

European Anatomists and Indigenous Australian Bodily Remains, c. 1788–1820

The first thirty or so years of colonial occupation stimulated curiosity in European intellectual circles about Australia's Indigenous peoples, and not only about their lifeways and culture. European anatomists were keen to examine and compare their skulls and other bodily structures with those of people from other parts of the world, in the hope of gaining new insights into the nature and causes of variations among humankind. My concern in this chapter is to show what these medico-scientific authorities made of the remains of Indigenous Australians that they acquired. Particular attention is paid to how the cranial morphology of Australia's first peoples was interpreted by two of the most influential comparative anatomists at the turn of the nineteenth century: John Hunter and Johann Friedrich Blumenbach. Both men believed that the bodily form of Australians and other indigenous peoples strikingly demonstrated the susceptibility of humankind to environmentally induced 'degeneration' from one original ancestral form into distinctive, geographically peculiar varietal types. As we will see, the two anatomists similarly hypothesised that this degenerative branching of humankind was the product of agonistic struggles the human bodily economy between an immaterial vital force sustaining life, and environmental forces, the outcomes of which significantly affected the growth of bone and soft tissue structures.

My concern in this chapter is also to document how Hunter, Blumenbach and other anatomists of the time came to possess Australian skulls. Here, attention is drawn to the key role played in their acquisition

by Sir Joseph Banks (1743–1820) Britain's most influential patron of science in the late eighteenth and early years of the nineteenth century. I also draw attention to anatomical collecting having occurred in the aftermath of violent encounters between European and Indigenous men from the first years of British colonisation of Australia.

THE HUNTERIAN PORTRAIT

Many fine portraits hang in England's Royal College of Surgeons yet one painting has had pride of place since the college was founded at the turn of the nineteenth century. It is the portrait of John Hunter by Joshua Reynolds (1723–1792) (Fig. 2.1).

Hunter was one of eighteenth century London's most successful surgeons and private anatomy teachers. His patients included many influential and wealthy members of Britain's aristocracy, landed gentry and commercial elite. His diagnostic and operational skills were greatly admired, but he was liked by few of his peers. Partly it was his ancestry. He was the son of a Scottish lowland yeoman farmer. There were also rumours that, like his countryman the philosopher and historian David Hume (1711–1776), he was a sceptic and agnostic as to the truth or otherwise of Christianity. But the main reason he was disliked seems to have been his quickness to anger and refusal to be tactfully oblique, as a true gentleman was expected to be, when discussing money. By his early sixties, Hunter suffered from arteriosclerosis, and when he suffered a fatal stroke in 1793, it was commonly believed that it had occurred after his heatedly disputing the distribution of student fees with embarrassed fellow surgeons at London's St George's Hospital (Qvist 1981, pp. 193–194).

Even so, Hunter's peers could not deny his surgical expertise, nor the value of how he spent his time when not attending to patients or teaching in comparative anatomical research. Hunter was fascinated by how life was sustained and reproduced within Earth's myriad kinds of animals and plants. Few individual scientists then or since have matched the scale and diversity of his collecting and examination of comparative anatomical specimens. So avid a collector was he that contemporaries were unsurprised by rumours that he had risked the financial security of his family several times to put together what, when he died, was a collection of over 13,600 physiological, pathological and natural history specimens (Dobson 1969, p. 190).

A decade after Hunter's death, memories of his ill-governed temper and possible religious infidelity were eclipsed by England's College of Surgeons representing him as the founder of scientific surgery and

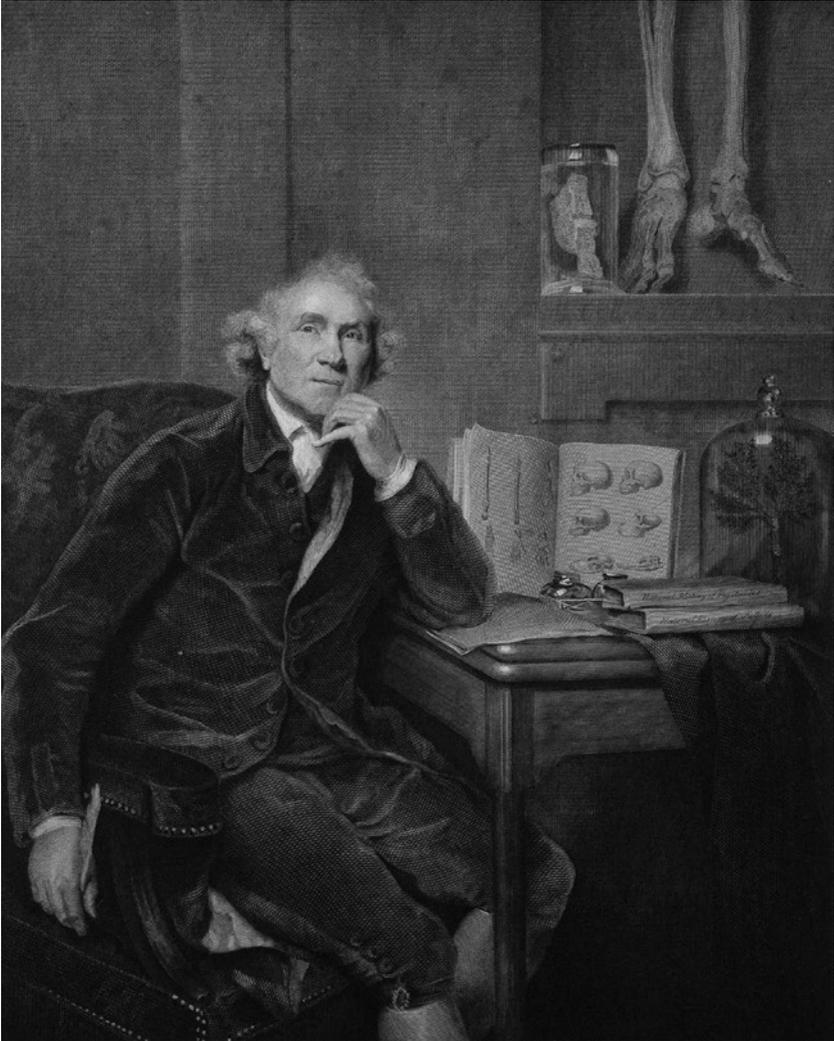


Fig. 2.1 John Hunter. Line engraving by W. Sharp, 1788, after Sir J. Reynolds, 1786, Wellcome Library, London

a pioneer of comparative anatomical research. This apotheosis was achieved in large part by the astute uses to which the leading surgeons who founded the college put Hunter's unparalleled collections of

specimens when establishing themselves by Royal charter as the sole professional body governing the practice of the 'science and art' of surgery in England. In 1799 they persuaded parliament to purchase and give them perpetual care of Hunter's collections, which were valued at the remarkable sum of £15,000 (Rupke 1994, p. 15).

The leadership of the college envisaged these specimens forming the nucleus of Europe's most comprehensive repository of medical and natural history specimens. They pledged, moreover, that each year a college fellow would deliver two courses of public lectures on comparative anatomy illustrated by Hunter's specimens. In 1813 the college also inaugurated an oration to be given each year by a distinguished fellow celebrating Hunter and other eminent contributors' advances in comparative anatomy, physiology and surgery.

Hunter and his specimens were pressed into the service of the professional and intellectual ambitions of England's predominantly Anglican and politically conservative medico-surgical elite (see Desmond 1989). Shorn of his complexities as a man and scientist, he was now represented as personifying the college's communal self-image as a select company of gentlemen devoted to understanding with due humility the divinely originating processes sustaining and reproducing living organisms.

Reynolds's portrait was to play a key part in Hunter's refashioning as a foundational icon. Acquired by the college in 1817, the portrait was hung above the president's chair in the College Council's chamber (Graves et al. 1899, p. 498; Taylor 1993, p. 3). Here, counsellors met to decide who among the growing number of medically-trained young men would be licensed to pursue surgical careers in England and its expanding overseas possessions. Looking at the painting today, one is struck that, unlike many of Reynolds's subjects, the surgeon is painted in informal dress. He sits turned from his writing table, pen still in hand, lost in thought. One can imagine him mentally preparing one of his admired clinical demonstrations, or captured at the precise moment of being struck by new insight into the workings of animate nature. But there is a nice ambiguity here. Hunter we know to have been a resolute empiricist, who regarded religion or abstract metaphysical speculation as having no place in investigation of the natural world. Yet so oblivious to his surroundings does Reynolds's Hunter seem that one could think him awed by the divine perfection of animate nature.

Fig. 2.2 Detail of John Hunter. Line engraving by W. Sharp, 1788, after Sir J. Reynolds, 1786, Wellcome Library, London



His unpowered hair and plain dress is similarly open to interpretation. We can see him as a man dedicated to the pursuit of knowledge with neither time nor concern for fashion or social trivia; however, we can also imagine that such informality of appearance was seen by the leadership of the College of Surgeons as exemplifying the dislike of frippery and sensible conservatism on questions of religion and politics of a true English gentleman (see Langford 1991).

Within the context of this study, Reynold's portrait is noteworthy in one further respect. This is the presence in the painting of an Australian Indigenous skull (Fig. 2.2).

Joshua Reynolds attended dissections of animal and human corpses by both Hunter and his brother, the surgeon and obstetrician William Hunter (1718–1783). He did so to gain deeper understanding of the anatomy and physiology of emotion; but he also shared the surgeons' fascination with the form and function of bodily structures in men and animals. In his dissections, John Hunter frequently made a point of showing onlookers how bodily structures that performed the same function in different types of animal could be arranged into what he called 'descending series' (Abernethy 1817, p. 85). He believed that soft tissue and bone structures were commonly, though not exclusively, most complex in humankind and other primates, and became progressively less so within other mammals, reptiles and fish.

