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Savage numbers and the evolution of civilization in Victorian prehistory

MICHAEL J. BARANY*

Abstract. This paper identifies ‘savage numbers’ – number-like or number-replacing concepts and practices attributed to peoples viewed as civilizationally inferior – as a crucial and hitherto unrecognized body of evidence in the first two decades of the Victorian science of prehistory. It traces the changing and often ambivalent status of savage numbers in the period after the 1858–1859 ‘time revolution’ in the human sciences by following successive reappropriations of an iconic 1853 story from Francis Galton’s African travels. In response to a fundamental lack of physical evidence concerning prehistoric men, savage numbers offered a readily available body of data that helped scholars envisage great extremes of civilizational lowliness in a way that was at once analysable and comparable, and anecdotes like Galton’s made those data vivid and compelling. Moreover, they provided a simple and direct means of conceiving of the progressive scale of civilizational development, uniting societies and races past and present, at the heart of Victorian scientific racism.

Introduction: a far more momentous problem

The decade and a half following 1858 saw the emergence in Britain of a new science of human prehistory. Forged in the crucible of colonialism, global trade, and ever-expanding missionary, geographic, and scientific exploration, Victorian prehistory sprang from two fundamental shifts in man’s scientific status. The first was a new scholarly consensus regarding man’s antiquity, whose iconic watersheds included the 1858 excavation of Brixham Cave and Sir Charles Lyell’s 1859 address to the British Association for the Advancement of Science announcing his conversion to the view. This ‘time revolution’ expanded the presumed scope of human history from some six thousand years to tens or even hundreds of thousands.¹ Lyell’s address also heralded the

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¹ See Clive Gamble and Theodora Moutsiou, ‘The time revolution of 1859 and the stratification of the primeval mind’, *Notes and Records of the Royal Society* (2011) 65, pp. 43–63.

second change in the form of a book to be released two months later, Charles Darwin's *Origin of Species*.² Where once even the antiquity of man was in question, Alfred Russel Wallace later recalled, soon all eyes turned to 'the far more momentous and more exciting problem of the development of man from some lower animal form.'³

There is a broad consensus among historians of science about what happened next. Faced with an object of study – prehistoric man – that was confined to the long-lost past with few archaeological remnants, Victorian scholars substituted their geographically distant contemporaries for their temporally distant ancestors. Placing far-flung peoples of the world on a unified linear scale of civilizational development, these prehistorians rendered 'savage' bodies and cultures as 'primitive' examples of the early stages in the evolution of all civilizations, including their own.⁴ Historians have offered a wide range of explanations for the origins and success of this controversial scholarly development.

A variety of prominent accounts frame it as the outcome of competing attempts at intellectual and professional consolidation among different generations and schools of scientific elites.⁵ Stepan, while attentive to those factors, stresses the influence of established religious tropes, particularly regarding the 'Great Chain of Being', and posits those tropes' gradual and *ad hoc* anthropometrization as the root of the Victorians' powerful conception of race and time.⁶ Others have stressed the importance of emergent contrasts between new industrial technologies and the tools and instruments encountered at the fringes of British civilization.⁷ A fourth body of scholarship has attempted to locate Victorian understandings of civilization and its evolution in the mundane practices and conventions of elite scholarship in disciplines such as philology and linguistics.⁸

2 Charles Lyell, 'Geology. Introductory Address by the President, Sir. C. Lyell. On the occurrence of works of human art in post-pliocene deposits', *Notices and Abstracts of Miscellaneous Communications to the Sections. Report of the Twenty-Ninth Meeting of the British Association for the Advancement of Science; Held at Aberdeen in September 1859*, London: John Murray, 1860, p. 95.

3 Alfred Russel Wallace, 'Biology. Opening Address by the President, Alfred Russel Wallace. Rise and progress of modern views as to the antiquity and origin of man', *Nature* (1876) 14, pp. 408–412, 409.

4 Peter J. Bowler, 'From "savage" to "primitive": Victorian evolutionism and the interpretation of marginalized peoples', *Antiquity* (1992) 66, pp. 721–729; George W. Stocking, *Victorian Anthropology*, New York: The Free Press, 1987, esp. pp. 144–185; Nancy Stepan, *The Idea of Race in Science: Great Britain 1800–1960*, London: Macmillan, 1982, pp. 1–110; Adam Kuper, *The Invention of Primitive Society: Transformations of an Illusion*, London: Routledge, 1988, Part 1.

5 For example, Stocking, op. cit. (4), pp. 238–273; David N. Livingstone, *Adam's Ancestors: Race, Religion, and the Politics of Human Origins*, Baltimore: Johns Hopkins University Press, 2008, pp. 109–200; Paul B. Pettitt and Mark J. White, 'Cave men: stone tools, Victorian science, and the "primitive mind" of deep time', *Notes and Records of the Royal Society* (2011) 65, pp. 25–42.

6 Stepan, op. cit. (4).

7 Michael Adas, *Machines as the Measure of Men: Science, Technology, and Ideologies of Western Dominance*, Ithaca: Cornell University Press, 1989; Tim Murray, 'Tasmania and the constitution of "the dawn of humanity"', *Antiquity* (1992) 66, pp. 730–743; Gamble and Moutsiou, op. cit. (1).

8 Matthew D. Eddy, 'The line of reason: Hugh Blair, spatiality and the progressive structure of language', *Notes and Records of the Royal Society* (2011) 65, pp. 9–24. Eddy's incisive remarks on the rectilinear spatiality of Western philology offer a provocative counterpoint to my argument below regarding the progressive implications of the linear scale of counting numbers.

I propose that what I here call ‘savage numbers’ – number-like or number-replacing concepts and practices attributed to peoples viewed as civilizationally inferior by their British counterparts – played a crucial and hitherto unrecognized role at this pivotal epoch in the Victorian science of man and civilization. While there is a rich literature in the history of science that historicizes and problematizes the values and practices of quantification and numerical representation, especially of the Victorian period,⁹ numbers themselves have largely escaped critical attention as objects with their own values, practices, and local contingencies. I would like to draw attention to another side of numbers: not as passive instruments of value-laden quantification but as value-laden assemblages of ideas and practices that shape theories, classifications and arguments in their own right. Recognizing the historicity and epistemic ambivalence of the very numbers of Victorian science offers the potential to challenge and enrich existing accounts of a period where anthropometric characterizations of the ‘lower races’ and of palaeoanthropological specimens became increasingly central to race science in Britain.¹⁰ My analytic category of ‘savage numbers’ stresses this plural and shifting role that numbers play in the context of the emerging Victorian science of prehistory. Both terms – ‘savage’ and ‘numbers’ – amalgamate shifting actors’ notions whose very ambiguity and flexibility (such as between ordinal and cardinal numbers or among different kinds and features of ‘savagery’) are a crucial feature of arguments with and about numbers in this context.

