

## Early Research on Pleistocene Races in Europe: Putting Neandertal Man's Head Together

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The validity of putative associations of disarticulated hominid fossil remains has been a recurrent theme in the history of interpretations of human evolution. The debate over the supposed affinity, and the ultimate demonstration of the lack of association, of the mandible and calvarial fragments from Piltdown is the most notorious example. Simons' (1961) more recent taxonomic association of "Bramapithecus" and "Kenyapithecus" with *Ramapithecus* in another controversial example.

Perhaps the earliest case of an error of association is that of the Neandertal calvaria and the La Naulette mandible, now recognized as belonging to the same taxon, *Homo sapiens neanderthalensis*. Studies dealing with the affinities of these two specimens took place during the debate between scholars favoring darwinian natural selection as an explanatory device for morphological change through time and those anti-evolutionists who suggested that immigration was more important. A review of these studies shows that the eventual recognition that the Neandertal and La Naulette specimens belonged to the same type of fossil man was accomplished by anti-evolutionists in a context of Pleistocene racial succession in Europe. It is suggested that because of this anti-darwinian heritage the earliest elucidation of Neandertal cranial morphology was largely ignored by later workers.

The modern view of the morphology of Neandertal man was first set forth by E. T. J. Hamy in collaboration with Armand de Quatrefages in 1873 (de Quatrefages 1873). Hamy placed the Neandertal skullcap and the jaw from La Naulette in the same early European race, resulting in a "racial type" with flat skullcap and receding jaw. The actual *geological* association of a similarly flat skullcap and receding jaw was not found until 1886 at Spy in Belgium.

### The Neandertal and La Naulette Discoveries

The well-known and much discussed Neandertal remains were found in 1856 by quarrymen digging in a cave in cliffs of the Neander valley over the small Düffel River, above Düsseldorf (Fuhlrott 1857). The find consisted of a calvaria and post-cranial remains. The remains were brought to the attention of J. C. Fuhlrott, a secondary school mathematics teacher, who in turn delivered them over to Hermann Schaffhausen, an anatomist at the University of Bonn.

According to Schaffhausen, "The cranium was of unusual size, and of a long-elliptical form."

A most remarkable peculiarity is at once obvious in the extra-ordinary development of the frontal sinuses, owing to which the superciliary ridges, which coalesce completely in the middle, are rendered so prominent, that the frontal bone exhibits a considerable hollow or depression above, or rather behind them, whilst a deep depression is also formed in the situation of the root of the nose. The forehead is narrow and low . . . (trans. in Busk 1861:156).

All the remains were "characterized by their unusual thickness, and the great development of all the elevations and depressions for the attachment of muscles" (Ibid: 158).

One of the difficulties with the man from Neandertal was the question of his antiquity. It was not possible to date with assurance the remains, as they were not clearly associated with animal remains.

Such was not the case with the currently less well-known La Naulette specimen. The associated fauna at La Naulette included extinct forms and the La Naulette jaw was considered clearly Pleistocene in age (Dupont 1866). Edouard Dupont, a Belgian paleontologist, found two-thirds of a edentulous human mandible and an incomplete ulna in 1866. They were located in the floor of the cave of La Naulette on the left bank of the river Lesse, a tributary of the Maas.

Dupont submitted the La Naulette jaw to a number of "most competent" (Dupont 1866:48) scholars, among them Franz Pruner-Bey and de Quatrefages, who communicated to him the results of their examinations. The details of Dupont's description, evidently, were especially influenced by Pruner-Bey. The La Naulette jaw exhibited certain peculiarities separating it from the general run of human jaws and its morphology was somewhat reminiscent of the simian condition, but according to Pruner-Bey it was yet far removed from the simian type and well within the range of variation of the human type. Pruner-Bey compared the La Naulette jaw with ancient European jaws and with jaws from living races, and found it similar to both groups.

In 1886 Paul Topinard reviewed the La Naulette jaw's morphology (Topinard 1886). With regard to the canine teeth, Topinard believed they had not been "excessive" in either volume or length, nor projected outward much, judging from the alveoli (Topinard 1886:408). This view of the probable size and disposition of the missing La Naulette canines conflicted with the views of Pruner-Bey and Dupont. Both Pruner-Bey and Dupont had noted the absence of a chin on

the La Naulette jaw. Topinard agreed that the chin was quite receding, "compared to the average in man". However, according to Topinard, the chin was not absent but only poorly developed. "A small triangular surface . . . exists; its contours are indicated, (and) its relief is apparent" (Ibid.:415).

Pruner-Bey and Dupont had reported that the genial tubercles were not present. But, Topinard found both the upper and lower genial tubercles represented on the La Naulette jaw. The tubercles had not been seen previously because the sedimentary matrix surrounding the jaw had not been completely removed; "I am one of the first to see the jaw of La Naulette cleaned" (Ibid.:423), said Topinard. Pruner-Bey had described the genial region in terms of a 'long and wide transverse torus attached to the myloidian crest' separating 'two small fossae,' the inferior being itself 'subdivided by a small vertical bar situated on the symphysis.' Removal of the surrounding matrix showed Pruner's superior 'small fossa' contained the superior genial tubercles. According to Topinard, "The second, whose nature Pruner-Bey has misunderstood, is the two digastric fossae separated by the beak of the mental triangle (p. 425)." Finally, according to Topinard, the 'torus' separating Pruner's 'two small fossae' did not arise from the myloidian line; "contrary to Pruner-Bey's description, it rises spontaneously on the sides without attaching to any elevated area (p. 426)."

