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Sculptors Making Facial Prosthesis During and After World War I

The correction of facial defects or mutilations through cosmetic devices or epitheses is an essential tool of rehabilitation for many patients when surgery is not possible or suitable. In recent years, great progress has been accomplished thanks to new technologies such as 3D imaging and new materials. If artificial eyes and maxillary-dental compounds represent most of these artifacts, external ears and nasal prostheses are also frequently fabricated. Their quality depends in great part on the type of material used, their mode of fixation, and their durability, but also mainly on the artistic abilities of their creator. This specialty now bears the name of Anaplastology. Walter Spohn founded the American Anaplastology Association (AAA) in 1980, which gave rise in 2008 to the International Anaplastology Association. Historically, anaplastology preceded surgical repair of facial mutilations. This is borne out by the numerous artificial artifacts found by archaeologists in Persia and Egypt, dating back over 4,000 years. At Shahr-i Sokhta (Iran), a skull that could be dated around 3000-2900 B.C. has been found with an artificial eye, probably worn before death occurred, as the eye socket bore marks of threads. Artificial eyes, noses, and ears have also been discovered in ancient Egypt tombs on mummies. Such devices were also apparently common in ancient India, China, and Japan[1].

During the Middle Ages, a few accounts of stories are linked to facial epitheses. For example, the Byzantine emperor Justinian (482-565) had his nose cut off on his successor Leonce's order, a mutilation supposed to prevent him from becoming again emperor according to the Byzantine laws. However, reinstated for a second reign in 705, Justinian used a gold prosthesis to mask his nasal mutilation and was nicknamed "Rhinotmete." A few surgeons have recently raised the possibility that Justinian did have his "rhinokopia" surgically corrected, but this hypothesis does not seem to be verified[2]. Mentions of facial prostheses made of ivory can also be found in the Abulcasis (936-1013) treaty.

Detailed descriptions of facial epithesis first appeared in medical literature in the 16th century. The French surgeon Ambroise Paré (1510–1590) designed a facial mask to cover a disfigured face, securing it to the head with springs. According to his book, an artificial nose made of enameled silver and gold or paper and cloth was threaded to the back of the head, and an artificial mustache was added if the upper lip was also missing. Paré also described orbital prostheses and ocular shells.

During the same century, the famous Danish astronomer Tycho Brahe (1546–1601) lost his nose to his opponent's saber when dueling with another student about Pythagoras's birth date. Brahe replaced the missing part of his nose with a wax prosthesis that he painted with oil to match his skin and attached with glutinous adhesive. He was seen wearing this appendix for 35 years.

During the nineteenth century, Pierre Ballif (1775–1831), personal dentist to the King of Prussia in Berlin, created the basis for further developments of artificial limbs and facial prostheses. Another dentist, the American Norman William Kingsley, first introduced celluloid to epitheses of the nose in 1870. Karl Henning (1860-1917) from Austria proposed an original and still-used method for restoring noses, ears, and cheeks. After creating an impression of the patient's face with plaster, the missing facial organ was reconstructed with wax on the plaster model.

Sculptors and anaplastologists

Francis Derwent Wood (1871-1926) was a British sculptor who studied in Germany before returning to London in 1887. Later, he taught at the Glasgow School of Art. At the onset of the 1st World War, he enlisted as a private and started working as an orderly in hospital wards, where he was exposed to the injuries inflicted by the new war's weapons. This eventually led him to open a special clinic in the Third London General Hospital, the Masks for Facial Disfigurement Department. Instead of the rubber masks used conventionally, Wood constructed masks of thin metal, sculpted to match the portraits of the men based on photographs taken before the war. Each mask required many weeks of work ***(Figure 1).***

Anna Coleman Watts (1878 –1939) was born in the USA and studied sculpture in Paris and at the Boston Museum School. She devoted herself to portraiture and became a known sculptor in Boston. In late 1917, she followed her husband, Dr. Maynard Ladd, a pediatrician appointed to direct the Children's Bureau of the American Red Cross in France. In her search for ways to help the war effort, Anna learned about the work of Francis Derwent Wood in London. She contacted him, and they started working together to improve the mask techniques. Returning to France, she worked with the American Red Cross in the Masks for Facial Disfigurement Department in Paris and founded the Studio for Portrait-Masks to provide cosmetic masks for the badly disfigured soldiers of World War I. After obtaining official approval from the Armed Forces Health Service, Anna Ladd traveled to various French regions to help disfigured patients. She organized a team of prosthetists and engaged other sculptors, including the well-known French Jane Poupelet (1874-1932), who was following the lead of Auguste Rodin and Antoine Bourdelle[3].