Savage numbers, despite their almost total absence from secondary analyses,¹¹ are notably present in many of the key works of this period. This, I argue, was neither accidental nor incidental. From the first works to theorize human ‘prehistory’ to later studies of philology, sociology, anthropology, and even biology, a relatively circumscribed body of canonical claims and anecdotes about savage numbers subtly came to underwrite a dramatic reconceptualization of human history and human nature. Though savage numbers were rarely in the analytic spotlight in these works, they rarely needed to be. Flexible, easy to grasp, yet striking and suggestive, they underwrote broad claims about the distant past by transforming the utterly familiar practice of counting into something still familiar but also strange and profound. At each of the well-known stages in the transformation of ‘savages’ into ‘primitives’, savage numbers helped show the way.

Few data would be better suited to the task of envisioning the dawn of civilized man. Those who wished could find evidence about numbers in writings about virtually every tribe and nation then known. The demands of trade, navigation, census-taking and administration called increased attention to the diversity of number systems and

9 Three influential representatives of this vast literature are Theodore M. Porter, *The Rise of Statistical Thinking, 1820–1900*, Princeton: Princeton University Press, 1986; Ian Hacking, *The Taming of Chance*, Cambridge: Cambridge University Press, 1990; Theodore M. Porter, *Trust in Numbers: The Pursuit of Objectivity in Science and Public Life*, Princeton: Princeton University Press, 1995.

10 See Stepan, op. cit. (4), especially Chapter 4; Marianne Sommer, *Bones and Ochre: The Curious Afterlife of the Red Lady of Paviland*, Cambridge, MA: Harvard University Press, 2007, Part 2.

11 Where number words or practices are mentioned, such as by Stocking, op. cit. (4), or Pettitt and White, op. cit. (5), p. 35, they do not factor significantly into the analysis.

practices from the farthest corners of the globe.¹² Travellers to uncharted territories received advice like the following, from Dr Thomas Hodgkin of the Royal Geographical Society's Exploration Committee: African natives' 'numeration will of course be the first enquiry – both as forming a most important part of any vocabulary[,] African languages being peculiar in their numerals[, and] also as an essential part of any mode of measure.'¹³ From a motley of lists, tables, anecdotes and one-off observations scattered across the accounts of travellers, missionaries, officials, and others, the new prehistorians cobbled together a framework for comprehending the vast diversity of human peoples along a single rubric of numeration.

Numbers were simple enough to be grasped, important enough to appear in a wide variety of contexts, and ordered enough to suggest intuitive, rational, progressive schemes of development. Their use was sufficiently varied and their fundamentals were sufficiently uniform and abstract to provide grounds for substantive comparisons between distant peoples. Evocative tales of savage numbers were most powerful when it came to envisioning the greatest extremes of civilizational lowliness. Prior to 1860, it was a mark of the 'idiots' at home that they could not count even their own fingers.¹⁴ By 1870, John Lubbock could confidently assert that

There is perhaps no more interesting part of the study of language than that which concerns the system of numeration, nor any more striking proof of the low mental condition of many savage races than the undoubted fact that they are unable to count their own fingers, even of one hand.¹⁵

Yet savage numbers represented a peculiar kind of datum. Historians of science, following their subjects, tend to look for evidence in the form of observations, measurements, experiments, collections and theoretical inferences. I suggest, however, that less well-regarded sources of evidence can be just as crucial in shaping the course of scientific thought. The most influential data here came in the form of memorable anecdotes and pithy asides, from stipulations as sweeping and plausible as they were arbitrary and unfounded. These forms of evidence, too, have the power to convince.

I thus aim, first, to recover savage numbers as a significant body of evidence at the birth of the science of prehistory; and, second, to account for savage numbers as a type of evidence whose influence owed less to the testimony of nature than to the power of

12 See, for example, Claudia Zaslavsky, *Africa Counts: Number and Pattern in African Culture*, Westport, CT: Lawrence Hill & Company, 1979 (first published 1973), p. 9.

13 Dr Thomas Hodgkin to Dr Norton Shaw, 1 February 1858, Royal Geographical Society, London, RGS/CB4 Hodgkin. Hodgkin added, 'Numbers may be varied from the ordinary continued series'.

14 Thus poets are lampooned in R. Montgomery, 'The omnipresence of the Deity', *Blackwood's Edinburgh Magazine* (1828) 23, pp. 751–771, 752, as 'being naturally incapacitated for counting . . . feet and toes, or yet their own fingers . . . the enumeration of his digits is a work often beyond the reach of the most respectable powers of arithmetic'. In a similar vein, a story titled 'Idiots again' in Charles Dickens (ed.), *Household Words* (1854) 9, p. 198, could be coloured with the observation that 'the law declared anybody an idiot "who could not count twenty pence"'. An essay on 'Rustic controversies' in *Fraser's Magazine for Town and Country* (1840) 22, p. 605, began by distinguishing 'The Vulgar' from 'all who can count their fingers'.

15 John Lubbock, *The Origin of Civilisation and the Primitive Condition of Man: Mental and Social Condition of Savages*, London: Longmans, Green, and Co., 1870, p. 293.

a good story. I begin in the decade before the time revolution with the most popular and oft-cited such story, which depicted one traveller's encounter with a purportedly innumerate African tribe. Following that story as it is quoted and cited in prehistorical works after 1860, I consider how savage numbers shaped and were shaped by prehistorians' shifting presentations of the diversity of the world's peoples. Crucially, savage numbers figured prominently in these accounts even as the particular theses they underwrote about human intellect, culture, and evolution often disagreed. While the mechanisms and properties of human evolution continued to be debated long after the work of Daniel Wilson, John Crawfurd, John Lubbock, and Edward Burnet Tylor, their basic premise connecting the 'savage' present with the 'primitive' past endured, thanks in no small part to the force of shape-shifting data like those considered here. I conclude by indicating the fate of savage numbers after Tylor and suggesting why they were at once so powerful and so forgettable in the history of prehistory.

A world without numbers

Long before his more famous work on eugenics and heredity, Francis Galton made his name as an adventurous explorer. Among his proudest exploits was a self-funded 1850–1851 expedition to the area surrounding Lake 'Ngami in present-day Botswana and Namibia, then dominated by the Damara tribe, just a year after David Livingstone had become the first of many European geographers and missionaries to descend upon the region. Galton's 1853 account of the expedition, published in a relatively modest single edition of one thousand copies by John Murray, was eagerly read and lauded by the leading gentleman naturalists of his day.¹⁶ Galton's readers found, nestled midway through the book, a two-page series of anecdotes describing, as their page headings indicate, 'Damara Obtuseness' and their corresponding 'Inability to Count'.¹⁷

Despite their later appropriation, these anecdotes were not about human prehistory. They were not a general commentary on the mental condition of Africa's inhabitants, nor did they have much to say about the origins of numbers or their place in human societies. In the context of Galton's narrative, these two pages showed the spectacular lowliness of a specific tribe and the unusual hardships that faced a traveller at the margins of civilization. Nevertheless, Galton's memorable passage helped his readers to imagine an ideal foil to their own lofty present, and hence a potent candidate for their presumed lowly past. Galton showed them a world without numbers.

