehrter railroad station on December 7, 1972, in an area where Bormann on May 2, 1945, was last seen alive as he and his tall companion, one of Hitler's physicians, Dr. Ludwig Stumpfegger, tried to escape capture by the Russians. A maxillary anterior bridge and other teeth dislodged after death were later reinserted in the skull during author's photographic and radiologic postmortem evaluation of the remains (see Figs. 10 and 11).
Bormann's Antemortem Dentition

The Captured Military Records Branch of the U.S. National Archives 1972 gave the author access to a document which contains a description and diagram of Bormann's dentition prepared by his wartime dentist, the late Hugo Blaschke, D.D.S. In this document, known as APO 757, O1-FIR/31, ANNEX No. II, Dr. Blaschke indicated that he had treated Martin Bormann regularly from 1937 to 1945 and therefore felt that he "remembered Bormann's dentition in detail."

Dr. Blaschke last saw Martin Bormann as a patient in March 1945. Following Hitler's last birthday on April 20, 1945, Dr. Blaschke was permitted to flee Berlin and fly on to Berchtesgaden. When Dr. Blaschke was captured by American forces in Salzburg on 28 May 1945, he was interrogated by U.S. Army Intelligence officers. With American expert consultants and interrogators, Dr. Blaschke detailed his recollections of Bormann's dental status, prepared dental charts depicting what he knew about Bormann's dentition and added descriptive explanations of some of his treatment procedures during the eight-year period when Bormann was under Blaschke's dental care.

Blaschke's dental diagrams and descriptions of Bormann's teeth directed particular attention to his recollection of four principal dental problem areas. These problems were as follows: (1) in the posterior right portion of Bormann's mandible a very severely decayed and incompletely erupted wisdom tooth; (2) in the left posterior areas of both the maxilla and mandible two open dental spaces caused by teeth already lost but not as yet replaced; (3) in the right lower quadrant a permanent three-unit bridge construction replacing the first molar by attachment of full crowns on the adjacent teeth; and (4) in the anterior maxilla a temporary three-unit bridge construction replacing the right central incisor attached by so-called window crowns to the adjacent teeth. Dr. Blaschke died in 1957. I have recently interviewed both his chairside assistant, Frau Käthe Heusermann, and dental technician, Mr. Fritz Echtmann.

Correlations with Postmortem Evidence

Dr. Blaschke's antemortem dental diagrams were prepared as projected from a vestibular (labial and buccal) vantage point. Hence, my own subsequent postmortem evaluation has primarily confined itself—for the sake of direct comparative purposes—to observations which similarly could be most readily made and interpreted on the basis of a labial and buccal visual projection.

Tooth decay. During Bormann's last dental consultation in March 1945, his most serious dental problem was apparently related to his lower third molar. Dr. Blaschke describes this problem in some detail in addition to the diagrammatic representation which indicated incomplete eruption of this tooth as well as a large buccal cavity partly covered by the gumline. This tooth was also described as having a very dark brown color (S.S. White shade "17"), and occlusal caries which
had led to exposure of the pulp and thus required special treatment. Dr. Blaschke described the problem with Bormann's mandibular right wisdom tooth as follows:

The lower right 3rd molar has not broken through all the way, and therefore occupies a lower position than the 2nd molar. It has an iodoform filling in the pulp cavity. A large cavity on its masticating and labial surfaces is filled with cement.

My own examination of the Berlin skull, with respect to the mandibular right quadrant, showed that there was complete concordance between the antemortem and postmortem data, i.e., an incomplete eruption of the same wisdom tooth, a dark yellow-brownish tooth color, corresponding to shade "17" on the S.S. White color ring, and the presence of extensive carious cavities both in the occlusal and buccal areas. The cement filling, with which Dr. Blaschke had covered the iodoform paste in the pulp cavity, had largely been washed away as a result of which the iodoform by now is expected to have evaporated.

Apparently this lower left wisdom tooth was the only tooth with which Bormann had direct discomfort as late as 1945. Dr. Blaschke's diagrams do not include any other areas of individual teeth with either open carious cavities or with fillings visible from a labial or buccal view, with the possible exception of what appears to illustrate the projection of a multisurface restoration of an upper left premolar. There were other teeth, however, in the skull—not diagrammed from Blaschke's vestibular projection—which had more hidden areas of dental decay. Thus the bilaterally symmetrical third molar on the left side of the mandible, had a cavity at least partly hidden, submerged under the gumline. Other teeth had minor open cavities, some apparently caused by loss of fillings, as for example, in an upper left premolar which Blaschke had sketched in a manner suggestive of a multisurface filling. Several smaller occlusal amalgam fillings were seen and minor cavities were revealed interproximally in some of the teeth which had come loose from the skull. For example, the lower right first premolar had a definitive distal cavity; too small, however, to have been seen without the tooth for direct visual and roentgenologic examination. At the same time this loosened tooth was found to have calculus deposits on the mesial surface, which would also have been concealed unless the tooth was removed from the skull. While Dr. Blaschke apparently had no other particularly memorable problems in regard to Bormann's 1945 dentition, i.e., with regard to acute pain and decay, there were clearly more chronic problems resulting from episodes of dental caries and other trauma arising earlier in the patient's life and from recent and current development of periodontal disease.

*Lost teeth.* With regard to the results of past dental pathology Dr. Blaschke records the loss of opposing teeth in the posterior region of the upper and lower left quadrants, corresponding to the approximate width of single or combined molar and/or premolar losses, depending upon possible postextraction drifting of adjacent teeth. According to Dr. Blaschke's diagram these spacings in the dental arches were not restored (see Fig. 9).

When not seeing a patient until after adulthood—as was the case in his wartime care of several Nazi VIPs—Dr. Blaschke recognized in the discussion with his American interrogators the difficulty of precise identification of certain
teeth where early extraction and subsequent drifting may have taken place. (For example, in the case of Eva Braun, Dr. Blaschke stated that he "considers it possible that the upper right 1st molar was lost in early youth, causing the 2nd and 3rd molars to move forward and close the gap.") Dr. Blaschke indicated similar spacings between Bormann's posterior teeth, seemingly without either knowing or recalling, first, that one wisdom tooth, the upper left, was actually completely unerupted, and hence that it was in fact the first molar which was absent rather than the third molar; and, second, that another third molar, the upper right, was indeed present and restored with a gold crown rather than having been lost.

Two other lost teeth, the lower central incisors, had been replaced by plastic pontics. It is not known how long ago these teeth were lost prior to the other dental problems. But the omission of this lower front tooth bridge from Dr. Blaschke's memory record could be interpreted in several ways. If Dr. Blaschke deliberately wanted to conceal specifics of Bormann's dental status, he did a poor job considering the detailed information regarding the rest of his dental treatment data. Besides that, according to information I have elicited from those with inside knowledge, such as Dr. Albert Speer—himself one of Dr. Blaschke's former patients—Dr. Blaschke "did not stand in good relationship with Bormann; rather the opposite; so that he could have had no interest in making his (Bormann's)
identification difficult." If, on the other hand, the late Dr. Blaschke had created a deliberately planted fraud, involving a "double" of the real Bormann, then it would seem that such a relatively rare type and location of lost and replaced teeth, ie, the lower central incisors, would have been very high on the list of items to include when charting what was meant to be telltale dental evidence. In the final analysis, therefore, I have concluded, as a third and more logical alternative, that Dr. Blaschke simply did not recall any memorable treatment problems in connection with this portion of Bormann's jaw, and that the treatment—whosoever hands were once involved—had probably been rendered by some prewar dentist or simply too long ago to fortify Dr. Blaschke's memory of this earlier restoration.