The Val-de-Grâce hospital welcomed the project, made sixteen beds available in military hospitals, and authorized soldiers to travel to Paris for treatment in the mask workshop. Anna Coleman Ladd understood that to succeed in her enterprise, she had to make her work known and attractive to disfigured soldiers. A gifted PR woman, she managed to arouse the interest of the major press organizations. The surgeons Hippolyte Morestin[4] and Léon Dufourmentel were convinced of the need to collaborate with sculptors to develop the use of prostheses and took the initiative of

inviting Anna Ladd to the surgical congress held in Rennes in September 1918. By mid-September 1918, numerous disfigured soldiers had requested the services of the women sculptors ***(Figure 2)***.

The method used by the sculptors

Once the wounds and subsequent surgeries had totally healed, a plaster cast was made of the disfigured man, using the "moulage sur nature" method well known to sculptors, a painstaking process that itself breaks down into several successive operations. The second stage was the modeling of the missing parts: it calls on all the skills of the portraitist. The mask must perfectly match the shape of the mutilated person's face, restoring rigorously proportioned volumes. The facial features are modeled on the plaster, based on photographs taken before the war or on the sculptor's psychological intuition. The reconstructed face is then cast in wax. The third stage was the electroplating of the copper prosthesis itself. This was entrusted to the prestigious Christofle firm. The fourth step involved fitting the copper mask to the patient's face and required total mastery of chiseling techniques to ensure that the mask coincided exactly with the edge of the scar, camouflaging it without irritating it. Painting a realistic portrait onto the copper mask was as challenging as sculpting: each was finished while the patient wore it. To most accurately match the tone of the flesh, the masks were painted with enamels and supplemented as needed with, for example, prosthetic eyes, artificial facial hair, mustaches, eyebrows, and eyeglasses, which allowed the mask to be attached.

In 1920, about 300 mutilated soldiers had been fitted with such epitheses. Jane Poupelet declared later, "My aim was not only to provide a man with a mask to hide his hideous mutilation but to put into the mask a part of that man, that is, the man he was before the tragedy" ***(Figure 3)***.

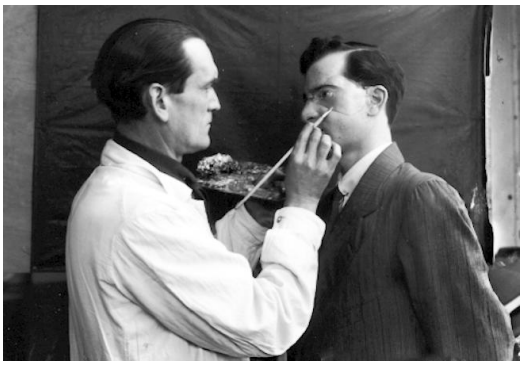

Figure 1: Francis Wood at work to finish a facial mask on a patient

Figure 2: Anna Ladd has completed the molded-resemblance mask, which is painted in flesh colors.

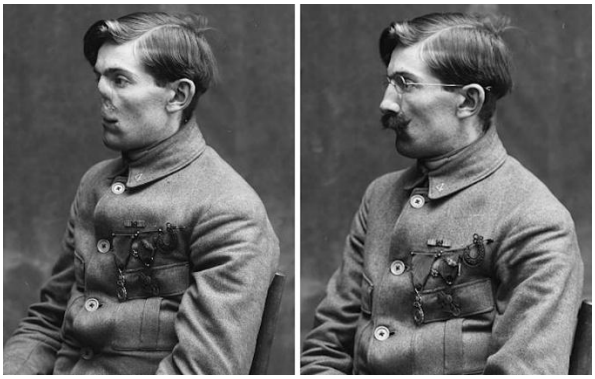

Figure 3: A mutilated patient wearing a facemask.

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HISTORY