16 Francis Galton, *The Narrative of an Explorer in Tropical South Africa*, London: John Murray, 1853. Publication information is from the ledger books (Ms.42730, pp. 316, 318) and stockbooks (Ms.42787, p. 256) in the John Murray archive, National Library of Scotland, Edinburgh. For the book's production and highly favourable initial reception see Nicholas Wright Gilham, *A Life of Sir Francis Galton: From African Exploration to the Birth of Eugenics*, Oxford: Oxford University Press, 2001, pp. 91–96. For the book's context in John Murray III's successful foray into popular travel writings see Humphrey Carpenter, *The Seven Lives of John Murray: The Story of a Publishing Dynasty, 1768–2002*, London: John Murray, 2008, pp. 166–167, 179–181, 190–199.

17 Galton, op. cit. (16), pp. 133–134. Readers of the *Athenaeum* may have sought or recognized this particular 'almost incredible' passage from a lengthy excerpt in a review of 11 June 1853 (no. 1337, pp. 701–702).

The Damara, as Galton portrayed them, were savages in the first degree. They had ‘no word at all for gratitude’, he writes, but he reports having recorded ‘fifteen that express different forms of villainous deceit.’¹⁸ Before delivering his anecdotes, Galton spells out their lesson concerning the Damara: ‘whatever they may possess in their language, they certainly use no numeral greater than three’; fingers are, for them, ‘as a sliding-rule is to an English school-boy’; they avoid losing oxen only by recognizing the faces of the herd, rather than by counting them.

Galton then presents his most direct illustration: handing a tribesman four sticks of tobacco in exchange for two sheep, the going rate, he watched as his counterpart matched two sticks to the first sheep and seemed surprised to find exactly two sticks remaining for the second sheep. Galton reports that ‘[the man’s mind] got hazy and confused . . . and he broke off the transaction’ and required that the sheep be bartered one by one.

The second anecdote recounts another series of trades, this time of ten sticks of tobacco for a heifer, with one stick placed at each of the tribesman’s ten fingers. In a universalizing passive voice, Galton explains that a second heifer can be bought by putting only half a stick of tobacco on each of the tribesman’s fingers. The ‘man is equally satisfied at the time’, Galton explains, ‘but occasionally finds it out and complains the next day.’ In sum: ‘When a Damara’s mind is bent upon number it is too much occupied to dwell upon quantity.’

Finally, Galton recalls that his dog, Dinah, seemed distressed after being reunited with her recent litter of puppies. He speculates that she ‘evidently had a vague notion of counting, but the figure was too large for her brain’, and muses that his beloved dog compares quite well with the Damara tribesman standing to the other side of him when it comes to counting ability: ‘Taking the two as they stood, dog and Damara, the comparison reflected no great honour on the man.’

Galton’s pivotal passage continues to this day to figure prominently in earnest reconstructions of the prehistory of numbers,¹⁹ and linguists continue to produce new stories of far-flung tribes that lack numbers as we know them.²⁰ Thus, while no actor in the ensuing account doubted the evidentiary adequacy of Galton’s anecdotes in print, it should be stressed just how poorly Galton’s own interpretation of his passage (as well as most subsequent ones) fares on a non-credulous reading. In the scientific context of Galton’s reception, it is significant that the apparent consensus around Galton’s story did not owe to its scientificity as a collection of authoritatively demonstrated claims. Moreover, as a matter of historiographical ethics, it would be irresponsible to leave room for such an overly credulous reading when there persist to this day narratives and

18 Galton, *op. cit.* (16), p. 194. The word lists in Galton’s notebooks from the expedition, held in University College London’s Galton collection (multiple lists in Files 97–98), appear to show just seven terms for ‘to deceive’, ‘deceit’, and ‘deception’, and there are no entries between ‘village’ and ‘vomit’.

19 I was present at a 2010 conference where a distinguished speaker on the history and philosophy of mathematics quoted Galton as unproblematic evidence in this regard.

20 A prominent recent study is Stanislas Dehaene, Véronique Izard, Elizabeth Spelke and Pierre Pica, ‘Log or linear? Distinct intuitions of the number scale in Western and Amazonian indigene cultures’, *Science* (2008) 320(5880), pp. 1217–1220.

scientific accounts that resonate uncomfortably with the deplorable scientific racism that Galton's narrative underwrote.

One needs no particularly complex or unusual system of barter and reckoning to account for the Damara's behaviour in terms other than 'confusion' or 'inability to count'. Indeed, to the extent the second anecdote is about counting, it directly contradicts Galton's claims by showing an instance of reckoning as high as ten.²¹ No readers of Galton ever ventured that Dinah's difficulty in the final anecdote might have been in recognizing her young, rather than in counting. Recognizing animals, after all, is something Galton already acknowledges to be routine for the Damara.

Even credulous readers could reach contradictory conclusions about Galton's anecdotes. His tale of trading tobacco for sheep has been taken to show a lack of basic arithmetical ability and practical number use; the lack of abstraction in Damara numeration; their inability to process numbers above three; or their general lack of linguistic, arithmetical or intellectual sophistication. Galton's comparison of dog and Damara has been interpreted to show either that the Damara can count no more than an innumerate cur, or that even animals have a basic capacity for counting commensurate with that of some humans.

A review of Galton's notebooks, letters, clippings and ephemera from the expedition throws doubt not just on his interpretation but on the events themselves.²² He records several rates of barter, but none involving tobacco and nothing to suggest that rates were uniform across the territory in which he travelled. In his notes on Damara vocabulary there is no evidence of an attempt to discern a system of numbers or arithmetic. I found no letter or journal entry from during or after the expedition that makes any mention of the above stories.

Why, then, was Galton so readily quoted by his contemporaries? Foremost, Galton offered them a good story: quick, accessible, evocative and, above all, amusing. Daniel Wilson, who coined the English term 'prehistoric' in 1862, introduced it as 'an amusing account of the Damaras'.²³ In 1865, John Lubbock, who popularized 'prehistory' in Britain, called Galton's story 'so admirable and at the same time so amusing' that he 'cannot resist quoting it in full'.²⁴ J.G. Wood's compendious 1868 anthology of 'uncivilized' peoples states that 'Mr. Galton gives a very amusing description of a

21 Strictly speaking, Galton's own gloss of the situation in terms of lacking numerals is consistent with the story he presents, but later writers used the anecdote without further evidence or argument to make the stronger claim that Damara could not count past three at all. In any event, the scene clearly belies the 'inability to count' heading that accompanies it. Perhaps this is why the second anecdote is so rarely remarked upon in comparison to the others.

