

The Habsburg jaw

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The physician's interest in money need not be limited to the collection of fees. Coins and medals may serve as a prime source for history of medicine and disease. The earliest artistic depictions of goitre and trichoepithelioma have been demonstrated on ancient coins.^{1, 2} It is believed that these features are factual, and this study of the Habsburg jaw was undertaken in order to demonstrate further the validity of coin art as a paleopathological source.

The Royal House of Habsburg dominated the European political scene from the 15th to the 17th centuries. Many of their contemporary portraits are available today in the museums and palaces of Europe. The realistic style and the quality of painters and sculptors assure us of the authenticity of the facial features shown. The characteristic Habsburg face shows a prominent lower jaw (Habsburg jaw), a humped nose (Habsburg nose), and a prominent lower lip (Habsburg lip). This artistic material has been studied by both geneticists and orthodontists and it gives a firm background for assessing the authenticity of numismatic material (Figs. 1 and 2).

The chief facial feature of the Habsburgs is the protrusion of the lower jaw due to mandibular prognathism. This anomaly results from increased obtuseness of the angle between the body and ramus of the mandible. Milder forms of the condition are not rare and occur with an estimated incidence of 0.5%.³ Severe



FIG. 1—Sculpture of Leopold I displayed at Expo '67 showing the Habsburg nose, jaw and lip.

prognathism may result in the lower incisors overlapping the upper ones, giving rise to a bulldog appearance, lantern jaw or hog mouth (Figs. 2 and 3). Those unfortunates with lantern jaw may have impairment of mastication and swallowing as well as difficulty with speech and inability to close the mouth. "Your Majesty, shut your mouth, the flies of this country are very insolent"⁴ was a comment hurled at Charles I upon his first visit to Spain. The truth of this remark is shown by Fig. 4.

Mandibular prognathism may not become apparent until adolescence and becomes more marked with age (Figs. 4 and 5). Modern genetic studies of the condition suggest that the dominant gene has an unknown degree of reduced penetrance, and stu-



FIGS. 2 and 3—Coins of Leopold I showing numismatic accentuation of the hog mouth or lantern jaw.

dies of the Habsburgs show high but incomplete penetrance.⁵

The Habsburg family tree is most complicated, and even the tables given in the index volume of the *Cambridge Modern History*⁶ are incom-



FIG. 4—Medal of young Charles I of Spain.

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FIG. 5—Medal of Charles I of Spain and Charles V of Austria showing increase in prognathism with age and appearance of humped nose.



FIG. 6—Medal of Marie of Austria (not mentioned in the Cambridge History family tree) showing familial prognathism and demonstrating the non-sex-linked nature of the condition.



FIG. 7—Medal of Frederick III (1440-93). This is the earliest medallion representation of prognathism among the Habsburgs. The two lines showing the Frankfurt horizontal plane and the fronto-orbital plane of Simon were added by Rubbrecht.



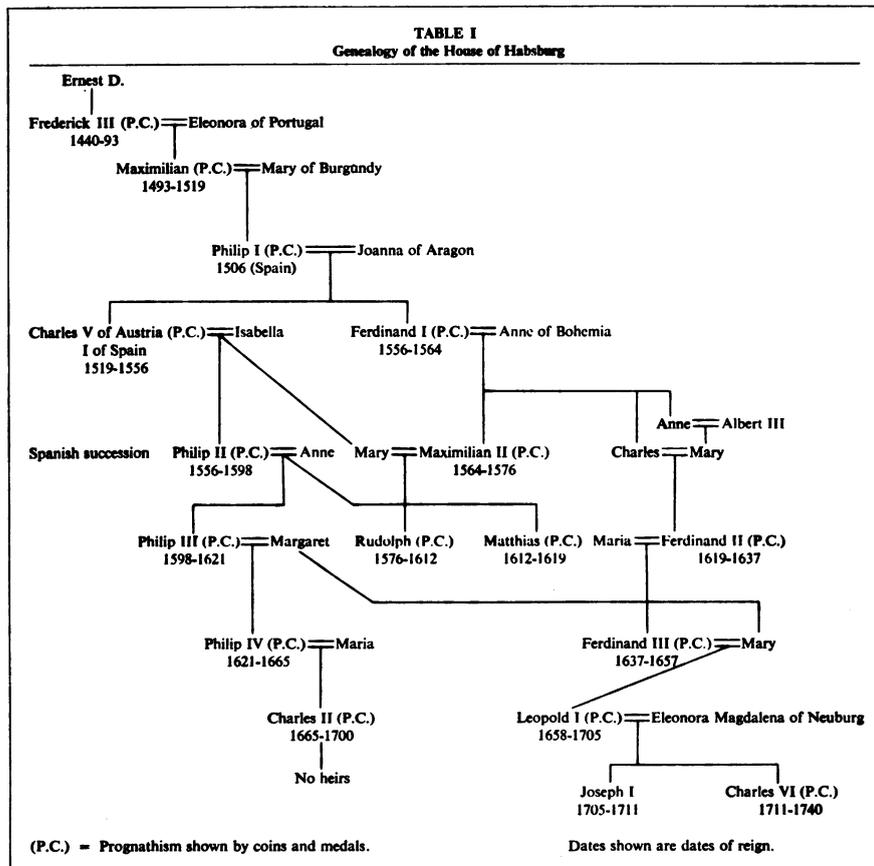
FIG. 8—King Antiochus VII showing artistic licence taken by ancient coin engravers which gave a degree of prognathism to the Ptolemies and the Seleucid monarchs.



