2.1 Johann Wolfgang von Goethe, Weimar, and Dental Anthropology

Kurt W. Alt

Introduction

The coincidence of several facts gave rise to this short report, which we are placing at the beginning of this volume. Weimar is the town where the symposium was held which finally gave rise to this volume. At the same time, Weimar is also the place where the German poet and naturalist Johann Wolfgang von Goethe (1749–1832), one of the town’s greatest sons, lived and worked for most of his life (Fig. 1). His studies in the field of skeletal morphology touch on the main theme of our 1993 symposium: Dental Anthropology.

Fig. 1. Johann Wolfgang v. Goethe; copperplate by Heinrich Lips. Goethe-Nationalmuseum. Stiftung Weimarer Klassik. Photo: S. Geske.
Goethe won fame not only by his literary accomplishments, but also by his studies in the natural sciences, where he made important discoveries. In biology and dentistry his name is mentioned primarily in two contexts (see Worm 1922). In 1784 Goethe detected and described the premaxillary bone in man (Goethe 1820), and he was the first to report a case of ectopic eruption of a tooth into the nasal cavity in 1797 (Goethe 1978).

Autobiographical aspects relating to the discovery of the intermaxillary bone are encoded in Goethes dramatic poem “Faust”, in which Dr. Faust is confronted with the figure of Mephistopheles. According to Hellmich and Hellmich, there are certain indications “that the person of J. H. Merck can be recognized in this figure, and that Goethe’s discovery of the human intermaxillary bone had its part in creating the figure of Mephistopheles as we know it today” (1982, 553).

In Goethe’s life and works, health, treatment, and healing are ever-recurring themes (Nager 1992; Nechwatal 1992). Especially the dental problems he was frequently afflicted with are often mentioned in his correspondence (Goethe 1786). Yet to begin with, we will take a closer look at some of his scientific accomplishments.

**Premaxilla (os intermaxillare, os incisivum)**

Even though the human os intermaxillare, resp. a suture between the os intermaxillare and the os maxillare had already been described in Antiquity (Galen 129–199), the existence of such a bone was denied by leading anatomists of the 16th to 18th centuries like Andreas Vesalius (1514–1564), Pieter Camper (1722–1789) and Samuel Thomas Sömmering (1755–1830) as well as by the “father of anthropology”, Johann Friedrich Blumenbach (1752–1840). The intermaxillary bone was therefore believed to represent a distinguishing feature between humans and apes until the end of the 18th century (Camper 1778; see also Trefz 1989).

The human maxilla is a bone separated from its mate by the intermaxillary suture and is derived from at least two components, the maxilla proper, forming in the region of the canine to the molar teeth, and the premaxilla (an autonomous bone), arising in the incisal region. In man, both premaxilla and os maxillare resp. the sutures between the os intermaxillare and the surrounding bones merge at an early ontogenetic stage whereas they partially persist in primates (Vogel 1965), “so that, in the adult, the facial aspect at least appears both macroscopically and microscopically as a continuous bony mass. An occasional adult skull and all skulls at birth show an incisive suture between the premaxilla and maxillary components, particularly in the palatine process” (Chase 1942, 1991).

In most animals other than man, these two bones remain more or less distinctly separated by sutures throughout life. It bears the incisors in most vertebrates, and is also present in animals lacking the incisory teeth (cervides). The reduction in the incisory region is often accompanied by a reduction of the os intermaxillare (e.g. in microchiroptera, xenarthra). Yet this process is not inevitable as the presence of the os intermaxillare in the tubulidentata and artiodactyla demonstrates, which also lack incisors (Starck 1979).