22 These materials are held principally in Files 97–99 of the Galton collection at University College London. I cannot rule out the possibility that Galton retained notes beyond those I have located; manuscripts for Galton's *Narrative* have not been preserved in the principal archives of either the publisher or the author.

23 Daniel Wilson, *Prehistoric Man: Researches into the Origin of Civilisation in the Old and the New World*, 2 vols., London: Macmillan and Co., 1862, vol. 1, p. 469. For the history of 'prehistoric' and several variants see Norman Clermont and Philip E.L. Smith, 'Prehistoric, prehistory, prehistorian . . . who invented the terms?', *Antiquity* (1990) 64, pp. 97–102.

24 John Lubbock, *Pre-historic Times, as Illustrated by Ancient Remains, and the Manners and Customs of Modern Savages*, London: Williams and Norgate, 1865, p. 293.

Damara in difficulties with a question of simple arithmetic' before also quoting the entire section.²⁵ An unsigned essay by Grant Allen in William Thackeray's mainstream literary journal *The Cornhill Magazine*,²⁶ excerpted in papers as far away as San Francisco,²⁷ opens its retelling of Galton's 'amusing story' by noting that it had been 'since profusely copied by all the anthropologists'. For all its flaws, Galton's narrative gave his readers access in a clear and memorable way to just the kind of distant savage world they wanted to imagine.

But not just any well-told story would do. Galton's story was exceptionally memorable, but it rang true precisely because it treated something unexceptional. Recorded speculations about the origins of numbers are at least as old as Aristotle,²⁸ and Galton was not the first traveller to remark on the strange counting practices of far-away peoples.²⁹ Nor was he the first to make anthropological or epistemological assertions on the basis of such savage numbers.³⁰

Galton's stories made vivid a ready fount of data concerning savage numbers and their users from across the globe. His readers took from his narrative a versatile characteristic that joined the lowest of the low in every continent. Who could doubt, on Galton's testimony, the sorry state of those unable even to sum two and two?

25 J.G. Wood, *The Natural History of Man; Being an Account of the Manners and Customs of the Uncivilized Races of Men*, London: George Routledge and Sons, 1868, pp. 344–345.

26 'Scores and tallies', *Cornhill Magazine* (April 1886) 6, pp. 436–448. The manuscript for the essay is listed in the 'Grant Allen Literary Manuscripts and Correspondence, 1872–1937' collection in the Pennsylvania State University Special Collections Library, Box 3/vault/7.

27 For example, 'Are twice two four?', *Troy* [New York] *Weekly Times*, 6 May 1886; 'Are twice two four?', *Daily Evening Bulletin* (San Francisco, CA), 8 May 1886; 'Twice two: the mathematical problem which puzzled a savage', *San Francisco Chronicle*, 13 June 1886; 'Young folks' column', *Atchison* [Kansas] *Daily Globe*, 29 December 1886.

28 For example, Thomas Heath, *Mathematics in Aristotle*, Oxford: Clarendon Press, 1949, pp. 258–260.

29 The earliest to receive substantial attention in this period is Etienne de Flacourt's *Histoire de la Grande Isle Madagascar*, Paris: Jean Henault, 1658, p. 88. Commentators found close parallels between Galton's account and that of Austrian Jesuit Martin Dobrizhoffer's description of his years as a missionary in Paraguay, published in Latin and German in 1784 and available in English by 1822: *An Account of the Abipones, an Equestrian People of Paraguay*, London: Murray. Savage numbers appear incidentally in a much-cited work by Alexander von Humboldt, *Researches Concerning the Institutions and Monuments of the Ancient Inhabitants of America*, tr. Helen Maria Williams, 2 vols., London: Longman, Hurst, Rees, Orme & Brown, J. Murray & H. Colburn, 1814, vol. 1, p. 307, and Johann Baptist von Spix und Carl Friedrich Philipp von Martius, *Travels in Brazil, in the Years 1817–1820*, tr. H.E. Lloyd, 2 vols., London: Longman, Hurst, Rees, Orme, Brown, and Green, 1824, vol. 2, p. 255.

30 Influential authors outside Britain included Montucla, *Histoire des mathématiques*, Paris: Jombert, 1758, p. 48; and Wilhelm von Humboldt, *On Language: The Diversity of Human Language-Structure and Its Influence on the Mental Development of Mankind*, tr. Peter Heath, Cambridge: Cambridge University Press, 1988, pp. 286–287. Within Britain, mathematicians Augustus De Morgan and George Peacock provided explanations of the origin of numbers that included savage practices as a heuristic for thinking about early man. For example, Augustus De Morgan, *The Elements of Arithmetic*, London: John Taylor, 1830, pp. 3–6; *Library of Useful Knowledge. Mathematics. I. Study and Difficulties of Mathematics. Arithmetic and Algebra. Examples of the Processes of Arithmetic and Algebra*, London: Baldwin and Cradock, 1836, pp. 4–6. See also John Stuart Mill, *A System of Logic, Ratiocinative and Inductive: Being a Connected View of the Principles of Evidence and the Methods of Scientific Investigation*, 4th edn, 2 vols., London: John W. Parker and Son, 1856 (first published 1843), vol. 1, pp. 283–286; vol. 2, pp. 139–145.

‘A parallax of man’

Toronto professor Daniel Wilson’s 1862 seminal English-language monograph on prehistoric man uses savage numbers for his most succinct and sweeping comparisons, and relies on them to envision the farthest reaches of human prehistory. Wilson supplies an astronomical metaphor to underwrite an analysis based on contemporary tribes ‘still seen there in a condition which seems to reproduce some of the most familiar phases ascribed to the infancy of the unhistoric world.’³¹ Supposing that present-day indigenous cultures ‘can be shown to have attained maturity, exposed only to such influences as are the offspring of [their] own progress’, he sought ‘a parallax of man’ that would ‘test anew what essentially pertains to him, and what has been artificially, or even accidentally superadded by external circumstances.’³²

Wilson’s final chapter, on ‘Guesses at the age of man’, explains, ‘The idea of number is one of the earliest presented to the human mind, and may indeed be regarded as coexistent with the intelligent exercise of the human faculties.’ Thus, ‘The appreciation of numbers is accordingly frequently made a test of intellectual development.’ Wilson juxtaposes Galton’s Damara and examples from Indo-European tongues against American languages which have ‘a complete decimal vocabulary of numerals’ but are, in his analysis, wholly without abstraction.³³

Such sweeping comparisons among disparate peoples rested on a Victorian conventional wisdom about how numbers develop that transcended any particular theory about the relationship between numbers, intellect, civilization and society. Number systems first evolve, in this view, out of a primitive apprehension of units and multiples. At some point it would become necessary to count collections of things, which could be paired to familiar corporeal collections like the fingers of one’s hand or the toes of one’s feet. Thus seven objects would acquire the shorthand of one hand and two fingers. These shorthands then would form the basis of a fully fledged system of numbers with a fixed numerical base, which was usually five, ten or twenty. This number system, with the advent of mathematics, finally matured in European civilizations into an abstract system of signifiers divorced from particular collections of objects.