Topinard's description of the Naulette jaw is much more acceptable today than the absolutely chinless troglodyte described by Pruner-Bey and Dupont. It should be borne in mind that Topinard's reconstruction was carried out more recently than the events discussed here.

#### The Mongoloid Hypothesis Developed

The Neandertal skullcap and La Naulette jaw were much discussed, sometimes together, as being among the most primitive specimens known. But they were not clearly put into the same race until 1873. What caused the delay? The answer is bound up with Pruner-Bey's version of the Mongoloid hypothesis and with his initial interpretation of the La Naulette and Neandertal remains within the context of that hypothesis.

In the middle of the nineteenth century linguistic inquiries had shown that in Europe, in addition to the Indo-European languages which were of relatively recent importation, there existed several languages entirely different from the others. These languages were from two different groups: those spoken by Finns and Lapps of the North, and those spoken by Basques of southern Europe. It was generally believed that the aboriginal peoples who spoke these non-Indo-European languages once had occupied commonly the greater part of Europe.

The Swedish anatomist Anders Retzius sought to determine if there were morphological differences be-

tween the indigenous peoples and the Indo-European speakers. In 1842 he was able to demonstrate that the Swedes had long heads, which he called "dolichocephalic," while the Finns and Lapps had short heads, "brachycephalic." Two Basque skulls later proved to be brachycephalic, while most of the French skulls that he observed were dolichocephalic (see Retzius 1846) For these and other reasons Retzius argued that an autochthonous, brachycephalic race, which spoke languages entirely different from those of today, had preceded in Europe an invading dolichocephalic, Indo-European speaking or Aryan race. The latter group brought ancestral European languages and the use of metals into the West. Retzius' theory of 'ancient brachycephals of Europe' was widely accepted.

Marcel de Serres, geologist and paleontologist, was the originator of the 'Mongoloid hypothesis' of the racial succession of Europe. De Serres (1853) believed that he could distinguish two distinct types among ancient Europeans, one of which he called "mongoloid." Originally pure, this mongoloid type had gradually become attenuated through admixture, though traces of it could yet be found.

Pruner-Bey (1863) added the doctrine of 'ancient brachycephals' of Retzius to the 'mongoloid hypothesis' of de Serres. For some fifteen years Pruner-Bey made a number of osteological comparisons between the remains of prehistoric men and, also, living men whom he called "mongoloid," including Finns and Lapps. He found mongoloid traits in all Paleolithic skulls, which, according to him, were all brachycephalic. He believed that a mongoloid, brachycephalic population, autochthonous to Europe, was overrun by invading dolichocephalic Aryans from the East. Pruner-Bey considered the onset of the Aryan invasions, the first being Celtic, to be contemporaneous with the start of the Neolithic.

Pruner-Bey adhered to his convictions with persistence. According to de Quatrefages and Hamy (1882:136), "The conclusions he has drawn from the comparisons he had made . . . have achieved under the pen of M. Pruner a degree of certainty that is inspired. And there has resulted therefrom quite a body of very simple and very clear doctrines, very seductive because of those very qualities. But the author has unhappily sometimes forced the applications."

Pruner-Bey in 1863 had no difficulty fitting the Moulin Quignon jaw into his general scheme. The jaw was found by a workman for Boucher de Perthes in 1863 in Pleistocene deposits. Its reputed provenance is now generally believed fraudulent. No skeletal part other than the jaw had been recovered, yet Pruner-Bey judged it, "by its proportions and by the absorption of some dental alveoli," to have belonged to a short individual who was "very probably brachycephalic" (in de Quatrefages 1863:302). The jaw from Arcy-sûr-Cure, found by a workman for the

Marquis de Vibraye in 1859 in Pleistocene deposits, was also an isolated specimen. It had belonged to a short brachycephal, according to Pruner-Bey: "It is the rounded chin of a jaw that indicates an individual of short stature. The form indicates moreover that this relic scarcely could have belonged to the Celtic stock. Consequently, I class it among the brachycephals" (Ibid.:303). A third jaw, from Aurignac, found by Edouard Lartet, who considered it to be of Pleistocene age, consisted of the posterior half of a mandibular body with the three molars intact. It was also assigned to the ancient brachycephalic, pre-Aryan people. "(I) conclude first of all that brachycephalic man was the primitive inhabitant of our lands and, then, that stock is not extinct. As for the Celts, who show, apart from their high stature, a skull that is dolichocephalic, I consider them to be later than the race mentioned above (Ibid.:303)." The dolichocephalic Neandertal skull showed "the *Celtic type* perfectly," according to Pruner-Bey. By reason of its obvious peculiarities, it was "probably" that of an idiotic Celt (Ibid.:305). In order to place the Neandertal skull among the Celts its great antiquity had to be denied; "Neandertal can date just as well from 1,000 as from 5,000 years. We have no positive means to estimate the date of its origination . . ." (Ibid.: 305).