Reynolds was taken with the idea of portraying Hunter seated next to a folio sketchbook in which he had drawn two of these ‘descending series’: one comprising three upper limb bones and hands; the other made up of two human skulls, said to be those of a European and an Indigenous Australian, and the skulls of a young chimpanzee, a Macaque monkey, a dog and, finally, a crocodile.

In 1928 Arthur Keith (1866–1955) was then at the height of his reputation as an evolutionary anatomist and physical anthropologist (Clark and Ellis 2004). He was also the Conservator of the Hunterian Museum. Keith put together a small exhibition that year to commemorate the 140th anniversary of Reynolds’s portrait. His idea was to display a small enamel copy of the painting together with the actual specimens appearing in Hunter’s notebook (Keith 1928, p. 205).

His search of college records confirmed that the book containing the drawings was almost certainly among those of Hunter’s manuscripts that should have gone to the College of Surgeons as part of the parliamentary purchase of his specimens, but were kept by Everard Home (1756–1832), his brother-in-law and executor. After plagiarising what he could, Home destroyed the bulk of Hunter’s drawings and papers sometime in the early 1820s. It was rumoured that had used some as toilet paper (Dobson 1954, pp. 59–62; Oppenheimer 1946, p. 39). Keith was nonetheless able to reconstruct the two series appearing in the Hunterian portrait using the same or other specimens collected by Hunter. He could not absolutely identify the exact Australian skull figuring in Reynolds’s portrait (Keith 1928, p. 205). But he was able to exhibit one of around a hundred skulls that the college had acquired by the late 1920s.

The presence of the skull in the portrait marks the beginning of the scientific collecting and investigation of the bodily remains of Indigenous Australians. And my concern in this chapter is to explain how and why scientific interest in the bodily form of Australian and other indigenous peoples developed in the later eighteenth century. I examine how the morphology of the Indigenous Australian skull was interpreted by John Hunter and also by Johann Friedrich Blumenbach, the Göttingen University-based naturalist and comparative anatomist whose explanation of the causes of human variation gained widespread assent in European scientific and intellectual circles in the first half of the nineteenth century. As we will see, Hunter and Blumenbach both believed that the morphological peculiarities they saw in Australian crania confirmed that variation

in humankind occurred through the modification of a subtle, immaterial force that sustained life and its reproduction in all living organisms, by external environmental factors, notably climate and diet. I then address the question of how Hunter, Blumenbach and other anatomists active in the early years of the nineteenth century obtained Australian skulls: and here attention is drawn to the prominent part played in their acquisition by Joseph Banks, President of the Royal Society until just before his death in 1820.

FOREIGN BODIES FROM DISTANT LANDS

By the late eighteenth century, educated Europeans understood the world as having been profoundly changed since the late fifteenth century by exploration, trade and colonial conquest. Spain had conquered the agrarian societies of central and southwest South America, while the Atlantic kingdoms of Portugal, France, Holland and England had colonised other parts of the Americas occupied by peoples who lived by small-scale agriculture or hunting and foraging. Under royal patronage, Europeans merchants and traders had forcefully established themselves in African and Asian markets.

By the mid-eighteenth century Europe had gone from being on the periphery of intercontinental networks of exchange of goods, people and ideas to being the dynamic centre of a capitalist world system, the accelerating scale and complexity of which had left virtually no society on earth unchanged (Wallerstein 1974). Britain and the Netherlands were especially powerful drivers of change in world history, having economies powered by consumerism that revolutionised the nature, financial basis and scale of manufacturing, created new markets for colonial produce, and caused the restructuring of agricultural production to feed growing urban populations (Israel 1989; Ormrod 2002). Socio-economic change saw the emergence by the mid-seventeenth century of new religious, political and scientific ideas, many of which unsettled or openly questioned traditional conceptions of the natural world, human nature and the ordering of society. It seemed to many within Europe's ruling aristocracies, landed elites and leaders of the Catholic and Protestant churches that commercialism gave strength to ideas of individual autonomy and the efficacy of human reason to discern truth that threatened to undermine faith in Christianity and the established social order; although even those who continued to believe in the fallibility of human reason and the necessity of obedience to the teachings of the Church and royal absolutism conceded that there was much to be gained in terms of social progress and moral improvement

through systematic, scientific study of the natural world and the nature of its special microcosm: humanity (Gaukroger 2010).

By the later seventeenth century, there was broad agreement among Britain's intelligentsia that the application of the experimental methods that proved so powerful in identifying regularities in the physical universe could be adapted to the study of humankind. The successes of Newton in particular in disclosing the workings of matter inspired faith in the capacity of humans to achieve material and moral improvement through empirical study of human behaviour (Jacob 1976). Within this blending of theology, natural philosophy and social observation, human understanding was imagined to develop mechanistically as the mind processed ideas derived from sensory experience. There was debate as to whether children came into the world with powers of reasoning but without ideas, or were born with ideas of themselves and the existence of God. However, it was agreed that human understanding developed as ideas derived from sensory experiences were combined to form more complex ideas. The influence that a simple or complex idea might have on a person's understanding or moral judgement was thought to be determined by the force with which the external world had impressed that idea on the mind, and also how strongly an individual's self-consciousness and powers of reasoning might influence how ideas were combined and understood.

This was a developmental psychology that not only stressed the importance of the individual being taught 'right reasoning' through structured social interaction, but also proved a stimulus for historical and ethnographic curiosity. For while the consensus within European intellectual circles was that all humanity possessed the same basic, innate powers of forming, associating and judging ideas, men and women were thought to differ in their qualities and strengths of understanding. It also seemed evident that there were marked psychological differences between Europeans living in different parts of the continent, and more so between Europeans and peoples indigenous to distant parts of Eurasia, Africa, the Americas and what was then known of Oceania. These perceived differences were thought to warrant the conclusion that if human understanding developed primarily through sensory encounters with the external world, then psychological differences existed between peoples indigenous to different parts of the world had developed because the environment in which they had lived for successive generations had peculiarities serving to stimulate or starve the mind of complex ideas.

By the mid-eighteenth century, educated Europeans could immerse themselves in a wealth of writings by philosophers and historians comparing ancient texts with contemporary accounts of non-European life-ways and institutions. These discourses identified what were thought to be universal regularities, or more localised contingencies, in the history of humankind. Notably in the writings of the French political philosopher Montesquieu (1689–1755), and the works of the Scots ‘conjectural’ historians, Adam Smith (1723–1790), Adam Ferguson (1710–1776) and John Millar (1735–1801), humanity as a whole was deemed to possess the capacity to develop similar, increasingly sophisticated and beneficial forms of social organisation, although some peoples might find themselves historically constrained, by climate or other material factors, from exploiting the natural resources of their environment.

Later eighteenth century European intellectuals generally presumed that no fundamental contradictions existed between what appeared in ancient texts, in modern reportage of the lifeways and culture of peoples beyond Europe, and in the sacred ethnography of Scripture. The earliest books of the Bible appeared to confirm that peoples of one ancestral stock who lived by herding sheep and cattle had dispersed in search of new grazing lands. Some found themselves in environmental conditions that led them to adopt agriculture. The fate of others was to migrate far beyond the world known to the writers of the Old Testament, with some of their descendants eventually coming to inhabit country so inhospitable as to force them to abandon pastoralism and live by foraging and hunting (Marshall and Williams 1982; Pocock 1981). There were intellectuals who questioned whether the essential truths of the biblical account of humankind’s origin could be reconciled with what they took to be Europeans’ mental superiority to sub-Saharan African peoples. Since late medieval times, sacred ethnography had identified Africans as the descendants of the biblically accursed ‘sons of Ham’—thereby providing the basis for European rulers and commercial elites justifying the enslavement of these people as providentially ordained (Whitford 2009). There was also a long tradition of reasoning that the physical and intellectual differences between Africans and Europeans were supposedly so marked as to render the likelihood of their separate creation more credible than the Scriptural account of their descent from one ancestral pair. Probably the most influential English-speaking exponent of polygenism in the later eighteenth century was Edward Long (1734–1813), a sugar planter and magistrate, in his *History of Jamaica* (1774). The

general consensus, however, was that humankind was descended from one divinely created pair, and that the causes of physical, cognitive and intellectual diversity in humankind were environmentally based (see Kidd 2006).

As to the physiological processes by which this diversification occurred, there were doubts as to whether they could ever be reliably determined. Adam Ferguson, one of the most influential conjectural historians of societal development, held that while traditions of nations living as shepherds or simple agriculturalists might contain ‘some resemblance of truth’, the fact that these traditions had been orally transmitted to successive generations meant that they had varied ‘with the imagination of those by whom they [were] transmitted, and in every generation [received] a different form’ (Ferguson 1966, p. 116). Even so, Ferguson believed that oral traditions could furnish insights into the ‘national character’ of a people when they took the form of sagas or other genres of poetry and folk drama; and he reasoned that they pointed to a ‘gradation of temperament and spirit’ in humanity which, following Georges-Louis Leclerc, Comte de Buffon (1707–1788), the great contemporary French naturalist, he believed was environmentally induced. Even so, Ferguson was sceptical as to whether empirical inquiry would ever disclose the biological causes of this apparent diversity in ‘national character’. As he observed in his influential 1767 *Essay on the History of Civil Society*,

That the temper of the heart, and the intellectual operations of the mind, is, in some measure, dependent on the state of animal organs, is well known from experience. Men differ from themselves in sickness and in health; under a change of diet, of air, and of exercise: but we are, even in these familiar instances, at a loss to connect the cause with its supposed effect: and though climate, by including a variety of such causes, may, by some regular influence, affect the characters of men, we can never hope to explain the manner of those influences till we have understood what probably we shall never understand, the structure of those finer organs with which the operations of the soul are connected. (Ferguson 1966, pp. 117–118)

JOHN HUNTER AND HUMAN DIVERSITY

Ferguson may have doubted whether science could ever satisfactorily explain the processes by which diversity had occurred in the human bodily economy; but his fellow Scot, John Hunter, was more optimistic.