From the perspective of prehistorians, differences in counting and number were principally ones of degree, not of kind. Few of those in a position to offer accounts of others’ innumeracy had much need for or interest in the cognitive nuances of their interlocutors’ systems.³⁴ Reinforcing this tacit universalism was a widely held premise that numbers, while closely indexing intellectual development, were unconnected with the basic needs of subsistence. Numbers were thus free of the contingencies that complicated environmental accounts of human evolution.

Few would proclaim this view more forcefully than John Crawfurd, the influential president and chair of the Ethnological Society of London, who early in 1862 presented

31 Wilson, *op. cit.* (23), p. ix.

32 Wilson, *op. cit.* (23), pp. xi–xii.

33 Wilson, *op. cit.* (23), pp. 455, 469–471.

34 Bowler, *op. cit.* (4), p. 722, likewise notes the prejudicial orientation of traveller accounts.

a paper 'On the numerals as evidence of the progress of civilization'.³⁵ Crawford wrote voluminously on the peoples, customs and histories of the South and East Asian outposts of the British Empire both before and after his 1828 retirement from imperial administration, and his 1862 paper synthesizes old and new linguistic and social data on savage numbers from across the globe, including number words from some thirty Australian and more than seventy African languages. Writing in the context of man's new-found antiquity, Crawford did not hesitate to pronounce that 'the numerals must be considered as evidence of the unfathomable depth of the antiquity of man.' 'Mr. Galton's graphic account' permits Crawford to place the Damara among the Australians at the far end of the scale of 'numerical ignorance'. Numerals, he declares, 'advance with the progress of civilization, and are perfected only with the most advanced people.'³⁶

Crawford's address spelled out in more explicit terms than did Wilson's book two foundational principles in the emerging consensus on savage numbers. First, numbers became an index of civilizational development, with meagre number systems correlated to abject primitivity. Second, numbers provided a basis for comparing tribes in different grades of civilization. Number words were easily listed in a standard rank order and assembled into tables that offered clear parallels and distinctions. A presumed mutual inability to reckon past three provided Crawford with a rigorous and definitive basis for joining the Damara and indigenous Australians among the lowest of the low, and similar intercontinental equivalences could likewise be drawn for supposedly more advanced peoples. Though memorable vignettes like Galton's for Australian peoples did not circulate appreciably until some decades later, Crawford nevertheless had no difficulty in applying Galton's lessons of the Damara to all of his most abject tribes.

For both Crawford and Wilson, languages and cultures were constantly evolving, albeit at vastly different rates. Where Wilson proposed an astronomical triangulation to see into the distant past, by April 1863 Crawford had begun to articulate a more direct means of peering into prehistory. Reviewing Charles Lyell's *Geological Evidences of the Antiquity of Man* and Thomas Henry Huxley's *Evidence as to Man's Place in Nature*, he wrote of 'the savages of Australia' that there is 'no reason why the language of a people in so stationary a condition may not have remained essentially unchanged for thousands of years.'³⁷

Lubbock's 'striking proof'

For John Lubbock, whose 1865 *Prehistoric Times* was the first work explicitly to theorize so-called savage culture as direct evidence of man's prehistoric state, Crawford's unchanged races became living fossils of man's antiquity. Lubbock was a wealthy banker

35 John Crawford, 'On the numerals as evidence of the progress of civilization', *Transactions of the Ethnological Society of London* (1863) 2, pp. 84–111.

36 Crawford, op. cit. (35), pp. 84, 102.

37 John Crawford, 'On Sir Charles Lyell's "Antiquity of Man", and on Professor Huxley's "Evidence as to Man's Place in Nature"', *Transactions of the Ethnological Society of London* (1865) 3, pp. 58–70. On the notion of evolutionary stasis in debates over monogenism and a unified scale of racial development see Stepan, op. cit. (4), pp. 85–86; Bowler, op. cit. (4), p. 722.

and politician, tutored in natural history by Charles Darwin, with an intense admiration for the geology of Charles Lyell.³⁸ The latter's work provided Lubbock's explicit model for ethnology. In order to describe 'the early condition of man' in the absence of documentary traces, 'the archaeologist can only follow the methods which have been so successfully pursued in geology'. On the one hand, this meant studying 'the rude bone-and stone-implements of bygone ages'. But just as living pachyderms in Asia and Africa or marsupials in Australia and South America help geologists to understand their extinct cousins, Lubbock explains, so too do the 'the rude implements and weapons still . . . used by savage races in other parts of the world' illuminate 'the antiquities of Europe'. Put bluntly: 'the Van Diemaner and South American are to the antiquary, what the opossum and the sloth are to the geologist.'³⁹

Drawing repeatedly on a limited collection of canonical accounts, including Galton's and Crawfurd's, Lubbock's synthetic final chapter includes a section labelled 'Deficiencies in numeration'.⁴⁰ Lubbock stipulates, 'The names for numbers are . . . among the lower races, the best, or at least the most easily applicable test of mental condition.' For demonstration, he quotes Galton's work at length to indicate that practical counting among the Dammaras is limited to four or five.⁴¹ Spix and Martius, whose compendious account of their travels in Brazil contains but one sentence on counting or savage numbers, receive in Lubbock's summation the first of what would be many citations of their passing observation that a particular group of Brazilian Indians count only to three.⁴² Lubbock concludes with a list of Australian number words from 'One' to 'Six' involving repetitions of the words for 'One' and 'Two' – evidence that they 'can hardly be said to go beyond two'.

Like Crawfurd and Wilson before him, Lubbock readily conflates many distinct aspects of numeration in characterizing his subjects' (in)ability to count and their linguistic (in)capacity for numbers. Among these, Lubbock refers to the existence of number words in language, the use of numbers in practice, and the numerical basis of enumeration used in counting higher numbers. This last aspect, which allows him to claim that Australians do not 'go beyond two', grants Lubbock an extraordinary rhetorical license: by a similar logic, his own countrymen can hardly be said to go beyond ten. The conventional wisdom about numbers was sufficiently versatile that Lubbock's muddled particulars hardly interfere with the grand conclusions they support.