Later in 1863 Pruner-Bey defended his view that the Moulin Quignon, Arcy and Aurignac jaws necessarily had belonged to brachycephalic skulls. Comparing a lower jaw of a brachycephalic skull from the Iron Age to the Moulin Quignon jaw, he said, "The first corresponds in all points to the second with the exception of the coronoid process" (Pruner-Bey 1863:323). In contrast Pruner-Bey compared a jaw belonging to a dolichocephalic Celt, noting "the difference of the lower jaw of the ancient brachycephalic type . . . (W)e notice in general that that of the Celt is triangular; that of the brachycephal is parabolic. The first shows a square and pointed chin; on the second it is rounded. The ascending rami are wide and thick in the Celt; the contrary is found in the brachycephal. Thus, we can distinguish, at least these two races, by just a fragment of the lower jaw" (Ibid.: 323).

Pruner-Bey had many followers, among them Dupont and de Quatrefages. In dealing with the Neandertal skull, de Quatrefages (1867:258) spoke of "its eminently Celtic character (Pruner-Bey), which seems demonstrated to me." Of the jaws from Arcy and Aurignac, de Quatrefages (Ibid.: 258-259) said, "M. Pruner-Bey, by virtue of his minute researches on the harmonies of interrelationship of skull and face, has sustained his original estimations." Generally de Quatrefages (Ibid.: 261) supported the "so remarkable" views of Pruner-Bey.

Further discoveries provided more fossil evidence for Pruner-Bey's mongoloid hypothesis. In 1865 Dupont found in Frontal Cave, at Furfooz on the river Lesse, skulls and skull fragments belonging to about

sixteen individuals. The associated fauna included reindeer and thus Dupont (1872:195) assigned the deposits to the Upper Paleolithic. Because of their generally presumed Upper Paleolithic age, the Frontal remains became important in substantiating the mongoloid hypothesis of Pruner-Bey. Unlike Arcy, Aurignac and Moulin Quignon, sufficient numbers of cranial fragments were recovered to enable the cephalic indices of the Furfooz people to be directly determined. They had been brachycephalic to mesocephalic and, therefore, formed a support for the theory of 'ancient brachycephals of Europe.'

In his original announcement of the La Naulette jaw, Dupont (1866) found significant similarities with the Arcy jaw, especially in the vertical mental region and "width and form" of the mandible (p. 50). The internal mandibular torus, however, was more pronounced on the La Naulette specimen. In addition to the Arcy jaw, one of the jaws from the supposedly Upper Paleolithic or Reindeer Age Frontal Cave, mandible No. 6, was cited as being comparable to, although deriving from a younger individual, the La Naulette mandible (Dupont 1866). The jaws of Naulette, Arcy and Frontal, then, were intimately related, according to Dupont.

The Frontal jaw was found in association with well preserved skulls which "one cannot not confuse, as Mr. Pruner-Bey has so well demonstrated, with those of an Aryan race in which all contours are oval. The angular contours of the skulls found at Furfooz and the lozenge-shaped face, class them evidently among the . . . Mongol races . . ." (Dupont 1867:93)." Dupont likened the Furfooz people, and by implication those of La Naulette and Arcy, to peoples both living and ancient called "mongoloid" by Pruner-Bey. Dupont thus accepted the results of the study made by Pruner-Bey, and considered this race to be of relatively small stature and lightly brachycephalic.

In 1866 Pruner-Bey discussed the race to which the La Naulette jaw had belonged. He found it similar to the Arcy jaw, as had Dupont (1866), except that Arcy possessed a "triangular" chin, the genial tubercles were "weakly indicated" and the prognathism is "considerably diminished." However, he continues, "everything else in these two jaws corresponds, and, judging by the spacing of the horizontal rami and by their lack of length ... (Arcy) must have belonged to a small and brachycephalic skull" (Pruner-Bey 1866:591-592). According to Pruner-Bey, the La Naulette jaw belonged to the "paleontological and prehistoric brachycephalic race."

Pruner-Bey (1866) cited the Frontal Cave mandibles and associated brachycephalic crania as supportive of this hypothesis. In this manner, the La Naulette mandible became associated with brachycephaly in the context of the mongoloid hypothesis as originally proposed by de Serres (1853).

### Brachycephaly and/or Dolichocephaly in Pleistocene Europe?

In 1867 Pruner-Bey reiterated his view that the La Naulette, Arcy and Aurignac jaws represented the earliest known men of Pleistocene Europe; the Frontal remains derived from the Reindeer Age, somewhat later in time. All these Paleolithic fossil remains were those of brachycephals. To the earlier group he now added the remains known as Bruniquel No. 1 from the Blacksmith's Grotto (Pruner-Bey, 1868a). The Blacksmith's Grotto had yielded in 1863 fragments of two badly damaged lower jaws and a postmortally deformed skull. It was impossible to determine the cephalic index of this cranium with precision, but Pruner-Bey noted that the foramen magnum was displaced posteriorly, that the glenoid fossae were widely separated and that the zygomatic processes of the temporals showed an "eccentric direction." For these reasons he concluded that, "this skull must have been brachycephalic originally" (Ibid.: 353).