FIG. 9—Carlos II of Spain, who was one of the most severely affected. His inability to produce an heir resulted in the Habsburgs' disappearance from the Spanish throne.

plete! For example, Marie of Austria, Regent of Hungary, sister of Charles V and daughter of Philip I, is not mentioned, although a medal exists showing her familial prognathism (Fig. 6). Table I shows an abbreviated version of the Habsburg family tree; (P.C.) after a name indicates the existence of a coin or medal demonstrating prognathism. From coins and medals one must conclude that from 1440 to 1705 the prognathism of the Habsburgs was due to a dominant trait (Fig. 7). This conflicts with evidence from other sources. Perhaps the position of the jaw in artistic material is not suitable for accurate assessment, whereas coins and medals characteristically show profiles of the face. An alternative explanation would be the artistic licence taken by the coin designers such as is evident in some of the second- and third-century B.C. Greek coins which attribute prognathism to most of the Ptolemy and Seleucid monarchs (Fig. 8). The comparative similarity between coins and artistic presentations suggests that this assumption is not a reliable one.

Two Habsburgs, Leopold I of Austria and Carlos II of Spain, were more severely affected than the others (Figs. 2 and 9). It is possible that more than the usual amount of consanguinity contributed to the genetic background of Leopold I (Table II). When Carlos II failed to produce an heir the abnormality disappeared from the Spanish line. Perhaps other genetic defects explain the lack of an heir for the Spanish Habsburgs, with the result that the distantly related Bourbons assumed the throne. In the Austrian line the defect disappears numismatically with Joseph I (1705-11) but reappears in his brother Charles VI (1711-40). Was this an



artistic blunder or a social misdemeanour on the part of their mother Eleanora Magdalena? When the prognathism trait was so dominant for 200 years, it seems strange that it could be missing in one son but crop up in another.

Money supplies the answer to the question "Would a mandibular osteotomy have altered the history of the world?" This question, naturally, was raised by a plastic surgeon who wondered if such an operation had been available in the 16th century whether there would have been an improvement in the personality and actions of the Habsburgs.⁷ The large number of portraits and statues portraying the abnormality suggests that the family was not ashamed of the abnormality. If they had wanted to restrict the knowledge of their appearance they could have prohibited the appearance of their profiles on coinage. At that time coins frequently showed crests or religious symbols. In the Holy Roman Empire this was the custom, but periodically coins were minted showing the profile of the king and displaying the prognathism even more obviously than did portraits. If it was considered good politics to appear on the coinage, then the kings could have insisted on the use of a frontal view which would have rendered the prognathism less apparent. That this was not the case is shown by Figs. 2, 3, 10 and 11. The coin styles suggest that the Habsburgs were neither depressed by, nor ashamed of, their abnormality and, indeed, their many portraits extant imply the reverse. It seems unlikely that even



FIG. 10—Rudolph II quarter-thaler, 1612.



FIG. 11—Ferdinand II ducat, 1630.



FIG. 12—Medal of Philip II of Spain.

modern-day plastic surgery could have altered Philip II's (Fig. 12) decision to launch the Armada and thus change the balance of world power which followed its defeat.

This study shows that coin art in the depiction of disease is a reliable source for medical history. The numismatic custom of portraying pro-



FIG. 13—Medal showing family group of prognathism: Charles V, Philip II, Maximilian II and Marie.

file views of the reigning monarchs provides better evidence for the diagnosis of prognathism than the traditional poses of portraiture. The prognathism of the Habsburgs is shown to be a dominant trait (Fig. 13). The absence of the deformity in Joseph I raises the question as to who was at fault—his mint or his mother?

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Fig. 1 is reproduced from the catalogue "Man and His World, International Fine Arts Exhibition, Expo '67", Montreal, Quebec; Fig. 9 is reproduced from the *American Journal of Orthodontics*, Vol. 25, 1939.

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[Editor's note: For further comment on the Habsburg jaw see London Letter, p. 563.]

TABLE II
Consanguinity of Leopold I