A focal point of Hunter's investigations was the nature and extent of variation in humankind. Soon after he established himself teaching anatomy in London in the mid-1760s, Hunter acquired a series of portraits by Linnaeus (1707–1778) representing the division of humanity into varietal types. They had belonged to William Cheselden (1688–1752), under whom for a time Hunter had studied surgery and anatomy (Cope 1953; Dobson 1969). Hunter also took a keen interest in observing first-hand Africans and other non-European peoples brought to London. In 1773, for example, he was able to physically examine members of two Inuit families brought to England by George Cartwright (1739–1819), a merchant and Labrador fur trader. After examining several of the travellers, Hunter gave them dinner at his London residence. There, Attuiock, the most senior man in the two families, left the table to relieve himself, only to accidentally find himself among the anatomist's specimens. Cartwright later recalled that Attuiock returned terrified, and on his asking...

the cause of his emotion ... could get nothing more from him than 'Come along with me', and he hastily led me into a room in the yard, in which stood a glass case containing many human bones. 'Look there', says he, with more horror and consternation in his countenance than I had ever beheld in that man before, 'are those the bones of Esquimaux whom Mr. Hunter has killed and eaten? Are we to be killed? Will he eat us, and put our bones there?' As the whole company followed us, the other Indians had also taken the alarm before the old priest had finished his interrogatories; nor did any of them seem more at ease, by the rest of us breaking out into a sudden and hearty laugh, till I explained to them that these were the bones of our own people, who had been executed for certain crimes committed by them, and were preserved there, that Mr. Hunter might better know how to set those of the living, in case any of them should chance to be broken; which often happened in so populous a country. (Cartwright 1792, v. 1, p. 271)

Cartwright claimed that the Inuit travellers were 'perfectly satisfied' by this explanation and approved of Hunter's dissecting the bodies of executed felons, although he conceded that Attuiock had 'received too great a shock to enable him to resume his usual tranquility, till he found himself safe in my house again'.

We also have brief observations by Hunter on the susceptibility of African people to disease when moved from tropical to cold and wet climates (Hunter 1861, p. 295), and we know that he commissioned or bought plaster casts of African men (Dobson 1969, p. 236). We further know that he was in the habit of demonstrating the varietal differences he saw in the shape of the human with skulls from different parts of the world; and he is said to have held that there was nothing in the morphology of African skulls that justified their treatment as intellectually inferior to Europeans (Meijer 1999, p. 115). However, the few of Hunter's notebooks and papers that Everard Home did not destroy provide no direct insights into his thinking about the nature and causes of diversity in humankind. We are left to infer what he thought from observations and reflections he made on variation in other animal species; and there we find that Hunter generally focused on describing what he saw when dissecting plants and animals, rather than giving himself to hypothesising or abstractly reflecting on the nature of the processes by which life was sustained and reproduced. As he cautioned his many students, 'Too much attention cannot be paid to facts (Hunter 1835, v. 1, p. 208).

Even so, one can, in Hunter's surviving writings, discern similarities and likely indebtedness to Buffon. In his monumental *Histoire naturelle* (1749–1767), Buffon held that the long history of human intervention in the sexual reproduction of domestic animals proved that remarkable variations could be produced within a single species over several generations through environmental manipulation. This led Buffon to think that from the earliest stage of an individual organism's embryonic development, some divinely bestowed interior moulding force caused minuscule organic particles derived from food to be fashioned into organs and other bodily structures. Hence it seemed reasonable to Buffon to assume that variations between individuals within a particular species occurred when the qualities of the particles they ingested differed, or when the operation of this moulding force was affected by climatic or other environmental conditions.

As for humanity, Buffon was inclined to think that sustained exposure to similar environmental conditions caused the expression of the same bodily and psychological variations in different populations. Life in arctic conditions, for example, seemed to him to have rendered Inuit and Sami peoples near identical in terms of hair and eye colouring, as well

as physically smaller than peoples inhabiting more temperate parts of northern America and Eurasia. He also strongly suspected that comparable environments were productive of psychological similarities, for it seemed to him that Sami and other peoples long inhabiting the world's Arctic regions, for example, were typically 'savage', 'stunted' and 'stupid' (Buffon 1749, v. 3, pp. 527–528), whereas the most intelligent of humanity were—or so he believed—to be found in temperate climates. Even so, Buffon was cautious in his speculations, conceding that a satisfactory account of the causes of human variation required exhaustive collation and evaluation of historical testimony, along with critical assessment of the reports of contemporary scientific travellers. Only then would it be possible to say confidently what were enduring and unchanging traits of body and mind, and what were localised, environmentally induced morphological or mental variations. He was, moreover, cautiously optimistic that what environmentally induced variations in cognitive or intellectual powers had occurred in humankind were trivial and potentially reversible bodily and psychological peculiarities.

Like Buffon, Hunter believed that life was in all probability sustained and reproduced by some vital, moulding force or principle that had been 'superadded' to matter. This life force he saw as inherent in all organic matter, even when the matter in question might initially strike an observer as so simple as to lack any organisation. It appeared responsible for peculiar powers of action inhering in specific organs and other bodily structures, and for the susceptibility of different bodily structures to particular forms of stimulation that produced localised reactions. By this means, the complexities and interdependencies enabling the normal functioning of specific bodily structures were guaranteed, thus enabling the successful reproduction of individuals.

Hunter appears to have concurred with Buffon that variation occurred only in 'less essential' aspects of body and mind. He was similarly cautious in specifying the causes of varietal diversity among the peoples of the world. As he wrote in one surviving manuscript, attempting to 'trace any natural production to its origin, or its production, [is] ridiculous; for it goes back to that period, if ever such existed, of which we can form no idea, viz. the beginning of time' (1861, p. 4). Nonetheless he thought it reasonable to assume that 'there was a period of time in which every species of natural production was the same; there then being no variety in any species', and it seemed to him that variation from what he termed

the original 'Natural Animal' could result from 'geological and climatic changes, migration, and above all domestication' (Cross 1981, p. 86).

Returning to the Hunterian portrait we can see its Australian skull as illustrating the surgeon's belief that gradations of complexity existed at the level of specific bodily structures. 'What we call "perfection" in animals', Hunter observed, 'does not increase in regular progression in every part, but as animals are complicated; and each complication has its degrees of perfection; [they are not] regularly progressive in every part from the most imperfect [animals]' (Hunter 1861, pp. 36–37). So, while some of the most complex bodily structures in nature were to be found in the bodies of humans and apes, Hunter stressed that these bodies also possessed structures that were relatively primitive in terms of function when compared with organisms possessing a bodily economy that was generally less sophisticated (Rolfe 1985, pp. 317–318). Yet we can also read Hunter's comparative positioning of an Indigenous Australian skull beside one of European ancestry as illustrative of his belief in the susceptibility of human bodily structures to exhibit marked, even if biologically trivial, variation as a consequence of sustained exposure to particular environmental forces.

We can also see that Hunter appears to have rejected the influential varietal taxonomy of Carl von Linné (1707–1778), the Swedish physician and naturalist better known by his Latinised name, Linnaeus. Linnaeus held that the key to determining what were universally human traits or localised variations was to study humanity employing the same taxonomic procedures that he had devised to investigate and hierarchically classify all other species of flora and fauna. Linnaeus believed that when this was done, humanity would be seen to comprise six distinctive varietal types: Amerindians, Asians, Africans, Europeans, Wild Men, and Monsters (Linnaeus 1758, pp. 20–24). Today this typology strikes us as a stark illustration of the chauvinism and prejudices that eighteenth-century European intellectuals held about peoples beyond the temperate regions of their own continent; but Linnaeus's contemporaries regarded his account of human variation as more scientific than we can now easily imagine it to have been.

Linnaeus's thinking about the causes of variation owed much to Herman Boerhaave (1688–1738), a contemporary Dutch physician whose influence on European medico-scientific thought during the first two thirds of the eighteenth century is hard to over-estimate (see Knoeff 2002). He shared Boerhaave's conviction that human growth

and reproduction occurred through a process in which individuals developed from microscopic but fully 'pre-formed' animals. Reflecting the patriarchal nature of eighteenth century society, these tiny forms of the adult organism were imagined to be contained within sperm. Boerhaave believed that these miniatures of the mature organism would grow during gestation and after birth so as to assume the essential form of its species, which it would in turn bequeath to its offspring. He did not, however, rule out this typical form being modified by external forces influencing the flow and qualities of matter and nutrients to bodily structures by the blood and other vital fluids. In this way, Boerhaave's account of the growth and reproduction of bodily structures was, as the late Roy Porter observed, a striking and at that time widely persuasive application of the findings of Newtonian physics to medicine (Porter 1998, p. 246).