Blacksmith's Grotto mandible was reminiscent of the La Naulette jaw with respect to its thickness, lack of mental eminence and relative size of the molars, the second molar being "at least equal to the first in size" (Ibid.: 352).

Pruner-Bey referred to the Reindeer Age Frontal skull as "mongoloid," because of similarities to modern day Lapps, "men for whom the reindeer is both prey and companion" (1868a:347). By implication all European Pleistocene remains were those of brachycephalic mongoloids, who had been overrun though not extinguished by dolichocephalic Aryans at the start of the Neolithic.

The views of Pruner-Bey (1863, 1866, 1868a), Dupont (1866) and de Serres (1853) were challenged by Paul Broca. Broca (1868a:374) opposed "that preconceived idea that all that is not brachycephalic must descend from Indo-European conquerors." Broca emphasized that Retzius (1846) had developed his ideas on the succession of races in Europe before the great antiquity of man had been appreciated, i.e. before the existence of fossil man had been generally accepted. Within a framework of three technological ages (Stone, Bronze and Iron), Retzius had maintained that dolichocephalic Aryans had invaded and displaced indigenous brachycephalic peoples at the same time that metal had come into use. Notwithstanding attempts primarily by Pruner-Bey (op. cit.), Broca (1868a) did not consider that evidence favored this hypothesis. Once the antiquity of man was appreciated, it was no longer plausible to dismiss summarily human remains, particularly dolichocephalic crania, from Pleistocene deposits as later interments. Said Broca. "the discovery of fossil man rendered improbable the ethnogenic theory of Retzius, but it did not render it impossible" (Ibid.:373).

Broca (1868a) suggested that the test of Retzius' theory was simply whether or not any dolichocephalic

skulls in western Europe could be dated to before the time of the Aryan invasion, i.e. before the introduction of metals. Broca had come to believe that dolichocephalic skulls were as prevalent or even more prevalent than brachycephalic skulls in the Stone Age. During the polished stone period, especially, dolichocephalic skulls were altogether predominant, at least in France. Pruner-Bey (1868a and b) had modified Retzius' (1842) theory to account for the existence of dolichocephalic skulls in the polished stone period by calculating the onset of the Aryan invasions to coincide with the transition from the period of worked stone to that of polished stone, i.e. from the Paleolithic to the Neolithic. That transition was by then believed more-or-less coincident with the end of the Pleistocene, and thus the question became whether or not any fossil men were dolichocephalic. Broca concluded, "(I)t is clear in any case that the beginning of the epoch of polished stone is the final limit to which it may be reasonably possible to place the Aryan migrations." (Broca 1868a: 382-383).

According to Broca, Pruner-Bey had argued his case, first by rejecting a Pleistocene age for any dolichocephalic skull and, second by multiplying the candidates for Pleistocene brachycephals. The latter he had accomplished largely by arguing from small scraps of the jaw to the cephalic index. "His procedure is very simple . . . (M)y skillful colleague . . . has erected brachycephalic skulls from incomplete skulls whose cephalic index cannot be estimated and even from skulls of which there remain only minimal fragments." Broca admitted there was evidence for brachycephalic peoples during the Pleistocene, such as at Furfooz. "And I think we will discover more . . . But, it does not result at all that the brachycephalic type was wide-spread at that time . . ." (Ibid.:384). Broca noted that wide jaws can belong to dolichocephalic and narrow jaws to brachycephalic skullcaps.

With regard to the antiquity of the man from Neandertal, Broca said there was no evidence from the Neandertal site to support the contention that the remains were those of a Celtic burial. "And if I ask what in that supposed sepulture characterizes the Celtic epoch, I am told that the skull is dolichocephalic. That is to say, the question is always resolved by the question" (Ibid.:388). Broca believed the Neandertal and Eguisheim skulls closely resembled each other in possessing a "depression of the base of the frontal and the enormous projection of the superciliary arches." The Eguisheim skull was found by workmen digging a beer cellar in Alsace-Lorraine in 1865 (Faudel 1867). There was no doubt, said Broca, that the individual who had owned the dolichocephalic Eguisheim skull lived contemporaneously with the mammoth.<sup>2</sup> Other dolichocephalic skulls, e.g. the skull from Engis, were also derived from Pleistocene deposits. Broca (1868a) thus concluded that both brachycephalic and dolichocephalic peoples had lived in Europe during

the Pleistocene. However, the known dolichocephals dated from the older and “probably very much longer” (Ibid.:392) Age of the Mammoth, while the known brachycephals dated from the Age of the Reindeer, according to Broca.

It is of interest to note that Broca referred to the La Naulette jaw as a “contemporary of the mammoth” (Ibid.: 396), which would place it chronologically more-or-less contemporaneous with the dolichocephalic skulls from Eguisheim and “very probably” (p. 392) Neandertal. Why, then, did Broca (1868a) not anticipate Hamy (in de Quatrefages 1973) relating the La Naulette mandible with the Neandertal skullcap? There are at least two reasons why he could not have taken that position. First, in the early 1860’s he had argued in favor of Retzius’ theory of ‘ancient brachycephals’ primarily on the basis of negative evidence. By 1863 new evidence had forced him to recognize the antiquity of dolichocephaly in western Europe. “I have been one of the first, maybe the first, to uphold the multiplicity and the diversity of prehistoric races (p. 375).” Could he, then, in 1867 argue that dolichocephals had preceded *all* brachycephals, again on negative evidence? And if there might have been brachycephals in addition to dolichocephals in Europe contemporaneous with the mammoth, might not the La Naulette mandible have belonged to one of the brachycephals? A second reason for not associating the La Naulette jaw with a dolichocephalic Neandertal or Eguisheim skullcap is that, to having attacked Pruner-Bey for concluding from the shape of the jaw to the cephalic index, could Broca, then, have done the same? It remained for Hamy later to associate the La Naulette jaw with the Neandertal skullcap, following an independent line of evidence.