Beyond this condition there is concurrence between Dr. Blaschke's ante-mortem labiobuccal dental diagrams and my own postmortem comparably oriented dental photographs of the dental arches. Thus, with respect to lost teeth, there is a satisfactory correspondence in the exact size and shape and in the general location of the two unrestored open spaces caused by previously lost posterior teeth, when one compared the postmortem photographs with the ante-mortem diagrams of the left quadrants of the maxilla and mandible, respectively (Fig. 9).

Lost bone. Loss of the abovementioned left posterior teeth does not, on the basis of my photographic evidence, appear to have been accompanied by any severe loss of the alveolar jawbone either in or adjacent to the regions involved. Probably this suggests that the teeth were extracted years ago, due to caries rather than having become loose and lost due to aging and associated periodontal disease.

Another area of Bormann's jaw, however, had suffered from advanced alveolar bone loss due to periodontal disease, according to Dr. Blaschke, who noted in his interrogation report that "all upper incisors were more or less loosened by paradentosis." My examination of the Berlin skull attributed to Bormann indicated that this periodontal problem was in fact due to extensive pathologic bone resorption around the anterior teeth, typical of periodontal disease. This could be confirmed both by visual inspection and photographic records, as well as by radiological evidence to be illustrated further below in discussion of the loosened maxillary incisor bridge (Figs. 10 and 11).

Also there appeared to have been a minor mechanical break in the labial alveolar ridge in addition to the bone loss caused by pathologic resorption. Being a flat and oblique fracture surface, with no obvious sign on bone remodeling or repair, suggests that this was due to a fracture, occurring after death if not at the time of death. In either case, it would not be surprising, once the soft tissues around the already loose incisor roots became destroyed through postmortem proteolysis, that the important maxillary incisor bridge to be described as follows, which already had such limited retention in the jawbone during life, could readily become completely loose and dislodged from the skull after death.

Bridge construction. The most significant aspect of Dr. Blaschke's ante-mortem dental diagrams and descriptions concerned a bridge which replaced the maxillary right central incisor, held in place by so-called window crowns on the left central incisor and the right lateral incisor. This maxillary bridge was described in some detail insofar as Dr. Blaschke indicated that he himself was directly respon-
Fig. 10 Dr. Blaschke's diagrams of Bormann's dental bridges in the maxillary anterior and mandibular right jaw quadrant (top), compared with author's photographs of the same jaw locations during examination of the Berlin skull. Note the extraordinary concordance between antemortem diagrams and postmortem documentations.

sible for the treatment—also greatly concerned about its success, because the adjacent supporting teeth were already loose at the time the bridge was inserted. Thus he expected that he might have to replace the bridge in the fairly near future, if time permitted (which it did not), in order to extend the bridge abutments to the canine teeth (Figs. 10 and 11), there being considerable bone resorption around the adjacent incisor roots. Dr. Blaschke summarized this problem as follows:

The upper right central incisor was missing. It had been lost about 1942. Since the gap had to be closed immediately, temporary window crowns were made for the upper left central incisor and the upper right lateral incisor. The missing tooth was replaced by a porcelain facet on a golden back part. Since all upper incisors were more or less loosened by paradentosis, a bridge support was planned extending from cuspid to cuspid. As, however, the loosening of the incisors progressed slowly, the temporary arrangement proved satisfactory and the larger bridge was never made.³

Dr. Blaschke's antemortem diagnosis and prognosis, as of 1945, is in complete agreement with my postmortem documentation based on my examination
Fig. 11  The dislodged anterior maxillary bridge, sketched and photographed above (Fig. 10, left), has here been inserted in the skull for radiologic confirmation of its authenticity. Note the extensive periodontal bone resorption, a clinical problem described by Dr. Blaschke, leading to demonstrable loosening during life and displacement after death.

of the Berlin skull discovery attributed to Bormann (Fig. 10, left). Thus, when I placed the bridge in position in the empty sockets of the upper jawbone after death, it could be readily seen that there was a good correspondence between the incisor roots and that part of the alveolar bone which remained after some obvious pathologic bone resorption during life. For it was precisely this same kind of bone loss, as noted previously, which had been indicated by Dr. Blaschke in his description of Bormann's maxillary dental care; a treatment he evidently had at first considered merely as a temporary bridge construction. Time simply ran out, for dentist and patient alike.

There had been no bridge replacement of the lost posterior teeth on the left side of Bormann's jaw according to Dr. Blaschke's data; and this—as alluded to under the preceding "lost teeth" heading—proved to be in keeping with my own postmortem examination of the left side both of the maxilla and mandible. On the right side of the mandible, on the other hand, Dr. Blaschke's
Dental Evidence in Postmortem Identification

Diagram showed a three-unit bridge replacing the lower first molar by means of full crown abutments on the adjacent teeth, the second molar and second premolar, respectively. Again, this antemortem condition is in complete harmony with my postmortem findings (Fig. 10, right).

Dental wear. It seemed of interest to examine more closely certain wear marks on the teeth of the Berlin skull in order to: (a) double-check the authenticity of the maxillary mystery bridge by comparing the incisal and lingual wear marks on the upper bridge with those on the labial and incisal edges of the opposing lower teeth; (b) examine the relative juxtaposition and inclination of the upper versus the lower incisor teeth as a clue to the dental occlusion; (c) compare various wear marks with other posteruptive dental changes which might help to indicate the age of the individual at the time of death.

For these purposes both direct observations and photographs proved valuable, as well as a micoreplication technique and scanning electron microscopy, a new forensic method which I have described elsewhere. In addition, once the positions of the wear marks were determined, plastic tooth models were made for profile studies of the relative position of the upper and lower teeth to each other. Lastly, at higher magnification, examination of the wear marks gave a potential clue to minute scratches on the biting areas on the teeth which might possibly have been related to the biting on the glass splinters originating from the kind of potassium cyanide death capsule Bormann received as a going-away present from Hitler in late April 1945.

Incisal Wear. Data on the maxillary incisor bridge beyond the visual, photographic, and roentgenologic examination were amplified by means of micoreplication and scanning electron microscopy to demonstrate the precise contact areas between the incisor teeth.

Scanning electron microscopy (SEM) showed distinct wearing surfaces on the lower anterior teeth corresponding to the incisal edges of the window crowns of the lateral incisors. A more general wear of the labial surfaces could be demonstrated near the incisal edges of the plastic pontics of the two central incisors. At higher magnification it was found that there were a number of more minute scratches in the plastic wearing surface, within which were found fragments of some extraneous unidentified fragments. As discussed below, these scratches could conceivably be related to minute glass fragments from the suicidal biting on the cyanide poison vial.

On the upper right lateral incisor there were two lingual wear marks, both close to the incisal edge, one toward the distal corner, the other in the middle of the lingual surface. The artificial porcelain and gold pontic for the upper right central incisor had lingual markings somewhat less clearly indicated, namely, near the lingual gold areas of the platinum pins which were holding the labial porcelain facing. The most marked area of wear was to be found on the upper left central incisor where the lingual gold near the neck of the tooth had an area of approximately 2 x 3 mm with a very polished general appearance, except for one area with a separate deeper scratch.