It was also a blending of Newtonian physics with the theory—enjoying wide currency since its articulation over two millennia earlier by Hippocrates—that human bodily and mental capabilities were profoundly shaped by the relative causal strength and interplay of four distinctive fluids or 'humours' within the bodily economy: blood, phlegm, yellow and black bile. Linnaeus reasoned that environmental factors such as climate and dietary peculiarities determined the relative influence of these humours, with the result that six seemingly distinctive varietal types of human were to be found in different parts of the world. Europe's temperate climate produced a type that he termed *Homo europaeus*, with typical features such as white skin, a muscular physique and long straight hair. These traits were due to a supposed predominance of blood, which Linnaeus, falling back on Graeco-Roman humoral theory, was responsible for the European varietal type being typically hopeful, amorous and courageous. By way of contrast, the peoples of Eastern Asia, whom he termed *Homo asiaticus*, were to his mind typically sallow in complexion, with dark eyes and a wiry frame. In them he saw black bile to be the ruling humour, and responsible for making this variant characteristically melancholy, proud and avaricious.

Linnaeus believed that a dominant humour not only determined the psychology of each varietal type, but also greatly influenced its customs, habits and modes of social organisation. As he saw it, the sanguine European typically preferred closely fitting clothes and was accustomed to being governed by laws. The melancholic Asiatic type was happiest in loose clothing and living under despotic rule.

What now seems bizarre about Linnaeus's varietal typology is that it included the categories of 'Wild Men' and 'Monsters'. The first reflects the credence he gave to historical and contemporary accounts of children having been found in various parts of France and Germany who supposedly could not speak, were covered with hair and could only move on all fours (see Douthwaite 1997). Linnaeus's *Homo monstrosus* was something of a catch-all category, into which he placed peoples whom travellers and voyagers claimed were extraordinarily big or small. Thus the Khoi and San hunter-gatherer peoples of southern Africa were consigned to this varietal niche on the strength of colonialist reportage that they were 'pygmies' with unique genitalia (Khoi and San men were said to have only one testicle; the women extraordinarily long labia). Likewise, the Selk'nam and Haush peoples of Tierra del Fuego owed their classification as *monstrosus* to British and other European voyagers en route to the Pacific claiming that they were 'giants' (Sturtevant 1980).

Linnaeus's mode of distinguishing humans and simians differed from that which Hunter subsequently employed. By the late 1750s, Linnaeus had come to the view that the human genus should be expanded to include two new species that he called *Homo sylvestris* and *troglydytes* (Linnaeus 1758, pp. 23–24). He did this in response to several anatomists reporting that they had found remarkable morphological similarities between humans and apes shipped to Europe from Africa, and also apes living in Borneo and the Maluku Islands of present-day Indonesia who were said to use tools, live in well organised tribal groups and to desire local women (see Feagin 2006, p. 92).

Linnaeus's account of the nature and origins of human varietal diversity was by no means universally accepted. His strongest critics were prepared to concede that when floral and faunal species were arranged according to his classificatory principles, animate nature could be seen to be governed by laws and processes as universally operative as the forces that Newton had discovered acting on matter. However, what troubled many fellow naturalists and caused Linnaeus to be censured by both Protestant and Catholic theologians was his appearing to accentuate humanity's similarities with other quadruped species to near the point of denying the uniqueness of humans within creation by virtue of possessing a divinely bestowed immortal soul and unique gifts of reasoning and moral judgement.

The naturalist met this criticism by pointing out in successive editions of *Systema Naturae* (first published in 1735), the treatise in which he represented animate nature arranged by his taxonomic principles, that

he had prefaced his description of the human genus with the Latin rendering of the injunction said to have been inscribed above the entrance to the temple of Apollo at Delphi: '*Homo nosce Te ipsum*'—'Man know Thyself'. He also replied to his critics that it was because of humanity's capacity for reasoning and judgement that he had named our species *Homo sapiens*—Man, wise, all knowing.

Even so, Linnaeus believed that impartial scientific inquiry invited the conclusion that in terms of cognition, affect and intellect, the 'inner nature' of humankind was quantitatively rather than qualitatively different from that of other sentient beings. What psychological differences there were between humanity and apes was a question of degree: reason and judgement were attributes that humankind possessed, Linnaeus wrote, 'to a most surprising extent [above] all other animals' (Slotkin 1965, p. 178). This, together with Linnaeus's dividing humanity into varietal types on the basis of supposedly possessing distinctive humoral makeups giving rise to different qualities and attributes of mind, appeared to confirm the fears of Buffon and other critics who reasoned that if, as Linnaeus believed, individual organisms were pre-formed, this invited the conclusion that varietal types within the human species had originated by separate acts of creation.

Hunter had no interest in the metaphysical implications of Linnaeus's system. What he took issue with was what he believed to be its artificiality and thus erroneously simplistic mapping of animate nature. The main source of the problem, to his mind, was the system's grounding in preformist biology, which he saw as having led Linnaeus wrongly to assume that there was a straightforward, progressive gradation of living organisms within nature. Hunter, as we have noted, believed that the value of the concept of gradation was confined to its providing a means of charting the relative complexity of specific bodily structures as they appeared in different species.

Again returning to the Hunterian portrait we can see the presence of the Australian skull as giving visual expression to the anatomist's belief that human varietal types were far more susceptible to environmentally induced modifications than Linnaeus's preformist biology allowed. As Hunter saw it, structural variation in the human bodily economy most probably occurred when particles within food were turned into 'animal matter' and imbued with the life-principle within the stomach. The greater part of this matter infused the blood, and on arriving in organs and other bodily structures via the circulatory system, was extruded in

lymphatic fluid to become part of an organ or other structure through a process of coagulation. Similarly, decline and decay occurred when animal matter was no longer added, or coagulated at a rate less than that at which matter became bereft of life. Thus, in the case of bone, Hunter reasoned,

granulations arise, which push up the dead piece [of bone] against the upper sides of the cavity, and in consequence of this pressure against the newly formed bone, the absorbents are set to work to remove it and in proportion as this absorbed, the piece is pushed out, the granulations filling the space behind it. (Hunter 1835, v. 1, p. 526)

Dead matter was then broken down by absorbents and eventually discharged from the body.

In Hunter's hands, then, what may well have been the first Indigenous Australian skull to be examined by a European anatomist was interpreted as strikingly confirming not only the existence of a vital force animating all of Earth's life-forms, but also its susceptibility to modification by the effects of environmental factors such as climate, nutrition or exposure to decaying matter. The morphology of this skull was thus taken to illustrate how this susceptibility had affected the developmental and mature forms of Indigenous Australian cranial bones, resulting in these people exhibiting a distinctive typical head shape.

JOSEPH BANKS'S ANATOMICAL PATRONAGE

How was it Hunter came by the skull? If he possessed it before Reynolds finished his portrait in 1788–1789 (Dobson 1969, p. 262) there are several ways he might have acquired it. It might have been given to him by a member of either James Cook's momentous first Pacific voyage of 1768–1771 or his third and final expedition. Neither Cook, nor Joseph Banks, nor any other member of the two expeditions is known to have collected skulls or other Australian human remains, although this does not rule out the possibility that Hunter got the skull after Cook returned from his first voyage. It may have been found during his survey of Botany Bay or when he was forced to careen his ship for near seven weeks at Endeavour River. Nor can we discount the possibility that the skull was acquired on Cook's third voyage, during several days in early 1777 spent ashore on Bruny Island just off the southeastern coast of

Tasmania. Indeed, there is reason to suspect that it could have been brought to England by James King (1750–1784), second lieutenant aboard HMS *Resolution*. We know that King arrived home with a small collection of cranial material from various parts of the Pacific, including a skull from Nootka Sound on the Northwest Pacific Coast, and the lower jaw bone of a Tahitian. Either King or Joseph Banks, whose patronage he enjoyed, gave these relics to the anatomy school at Christ Church, Oxford (Camper 1794, p. 22). If King also obtained a Tasmanian skull he may have given it to Hunter or to Banks, who then gave it to the anatomist. It is also possible that Hunter acquired the skull a year or so after the New South Wales penal settlement was established early in 1788. Again, it could have come to him through Banks, who might have obtained it from Captain Arthur Phillip (1738–1814), the settlement's first governor. For as will be shown later in this chapter, Phillip proved willing in the early 1790s to obtain skulls for Banks on behalf of the Göttingen-based anatomist, Johann Friedrich Blumenbach.

A talented naturalist with a passion for botany, Banks had sailed as a young man with Cook, returning to England with important collections of plants, land animals and fish. By 1778 he was President of the Royal Society, the most important scientific institution of the eighteenth century world, and was an influential trustee and donor of natural history and ethnographic specimens to the British Museum. Banks's biographers have written at length about his passion for botany, drawing attention to his embracing Linnaeus's classificatory system. As is well known, he arranged for Daniel Solander, a talented protégé of the Swedish naturalist, to accompany him on Cook's first voyage during which time the two men led the collecting and identification of more than 3,500 new plant species.

What is also evident is that Banks returned from the voyage fascinated by the extent and origins of diversity among the peoples of the Earth. In the journal he kept during his voyaging, Banks recorded his impressions of the physical features, supposedly typical behavioural traits and distinguishing aspects of social organisation and customs of the peoples he encountered in the Pacific and archipelagic South-East Asia. And he did so much as Linnaeus had done when exploring Sweden's remote north and Baltic lands.