#### Cro-Magnon: The Mongoloid Hypothesis Undone

The Cro-Magnon remains were found in 1868 by workmen digging into the base of a cliff close to the right bank of the Vézère River, a tributary of the Dordogne, near Perigord. The remains belonged to at least five individuals with an associated Pleistocene fauna. Louis Lartet, Edouard’s son, described the circumstances of the discovery. The morphology of the Cro-Magnon remains was discussed by Pruner-Bey (1868b) and Broca (1865-75), both of whom studied them extensively at the request of L. Lartet.

Pruner-Bey fit the Cro-Magnon remains into his general scheme. He accepted them as dating back to Pleistocene times; therefore, they had to be mongoloid, in Pruner-Bey’s view. “The Mongoloid character of the bony faces is certain (1868b:153).” The ‘Old Man’s’ skull, however, was clearly dolichocephalic. Therefore, Pruner-Bey was compelled to search for dolichocephaly among the Mongoloids of today. Pruner found two Estonian skulls which proved to be dolichocephalic. This fact demonstrated that dolichocephaly occurred among people whom

Pruner-Bey called “Mongoloid.” “(F)urthermore, the physiognomy of these Estonian skulls agrees in its characteristic traits with that of our Troglodyte” (Ibid.:153).

At Solutré the remains of a number of individuals were unearthed beginning in 1867 and they were deemed Pleistocene in age. Among the Solutré remains Pruner-Bey (1868b) found skulls comparable to those of Lapps, Finns, the ‘Old Man’s’ skull from Cro-Magnon, Eskimos of the Bering Straits and a modern Estonian. This indicated strongly that the Cro-Magnon and Solutré remains were “mongoloid.”

Further studies by Pruner-Bey (1865-75) of Pleistocene human fossils revealed two series of mongoloids, one resembling the Finns and the other resembling the Lapps. The Cro-Magnon remains, however, did not closely resemble either group. Pruner-Bey (1865-76:88) suggested that Cro-Magnon represented a “new” group of mongoloids in the Pleistocene, a group allied to the later Reindeer Age “mongoloids” and to modern Estonians.

Finally, as added proof for Cro-Magnon’s mongoloid affinities, Pruner-Bey concluded from the shape of the “peculiar palate, low and extending forwards” in the Cro-Magnon that the language spoken by their owners had “a weak phonology, and sweet at times; and such are the Finnish idioms” (Ibid.:91).

Broca (1865-76) attacked the now modified mongoloid hypothesis of Pruner-Bey. Pruner-Bey had approached the Cro-Magnon materials with his old preconceptions intact. Broca considered that the existence of dolichocephalic crania contemporary with mammoth remains disproved the mongoloid hypothesis. As he pointed out, “M. Pruner-Bey endeavors to prove that, if the Cro-Magnon people were not brachycephalic, they were at least mongoloid; and as it would seem singular and contrary to all expectations that a race of the mongoloid type would be at the same time highly dolichocephalic, he has been led to weaken this contradiction by referring the Cro-Magnon race to the modern Estonians . . .” (Broca 1965-76:121-22). Broca denied any specific affinities between Cro-Magnon and Estonians. He instead thought that the contemporaneous presence of the chinless, wide La Naulette mandible and the more modern-appearing Cro-Magnon mandible indicated the presence of more than one race in Pleistocene Europe.

Broca’s argument gained an influential convert in de Quatrefages, who felt the “well-marked dolichocephalism” (in Broca 1968b:410) of the Cro-Magnon skulls provided the first good evidence for the existence of dolichocephals in the Pleistocene.

“I am one of those who . . . have thought it very probable that Western Europe was peopled at first by a small and brachycephalic race . . . I supposed it possible that populations existed in Europe presenting the two cephalic types; but I did not think that any fact authorized us to suppose that the brachycephalic (sic)

type had at so early an epoch reached Western Europe . . . (It is evident that my opinion must be changed" (de Quatrefages 1865-75:123).

Pleistocene Europe had been inhabited by two distinct races, one dolichocephalic and the other brachycephalic, according now to de Quatrefages.

#### Two Dolichocephalic Races in Pleistocene Europe

The wide acceptance of a Pleistocene age for the dolichocephalic Cro-Magnon people and a lack of acceptance of Cro-Magnon's supposed Estonian (mongoloid) characteristics, put an end to Pruner-Bey's contention that all Pleistocene peoples of Europe were brachycephalic mongoloids. If, then, there were one dolichocephalic race firmly established in the Pleistocene, i.e. Cro-Magnon, might there not have been another, namely that of Neandertal? Broca had argued for a Pleistocene Neandertal race. Hamy, a student of Broca, followed suit in his *Précis de paléontologie humaine* (1870).