Wear and Occlusion. When models were prepared of the upper and lower tooth relationships and placed in a position in keeping with the bite mark
evidence, it could be demonstrated, first, that there existed a slight horizontal asymmetry in the midline between the upper and lower teeth, that is to say, the midline between the upper incisors had a slight shift of about 2 mm to the left of the midline between the lower incisors. Second, it could be shown that there was an overbite of the upper incisor teeth over the lower; and third, that this was also asymmetrical in vertical direction in that the upper left incisor had a larger overbite than the left incisor. The latter observations coupled with a certain degree of pathologic wandering of the root attachment of the left central incisor is also in keeping with: (a) facial photographs of Bormann, (b) postmortem roentgenologic evidence of bone loss, and (c) clinical description by Dr. Blaschke of Bormann's alveolar bone in this part of the jaw.

SPECIAL WEARMARKS. During the initial cleaning of the Berlin skull attributed to Martin Bormann, glass splinters were found between the teeth. Later on, when I discovered, with a higher SEM magnification, the scratches on the teeth, it occurred to me that these might possibly have been caused by the crushing of the potassium cyanide glass capsule, either during the direct biting of the capsule or during the type of convulsions that tend to accompany death by potassium cyanide poisoning. Also I was able to duplicate comparable scratches on similarly soft gold and plastic surfaces by the sharp edges of the type of glass vial used for the ammonium ampules that are sometimes used for recovery of consciousness of a fainting patient. However, I could not believe that a poison as deadly as potassium cyanide would be contained in such a thin glass container. Therefore I discarded the idea initially.

Later on, when talking to Käthe Heusermann, she told me she was one of those who had received such a deadly poison capsule as a farewell gift from Adolf Hitler the night before his suicide on April 30, 1945, and that she had been able to camouflage the poison vial during many years of prison in Russia after the war. She told me, furthermore, that the glass vial was in fact quite delicate, but that it was well protected until necessary for use by being inserted in a small brass container made from a tiny shell casing. When I then decided to continue my exploration of the problem I found it extremely difficult to obtain a sample of such a cyanide glass vial, until I again returned to Germany and was allowed to take a photograph with a millimeter scale of some of the splinters that were retained by the prosecutor's office from the Bormann case.

By enlarged photographs an appropriate scale drawing could then be made to reconstruct the shape and size as well as the thickness of the sharp edges of the splinter. In so doing, it became apparent that the glass dimensions involved were in fact very minute, about 200 micrometers or less, depending on the level of the fractured edge, and hence quite compatible with the incisor mark on the upper incisor mentioned previously. In addition, the smaller crushed fragments could have been responsible for the several more minute scratches on the plastic pontics for the central incisor teeth in the opposing mandible. In this process, the incisor bridge in the maxilla could have been exposed to a crushing bite on the glass vial, either initially or during the muscular twitchings or convulsions, which in the case of cyanide death often precede the loss of consciousness. This could then also explain, as mentioned in a previous paragraph, that the already weakened alveo-
lar bone of the upper left incisor has a fractured edge at the distal part of the bony labial surface. Considering the resulting reduced bridge retention, it would not be surprising that this bridge fell out of the jaw once the surrounding soft tissues had become deteriorated after death.

**TOOTH WEAR AND AGE AT DEATH.** Wear of the teeth has had a long-standing practical application in anthropologic research for determination of an individual’s age at death. However, the degree of wear on the teeth varies greatly between various cultures, depending on local customs, occupations, diet, habits, etc. In the case of the teeth of the skull attributed to Martin Bormann, there was relatively limited wear. In most of the teeth the attrition did not go through the enamel into the underlying dentin. However, other age changes may provide better criteria for estimation at an individual’s age at the time of death.

For this purpose it became possible to examine in greater detail one of the teeth that had come loose from the skull. Observations could thus be made both of enlarged photographs and by radiologic examination. The latter revealed the relative size of the pulp chamber as a clue to the degree of secondary dentin formation. The former made it possible to determine the level of the peridontal attachment. The relative degree of secondary cementum apposition and root resorption could only be superficially examined by reflected light; but these and other surface features were further explored by microreplication and scanning electron microscopy. Lastly, a strong transmitted light was used to demonstrate the relative degree of transparency of the root apex as possibly the most reliable dental criterion of aging.

In a quantitative manner the age of the individual from whose skull this tooth was examined could be graded to be between 40 and 50 years at time of death. This would be compatible with the time Bormann is supposed to have taken his own life on May 2, 1945, when, together with Hitler’s physician, Dr. Stumpfegger, he found himself hopelessly trapped, surrounded by Russian forces, on the Invalidenstrasse Bridge across from Lehrter RR station in Berlin. Being born in 1900, Bormann would thus have died at the age of 45 years.

**Synopsis of Dental Evidence**

The observations reported above may now be consolidated for a direct comparison between the antemortem information and the postmortem examination. While Dr. Blaschke did not chart from a vestibular dental view all dental features found by my own total view of the skull dentition, the items which Dr. Blaschke did recall in connection with his wartime dental care of Martin Bormann will serve as the primary basis for summation of the antemortem conditions, based on Blaschke’s diagrams and descriptions of the locations, conditions, and treatments involved. For item by item comparison with these antemortem data the tabulation of the postmortem data is being based on my visual, photographic, and radiographic skull examinations.

Eight of the antemortem dental characteristics recorded by Dr. Blaschke were considered particularly significant and have been grouped as extraordinary
### Table 3. Comparative conclusions regarding Martin Bormann’s dental condition

<table>
<thead>
<tr>
<th>Reference Number</th>
<th>Areas of Jaws compared</th>
<th>Antemortem Information</th>
<th>Postmortem Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Maxillary Anterior</td>
<td>Description of bone loss</td>
<td>Evidence of bone loss</td>
</tr>
<tr>
<td>2</td>
<td>UL 1st Incisor</td>
<td>Window crown for bridge</td>
<td>Window crown for bridge</td>
</tr>
<tr>
<td>3</td>
<td>UR 1st Incisor</td>
<td>Porcelain-gold pontic</td>
<td>Porcelain-gold pontic</td>
</tr>
<tr>
<td>4</td>
<td>UR 2nd Incisor</td>
<td>Window crown for bridge</td>
<td>Window crown for bridge</td>
</tr>
<tr>
<td>5</td>
<td>UR &amp; UL Inc. Roots</td>
<td>Bony relationship described</td>
<td>Bony relationship demonstrated</td>
</tr>
<tr>
<td>6</td>
<td>LR 3rd Molar</td>
<td>Incompletely erupted</td>
<td>Incompletely erupted</td>
</tr>
<tr>
<td>7</td>
<td>LR 3rd Molar</td>
<td>Deep buccal cavity</td>
<td>Deep buccal cavity</td>
</tr>
<tr>
<td>8</td>
<td>LR 3rd Molar</td>
<td>Occlusal cement filling</td>
<td>Occlusal cement filling</td>
</tr>
<tr>
<td>9</td>
<td>LR 2nd Molar</td>
<td>Gold crown for bridge</td>
<td>Gold crown for bridge</td>
</tr>
<tr>
<td>10</td>
<td>LR 1st Molar</td>
<td>Artificial crown pontic</td>
<td>Artificial crown pontic</td>
</tr>
<tr>
<td>11</td>
<td>LR 2nd Premolar</td>
<td>Gold crown for bridge</td>
<td>Gold crown for bridge</td>
</tr>
<tr>
<td>12</td>
<td>Maxilla, L. Post.</td>
<td>Diagram of tooth loss</td>
<td>Evidence of tooth loss</td>
</tr>
<tr>
<td>13</td>
<td>Mandible, L. Post.</td>
<td>Diagram of tooth loss</td>
<td>Evidence of tooth loss</td>
</tr>
<tr>
<td>14</td>
<td>Max/Mand Relation</td>
<td>Photograph of overbite</td>
<td>Evidence of overbite</td>
</tr>
<tr>
<td>15</td>
<td>Ant/Post Teeth</td>
<td>Color differences noted</td>
<td>Color differences found</td>
</tr>
<tr>
<td>16</td>
<td>Individual tooth</td>
<td>Known alive at age 45 yrs.</td>
<td>Age at death: 40 to 50 yrs.</td>
</tr>
</tbody>
</table>