Banks was certainly an exemplary Linnaean in his describing the many specimens of flora and fauna discovered during Cook's first voyage; but shelved alongside the twelfth edition of Linnaeus's *Systema Naturae* in

Banks's working library on board the *Endeavour* were the first fifteen volumes of Buffon's *Histoire naturelle* (1749–1767). And while he followed Linnaeus's example in the form of his anthropological reportage, nothing that Banks wrote during or after his voyaging with Cook suggests that he subscribed to the naturalist's ideas about the nature and causes of human variation. On the contrary, there are numerous observations Banks made in the journal he kept concerning the effects of climate and nutrition on human bodily structures (Banks 1962). They inform his reflections on the rigours of voyaging and Cook's determination to maintain a regime protecting the expedition from scurvy and hyperthermia. And we find what he wrote about the peoples he encountered in Tierra del Fuego, Oceania and South East Asia parallels Buffon in attributing seeming peculiarities of their physique and psychology to sustained exposure to environmental forces differing from those influencing the physiology of their ancestral stock. For example, Banks's encountering close similarities in physical appearance, language and cultural practices between the peoples of the Society Islands and Maori encountered during Cook's survey of coastal New Zealand left him in 'little doubt that they came originally from the same source'. What he learnt from Tupaiā, a priest from the island of Raiatea and an expert navigator who joined Cook's expedition at Tahiti, about prevailing winds and current directions, convinced him that the inhabitants of the Society Islands must have sailed from a place 'Westward and by no means the East' (Banks 1962, v. 2, p. 37).

However, the vocabularies Banks had compiled by the time of reaching Java during the homeward leg of the voyage raised nice questions. There was clearly 'a similitude of language between the inhabitants of the Eastern Indies and the Islands of the South Seas'. At Jakarta, interviewing a slave born in Madagascar seemed to confirm further similarities, especially in words used for numerals, between Tahitian and the Malagasy. This left Banks perplexed as to 'how any Communication can ever have been carried between Madagascar and Java to make the Brown haired [sic] people of the latter speak a language similar to that the Black woolly hair'd natives of the other'. This led him to speculate whether 'the Egyptian learning running in two courses, one through Africa the other through Asia, might introduce the same words, and what is more probable Numerical terms, into the languages of people who never had any communication with each other. But this point requiring a depth of

knowledge in Antiquities I must leave to Antiquarians to discuss' (Banks 1962, v. 2, p. 234). By 'Egyptian learning' Banks was referring to the consensus in his day among scholars of antiquity that the sciences of astronomy and mathematics originated either among ancient Egyptians or developed among them from knowledge obtained from the early Grecian philosophers or Hebrew patriarchs. Understandably, Church historians and most antiquarian scholars considered that the Egyptians had derived their knowledge from the descendants of Noah. Typical in this respect was Francis Wise, the Oxford scholar and prominent member of the Society of Antiquaries who held that the Egyptians were 'not the first authors of science' but the beneficiaries of Noachian knowledge learnt from the Phoenicians, to whom it most likely came via successive ancient peoples from the Ægean Isles, 'which were the seats of the first civilizers of mankind'. Similarly, the journalist and popular historian William Guthrie, in his best-selling *General History of the World* (1764–1769) dismissed the idea that the Egyptians were the source of science, arguing that little could be known about the transmission of knowledge or any other aspect of early antiquity beyond what could be construed from studying the Scriptures.

Banks's reflections on the genealogy of the Polynesians remind us how salient the Judeo-Christian cosmogony continued to be in eighteenth-century European thinking about humanity's deep past. One suspects that personally he did not take the Mosaic account of the creation literally but, like many within his intellectual circle, interpreted the books of the Old Testament figuratively, as a source of sublime poetry, moral inspiration and historical insight. As such the Pentateuch (the earliest books of the Old Testament) were seen as confirming the conjectural reconstruction of humanity's earliest history as one of dispersal and varietal *embranchment* of one ancestral stock. And while there may be a touch of irony in Banks's styling the question of the origins of the language of the South Sea Islands as best left to learned antiquarians, he was clearly with Buffon in believing that progress in understanding the course of human natural history required the synthesis of what could reasonably be deduced from Scripture and other surviving ancients texts with ethnographic investigations such as those he personally undertook when voyaging with Cook (Turnbull 2012).

Buffon, incidentally, was to revise his account of human variation in the *Histoire naturelle* in the late 1770s to incorporate Banks's observations of the Gweagal people of Botany Bay and Guugu Yimithirr clans

of the Endeavour River estuary as they appeared in the official published account of Cook's voyage (Gascoigne 1994, p. 38).

Botany was Banks's life-long passion; but after his triumphal return from voyaging with Cook he also took an active interest in human anatomy and physiology. In January 1775, for example, he joined three other members of the Royal Society in an 'audacious experiment' devised by the Scots physician and chemist, George Fordyce (1736–1802), to record the effects of extreme heat on the human body. Over the course of an afternoon Banks and his fellow subjects braved set periods of time within a small chamber said to have been heated at one point to just under a hundred degrees Celsius (Coley 2001). Until late in life Banks frequently attended Hunter's and other leading anatomists' dissections of human and animal corpses; and during his forty-two-year presidency of the Royal Society, he encouraged fellows to agree to their bodies undergoing postmortem dissection, and the results read before the Society. On the death in 1792 of his beloved uncle, the antiquary Robert Banks-Hodgkinson (1721–1792), Banks arranged for the old man's corpse to be examined, and kept a stone found in the bladder. Over the following two months he carefully recorded the loss of moisture from the stone, then gave it together with his measurements to Everard Home, Hunter's brother-in-law and at the time the anatomist's assistant at London's St George's Hospital (Carter 1988, p. 22).

Pieter Camper (1722–1789), the celebrated Dutch anatomist, was among the medico-scientific authorities to benefit from Banks's support. When Camper visited London in late 1785, Banks and John Hunter presided over his induction as a fellow of the Royal Society. As is well known, Camper was a skilled artist who devised a new geometrically-based technique for producing accurate drawings of variations in human and animal head shapes (see Meijer 1999, pp. 96–100). As Camper's son and posthumous editor explained, his father's 'grand object' had been to provide artists with a series of rules preventing them 'from blending the features of different nations in the same individual' so as to enable them 'to give ... true character to national figures'. He had discovered that geometrical regularities could be discerned on comparing the bodily forms of all animals, particularly in the shapes of the head and face. This enabled the recording of these differences as variations in a number of angles. The most important of these angles, Camper argued, was that discernible on placing the head of an animal or human subject at right angles to the observer. The position of common head and facial features,

such as the end of the lower jaw and the ridge about the eyes, could then also be reduced to angles deviating from a base line drawn through the centre of the opening of the auditory canal and the lower part of the nasal septum. Thus, Camper maintained, even the most subtle differences between the heads and facial shapes of peoples of different ethnic origin could be accurately reproduced, regardless of whether they were drawn at leisure in the anatomy theatre or sketched in the course of voyaging and exploration.

Camper was invited to demonstrate his invention to John Hunter and other fellows of the Royal Society at the home of the anatomist John Sheldon (1752–1808), a past pupil of Hunter who in 1781 had published a catalogue of Camper's works (Camper 1939, p. 205). Banks also drew Camper's technique to the attention of leading fellows of the Society, including Joshua Reynolds. He also arranged for Camper to examine and draw non-European crania in several British anatomy collections, including the anatomy school at Christ Church; and the items Camper sketched included the Polynesian cranial bones collected by James King on Cook's third voyage (Camper 1794, p. 22; Guthrie 1948, p. 352).

BANKS AND JOHANN FRIEDRICH BLUMENBACH

In the late 1780s Banks became an active supporter of Johann Friedrich Blumenbach, the most influential investigator of human diversity in Europe during the first half of the nineteenth century. Blumenbach studied at Jena and then Göttingen, where he was employed to catalogue and arrange natural history specimens acquired by the university's librarian and professor of classics, Christian Gottlob Heyne (1729–1812). Heyne, an avid collector and reader of voyaging and travel narratives, and Christoph Wilhelm Büttner (1716–1801), the university's professor of chemistry and natural history, who encouraged Blumenbach to write his doctoral dissertation on the causes of diversity among the peoples of the Earth (Zammito 2006, p. 44). Blumenbach gained a full professorship in medicine at the University of Göttingen within three years of gaining his doctorate in 1775, and was to hold the chair until his death in 1840.

In his doctoral thesis, Blumenbach reasoned as did Buffon and Hunter that varietal branching occurred through human bands migrating and settling parts of the Earth where climate, food and other necessary resources differed significantly from the site of humanity's divine

origination—which Blumenbach was prepared to hypothesise lay in the Caucasus region between the Black and Caspian seas. It seemed to him, as it had to Linnaeus and Buffon, that the material conditions prevailing in Africa, Eastern Asia, the Americas, Southeast Asia and the Pacific Islands were sufficiently different to have caused the diversification of humanity into distinctive varietal types. He at first believed that humankind had branched into four types: Caucasians, Africans, Asians and Americans; but by the late 1770s he was convinced that there was also a fifth variety, the Malay, in which he placed Australians and Pacific peoples.

While actively researching many different topics in medicine, anatomy and natural history over his long career, Blumenbach never ceased to be intrigued by human variation. His efforts to explain its causes in his dissertation were grounded in an uneasy synthesis of the work of Buffon, Linnaeus and Albrecht von Haller (1708–1777), the great Swiss anatomist. He followed Buffon in attributing variation primarily to the effects of climate and nutrition; however, he was persuaded by Haller and Linnaeus that individual organisms were preformed—that is, they inherited and gave expression to an original, fully developed form—and consequently he was sceptical about Buffon’s defining species on the basis of consistently fertile reproduction, preferring to follow Linnaeus in classifying species on the basis of a range of morphological similarities.