Hamy described in detail a number of remains he believed to be of Pleistocene age. Pruner-Bey's attribution of the La Naulette jaw to a brachycephalic race was retained, but, his view that brachycephals had preceded dolichocephals in Europe was rejected by Hamy, who wrote of "the sad necessity of recognizing that . . . Pruner-Bey has committed a great ethnological error" (Ibid.:131).

Hamy divided the Pleistocene into four periods. The first was the Age of the Mammoth and Cave Bear. Between it and the Reindeer Age was a Period of Transition. The succeeding Reindeer Age was divided into a first and a second part. The Arcy, La Naulette, Neandertal and Eguisheim remains all came from the Mammoth Age. The Aurignac and Cro-Magnon fossils came from the time of Transition. Bruniquel and Solutré were from the first part of the Reindeer Age and the Furfooz remains from the second part, according to Hamy.

Hamy (1870) accepted the Neandertal remains as deriving from the Age of the Mammoth, and allied with these the Eguisheim cranium, the Olmo cranium discovered in Tuscany in 1863 (Cocchi 1867), and the Clichy fragmentary skull found in Paris (Bertrand 1868). These specimens formed the core of Hamy's early European race, characterized by dolichocephaly, projecting browridges and a flattish forehead region. The Olmo cranium had less pronounced browridges and Hamy considered it to have belonged to a female of this race. Hamy (1870:206) concluded that "a dolichocephalic race, the anatomical study of which is yet quite imperfect has . . . *exclusively* peopled the valley of the Rhine . . . in the Age of the Mammoth."

A second "brachycephalic" race seemed to appear at the end of the Age of the Mammoth, according to Hamy (1870). This interpretation was prompted by the discovery, at a higher stratigraphic level at Clichy, of cranial fragments and mandibles of a "highly

brachycephalic" race, cited as corresponding to Pruner-Bey's "mongoloid group." To this group was assigned the La Naulette and Arcy mandibles.

A third, completely different, "powerful" race appeared in western Europe during the Transition between the Mammoth and Reindeer Ages. It included remains from Cro-Magnon, Engis and Grenelle, the latter located along the Seine in the west sector of Paris. "The bones discovered by M. Em. Martin are of a third race, dolichocephalic and of great height like the first, but the skull is voluminous." The remains from Aurignac were assigned to the Cro-Magnon race although Hamy (1870:261) suggested that some admixture with the earlier brachycephalic race may have existed. A skull from Bruniquel was considered a female specimen of the Cro-Magnon, but similarly, other remains from "the curious station" of Bruniquel might properly be attributed, Hamy (1870) thought, to the race of Clichy, La Naulette and Arcy (p. 334).

It is of great interest that Hamy (1870) does not appear to have appreciated the proper relationship of the La Naulette jaw and the Neanderthal skullcap in 1870. But he did point out the similarities in form of both these specimens and modern aboriginal Australians, which were to be of importance later.

De Quatrefages (1871), reviewing Hamy's *Précis*, made several concessions towards the views first laid down by Broca and then pursued by Hamy. But de Quatrefages continued to adhere to certain of Pruner-Bey's ideas that Hamy had rejected. De Quatrefages agreed with Hamy that the Eguisheim and lower level Clichy remains demonstrated the great antiquity of Neandertal's peculiarities. There had been, in fact a dolichocephalic race of tall stature "*since the first days of the Mammoth Age.*" "That race . . . would have been characterized by a forehead both flat and narrow, by a laterally compressed face" (de Quatrefages, 1871:207-08).

De Quatrefages also agreed with the appearance of a third dolichocephalic, more modern-appearing, race during the "Period of Transition," as exemplified by the Cro-Magnon and Grenelle finds. However, de Quatrefages continued to consider the La Naulette and Moulin Quignon mandibles as Mammoth Age specimens belonging to brachycephals ("mongoloids" of Pruner-Bey). He also considered the Frontal Cave specimens as later representatives of this same race.

Two other discoveries of ancient dolichocephalic skulls were to play an important role in the determination of Neandertal morphology: Cannstatt and Brück. The provenance of the Cannstatt skull is obscure. In 1835 the paleontologist G.F. von Jäger found, in the collection of the princes of Württemberg, among bones from Cannstatt of supposedly Pleistocene age, a human skull consisting of the frontal and a part of the right parietal (von Jäger, 1839). At Brück (now Most) on the Běla River in Bohemia cranial fragments and post-cranial remains were found in 1871. The Brück

skull fragments were early identified as Neandertal-like; the site was considered Pleistocene.

Hamy (1872) specifically discussed the Neandertal, Eguisheim, Brûx and Cannstatt remains as belonging to individuals of the same race, all of them dating from the Age of the Mammoth. In respect to classification he said, "I will adopt willingly, modifying it a little, the theory of Mr. Huxley, who classified this primitive race of Europe with certain races now living in Australia." (in Schaaffhausen 1873:548).