In concordance when the identical conditions and locations could similarly be demonstrated by all three methods of postmortem examination: An additional eight categories have been classified as concordance between ordinary characteristics, making a total of 16 items of interest for antemortem and postmortem comparison (Table 3).

In order to evaluate the significance of these data with regard to identification probabilities, a comparison has been made with certain minimum requirements suggested for dental identification, based on ordinary, extraordinary, and total dental characteristics. The requirements for definitive identification—both in terms of the total combined characteristics and the extraordinary characteristics alone—are more than met in the case of the available Bormann data: *Those antemortem conditions of Bormann’s teeth which his wartime dentist, Dr. Blaschke, did describe and chart in 1945 are in completely satisfactory harmony with the postmortem dental findings revealed by my examination of the alleged Bormann skull unearthed in Berlin in 1972.*

### Nondental Observations

Beyond the dental findings, which appear to represent the only aspect of the Bormann case history hitherto reported in the form of scientific and professional journal publications, there are three supplementary observations considered compatible with Bormann’s postmortem identification. Though admittedly less specific, if considered singly, there is supplementary total support in the following general data, when taken together, and especially in combination with the specific dental data.
1. The general location of the unearthed skeletal remains, next to an area of Berlin where Bormann's body allegedly was recognized shortly after he, on May 2, 1945, is known to have been seen alive for the last time. But for forensic purposes, the superficial recognition, dead or alive, considered separately is not to be confused with scientific identification.

2. The apparent consistency between the anthropologic morphology of the skull unearthed in Berlin and the physiognomic features of Bormann's face. Yet, this alone, e.g., his profile, was hardly unique among Bormann's contemporary countrymen.

3. The presence among the skeletal remains of a healed collar bone fracture, in keeping with Bormann's known riding accident from years past. However, except for its combination with the other evidence, such a mishap was probably common enough to have befallen others of similar appearance and occupation from Bormann's own generation.

There appears to be an insatiable popular market for the myth built up around circumstantial evidence surrounding the eyewitness "sightings" of Bormann in various parts of the world—withstanding the fact that the ambiguity of eyewitness testimony by now has been convincingly demonstrated by experimental observations and scientific research.

An excellent in-depth review of the Bormann mystery has dealt critically with the latest writings on Bormann's survival in South America, and concludes that "the balance of evidence favors the theory that Bormann perished in Berlin in 1945." Regarding contrary evidence, Trevor-Roper questions the authenticity of Bormann documents allegedly abstracted from Argentine government files, and suggests that "where there is corrupt sale of any commodity, there may also be corrupt manufacture." In the same vein, commenting on Bormann's Argentinian sojourn, in a personal communication to me (November 13, 1974), Professor Trevor-Roper writes that "quite apart from your (dental) evidence, which is fatal to it, (recently published) alleged evidence is totally worthless."16

**RESUME**

Skull material unearthed in Berlin and attributed to remains of the missing Martin Bormann has been explored and analyzed in the light of the following: (a) dental data provided by Martin Bormann's dentist, the late Dr. Hugo Blaschke in 1945 and examined by the author in the Captured Military Records Branch of the US National Archives in 1972; (b) direct evidence from author's 1973/74 examination of skeletal remains unearthed in 1972 at a construction site next to Berlin's Lehrter RR station; and (c) circumstantial supporting evidence of a less specific nature, related to external skull morphology and a healed bone fracture.
Conclusion

The forensic evaluation, based on a critical odontological analysis, is leading to the following conclusions regarding the Bormann case:

1. that there is adequate qualitative and quantitative concurrence between antemortem and postmortem data.
2. that Bormann, in fact, did die, apparently a suicide, without being able to flee Berlin when the Russian forces entered the city in May 1945.

EXPERT WITNESSES

The fate of Adolf Hitler, Martin Bormann, and Eva Braun has been the subject of a great many articles and books based on a variety of eyewitness testimonies and leading to many conflicting theories and speculations. By this time, expert witnesses are few and far between. To do justice to the most meaningful evidence, one would almost have to be a Philadelphia lawyer, "a lawyer of outstanding ability in matters involving fine points and technicalities."

International Legal Expert

Through a fortunate set of circumstances this is precisely the kind of consultant I was able to locate, namely a German-speaking Pennsylvania lawyer, Dr. Robert Kempner, who worked with the American authorities during the Nuremberg trials and then, during the year that followed the trials, was able to interview some of the persons with direct knowledge from wartime Germany. Based on some of these interviews, Kempner has published a book with the German title "Das dritte Reich im Kreuzverhöhr" (I have not located any translations to other languages).

Kempner's book has a very important pertinent chapter based on an interview with Dr. Hugo Blaschke, the personal dentist of Hitler, Bormann, Eva Braun and others. This chapter sheds light on Dr. Blaschke's professional, political, and personal attitudes, based on his response to questions posed by Kempner in November, 1947, in Nuremberg, when Dr. Blaschke, retired from dentistry, was a free man of 60 years of age (Dr. Blaschke died in 1957).

Robert Kempner, whose current American address is Lansdowne, Pennsylvania, was born in Freiburg, Germany in 1899, studied Criminology at the University of Berlin, and became a Doctor of Law. But because he in 1930 had recommended suppression of the Nazi party and prosecution of Hitler for high treason and perjury, he later became expatriated by Hitler. After serving as Professor of Political Science in Italy and France, he went to the USA in 1939, first
Hugo J. Blaschke

"Knowledge is Power."

The "Count" is a member of the German family. Born at Neustadt, West Prussia, Germany, on November 14, 1887. His early boyhood was spent in Berlin.

Hugo has distinguished himself as a good student, and is in fact, one of our general advisers.

The "Count" is a true son of Old Penn and we have no fear that our Alma Mater will be well taken care of in the land of the Germans when Hugo returns to his native heath.

Psi Omega Fraternity and Kirk Dental Society claim him in their family.