Some time during the late 1770s, however, Blumenbach’s thinking underwent an important shift. He rejected preformationism, now believing that the weight of empirical evidence favoured Buffon’s view that the form an organism took was at least in part determined by some sort of interior moulding force operating on matter absorbed into the body. What caused this change of mind, he subsequently recalled, was his replicating a well-known experiment devised some fifty years previously by the Swiss naturalist, Abraham Trembley (1710–1784). Trembley had cut off the tentacles of fresh-water hydra and observed their regeneration. Reflecting on the hydras’ re-growing the severed extremities, and how new tissue grew in human wounds, Blumenbach was led to think that all living creatures possessed a ‘particular inborn, life long active drive’ that was ‘completely different from the common features of the body ... and other special forces of organised bodies’. This formative drive, or *Bildungstrieb* as he called it, he saw as responsible for ensuring that the essential form of each species of plant and animal found expression through successive generations. By the time he began revising the second edition of the published

version of his dissertation on human variation, which he sent to the printer in 1781, Blumenbach had come to think that humanity, in common with all other life forms, had ‘degenerated’ from its originally created form through the influence of climate and other environmental forces, including cultural practices centred on changing the form of the head and limbs, having proved sufficiently powerful to ‘deflect’ this *Bildungstrieb* ‘from its usual path’. This process was ‘the generous origin of degeneration and the mother, properly speaking, of varieties’. Blumenbach wrote, ‘there seems to be so great a difference between the Ethiopian, the white and the red American, that it is not wonderful, if men even of great reputation have considered them as forming different species of mankind’. However, he held that all discernible points of anatomical similarity and difference, and the wealth of testimony in reliable accounts of exploration and travel, confirmed that humanity was one species and that what variations were to be seen in humankind had been caused by environmental deflection of the *Bildungstrieb*. By the same token, he reasoned that given the susceptibility of the *Bildungstrieb* to the influence of environmental forces, comparing the functional adaptation of bodily organs and structures was likely to be a more accurate way of classifying species than Buffon’s simple criterion of reproductive fertility.

Even so, Blumenbach agreed with Buffon that Linnaeus had erred in classifying humanity as a quadruped possessing greater intellectual powers than all other animals, yet anatomically indistinguishable from the ape or the sloth. Examining the bodies of apes and humans of different varietal ancestry had left him convinced that humans had various unique anatomical features. When this was considered in the light of accounts of human and ape behaviour in narratives of voyaging and exploration, it seemed to him evident that humanity’s uniqueness within nature warranted its inhabiting its own order, which Blumenbach termed ‘bimana’, mindful of humankind’s unique ability to walk upright without employing the hands.

Blumenbach’s investigations of bone growth and pathology led him to think that the human frame was more susceptible to environmentally induced modification than generally realised, and that this was especially true of the bones comprising the head. Hence it was logical to assume that as a consequence of their ‘mode of life and art’, ‘singular shapes of the head ... belonged to particular nations’. Moreover, he believed that ‘an intimate relationship [existed] between the external face and its osseous substratum’. Should heads be ‘stripped of the soft and changeable

parts they would ‘exhibit [a] firm and stable foundation’ which could ‘be conveniently handled and examined, and considered under different aspects and compared together’. Hence ‘a more careful anatomical investigation of genuine skulls of different nations would throw a good deal of light upon the study of mankind’.

Blumenbach regarded the investigation of varietal differences in human cranial morphology as ‘a vast and agreeable field’ of inquiry; but he was equally aware that his yet possessing few skulls ‘forbad [him] to wander in that direction’. This he sought to remedy however by approaching leading figures in universities and scientific societies throughout Europe with the aim of acquiring the skulls of peoples from different parts of the world, in the hope that it might eventually be possible for him to attempt to systematically map human diversity.

Not skulls but a mutual interest in plant physiology first brought Blumenbach to Joseph Banks’s attention; but by mid-1787 he was telling Banks of his long-standing interest in cataloguing national variations in cranial form, and how he had recently received a skeleton and four skulls of the ‘Tatar nation’ from Georg Thomas, Baron von Asch (1729–1807), a prominent surgeon residing in St Petersburg who had maintained links with Göttingen since his studies there in the late 1740s. Blumenbach also told Banks of his having been promised skulls from the Society Islands by a mutual acquaintance, the botanist John Sibthorp (1758–1796). Sibthorp spent the winter of 1784–1785 in Göttingen, and one suspects that he told Blumenbach he would seek Banks’s help in securing the skulls, and as he had not made good on his promise, Blumenbach directly sought Banks’s aid in obtaining at least an accurate drawing of a native of the Society Islands. Banks agreed to help him secure actual skulls, making inquiries on his behalf, only to inform Blumenbach that ‘since Mr. Hunter here & ... Camper in Holland have written so much on that subject those who have possession of the Crania of the South Seas set a high value on them’. Banks assured Blumenbach however that he had asked a captain soon to depart for the Pacific to arrange for the vessel’s surgeon to procure him ‘good specimens’ from the ‘South Seas Isles’ and if possible one from the eastern coast of Australia. But given that the voyage in question would likely take up to two years, Banks had asked John Hunter to provide Blumenbach with a drawing and a plaster cast of a Tahitian skull that he had helped Hunter acquire. This was just as well, as the captain whom Banks had approached was William Bligh (1754–1817), and the ship being readied for sail was the *Bounty*.

In late 1787 Banks also wrote on Blumenbach's behalf to Alexander Anderson (c. 1748–1811), a Scots botanist who had secured the position of superintendent of the botanic garden on the Caribbean sugar-growing island of St Vincent through Banks's connections in the war office. Banks asked Anderson to procure several Indigenous Carib Indian skulls, and some eighteenth months later Banks received the 'Cranium of a Carribe Chief'. Advising Blumenbach in July 1789 that he would soon have the skull, Banks wrote that Anderson had

found it ... a very difficult thing to get the Crania of the Yellow Carribes or aborigines [as] the greater part of them have been extirpated by the black Carribes [and] at present there are only 2 Families of them & these are in the most remote part of the island [...] their burial places are not easily Found & an attempt to disturb them is look'd upon as the greatest of crimes[.] (Blumenbach 1787, p. 30v)

It was only because this 'Chief' had died about three years previously in an inhabited part of the island that Anderson had been able to locate the grave and remove the skull. Banks had no doubt that it was an authentic Carib skull, having compared its shape and the 'hair still adhering to one side of it' with drawings of Africans he had been given by Pieter Camper (Blumenbach 1787, p. 31).

Banks's account of how he had secured Blumenbach this skull is one of the earliest records of the means by which Indigenous human remains were commonly acquired for Western scientists until well into the twentieth century. Metropolitan authorities (Banks in this instance) approached beneficiaries of their patronage in spheres of colonial interest to secure human remains, often emphasising their scientific value. Out of motives ranging from the desire to aid the progress of science to furthering personal ambitions, these client collectors would try to secure remains, often stressing the difficulties or dangers they risked in the process.

In the summer of 1790 Blumenbach was greatly disappointed by Banks's news of the *Bounty* mutiny and the loss of his long-awaited specimens. Banks nonetheless sought to make good his promise; and in late December 1790 he was to tell Blumenbach that a new expedition was being sent to the Society Islands for breadfruit, and 'I hope she will bring to you Crania of the S. see [sic] Isles' (Blumenbach 1787, p. 33). What was more, Banks added, another vessel was soon 'to go to New Holland so that you may expect the head of new holland also'. However,

within a month Banks wrote again: 'I fear I shall not soon have the pleasure of sending you *Crania* from the South see [sic] the busy preparations for a war with Spain stop all ships bound on voyages of curiosity so that none have sail'd since the loss of the ... *Bounty*.' (Blumenbach 1787, pp. 34–35).

By contrast, Blumenbach's chances of securing an Indigenous Australian skull improved, for as Banks explained, the British government planned to send a supply fleet to the newly established New South Wales penal settlement, and with it would go a request to Arthur Phillip, the colony's first governor, for skulls. Yet it was to be nearly three more years, in November 1793, before an Australian skull finally arrived in Göttingen via royal courier from London.

Governor Phillip had been ready to put peaceful relations with local Eora clans at risk by desecrating burial places; but, as he told Banks, finding skulls had proved difficult as the Darug, Dharawal and other peoples whose ancestral lands the penal colony occupied commonly cremated their dead. William Bradley (1758–1833), a naval lieutenant under Philip's command, observed, 'We have every reason to suppose that they burn the dead, from the number of graves we have open'd ... & seen in those which were opened ... ashes with many pieces of bone not quite consumed' (Bradley 1969, p. 142).

Some under Phillip's command refused to be involved in anatomical collecting. Ralph Clark (c. 1755–1794), for example, a lieutenant in the settlement's marine detachment, recorded in his journal having encountered a skeleton in the upper reaches of Sydney Harbour in February 1790. Returning with the skull, he left it at the settlement's hospital to determine whether it was that of an escaped convict or Indigenous man or woman. 'The Surgeons', he wrote, 'wanted for me to give them the skull but I would not—I told them that I should carry it back and collect the rest of the *Bons* [sic] and Bury them and the Head' (Clark 1981, p. 110).