#### The Race of Cannstatt

De Quatrefages announced the first part of his and Hamy's monumental *Crania Ethnica* in the spring of 1873. So extensive was the work that it was not ready in its entirety for publication until 1882. In this first part the race of Cannstatt was described in great detail. The ideas that were "specified" in the *Crania Ethnica* in "the order in which they had to be presented" and in "the conclusions" were common to both de Quatrefages and Hamy. But the burden of the execution of that work fell to the younger Hamy, said de Quatrefages (Quatrefages and Hamy 1882:viii).

De Quatrefages spoke for himself and Hamy of "the race of Cannstatt, of which the famous Neandertal skull would seem to be . . . the exaggerated type." "The essential characteristics of the race of Cannstatt are, especially in the men, a remarkable flatness of the cranial vault coinciding with a very pronounced dolichocephaly, the projection backwards of the posterior region of the skull, the sometimes enormous development of the frontal sinuses and the very oblique direction of the frontal, (and) the depression of the parietals in their postero-internal third" (de Quatrefages 1873:1315). Other supposed male specimens included the Eguisheim and Brûx skulls. The characteristics of the Cannstatt race were less expressed in females, represented by skullcaps from Olmo and Clichy. De Quatrefages characterized the race of Cannstatt as "dolichoplatycephalic." The mandibles of La Naulette, Arcy and Clichy, (lower level) were, for the first time, attributed to the same race, adding to dolichoplatycephaly a receding chin.

The remains attributed to the race of Cannstatt "were fragmentary, especially in the face region." Because the Gibraltar skullcap found in 1848 in Forbes' Quarry resembled the Brûx and Neandertal skullcaps, de Quatrefages believed the morphology of the face of the Gibraltar skullcaps, would fill the void. The Gibraltar face was large and massive. The orbits were "remarkably large," and the nasal cavities were "very overt." The maxilla was "very prognathous," said de Quatrefages. "This whole ensemble concords quite well with what the isolated cranial vault implies" (p. 1316).

De Quatrefages and Hamy (de Quatrefages 1873) were "profoundly convinced" that fossil races were continuous with modern races. This belief opened the

way for comparison with modern skeletal material.

A major problem to be overcome in assigning the La Naulette mandible, and others, to the dolichocephalic race was the relatively great and receding chin of the former. The Neandertal skull had been compared to a dolichocephalic Australian skull from Port Western, Victoria by Huxley (1863). De Quatrefages and Hamy (Ibid:39) also noted the similarities in cranial morphology between these two specimens, and also with a third (Australian) skull, whose facial morphology resembled the Gibraltar skull. The modern mandibles associated with these crania possessed marked similarities with those of La Naulette, such as a reduced chin. The demonstration that such a mandible could be associated with a "dolichocephalic" cranium in modern man, removed the problem with such an association in fossil man.

#### Racial Succession in Pleistocene Europe.

The determination of the race of Cannstatt and the attributions of skulls and jaws to it in the *Crania Ethnica* was, essentially, an achievement of Hamy. In the give-and-take of ideas de Quatrefages had altered his views much the more. Hamy in the *Precis* in 1870 had argued for the precedence of dolichocephaly in the Pleistocene. In the *Crania Ethnica*, published in 1882, de Quatrefages had come to accept the precedence of the dolichocephalic Cannstatt race, including Neandertal, with brachycephals appearing considerably later in the Pleistocene.

De Quatrefages in 1867 had believed brachycephals were more ancient in western Europe than dolichocephals. Later, in 1871 he modified his views to include both brachycephals and dolichocephals in western Europe from the beginning of the Pleistocene. His conversion to the view that dolichocephals had preceded brachycephals derived from Hamy's views in 1874 on the Grenelle site, the stratigraphy of which is now generally deemed indeterminable.

According to de Quatrefages (1879), speaking for himself and Hamy, the world had been the scene of countless migrations of mankind. "With every increase and extension of knowledge we learn to appreciate better the wandering instincts of man. Human palaeontology and prehistoric archaeology are daily adding their testimony to that of the historic sciences" (pp. 179-80). Migration and intermixture constitute the mechanism in terms of the consequences of which present-day racial configurations must be understood. Characteristics of races now lost occur by atavism in peoples today. It was in the context of racial migrations and intermixtures, arguing from present types backwards, that human remains from the Pleistocene were to be considered.

Neandertal and Naulette: Why Not the Evolutionists?

The Neandertal and La Naulette remains were *not* placed in the same race in the context of argument on

the question of human evolution. Because, since the beginning of the twentieth century, Neandertal Man has generally been considered in an evolutionary context, usually considered either a stage in or a side-line of the evolution of modern man, we might be inclined to assume that the Neandertal and Naulette remains were originally associated in an evolutionary context. However, the Neandertal skullcap and the Naulette jaw were, in fact, first associated as belonging to individuals of the same race in the context of the question of the morphology of Pleistocene races in western Europe.

Evolutionists did not make the association of Neandertal and Naulette, because most of them were, essentially, not interested in doing so. Ardent evolutionists were more interested in championing the cause of evolution than in determining the morphology of Pleistocene races of Europe *per se*. Evolutionists were primarily concerned with demonstrating a string of increasingly inferior fossil specimens leading into the past.