Fig. 12. The dentist, Hugo Johannes Blaschke, D.D.S. as depicted in the dental graduates' yearbook, University of Pennsylvania, class of 1911.

as Research Associate at University of Pennsylvania, 1939–42; later as expert to Federal courts, Department of Justice, 1942–45. At the Nuremberg trials he became Research Director for the U.S. prosecution, 1945–46, and Chief Prosecutor for German Reich officials, Nuremberg, 1946–49. It was during that period, November 1947, that he interviewed the personal wartime dentist of Hitler, et al., Dr. Hugo Blaschke. Later on, he was a consultant to the Israel Government on the Eichmann case (1961) and wrote a book on S.S. Under Cross Examination published by Rütten, Munich (1964).

Who Was Dr. Blaschke?

With regard to Dr. Blaschke's early professional education I have benefited from consultation with another Pennsylvanian, namely Dr. D. Walter Cohen, currently Dean of the School of Dental Medicine at the University of Pennsylvania. Through him and his chief dental librarian, Dr. John M. Whittock, Jr., I have had access to the school records of Dr. Blaschke, alumnus from the class of 1911 (see Figs. 12 and 13).

*Personality.* Born in Neustadt, West Prussia, Germany, in 1887, Dr. Blaschke had his preprofessional education in Berlin, Geneva, and Paris. On the advice of family and friends, he went to the United States for his dental education and was in 1908, at the age of 21 admitted to the University of Pennsylvania with a 60-count pre-dental credit from a Berlin "Real-Gymnasium." Dr. Blaschke became an excellent dental student who, among a group of over one hundred, tied for fourth place in academic standing.
Comments on Dr. Blaschke’s personality were obtained from some of his surviving octogenarian classmates, notably Dr. Edward Master, retired in Long Island. Dr. Blaschke was characterized as a fine, friendly, sociable, well-dressed, well-to-do student, helpful to his classmates. The yearbook for the whole class of 1911 refers to Dr. Blaschke as a good student, one of the general advisors, a member of Psi Omega Fraternity and Kirk Dental Society. The “Count,” as he was called, used for his student motto that “Knowledge is Power,” and his classmates considered him “a true son of Old Penn and we have no fear that our Alma Mater will be well taken care of in the land of the Germans when Hugo returns to his native heath.” (see Fig. 12).

Professional interest. Blaschke’s father had been a businessman and wanted his son to be the same. But after spending some time in Geneva and Paris for that purpose he returned to Berlin. There he had occasion to be an observer in the practice of his family dentist, a Dr. Webster, and also in the clinic of a Professor Dillinger (Mittelstrasse) who advised Blaschke’s mother that her son should consider studying dentistry in America. To Kempner, Dr. Blaschke stated that he was an enthusiastic dentist, that it was a very large practice which he actually slid into, as he put it, and that the practice occupied him very much. “It is the real thing for me, I wanted to serve dentistry... I wanted to help my profession.”

Dr. Blaschke had his elegant offices (which I recently found occupied by an ENT specialist) on one of Berlin’s most fashionable street corners where he attracted a clientele ranging from rich bankers and industrialists to socially prom-
inent barons and princes. One of Dr. Blaschke’s VIP patients in Berlin was Prince Victor sous Wied, and it is he who in 1930 brought Hermann Goering, the first prominent Nazi, as a patient, to Dr. Blaschke’s office. After that, other Nazis were referred to him for treatment, including Hitler in 1934 and later Martin Bormann, Eva Braun, and others. When Dr. Blaschke had treated Hitler for a toothache, and was able to relieve his pain, “I was the big man,” Blaschke confessed during his Kempner interview.  

**Political affiliations.** When I was a student from Norway at the University of Leipzig, during 1931 and 1932, I recall that the political discussions (if any), around the dissecting tables in Professor Spalteholz’ world-famous anatomy department, were either to the far left or to the far right. Street demonstrations by Brown Shirts and Black Shirts were commonplace. There was no middle ground. The value of the German mark was down, and unemployment and even starvation were on the increase. Within a few years of Hitler propaganda there was only one political party which survived in Germany, the “Nationalsozialistische Deutsche Arbeiterpartie” (NSDAP).

In some neighboring countries, such as in Scandinavia, political freedom continued; for example, in my native Norway the Communist Party was legal at national elections as early as the 1920s; and by 1930 a couple of Communists had even been elected to the Parliament (Storting). By 1932, Norway also had an official party, Nasjonal Samling, with far right anti-Communist views, patterned after the German Nazi Party. But they failed to get any representatives into the government, either at the 1932 or the 1936 election.

Dr. Blaschke evidently belonged to the rich on the right and joined the NSDAP in 1931. When Dr. Blaschke three years later became Hitler’s dentist, was it because of his exceptional party prominence? No, according to Kempner, it somehow was rather the other way around. How then, asked Kempner, did Dr. Blaschke get advanced within the SS? “Later, through a mere accident, I came to the S.S.’ recognition,” said Dr. Blaschke. He had been called to the Fuehrer’s office in the company of Professor Gravitz, Chief Medical Officer for the S.S., and Hitler had a small medicine box and asked what it was. Dr. Blaschke stated, “I knew what it was: a kind of gun oil which the hunters use, known as Neballestol to clean the flint. It was very good for dogs when the dogs had scabs. Since I always had dogs, I knew it would be good for the dog’s illness. I looked at it, it was red in color, and it was Neballestol, and I, Dr. Blaschke, knew that, whereas the Reich physician Professor Gravitz did not. Hence the Reich physician became aware of me.”

After that, at the end of 1934 or beginning 1935, Blaschke recollects that the Reich physician, who had taken over the S.S. Medical service, wanted Blaschke to come in with suggestions for the dental service. Blaschke stated to Kempner, “Then I thought that the man in fact meant dentistry. But in addition he probably also wanted to have Hitler’s dentist on his staff.” Kempner asked Dr. Blaschke if he had kept much company with his prominent Nazi patients, whereupon Blaschke answered: “I cannot say that. I am not that way. That sort of thing doesn’t suit me. I don’t go for that sort of thing.” Then with reference to his S.S. affiliation, he answered Kempner, “One was automatically ordered to the S.S. every second year, at least those of us who had some prominence.” Asked if he wasn’t feeling proud of his S.S. affiliation, Blaschke said, “One cannot say exactly that. I was 54
years by the time things really began to happen. I was an enthusiastic
dentist.\textsuperscript{16}

\textit{Academic status.} Kempner considered Blaschke "a sharp observer who
did not hesitate to speak his opinions."\textsuperscript{16} Kempner asked Dr. Blaschke if he
had studied in Germany after he returned to Berlin with his D.D.S. degree from
the USA. Dr. Blaschke stated: "That I have unfortunately missed." Asked if he
had been recognized in Germany, Blaschke said that he was only legally a dentist
when he opened his practice in Berlin in 1919 and that it was only after he became
Hitler's dentist that he was given the German dental degree: Dr. Med. Dent. Later,
when Hitler's agents came to Dr. Blaschke with a message that he had been created
Professor, it was evidently quite a surprise to Dr. Blaschke. As he recalled to
Kempner: "I couldn't believe it. I had not been informed that this would
happen—I sort of had the feeling of youthful disbelief—to become a Professor
one should have done something—. It wasn't to believe, it was against my feeling.
With no basis for it, I wouldn't use it—. Then, about three months later, Dr.
Gravitz, the S.S. Surgeon-General, came to me in my practice, and he said to me,
"Why haven't you put up your certificates? How can that be?"\textsuperscript{16}

\textit{Wartime life.} When asked by Kempner, "with whom could you speak more
or less openly?" Dr. Blaschke answered: "With my wife." "With whom else?" asked
Kempner. "It is strange as one thinks about how life actually was," replied
Blaschke. He did not particularly enjoy his contacts with the Nazi VIPs or their
company. "I don't go for that sort of thing," he said. At another point Blaschke
stated, "To me there was always anxiety when from upstairs in Berghoff (Ber-
chtesgaden hideout) a word would be heard. Then I would be treated like a rotten
egg. Then I was quite sure that, with the exception of a very small circle, nobody
knew anything. The whole thing with the S.S. was malicious, using a few people
who were having the work being done by prisoners." In reference to the concen-
tration camps Dr. Blaschke said: "It sounded improbable, untrue; if one didn't
learn about it, one would not have believed it."