The skull that Blumenbach received in 1793 was, he learnt from Banks, that of 'a male native of New Holland who died in our settlement of Sydney Cove'. He had been killed by a convict gang (Spengel 1880, p. 77). This did not detract from Blumenbach's delight in receiving the skull, especially as it seemed to him to provide invaluable evidence of how specific cultural practices could over time produce modifications to bodily structures. For he saw the skull as 'conspicuous above all

others for the singular smoothness of the upper jaw, where the upper and canines are inserted'. This, he reasoned, could be explained by it being

now known that those barbarians have a paradoxical custom of perforating the septum of the nose with a piece of wood inserted crosswise, and of so stopping up their nostrils with a sort of peg that they cannot breathe except through the open mouth. It seems credible, therefore, that this smoothness may have been gradually effected by the perpetual pressure of this transverse insertion. (Blumenbach 1865, p. 240)

But the skull also provoked new questions when compared with drawings Blumenbach had acquired of mainland and Indigenous Tasmanians, and of people encountered in the southern coast of Papua. How accurate, he wondered, was the engraved portrait of a Tasmanian man derived from a drawing by John Webber (1751–1793) and reproduced in engraved form in the official account of Cook's third voyage? (Cook and King 1784). For if it accurately depicted the man's head, then this appeared to contradict Buffon's assumption that different peoples experiencing the same climatic conditions would have the same physical appearance and psychology. Whereas reportage of peoples so far encountered on the coasts of the Australian mainland and Tasmania suggested they were identical in terms of bodily form and 'agree so wonderful, even in the minutiae of manners (Blumenbach 1793, f. 116). Blumenbach could not help but think that 'Mr. Webber has embellished a little his savages'. Also, was the full-length portrait of a 'south seas inhabitant' appearing in the account of his travels to the East Indies (1718) by the Dutch traveller and painter Cornelius de Bruin (1652–1726) a Papuan or possibly a New Hollander? The skull now in his possession suggested that it was 'at least not improbable' he was the latter.

Blumenbach also learnt that two Indigenous Australian men had arrived in England with Governor Phillip. Perhaps, he asked Banks, he had seen them and was able to determine for him the ancestry of the 'south seas' man that De Bruin—whom he considered generally an accurate draughtsman—had painted. Banks replied to Blumenbach that he had asked to meet the men—Bennelong and Yemmerrawanyea Kebberah—but to his irritation they had not yet come to London; they were living with Phillip at his home in Bath, denying him the 'opportunity of viewing them at leisure [and being] probably amused by some of their natural exercises'. He was to meet them briefly late in 1793, and

wrote soon afterwards to Blumenbach that they did ‘not all resemble’ Webber’s drawing of a Tasmanian man, nor his drawing of a Tasmanian woman, an engraved version of which also appeared in the official account of Cook’s third voyage. As he confided to Blumenbach, he had warned Pieter Camper that Webber ‘was by profession a landscape painter & what he has done in the portrait line I have given little credit’ (Blumenbach 1787, p. 40v; Camper 1794, p. 27).

This news served to underscore for Blumenbach how far he was from securing a sufficient number of skulls to begin accurately charting the nature and extent of human variation. And we can well understand his delight at receiving a letter from Banks in late 1798 offering a second Australian skull and assuring him he would not be offended should Blumenbach choose to exchange the skull for a specimen of more value to his research. Blumenbach was quick to accept the gift—‘By no means ... to exchange it!’ he reassured Banks. His intention was ‘to keep it for Comparison with the former & to show thereby ... what is perhaps merely individual & accidental, & what on the contrary is truly national & characteristical’ (Blumenbach 1798, p. 343).

From an early age, Blumenbach possessed an encyclopaedic knowledge of the history of travel and exploration. As one past pupil and friend at Göttingen recalled,

in one branch of learning he had scarce his like, I mean his familiarity with voyages and travels. All the books in the library of this place he ... read over and over again ... and for his researches in natural history and ethnography it was a most solid foundation. (Blumenbach 1865, p. 21)

These researches left Blumenbach anxious that opportunities to study variation would diminish as European colonial ambitions accelerated flows of goods, ideas and people. Since early antiquity networks of trade and exchange had led to interbreeding between continentally indigenous humankind populations, causing the emergence of peoples exhibiting mixed varietal characteristics. The growing pace and scale of change now seemed certain to make the collecting of varietally typical crania increasingly difficult. Added to this was general reluctance beyond the medico-scientific world to acquire skulls by exhuming burial places, or to condone their acquisition by dissecting corpses. Blumenbach rarely missed an opportunity to stress that the knowledge of human natural history that collecting and comparative examination of ‘national crania’

would produce morally outweighed allowing them to turn to dust. He conceded the difficulties that skull collecting presented but denied that they were ‘insuperable when the collector shows zeal and perseverance, and can obtain the active co-operation of men who have opportunities of helping him in his object’: he could point for example to his own ‘zeal and perseverance’ in collecting ‘national skulls’. By 1800 he had built a collection of some eighty-two specimens, and by the time of his death in 1840, the collection had grown to around 245 skulls and cranial fragments. Even so, he was never satisfied by its size, its representativeness, and its failure to provide answers to many questions in respect of human variation raised by contemporary European encounters with peoples in Asia and the Pacific.

BANKS AND THE ROYAL COLLEGE OF SURGEONS

Banks concurred with Blumenbach that comparative examination of human cranial morphology would ‘throw a good deal of light upon the study of mankind’. Until his death in 1820, he used his patronage of naval and military officers, government officials, surveyors and naturalists in virtually every sphere of British colonialism to secure racially typical crania. After its foundation in 1800, England’s Royal College of Surgeons was a prime beneficiary of his influence.

Among the specimens that Banks acquired for the college’s Hunterian Museum were the heads of two Indigenous men killed during the early years of settlement and exploration of Australia’s eastern coast. One was the head of Pemulwye, a man of the Darug people whose ancestral lands lie in what are now the western suburbs of the city of Sydney. Pemulwye figured prominently among men of the Darug and neighbouring Dharawal people who resisted European incursions into their country. In the 1790s he took a leading role in attacking convict work gangs and raiding livestock and maize fields crucial to the colony’s survival. After various clashes with military parties in which he received superficial wounds, in late 1797 Pemulwye was captured after being shot during a confrontation on the western outskirts of the colony. Held at the colony’s hospital in irons, he nonetheless managed to escape. David Collins (1756–1810), Judge Advocate of the Colony, noted that by March the following year,

A strange idea was found to prevail among the natives respect the savage Pe-mul-wy, which was very likely to prove fatal to him in the end. Both

he and they entertained an opinion, that, from his having been frequently wounded, he could not be killed by our firearms. Through this fancied security, he was said to be at the head of every party that attacked the maize grounds; and it certainly became evident to convince them that he was not endowed with any such extraordinary exemption. (Collins 1975, v. 2, p. 70)

Given the inaccuracy of smooth bore muskets beyond ranges at which Darug men could throw spears with relative accuracy, it is little surprise that Pemulwye evaded death or capture for a further four years, becoming so feared a threat that the colony's third governor, Philip Gidley King (1758–1808), outlawed him, issuing instructions 'for every person doing their utmost, to bring Pemulwye in either dead or alive'. Within several months King was presented with his head, Pemulwye having been ambushed and killed in circumstances suggesting that he no longer enjoyed support beyond his immediate clan, and that neighbouring Darug and Dharawal communities believed that his death was the only means of stopping military parties indiscriminately killing whomever they encountered when searching for Pemulwye and his supporters.

An experienced naval officer, King confessed he was 'not without admiration' for the 'brave and independent character' of Pemulwye, but what was uppermost in his mind was the security of the colony.

King was also mindful of his debt to Banks for securing him the position of Superintendent and Commandant of the secondary convict station and naval supply base built in 1788 on Norfolk Island, some 1600 kilometres east of New South Wales. A keen amateur naturalist, he had sent Banks a wide variety of botanical and animal specimens in the twelve years that he spent on the island. Most likely knowing of Banks's interest in procuring skulls, he had Pemulwye's head put into spirits of wine and dispatched to Banks aboard a returning supply ship in early 1803, together with specimens of dye-yielding wood. Banks was delighted by the head:

The manifold packages you have had the goodness to forward to me have always, owing to your friendly care in addressing and invoicing them, come safe and in good condition to my hands. Among the last was the head of one of your subjects, which is said to have caused some comical consequences when opened at the Customs House, but when brought home was very acceptable to our anthropological collectors, and makes a figure in the museum of the late Mr. Hunter. (Bladen 1896, pp. 834–835)

Descendants of the Darug and Dharawal peoples have sought unsuccessfully to locate Pemulwye's head for reburial in his ancestral country. How long it remained on display in the Hunterian Museum is unknown. Neither the archives of the College of Surgeons nor other sources provide any clue as to its fate, beyond two entries in the diaries of William Clift (1775–1849), who served as conservator of the museum from its foundation until his retirement in the early 1840s. Clift's diary for 1818 notes that the painter James Ward (1769–1859) had come to the museum and sketched 'two Human heads from New South Wales'. Possibly these heads were deteriorating and a visual record was commissioned in case it proved impossible to arrest their decay to the point that only the skulls were worth preserving. Clift was exceptionally skilled in preserving soft tissue structures which at this time involved their partial dissection and immersion in spirits of wine but this was an imprecise procedure. The spirit used had to be sufficiently strong to halt putrefaction, but weak enough to prevent tissues greatly changing in shape and texture.

Assuming that one of the two heads of Indigenous Australians sketched by Ward was that of Pemulwye, the question then is: whose was the other head then in the college's possession? Here the evidence is equally inconclusive, but worth reviewing for what it reveals about two other occasions on which early nineteenth anatomists were the beneficiaries of Indigenous deaths in the early years of Australian colonisation.