In Germany Ludwig Büchner in 1894 came close to associating Neandertal and La Naulette, but he did not explicitly do so. After describing the La Naulette jaw, he concluded, "All these characters in conjunction with the general aspects of the bone indicate that it is a human lower jaw of very animal formation, and especially that it is the most ape-like jaw hitherto discovered. The lower jaw of La Naulette is, however, no more a peculiar and isolated bone of its kind, than the Neandertal skull in its way, but it is supported in its evidence by a complete series of similar or allied bones" (1894:38). He listed a series of human jaws that tended toward the La Naulette condition; they included Moulin Quignon, Arcy and Frontal. He also listed a series of skulls tending toward the Neandertal condition; they included Engis and Cannstatt. Of these remains Büchner stated that the "difficulty of preservation, and the small number of very ancient human remains render it all the more significant that these remains almost without exception bear upon them the evident signs of an inferior conformation, and that among them there are some which exceed in their animality of character the lowest and most animal of existing races of men . . .!" (p. 149). Büchner does not appear to have been especially motivated to attribute the cranium and the jaw to the same race. His primary motive was to popularize the idea of human evolution. To that end it was enough to point out characters of inferiority leading to the ape.

In England Huxley (1863) was the first to make systematic comparisons between the Neandertal cranium and crania of modern Australians. Hamy was inspired to make similar comparisons of his own, and in the process he associated Neandertal and La Naulette. Huxley, himself, did not associate them; indeed, he expressed disinterest in the exact race to which the man from Neandertal had belonged as well

as in the question of whether Neandertal Man himself was a direct ancestor of modern Europeans or an extinct side-line. Huxley's apparent goal was to make as strong a case as possible out of Neandertal for human evolution. In so doing he avoided ancillary issues.

It was the French, for the most part, who were concerned with the racial succession in ancient Europe. In the context of this interest Pruner-Bey first explicitly dissociated Neandertal and Naulette by attributing them to two different races; and Hamy six years later explicitly associated them. Not one of the influential French scholars was an avowed evolutionist. Both Pruner-Bey and de Quatrefages were outspokenly anti-evolution, and Hamy appears to have ignored the question of evolution, at least publicly. Indeed, evolution had few adherents in France until later in the century. It was, then, in a milieu of apathy, even antipathy, towards the idea of human evolution that the Neandertal and Naulette remains were associated.

It is likely that evolutionists were thinking in terms of a simian species in the human past, not unlike the Neandertal type, with a low and robust cranium and a receding, ape-like jaw. But Neandertal Man was clearly human, because of his large cranial capacity, and, therefore, a primitive race, not species. As only a primitive race, Neandertal provided no support or argument for the idea of human evolution. The notion of human evolution implied a series of more primitive species in the past leading down to the apes. As only a "brutish" race, Neandertal Man fitted no better into the conceptual framework of evolutionists than into that of anti-evolutionists, because both camps expected "brutal" races to have existed in man's uncivilized past. Therefore, the association of the Neandertal skullcap and the Naulette jaw in the same race could provide no argument for the Darwinists *vis-à-vis* their opponents.

In the twentieth century, Neandertal Man has generally been considered in an evolutionary context. It seems ironic today that the type of the first discovered fossil man should have been determined in a milieu of general anti-evolutionism. But it was almost necessary that an anti-evolutionist or, at least, an anthropologist whose explanatory device for human morphological change was migrations and intermixture of types, make this association.

Anti-evolutionists, e.g. de Quatrefages, were quick to charge evolutionists with seeking to invest Neandertal with proof for evolution. Quatrefages, after noting the strictly human nature of the Neandertal remains, said in 1879 of them that, "Some anatomists wished . . . to consider this specimen as a special *species* . . . It was especially considered as intermediate between man and apes, and here and there traces may still be found of these opinions" (p. 302). But the efforts of the Darwinists were in vain, according to Quatrefages.



After careful research, he said, the Neandertal skull was revealed as strictly that of an individual belonging to an ancient race of the human species, whose bestial characters "were merely exaggerated in his case" (p. 303).

Quatrefages' charges indicate that the Darwinist position, a minority viewpoint until later in the century, was under careful scrutiny by opponents. In this milieu associating Neandertal and Naulette in the same race, and, especially, a separate species with simian characteristics would probably have brought more charges of contrivance from the anti-evolutionary camp. And it was not necessary for their purposes for the evolutionists to explicitly associate Neandertal and Naulette in the same race; their fundamental goal was achieved by just noting the similar characters of these two primitive bone pieces from the ancient past. It was left, then, to the anti-evolutionists, concerned as many were with the question of racial succession in ancient Europe, to explicitly associate the remains from Neandertal and La Naulette in the same race, thus determining for the first time the morphological type of Neandertal Man.

#### Notes

<sup>1</sup>This article appears posthumously. Stephen Holtzman, a Berkeley Ph.D. in anthropology in 1970, died at the age of 38 in December, 1975. He had taught anthropology at Brandeis University and had served as Assistant Professor of Anthropology at Northern Illinois State University. The departmental reading room at the latter institution bears his name. His obituary was published in the *American Journal of Physical Anthropology*, v. 45:349. Portions of this article are revised from Holtzman's doctoral thesis.

<sup>2</sup>According to the *Catalogue of Fossil Hominids, Part II* (1971:108), the remains from Eguisheim "remain undated"—Ed.

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