\textit{Postwar status.} When interviewed by Kempner in November 1947, after the
Nuremberg trials, Blaschke stated: "I have been given my freedom for a few
months already." At that point Kempner asked: "Why have you not left then?"
But Blaschke answered, "Why, I don't know. I only can explain it in the following
manner. I was a free witness the whole time. . . . I have yet a practice in Berlin in
Uhlenstrasse. One doesn't see much of that anymore. Besides, it lies on the
totalitarian border (near the Iron Curtain)." Finally, when asked by Kempner if
Blaschke would come along if Chairman Stalin had a toothache, Dr. Blaschke
answered, "If you could guarantee that I could come back again. It is after all no
life to live in a totalitarian state."

\textit{Dr. Blaschke's recall of dental treatment details.} Dr. Blaschke's ultimate con-
tribution to the identification of the top Nazi leaders—albeit not for him to know
or predict—depended on his mental recall of dental records. However, it seemed
of interest to test more directly the degree to which details of dental patients'
intraoral condition may be recalled by dentists from memory, compared with
factual records based on patients' actual treatment records. For this purpose
several colleagues were contacted directly by me and first asked to fill out from
memory a dental diagram identifying the dental details pertinent to some prominent patients under their care. With a coded patient numbering system the patients were merely classified in terms of occupation. After retrieving this subjective memory diagnosis, the colleagues were then made to consult their office files and prepare separate diagrams with more complete data, based on objective information.

When the number of treated teeth accurately identified from memory was compared with information established by actual treatment records, the average memory score appeared to be about 50 percent. Analysis of the individual dental charts indicated several special conditions which handicapped or favored the memory of detailed dental conditions. For example, smaller individual fillings were most readily overlooked; missing and replaced teeth, especially in the molar regions, were often moved over one or two tooth units, thus failing to coincide 100 percent with the precise treatment records. Mirror image memory was also noted so that a condition actually existing on one side of a jaw was placed in a symmetrical position on the other side. Restorations of teeth in the lower jaw appeared to be more readily overlooked than those in the upper jaw, especially if the restorations happened to be in the anterior region hidden by the lower lip.

A fellow UCLA professor of mine, who had actually treated a VIP patient (a famous Hollywood actress) for a posterior restoration only a few weeks before, completing the diagnostic chart from memory, discovered to his surprise that the record showed a lower anterior prosthetic replacement (inserted by another dentist) which he had failed to recall when filling out the memory chart. Similarly, a lower left 3-unit bridge was clearly seen in the actual record without having been incorporated into the memory record. Again it was noteworthy that these latter treatments were performed earlier and by other dentists.

To summarize, the memory records showed that the most reliable recall was manifested under the following three conditions: first, major treatments, that is, restorations involving dental bridges and other prosthetic replacements; second, the dentists' own recent treatments, again especially in the areas of bridges and crowns, notably restorations of the visually most prominent upper anterior teeth; and third, the general types of treatment involving a combination of potential problems of appearance and discomfort.

By the same token it must, for example, be taken for granted that Blaschke could not recall everything that had ever been done in Bormann's mouth, because Bormann was 35 when he became Blaschke's wartime patient. But with regard to those conditions which Dr. Blaschke did describe and chart, there can be no question that there is completely satisfactory concurrence between the antemortem information and the postmortem examination (see Table 3 and Figs. 9–11).

Other Interested Observers

From time to time during my research I have appreciated the opportunity to contact authoritative scholars who have been interested in historical and dental aspects pertinent to the identification of the Nazi leaders.
Historical comments. Professor H. R. Trevor-Roper, Regius Professor of Modern History at Oxford, who received worldwide acclaim for his distinguished research on the last days of Hitler,15 has kept an open mind regarding the Bormann controversy. I informed him of my own research on the alleged Bormann skull11 on July 5, 1974. In return, he explained the circumstances which in the past had brought into his hands what he now considers "misleading information based on incorrect observations." Thus, on July 20, 1974, he informed me that—following the Berlin skull discovery—he had now "decided that the bodies must be those of Bormann and Stumpfegger."

Retracing his earlier interpretation, Professor Trevor-Roper, besides several explanatory confidential letters, wrote: "My own view, until the events in Berlin, was that the evidence about Bormann was inconclusive; that he could have escaped (there was some evidence which was compatible with that, though it did not prove it), but that equally the testimony of his death in Berlin could be true." Then, in conclusion, he stated, "If you wish to quote me, you may certainly quote me as saying that whereas, until the discovery of the two bodies, I considered that the question was open, I now consider, in consequence of that discovery, and the identification which I presume to be bona fide, that the balance of probability has shifted; and that so far I have seen no evidence that can shift it back."16

Once I informed him of my own latest explorations, including a step by step retracing of the events in a recent interview I had with Artur Axman in Berlin, Trevor-Roper responded: "I have always felt that if only I had been allowed to cross-examine Axman myself I should have cleared up the Bormann mystery (as well as another small mystery about Hitler's death) thirty years ago."

Dental comments. I published my first preliminary data on the unearthed Bormann skull in Volume 2 of the International Journal of Forensic Dentistry, in April, 1974, at which time the Journal's editorial p. 26 commented "... the beauty of the case lies in the simplicity of the clinching evidence of identification. No one can sensibly argue the case."

Before presenting my further dental data to the World Congress of the Federation Dentaire International in London, September 1974; I submitted my forensic analysis for evaluation by one of the world's most highly recognized authorities in forensic dentistry, Dr. Sören Keiser-Nielsen of the Royal College of Dentistry in Copenhagen. He responded to a review of my dental evidence with the conclusion that he now considers the Bormann case closed, stating, "I can no longer be in doubt, and I consider it the duty (of Forensic Odontology) to clearly state that this is Bormann's skull. Definitive. Final. Period."14

GENERAL POSTSCRIPT

Not since the 1849 murder in the Harvard Medical School,10 when the incinerated dental remains of the Bostonian philanthropist, Dr. George Parkman, were identified by Dr. Nathan Keep (Harvard's first Dean of Dentistry) had there
been such worldwide interest in specific dental identification evidence as in the case of Adolf Hitler and his right-hand man, Martin Bormann.

Qualitative Versus Quantitative Evaluations

The qualitative data from the above forensic analysis have already been summarized for the individual case of Adolf Hitler (Table 1) Eva Braun (Table 2) and Martin Bormann (Table 3), respectively. Now it remains to attempt an overall quantitative comparison between the concordant characteristics evident from the antemortem versus the postmortem data (Table 4). My experienced Danish colleague, Dr. Sören Keiser-Nielsen, has made pioneering efforts to arrive at certain minimum requirements for dental identification. Using an abbreviated adoption of his proposed I.D. parameters, it is evident from Table 4 and Figure 14 that in the case of Adolf Hitler there are an overwhelming number of extraordinarily distinct concordant characteristics with which to establish an unequivocal positive postmortem identification. Also, in the case of Martin Bormann, it will be noted that the quantitative requirements for positive identification are similarly more than adequately met.