His comparison of savage mental faculties confirms for Lubbock that the 'great principle of natural selection . . . in man affects the mind and has little influence on the body.'⁴³ While this view was common among Lubbock's contemporaries, it was by no

38 See Timothy L. Alborn, 'Lubbock, John, first Baron Avebury (1834–1913)', *Oxford Dictionary of National Biography*, Oxford: Oxford University Press, 2004 (accessed online, May 2009); Stocking, op. cit. (4), pp. 150–151.

39 Lubbock, op. cit. (24), pp. 334–336.

40 Lubbock, op. cit. (24), pp. 466–468.

41 I have preserved Lubbock's variant spelling of 'Dammaras' in my paraphrase.

42 The Brazilians of Spix and Martius, op. cit. (29), were often paired, or later conflated, with Galton's Damara.

43 Lubbock, op. cit. (24), p. 491.

means obvious or uncontroversial that human natural selection was predominantly non-corporeal. Indeed, the converse claim of physical selection – both natural and sexual – was frequently asserted in debates over the origin and differentiation of the world's races. Mental selection was important to Lubbock for the evolutionary progressivism it underwrote. For while the direction and impact of physical and, for that matter, of most intellectual and cultural adaptations could be debated endlessly, numbers (so to speak) could only go up.

Lubbock's progressivism drew directly on the most iconically progressive schema of them all: the sequence of counting numbers. Indexing the world's civilizations along a rigid number scale, Lubbock could make the course of their evolution seem equally rigid and one-directional. This principle surfaced prominently in Lubbock's 1867 refutation of Archbishop Whately's influential degenerationist theory of civilization, premised on man's decline from his Edenic origins. Faced with a great deal of mostly ambivalent evidence, Lubbock had only to assert to the British Association that 'I feel great difficulty in supposing that any race which had learnt to count up to ten, would ever unlearn a piece of knowledge so easy and yet so useful.'⁴⁴

Positing the evolutionary triumph of British civilization from its lowly origins suited both the science and the politics of Lubbock and his peers.⁴⁵ Imagining a brutal past meant that these progressive evolutionists could hope for an enlightened future – one where 'our descendants will understand many things which are hidden from us now' and 'avoid much of that suffering to which we are subject'.⁴⁶ Casting the tribes around them as the brutal savages of yore made this image vivid and credible. Only if man had risen from a state of original savagery could modern savages shed light on his past and promise him a golden future. Reviewing the 1869 second edition of Lubbock's *Prehistoric Times*, E.B. Tylor wrote, 'The more widely and deeply the study of ethnography and prehistoric archæology is carried on, the stronger does the evidence become that the condition of mankind in the remote antiquity of the race is not unfairly represented by modern savage tribes.'⁴⁷

So irrefutable was the argument from the evolution of number systems that Lubbock's allies needed scarcely to invoke it and his opponents could do little more than ignore it. In the largely affirmative discussion following Lubbock's 1867 presentation, only

44 John Lubbock, 'The early condition of Man', *Anthropological Review* (1868) 6(20), pp. 1–21, 8. Lubbock gave a nearly identical address to the Ethnological Society of London that same year: 'On the origin of civilisation and the primitive condition of Man', *Transactions of the Ethnological Society of London* (1868) 6, pp. 328–341. Recall that numbers' usefulness, particularly among the lowest savages, was frequently in doubt. Alfred Russel Wallace observed in 1889 that like 'wit and humour . . . almost unknown among savages', the ability to count and reckon 'is altogether removed from utility in the struggle for life, and appears sporadically in a very small percentage of the population.' Alfred Russel Wallace, *Darwinism: An Exposition of the Theory of Natural Selection with Some of Its Applications*, London: Macmillan and Co., 1889, pp. 472 (see also 466–467). On Wallace's insistence on selection pressures and 'the struggle for life' see Stepan, op. cit. (4), pp. 66–69.

45 See Stepan, op. cit. (4), pp. 56–57.

46 Lubbock, op. cit. (24), p. 492.

47 Edward Burnet Tylor, 'Prehistoric times', *Nature* (1869) 1, pp. 103–105.

Crawford spoke to Lubbock's numeral argument.⁴⁸ The Duke of Argyll published a short book in 1869 to refute Lubbock's essay, but included only Lubbock's argument that a race would not lose religion after acquiring it—ignoring what was likely, for Lubbock, the more fundamental parallel argument about counting to ten.⁴⁹

Savage numbers were so effective in establishing the lowliness of the low that, even when citing the same number words or traveller accounts, Lubbock's own assessments of those savages' capacities for number took a grim turn.⁵⁰ Specific tribes find their stated capacity to count reduced from three or more in his 1865 text to as low as two in his 1870 *Origin of Civilisation*—the Damara and Brazilian Indians among them. Galton's tale is excerpted in full. Lubbock reuses a table of Australian number terms from his earlier book, this time adding that 'no Australian can go beyond four, their term for five simply implying a large number'—this despite the appearance of alternative terms for five in the preceding sentence ('one hand') and paragraph ('two-two-one'). Having situated his savages on the same progressive scale of civilization as his own people, Lubbock must cast them as far to the opposite end of that scale as possible: 'we obtain interesting[,] if melancholy, evidence of the extent to which the faculty of thought lies dormant among the lower races of man.'⁵¹

Origin of Civilisation also advances, to a greater extent than earlier works, the hypothesis that number systems are, with few exceptions, based on references to fingers and hands (and sometimes also toes and feet)—a hypothesis Galton's tale ably dramatized. Lubbock echoes Alexander von Humboldt in tying the word five 'in our own language' to the hand and pronouncing man's digits 'the true cause of the decimal system of notation'. It is thus that *Origin of Civilisation* drew increased attention to the traces of savagery that remain in civilized nations—evidence of the single progressive path that united them with the increasingly debased present-day counterparts to their primitive forebears.

Evident traces of barbaric life

In 1871, Edward Burnet Tylor published his two-volume *Primitive Culture*, a long and detailed study of the foundations of human society.⁵² Like Lubbock, Tylor came of age surrounded by speculation over Darwinian evolution and tried explicitly to apply

48 Lubbock, 'The early condition of Man', op. cit. (44), pp. 15–16.

49 Duke of Argyll, *Primeval Man: An Examination of Some Recent Speculations*, London: Strahan & Co., 1869.

50 On Lubbock's shifting approach to the humanity and import of savages between 1865 and 1870 see Stocking, op. cit. (4), pp. 150–156. Bowler, op. cit. (4), p. 726, notes that the depictions underwriting Lubbock's progressive message were rather grim even in 1865.