In September 1803 the British government, fearing French ambitions in the Pacific, sought to protect its claim to sovereignty over the island of Tasmania by establishing a settlement on the upper estuary of the Derwent River. The site initially chosen, on the eastern bank of the river at Risdon Cove, proved inferior to the country some ten kilometres to the south on the western side of the Derwent, and the settlement was relocated in early 1804. In May of that year a violent incident occurred at Risdon Cove that continues to be a source of controversy. It would appear that clans of the region were accustomed to gather on the upper slopes of the hills behind Risdon Cove to drive kangaroos and wallabies down to the shore, where they could be easily taken. As Edward White, an assigned convict at Risdon, recalled before a commission of inquiry held in 1830, he had been hoeing ground near a creek running down to the cove when he found himself in the path of frightened game, followed by what he estimated to be some three hundred men, women and children loudly shouting and waving as they came down from the hills. White maintained that they were the first Tasmanians ever to

approach the settlement. He stood still while the people ‘looked at me with all their eyes’ while hurrying in pursuit of their quarry.

What happened next is unclear, but it seems that as the hunting party came into the cove two men were killed or wounded by panicked soldiers. The settlement’s surgeon, Jacob Mountgarret (c. 1773–1828), persuaded William Moore (n. d.), the acting commandant, that the men in the party would now attack them in force. Moore ordered a carronade to be loaded with grapeshot and hurried near to where most of the Tasmanians had gathered, and fired. Mountgarret is said to have then led a charge against the Tasmanians as they fled into the hills.

The following evening, William Moore crossed the Derwent River to report personally to David Collins, the colony’s Lieutenant Governor. He carried with him a letter from Mountgarret to the settlement’s chaplain, Robert Knopwood (1763–1838), confirming Moore’s account of having encountered possibly as many as five or six hundred people. ‘I beg to refer you to Mr. Moore’, Mountgarret wrote, ‘for the particulars of an attack the natives made on the camp to-day; and I have every reason to think it was premeditated, as their number farr [sic] exceeded any that we ever heard of’. Edward White, interviewed nearly three decades later, refuted suggestions that the people he had encountered that day had meant to attack the settlement.

On the day of the incident, Mountgarret allegedly examined the bodies of at least three or four Tasmanians. In his letter to the Reverend Knopwood he also wrote:

As you express a wish to be acquainted with some of the natives, if you will dine with me tomorrow, you will obliged me by christening a fine native boy that I have. Unfortunately, poor boy, his father and mother were both killed; he is about two years old. I have likewise the body of a man that was killed. If Mr. Bowden wishes to see him dissected, I would be happy to see him with you tomorrow. (Knopwood 1977, p. 51)

Neither Knopwood nor Matthew Bowden (1779–1814), the settlement’s assistant surgeon, could find a boat to cross to Risdon the following day; but several days later Knopwood was to baptise the child with the name Robert Hobart May. In the meantime, Mountgarret is said to have dissected one or possibly more of the dead Tasmanians, and to have dispatched their remains to Sydney. Possibly they were destined for the Royal College of Surgeons. Mountgarret had joined the Royal Navy as a surgeon

third rate in 1798, shortly after being licensed by London's Company of Surgeons (soon thereafter to be Royally incorporated as the College of Surgeons). However, there is no surviving record of these remains having ever been received by the college or any other medical foundation or anatomy school.

The other way that one of the two heads was acquired by the college may also have involved Joseph Banks. In early 1801, Banks met Matthew Flinders (1774–1814), a naval lieutenant who had returned to England after distinguishing himself by exploring the southern coast of New South Wales, the Bass Strait and the Tasmanian coast. Flinders sought to enlist Banks's influence with the leadership of the Admiralty to provide a vessel to survey the whole of the Australian coastline under his command. Impressed by Flinders' ambition and cartographic skills, Banks approached George Spencer (1758–1834), the First Lord of the Admiralty, who together with the directors of the East India Company needed little persuading of the merits of the expedition, given increasing fear of France's Pacific ambitions. Banks moreover was ready to help pay for the scientific equipment and personnel required by the expedition, which arrived in southern Australian waters late in 1801.

On the strength of their respective voyaging, both Flinders and Banks knew that circumnavigation of the Australian continent risked unpredictable encounters with Indigenous coastal communities. So it was that Flinders' vessel, the *Investigator*, not only carried a large store of trade goods including several hundred pocket knives, hatchets, beads and mirrors, but was assigned a detachment of marines and provided with defensive weaponry. Relations between Flinders's party and the peoples they met were generally peaceful until, coming ashore at Blue Mud Bay in Eastern Arnhem Land early in 1803, a meeting with a small group of Yithuwa Madarrpa men ended violently, with one being shot trying to escape to a canoe after stabbing the master's mate. Back on ship, Flinders was told that the encounter had been peaceful until the master's mate had reached out to take one man's spear 'which he supposed was offered' and the man had repeatedly stabbed the mate, perhaps fearing that he was being disarmed. The seaman had then briefly fought with the Yithuwa Madarrpa men before a boat from the *Investigator* arrived, causing them to flee to their canoes nearby. During their retreat one man had been hit in the chest by a musket ball and was thought to have died shortly after launching his canoe.

Flinders suspected 'that our people must have been the aggressors' but had no evidence to contradict the testimony of those involved in the

incident. Resigning himself, he agreed to a boat being launched early the following day to search for the body of the man. William Westall (1781–1850), the landscape artist aboard the *Investigator*, wanted to sketch the corpse, while Robert Brown (1773–1858), the expedition’s naturalist and surgeon, wanted to dissect it.

The body was found lying at the water’s edge, in an attitude suggesting the man had dragged himself from the sea before dying. The body was turned over and sketched by Westall before Brown dissected it; quite possibly he returned to the ship with the head.

No conclusive evidence survives that it was the head of this Yithuwa Madarrpa man that was sketched in 1818, or that Banks had a hand in its acquisition. However, Robert Brown owed his posting to the *Investigator* to Banks, and enjoyed his patronage once back in England. It is not implausible that he brought the head with him when he returned to London in October 1805 with twenty-five cases of animal and mineral specimens collected in the course of Flinder’s coastal survey. But it is curious that neither the head nor the skeletal material that the expedition is known to have collected when surveying northern Australian waters is mentioned by Brown in the listing of plant and zoological specimens he sent to Banks when the *Investigator* returned to Port Jackson in March 1803. Nor can we rule out the possibility that the head was among the specimens that accompanied Flinders when he left Port Jackson for England in August 1803, and which were lost when the ship in which he sailed was wrecked off the Queensland coast several days later.

In this chapter we have seen how John Hunter, Johann Friedrich Blumenbach and other anatomists of the late eighteenth and early nineteenth centuries interpreted the morphology of the Australian skull. They believed the skull, perhaps more than any other bodily structure, was susceptible to marked variance over successive generations. They attributed its variation between different peoples to an immaterial, moulding life force governing the growth and function of bodily structures being modified by environmental forces. Cranial diversity was thus seen as epitomizing human history by disclosing how populations a singly created ancestral human stock had gradually migrated to different parts of the earth. As these migratory populations dispersed they were

exposed to dissimilar climatic zones and forced to adopt differing diets, with the result that humankind had branched into five morphologically distinctive races.

For the majority of British anatomists and ethnographers active during the first half of the nineteenth century, the value of Indigenous Australian remains was their use in reconstructing this history of racial variation within the human species, by comparing what they saw as their distinctive typical form to those of skulls and other bodily structures of ancient and modern Europeans, and of other peoples known to have long inhabited particular regions of the old and new worlds. The Dutch anatomist Peter Camper reflected the consensus among his peers when he confidently asserted that comparative analysis of skulls promised to disclose new knowledge of the history of variation within the human species; but he warned that this knowledge would only be gained if medico-scientific researchers were able to build large enough collections

of the craniums of different people, that a discrimination can be made between what is general, from what is merely accidental; what is personal and to be ascribed to the diversities observable in individuals, from that which is national and characteristic of a particular people. (Camper 1794, p. 571)

The number of skulls was the key thing. Those that anatomists managed to secure were seen as helping to statistically confirm humanity's monogenetic origins, and the environmental causation of human racial diversity. But by the same token this work generated further demand for skulls, as individual anatomists and ethnographers saw comparative cranial analysis as a means of resolving differences among them—on questions, for example, as to whether variation might be caused not only by climate and other natural factors, but also by sexual selection or other cultural practices such as head-binding. As we will see in the third chapter of this book, James Cowles Prichard (1786–1848), Britain's most influential ethnographer of the first half of the nineteenth century, reasoned that in some races of men their characteristic bodily and mental qualities might owe to custom having been as influential an 'environmental' factor in the emergence of human diversity as diet and climate. As Prichard saw it, the history of many nations provided abundant evidence of the selection of sexual partners on the basis of what were perceived to be culturally desirable bodily or intellectual qualities.

Also, despite the fact that this environmentalist monogenetic orthodoxy held that all human beings possessed an innate capacity for moral and social progress, its leading adherents came to think that Australians and other so-called savage races had become so degraded from the original, divinely created form of humanity as to be incapable of significant improvement under European tutelage.

But before examining in greater contextual detail how skulls and other bodily structures figured in British scientific thinking about the course of human natural history during the first half of the nineteenth century, it seems best to devote the next chapter of this study to exploring the means by which these remains were acquired.



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