The case of Eva Braun, on the other hand, must remain an enigma because

Fig. 14. The analogy of the chess set (see footnote page 185) illustrates the similarly astronomical variations within human dentition, which may develop such extraordinary individual characteristics that even identical twins are not dentally identical.
Table 4. Minimum requirements for dental identification compared with concordant characteristics found

<table>
<thead>
<tr>
<th>Identification probability*</th>
<th>Total score</th>
<th>Subclassification of score</th>
<th>Ordinary</th>
<th>Extraordinary</th>
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<tr>
<td>Certain 4</td>
<td>12</td>
<td></td>
<td>12</td>
<td>0</td>
</tr>
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<td>8</td>
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<td>4</td>
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<tr>
<td></td>
<td>6</td>
<td></td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Probable 4</td>
<td>8</td>
<td></td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td></td>
<td>4</td>
<td>2</td>
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<tr>
<td></td>
<td>4</td>
<td></td>
<td>0</td>
<td>4</td>
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<tr>
<td>Possible 4</td>
<td>7</td>
<td></td>
<td>7</td>
<td>0</td>
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<td></td>
<td>4</td>
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</tr>
<tr>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Adolf Hitler 10, 14</td>
<td>26</td>
<td></td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>(identified)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Martin Bormann 11</td>
<td>16</td>
<td></td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>(identified)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eva Braun Hitler 12</td>
<td>1</td>
<td></td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>(ID uncertain)</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

*For details see text and bibliography crossreferences and Figure 14.

the postmortem remains, more so than the antemortem data, appear to be inadequate for a positive identification. From eyewitness testimony obtained through the thorough explorations by Professor Trevor-Roper, there was every reason to believe that, if the charred body of Eva Braun was to be found at all, it would in all probability be near the Berlin Fuehrer bunker, next to Hitler himself, in a bomb-crater grave. When all is said and done, it seems clear that Eva Braun was hardly being pursued for any personal political reasons by the Russians or other allied powers. She was being sought because of whatever lead she might provide, dead or alive, in regard to the identification of her husband, the real Hitler.

Reliability of Witnesses

As a general postscript to the forensic analysis, it should now be apparent that neither the Soviet nor the American data alone could have established a positive identification of Adolf Hitler. Nor could Martin Bormann’s identification have been established by the German discovery of the remains unearthed in Berlin in 1972, were it not for the American Archives and Records Service having preserved Dr. Blaschke’s interrogation, describing and depicting Bormann’s several very characteristic antemortem dental data. Moreover, the American Intelligence officers who conducted and supervised the careful interrogation sessions with Dr. Hugo Blaschke, emphasized, as a preamble to their final report, their confidence in Dr. Blaschke as a “reliable witness.” More recently this same verdict was in writing also transmitted to me personally, from the American legal advisor at Nuremberg, Dr. Robert Kempner, already quoted extensively.6
Dr. Blaschke's classmates from the University of Pennsylvania, graduating with the D.D.S. degree in 1911, are now octogenarians. In a survey through his alma mater, and by my own personal communications with others, Dr. Blaschke was described as "... among the top students in the class ... very fastidious ... very meticulous ... very neat ... very friendly ... a fine person who had a slogan: 'Delicacy of touch,' which he used to say all the time. ..." More recently I have had occasion to interview Dr. Blaschke's chairside dental assistant, Frau Käthe Heusermann, and his dental technician Mr. Fritz Echtman, as well as one of Dr. Blaschke's former wartime patients, Dr. Albert Speer, who wrote to me (author's translation), "I considered Dr. Blaschke a reliable person who appeared to know well the dental condition of his patients. In any case, I can recall that he had a good memory of the prevailing situations with regard to my own dental treatment. I can by no means imagine that he knowingly would have deceived the American interrogators. Furthermore, he did not stand in a good relationship with Bormann, rather the opposite, so that he could have had no interest in making his (Bormann's) identification difficult."

I have delved into the educational background and dental competence of Dr. Blaschke in some detail for good reasons. Those who with various motives continue to wish Bormann alive and well in South America, have gone to great extremes to discredit the testimony of those observers who have gone on record in favor of the conclusion that Bormann actually died in Berlin 30 years ago.

Transitional Elements of Confusion

A major element of confusion in regard to the Bormann case arose in early 1973, soon after the Berlin skull discovery, when major newspapers, magazines, and TV stations around the world transmitted a photograph of a smiling Bormann profile next to the anatomy of what was described as his alleged skull. I immediately recognized (as did some of my colleagues) that the depicted skull had none of the real Bormann's characteristic bridge and bite features uncovered from U.S. Archives, which I had already published in full in the Journal of the American Dental Association.*

My first reaction was that the widely publicized Berlin Skull might be some kind of hoax, a planted Piltdownian fraud. Hence, I sought contacts which might possibly help me locate a living Bormann through colleagues in South America, because I had already suggested that a live Bormann could not be a well Bormann, at least not as far as his teeth were concerned. I got nowhere in establishing any such contacts by remote control. Later on I did go to South America myself (actually in search of one of George Washington's missing ivory dentures). On the beaches of Buenos Aires and Rio de Janeiro, I must confess that I had no problem recognizing what could be described as Bormann look-a-likes, eg, a combination of the right size and shape, age and sex and, not to forget, the right Germanic accent. In fact, as an anatomist I venture to say that many configurations were much better facsimiles of an aging Bormann than the half a dozen or so who from

*J Am Dent Assoc 86:305, 1973
time to time have been erroneously depicted as Bormann (see bibliography, Von Lang, 1972). The ambiguity of eyewitness testimony has by now been put to scientific tests: Recognition is not identification.†

Ending a long story, the "Bormann skull", which a few years ago was so prominently displayed in the world press was none other than Bormann's postmortem companion Dr. Ludwig Stumpfegger. With Jungendleiter Arthur Axman, the trio had tried to escape from the burning Berlin on May 2, 1945 (Axman did escape). The postmortem photographic mixup of the two skulls may have been purely accidental. Perhaps the Stumpfegger skull was simply chosen as the better looking one by competing photographers, whereas what later turned out to be the real Bormann skull at first appeared like a toothless blob of dirt (see Fig. 8). Even as the dental evidence emerged regarding the facts of the postmortem data there has to my knowledge never been any public correction of the photographic error. Meanwhile, this unnecessary confusion became "gefundenes Fressen" for those who for various reasons preferred to keep the Bormann mystery alive.

New popular articles and books have continued to appear mixing myth and speculations regarding both Bormann and Hitler. For example, it has even been suggested that the Fuehrer himself has still not been found, dead or alive; that his remains are either still buried in the rubble of the Fuehrer bunker in East Berlin or that his earthly remains have been consumed by fire during a Viking funeral, to the point where his ashes are forever gone with the wind behind the iron curtain.