51 Lubbock, op. cit. (15), p. 299.

52 Edward B. Tylor, *Primitive Culture: Researches into the Development of Mythology, Philosophy, Religion, Art, and Custom*, 2 vols., London: John Murray, 1871. On the work's biographical and intellectual context see especially Joan Leopold, *Culture in Comparative and Evolutionary Perspective: E.B. Tylor and the Making of Primitive Culture*, Berlin: Dietrich Reimer Verlag, 1980; Stocking, op. cit. (4), pp. 157–158. The work far outstripped Tylor's less influential 1865 *Researches into the Early History of Mankind and the Development of Civilization*, London: John Murray, whose argument focused on contemporary deaf-and-dumb education.

evolutionary theory in his work.⁵³ Where Lubbock fashioned his ethnology on geology and Wilson fashioned his on astronomy, Tylor attempted a natural theory of human culture analogous to the physical sciences, whose objects in his view were not fundamentally different from human societies.⁵⁴

Tylor shared Lubbock's progressivism, but his commitment to the unity of savage and civilized man was as much methodological as ideological. He approvingly quotes the observation that 'one set of savages is like another', and claims that 'there shall be scarce a hand's breadth difference between an English ploughman and a negro of Central Africa.'⁵⁵ While most of his evidence for man's first forays into counting comes from 'lower savages', he does not hesitate to learn from, for instance, the 'English street-folk' who are at 'the other end of the scale of civilization'.⁵⁶ To wit, for Tylor, 'it appears both possible and desirable . . . to treat mankind as homogeneous in nature, though placed in different grades of civilization.'⁵⁷ Within his physical-science framework, 'the test of recurrence' validated Tylor's evidence and ruled out systematic cultural biases from the sources of error to which he would admit. While individual travellers' accounts could be of dubious credibility, when they coincide 'it becomes difficult or impossible to set down such correspondence to accident or wilful fraud.'⁵⁸

Tylor's chapter on 'The art of counting' in *Primitive Culture*, the most succinct by far in the lengthy work, set the mould for subsequent anthropological and etymological studies of savage numbers. Uniting the races of man on a common path of progress and a single scale of development traversed 'by learning and not by unlearning',⁵⁹ Tylor heaps volumes of ethnographic and linguistic data in support of conclusions whose broad outlines scarcely differ from Lubbock's. And while Tylor's insistence on the digital origins of base-ten numeration owed to far more than just Lubbock, he hewed strikingly close to Lubbock's particular valuation of the digital hypothesis. Methods of gesture counting ('an absolutely savage art still in use among children and peasants'), he writes, 'show such uniformity as is due to common principle, but also such variety as is due to independent working-out', adding, 'The case is the not uncommon one of high civilization bearing evident traces of the rudeness of its origin in

53 Tylor's second edition (Edward Burnet Tylor, *Primitive Culture: Researches into the Development of Mythology, Philosophy, Religion, Language, Art, and Custom*, 2nd edn, 2 vols., London: John Murray, 1873, vol. 1, p. vii) apologizes for having mostly omitted explicit references to Darwin and Spencer in the first edition. The intervening two years had seen the publication of Charles Darwin's *Descent of Man*, in which Tylor, along with Lubbock, was frequently and generously cited (*The Descent of Man, and Selection in Relation to Sex*, vol. 1, Brussels: Culture et Civilisation, 1969 (first published London: John Murray, 1871), pp. 181, 234). For Darwin's favourable impression of Tylor see Frederick Burkhardt *et al.* (eds.), *The Correspondence of Charles Darwin*, Cambridge: Cambridge University Press, 2002–, vol. 13, p. 194; vol. 14, pp. 171, 179; vol. 16, p. 851. Contemporaries immediately associated *Primitive Culture* with *Descent of Man* ('Primitive Culture' (unsigned review), *Nature* (1871) 4, pp. 117–119).

54 Tylor, *op. cit.* (52), pp. 3–4, 17.

55 Tylor, *op. cit.* (52), p. 6.

56 Tylor, *op. cit.* (52), p. 243.

57 Tylor, *op. cit.* (52), p. 6–7. Bowler, *op. cit.* (4), p. 725 and *passim* gives further context for Tylor's thesis of 'psychic unity' and its role in his view of savages and human evolution.

58 Tylor, *op. cit.* (52), pp. 8–9.

59 Tylor, *op. cit.* (52), p. 14 (see also 19–20).

ancient barbaric life.⁶⁰ The lesson of Tylor's work, as with Lubbock's, was that counting connects even the greatest nations to their savage origins.

Beyond its broad influence and mass of evidence, Tylor's work marks the maturation of Lubbock's framework in one further regard: while Lubbock and Crawfurd draw citations elsewhere in the book they are not invoked by name in Tylor's account of counting. Neither is Galton cited or quoted. By the time of Tylor's publication, the former's theories and the latter's images were so firmly ingrained in the established scholarly imagination that they did not require further explicit mention.

Savage numbers had a special place within Tylor's massive ethnological enterprise, tidily showing how analyses of language and culture could justify a grand theory of linear progressive development. Tylor's chapter on counting lent credence to subsequent arguments for which his developmental thesis was not so clear-cut, but it also shaped their direction. As it did for Lubbock, the uniform progress of numerical systems furnished a model to which other ethnological characters such as mythology and religion could be seen to conform. Such progressive syntheses, of course, had a sinister converse. Counting numbers only go up, but just as the scale of numbers can be read backward, so too could the scale of civilization. It was not a far leap for Tylor and his contemporaries to infer backward from the savages around them to imagine a pre-civilizational man whose links to the lower animals became vastly more plausible, supplying the sciences of race and evolution with a powerful premise and analytical device.⁶¹

Epilogue and conclusions

By the middle of the 1870s, Tylor's view of savage numbers had gained widespread currency in several areas of study—so much so that numbers' status as an index of civilization went unquestioned and number data could be turned back to characterize the very peoples they had just ranked. Tylor's and Lubbock's works were key resources in A.H. Sayce's *Principles of Comparative Philology*. 'Mr Galton's African Dammaras' and their 'hopeless bewilderment' inform Sayce's frequent use of purportedly savage language practices throughout the work.⁶² Herbert Spencer excerpts four sentences from Galton in his *Principles of Sociology* in order to characterize the effects of concrete thinking in uncivilized peoples.⁶³ Lubbock himself resurfaces in an 1885 debate in *Nature* with biologist George Romanes over animals' counting abilities, and Galton's Damara and dog alike are invoked as evidence on both sides.⁶⁴ Galton's Damara round out the bottom of Alfred Russel Wallace's scale of intellectual development in his 1889 chapter on 'Darwinism applied to man'.⁶⁵ By the end of the century, the scale of

60 Tylor, op. cit. (52), pp. 245–246.

61 See Stepan, op. cit. (4), p. 55.

62 A.H. Sayce, *The Principles of Comparative Philology*, London: Trübner & Co., 1874, p. 25 and *passim*. Sayce, like Lubbock (see note 41 above), spells 'Dammaras' with two 'm's'.