For posterity and the benefit of other researchers, I might merely add that the antemortem data to which I have referred are now declassified and on file in the U.S. National Archives and Records Service. Also, I have reasons for concluding that even the postmortem dental evidence, up to the point of this writing, is still in existence in the case of Adolf Hitler, Eva Braun, and Martin Bormann in the hands of Russian and German custodians, respectively.

CONCLUDING REMARKS

It is this author's opinion that the dental data presented above represent the best forensic information available for identification of the Nazi dictator, his wartime mistress, and his right-hand man. Their wartime dentist, Dr. Hugo Blaschke, who left Berlin before the Russians surrounded the Fuehrer bunker, probably had no way of knowing the postwar status, demise, or whereabouts of his Nazi patients. Nor could the American Intelligence officers, who interrogated Dr. Blaschke later in the summer of 1945, have known the fate of the Fuehrer and his banker collaborators. Indeed, that was precisely the reason for the intensive postwar data collection by the allied forces.

In retrospect, a great deal of confusion could probably have been avoided, if there had been freer communication for open disclosures of information between the Allies. The American antemortem data might thus have been compared more quickly with the Russian postmortem data, because both sets of information were

†Sci Am 231:23, 1974
actually available 30 years ago. Nor did the American authorities work closely
with the British, who evidently lost track of Hitler's dental and medical data,
including the head and jaw x-rays. In the case of Martin Bormann, it has been
widely assumed that his surviving companion who last saw him alive, Jugendleiter
Artur Axman, had been available for immediate postwar cross examination. But,
as alluded to above, even Professor Trevor-Roper, to whom the British delegated
a major Nazi search mission, was not accorded direct access to Axman. Such a
privilege could have helped put an end to some widespread myths years ago,
according to Trevor-Roper's current thinking.

All in all it seems that each of the information gathering nations operated
relatively independently of each other. If all the available cards had been put on
the table at Potsdam, I would think, in retrospect, that the preceeding chapter on
the dental identification of Hitler and his wife of a night might have been better
written 30 years ago.

At the present time of my own career, serving as the incumbent President of
ISFOS, i.e., the International Society for Forensic Odonto-Stomatology, I have
become particularly concerned and involved with the need for further interna-
tional cooperation in the evolution of forensic science.

For my Nazi identification research, my British contacts were simplified by
my sojourn in the United Kingdom during the latter part of World War II. My
USA research was facilitated by previous contacts in Washington, D.C., and its
surrounding centers of National Archives and Institutes, initially motivated by my
interest in the identification of the Washington dental relics.  

Previously I had also been in Russia twice, primarily because of interest in
ivory and ivories; but for the present study my main contacts have been indirect,
either through long distance correspondence or by personal conferences with the
Russian journalist Lev Bezynenski, at meeting places outside Russia, e.g., in
Britain and Germany. Following my initial German contact by way of then Chancel-
lor Willie Brandt, I benefited from the ultimately productive cooperation of Mr.
Joachim Richter, the Bormann Prosecutor (Frankfurt). This involved some rather
difficult and delicate decisions, allowing one single outsider (coming via one single
member of the four-power countries) access to what might be considered interna-
tionally controversial material if not locally confidential information.

Perhaps no one of my own generation can be completely objective in dealing
with the "postmortems" of World War II. But, in closing, it may not seem
inappropriate to shed at least this much light on my own involvement: I did take
part in the fight against the Nazi dictatorship, joining as a volunteer to serve
as a Captain in the Royal Norwegian Air Force in exile for the duration—i.e.,
from pre-Pearl Harbor to post-Potsdam days.

I have insisted on being my own man in my postwar forensic career. Thus, in
my research on the postmortem identification of Adolf Hitler, Martin Bormann,
and Eva Braun I have neither asked for nor received any national, interna-
tional, religious, moral, political, let alone commercial backing from any of many
potentially concerned parties. Had I on the other hand ventured to present some
official project proposal or application for such an unusual kind of research
support, it undoubtedly would have doomed my research to interminable delays
of action. Conditions being what they still are in terms of international bureaucracy, the secret formula for whatever forensic success I may have had—aside from a combination of an appropriate dental and linguistic background—stems specifically from the fact that I was able to move ahead rapidly on my own and stick it out through completely independent scientific expeditions, largely self-supported from beginning to end.

ACKNOWLEDGMENTS

The research upon which the above studies have been based involved consultation with a number of individuals here and abroad. To begin with, the author is grateful for the cooperation by the United States Archives and Records Service, especially the Chief of the Captured Record Branch, Robert Wolfe, and his associates, George Wagner and John Mendelsohn.

In the search for information about Dr. Hugo Blaschke, I had open access to files of his Alma Mater, the University of Pennsylvania, through its Dean of Dentistry, Dr. D. Walter Cohen, and its Chief Dental Librarian, John M. Whittock.

Other helpful comments regarding Dr. Blaschke were received during interviews with his former chairside dental assistant, Mrs. Käthe Heusermann; his former dental technician, Fritz Echtman; one of his former classmates, Dr. Edward Master, now retired, Long Island, New York; one of his former Berlin colleagues, Professor William Hahn, now at the University of Kiel; and one of his former patients, Dr. Albert Speer, now living in Heidelberg.

My contacts with German officials were facilitated first through communications with then Chancellor Willie Brandt, after which my direct examination of the skeletal remains was primarily facilitated through Staatsanwalt Joachim Richter, the chief prosecutor for the Bormann case.

In Berlin, during the summer of 1974, I had occasion to interview several key witnesses, namely, Jugendleiter Artur Axman, one of the last persons known to have been with Bormann (May 2, 1945); Herbert Seidel, believed to have stumbled upon the deteriorating bodies of Bormann and Dr. Stumpfegger, lying on Berlin's Invalidenstrasse Bridge (May 4–5, 1945); Wolfgang Zehl, work crew foreman, who discovered the skeletal remains (Dec. 7, 1972); and Dr. A. Riedel, Berlin police dentist, one of the first to examine the skeletal remains regarding the postmortem dental status (Dec. 8, 1972).

The STERN Magazine editor, Jochen von Lang, and photographer Dieter Heggeeman, Hamburg, and journalist Gerhard F. Baatz, Frankfurt, supplied several photographs and a number of German contacts for my research.

In evaluation of the technical and circumstantial evidence, I especially wish to acknowledge the important collaboration with my friend and former teacher, Ferdinand Ström, retired chief of Forensic Odontology, University of Oslo. Also, I benefited from many consultations with S. Keiser-Nielsen, Chief of Forensic Odontology, Royal College of Dentistry, Copenhagen; and H. Trevor-Roper, Regius Professor of Modern History, Oxford.
For parts of the material reviewed here, which has appeared in some of my previous individual publications, I finally wish to acknowledge the specific sources indicated in the attached bibliographic reference section.

For patience and skill in preparation of the manuscript I am grateful to my wife Edel, and to Rhoda Freeman and her associates in the Word Processing Center of the UCLA School of Dentistry.

REFERENCES

3. Blaschke’s Interrogation Report, U.S. Forces European Theater, Military Intelligence Service Center (APO 757), Final Interrogation of Dr. Hugo Blaschke, the wartime dentist to Adolf Hitler, Eva Braun and Martin Bormann, American Archives and Record Service, No. OI-FIR/31, 1945/46.
6. Kemper, R. M. W., Das dritte Reich im Kreuzverhör (Bechtle Verlag, Munich, 1969.)