63 Herbert Spencer, *The Principles of Sociology*, vol. 1, London: Williams and Norgate, 1876, pp. 81–86.

64 John Lubbock, 'On the intelligence of the dog', *Nature* (1885) 33, pp. 45–46. George J. Romanes, 'Can an animal count?' *Nature* (1885) 33, p. 80.

65 Wallace, op. cit. (44), pp. 464–472.

civilizations was so firmly set that a mathematician like Levi Leonard Conant could use it, in turn, to enquire after the nature of numbers themselves.⁶⁶

The thoroughgoing success of this prehistorical interpretation of Galton's story is evident in the popular press, as well. Grant Allen's 1886 essay in the *Cornhill Magazine* retold the tale in order to impress upon its readers 'the extreme abstractness' underlying basic arithmetic and modern systems of counting and notation.⁶⁷ The story's conclusion puts in colourful terms the by-then mainstream ideas of Tylor and Lubbock, namely, 'Our most advanced mathematics bear obviously on their very face the marks of their irrational and savage origin, and more remotely recall the evolution of the race from a many-rayed mud-haunting amphibious progenitor.'⁶⁸ Where Galton's tale contrasted an ingenious traveller with befuddled tribesmen, Allen portrayed a 'theoretical white man' whose theoretical inclinations seem intrinsically tied to his whiteness and an unknowingly wise savage who 'saw that there was profound reasoning involved in it ... containing within itself the root and basis of all subsequent mathematical science.'⁶⁹

The turn of the twentieth century saw the emergence of new cognitive theories of intellectual development from theorists of education whose conceptual debt to Tylor and his predecessors is striking. Where Tylor asserted that 'there exists valid evidence to prove that a child learning to count upon its fingers does in a way reproduce a process of the mental history of the human race',⁷⁰ educator Susan Cunnington could say of arithmetic, 'In the nursery and the school we may see, writ small, the story of long ages of the human race.'⁷¹ The role of savage numbers would change again in the 1930s with the first major archaeological discoveries of primeval counting's material artefacts.⁷²

Galton's 1853 passage has had remarkable staying power – through generations of cognitive studies, psychological theories and archaeological discoveries and for countless anthropologists, mathematicians, educators, students and laymen. His story about trading tobacco for sheep would become such common currency that it was rarely attributed to him in twentieth-century works, and the details of its setting and what was being traded were sometimes changed.⁷³ Given its lasting import, one must not forget

66 Levi Leonard Conant, *The Number Concept: Its Origin and Development*, New York: Macmillan and Co., 1896.

67 Unsigned (Grant Allen), 'Scores and tallies', op. cit. (26), p. 437.

68 Unsigned (Grant Allen), 'Scores and tallies', op. cit. (26), p. 448. More succinctly (p. 447): 'Counting by tens is a legacy of savagery.'

69 Unsigned (Grant Allen), 'Scores and tallies', op. cit. (26), pp. 436–437. The essay continues, 'The man who first definitely said to himself, Two and two make four, was a prehistoric Newton, a mute, inglorious, and doubtless very black-skinned but intelligent Laplace.'

70 Tylor, op. cit. (52), p. 224.

71 Susan Cunnington, *The Story of Arithmetic: A Short History of Its Origin and Development*, London: Swan Sonnenschein & Co., 1905, p. 5. On this consequential conflation of savage man and modern child see Henrika Kuklick, *The Savage Within: The Social History of British Anthropology, 1885–1945*, Cambridge: Cambridge University Press, 1991, p. 86.

72 For example, Karl Absolon, 'The world's earliest portrait – 30,000 years old', *Illustrated London News*, 2 October 1937, pp. 549–553.

73 For example, David M. Burton, *The History of Mathematics: An Introduction*, Boston: Allyn and Bacon, Inc., 1985, p. 2; Morris Kline, *Mathematics in Western Culture*, London: Penguin, 1972, p. 31; Christoph J. Scriba and M.E. Dormer Ellis, *The Concept of Number: A Chapter in the History of Mathematics, with*

that Galton supplied more than a mere anecdotal slate upon which future authors could inscribe their theories. I have argued in the case of Victorian scientific racism that by supplying and justifying a successful model of civilizational progress, accounts of savage numbers helped to create that racism.

Galton himself never published on numbers' prehistory.⁷⁴ His silence with regard to the prehistory of counting is matched only by that prehistory's anonymity in historical accounts of the sciences of race and prehistory that flourished in Galton's time. When one looks for savage numbers in the key texts of this period, they are everywhere; when one does not, they are invisible. Such was the success of savage numbers as a model for man's prehistory that they were never controversial in their own right. No opponent of the progressive thesis of civilizational evolution ever directly contested claims based on that model. Savage numbers were a non-controversy – an opportune body of evidence available at a crucial historical juncture to undergird a powerful and consequential theory of man, only to slip into obscurity as a settled matter fit only for hobbyists and enthusiasts.

The prehistoric past of the Victorian period was a product of a present mired in the politics of colonialism, the science of man, and their nexus in the biology and evolution of race and culture. So-called savages were not pre-given as evidence of man's primitive prehistory: they had to be made into evidence; savage numbers were instrumental in this fabrication; and that fabrication had dramatic consequences for the scientific, colonial and, indeed, human status of these people. Victorian prehistorians made savage numbers a marker of civilization: its index, its beacon, and its form.

Applications of Interest to Teachers, Mannheim and Zürich: Bibliographisches Institut, 1968, p. 7. Even Stocking, op. cit. (4), p. 93, bluntly misrepresents Galton's remark about his dog, Dinah.

⁷⁴ This is all the more striking given the influence of his African travels on other aspects of his later work – see Stocking, op. cit. (4), pp. 95–96; Raymond E. Fancher, 'Francis Galton's African ethnography and its role in the development of his psychology', *BJHS* (1983) 16, pp. 67–79 – and the fact that he spent most of his career in the same scientific communities as Lubbock, Tylor and their peers. Even some of Galton's later writings would seem to offer openings for such considerations, for example Francis Galton, *Hereditary Genius: An Inquiry into Its Laws and Consequences*, London: Macmillan and Co., 1869, p. 198, pp. 336–340, 350. The prehistory of numbers seems absent as well in the large selection of Galton's correspondence at University College London (throughout their Galton collection), the Royal Geographical Society (in Correspondence Block 4), and the National Library of Scotland (various MSS, especially in letterbook Ms.40435).