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The making of a New Race

THE MAKING OF A NEW RACE IN THE EARLY TWENTIETH CENTURY IMPERIAL IMAGINARY*

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Abstract:
This paper contends that understandings of race and practices of racial differentiation underwent a significant epistemological shift around the first decades of the twentieth century. It reaches this conclusion via consideration of a dog breeding programme conducted by the statistician and hereditarian theorist Karl Pearson. In 1913, Pearson proclaimed that he, along with his collaborators Edward Nettleship and Charles Usher, had created a ‘new race’ of dog. Notable for its complete absence of hair pigmentation, this race appeared to demonstrate the potential that experimental animal breeding had for imperial policy-making. In differentiating his dogs from the Pekingese spaniels from which they had been produced, Pearson sought to show that 'foreign' animals could be made to approximate British racial standards. In Pearson's wake, animal breeding became an increasingly persuasive means by which scientists sought to legitimate racial contentions. By the 1920s, established anthropocentric approaches to human differentiation had begun to be replaced by new, animal-centred techniques and practices. Whereas nineteenth century conceptions of race had primarily been articulated in relation to the study of human bodies, in the new race of the twentieth century differentiation would involve study of and experimentation with bodies of all kinds – animal and human.

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Introduction:

Sometime towards the end of March 1913, the statistician, philosopher of science and critical figure in the emergence of genetic science Karl Pearson gave the second half of a two-part speech at University College London.¹ The year was an auspicious one for Pearson, marking the combination of the two professorial Chairs that he held at UCL (in Applied Mathematics and Mechanics, and Eugenics) within a single department.² Yet as far as the lecture’s attendees were concerned, this wasn’t the most intriguing aspect of his academic endeavour. More engagingly, a locked cage onstage containing an animal that Pearson claimed had unparalleled significance for the understanding of human nature, racial difference, and the future of the British empire: a Pekingese dog named Ling. Ling’s canine relatives were outside, in UCL’s main quad, awaiting post-lecture inspection (fig. 1). They represented, Pearson explained, the possibility of turning the entirety of the empire’s peoples into civilized citizens. What had started out as a foreign, variously-coloured breed of dog, had been transformed since the start of a scientific breeding programme in 1908 into what he called a ‘new race’: a population of domestic, white, albinos. He even gave his new race a new, English name: the ‘Dondo.’³

This article contends that the institutionalization of animal breeding programmes in scientific institutions at the start of the twentieth century marks an epistemological inflection point in the history of conceptualizations of the nature of racial difference. Historians of biology have detailed the association between experimental breeding programmes and the emergence of such scientific objects as Mendelian ‘factors’ and model animals, as well as the elucidation of population-based and inter-generational approaches
The making of a New Race
to medicine. The implications of these for racial thought remain however surprisingly opaque. Without claiming that early twentieth-century experimental animal breeding was in any way inherently or inevitably directed at questions of race, I here explore the significance that it had for the articulation and implementation of racial politics. In contrast to nineteenth century race theorists’ almost exclusive emphasis on human difference, twentieth-century scientists positioned the investigation – and in particular the breeding - of animals as a critical means by which human kinds might be defined. Despite extensive exploration of the relevance of racial thinking to contemporary genetic science, histories of early experimental research on biological inheritance continue to give the impression that racial concerns were peripheral to it. Concentrating on the British imperial context, this article demonstrates that at least some institutionally scientific experimental breeding programmes were framed as epistemically relevant to the definition of racial categories from their very beginning. Existing scientific conceptualizations of race were not simply adapted to the experimental re-conceptualization of heredity in Britain at the start of the twentieth century: they were integral to its very construction.

My focus on this burgeoning fascination with experimental animal breeding amongst hereditarian scientists is motivated by two broad historiographic concerns. Firstly, despite increasing engagement with the ‘new imperial history’ (through which domestic European culture and politics have been shown to have been deeply influenced by imperial endeavour) in histories of science, technology and medicine, hereditarian science has so far remained largely absent from it. By drawing out ways in which scientists enrolled experimentally bred animals in the projection of imperial norms and values, I demonstrate that recent attempts to associate animal-centred programmes of biological control with
The making of a New Race

inherently ‘modernist’ creeds or ideologies - such as Tiago Saraiva’s recent identification of experimental breeding programmes with fascist forms of European governmentality – risk obscuring a more general and longer-term trend through which racial differentiation, imperial politics, and animal experimentation became ever more entangled. As Rohan Deb Roy and Sujit Sivasundaram suggest, Europeans’ very construction of categories of human racial difference came to rely on the characterization of non-human bodies as their most relevant others from at least the middle of the nineteenth century. Nevertheless, the twentieth century did see the scientific study of race constituted ever more in relation to both human and non-human bodies. My second aim here then is to emphasize that this process both motivated and was dependant on the construction of specific environments in which animals could be made to speak in certain ways (and not others) to human concerns: breeding laboratories were not simply abstract means of discovering the mechanics of organic change, but spaces in which it became possible to test the extent to which embodied subjects might withstand the imposition of racial ideals. Pearson’s dogs, largely forgotten as an insignificant curiosity of early twentieth-century hereditarian science, thereby re-appear as a critical moment in the construction of an animality-entangled racial imaginary.

This article consequently identifies more intimate connections between the day-to-day politics of imperial Britain and the establishment of experimental animal breeding programmes than have previously been recognized. Though Pearson is well known as a race theorist, historians have addressed his Empire-related speculations separately from his evolutionary and statistical concerns. Indeed, the tendency to identify scientific conceptualizations of race tout court with human eugenics at this time has lent credibility to
The making of a New Race

such separation. These assumptions downplay the extent to which Pearson and others lent academic respectability to their racial and imperial claims via the breeding of animals. The cultural status of the dogs that Pearson himself bred is particularly relevant here: as Sarah Cheang has emphasized, the prominence of Pekingese in the early twentieth-century British dog fancy encouraged breeders’ fascination with Chinoiserie, contributing to a more general fashion for ‘oriental’ objects and practices. Notably however, Pearson’s dogs had by 1913 become decidedly un-oriental: not only did they now evince the whiteness associated with ‘civilized’ European bodies, but they had also shed the orientalist name that tied them to their attributed point of origin. This then was a programme in which the breeding of animals spoke directly to contemporary politics of empire.

Equally, racial concerns informed Pearson’s approach to dog breeding itself. Studies of animals and race have primarily concentrated on ways in the former were made to stand in for and justify discriminatory conceptions of human nature. This article shows that experimental studies not only supplemented racial presumptions ‘out there,’ but also helped create nationally domestic spaces (in this case the first animal house at University College London) in which strategies of racial control could be rehearsed and articulated. At a time when fears surrounding the so-called ‘yellow peril’ was at its height, the prospect that all peoples might be coerced into becoming white remained an enticing prospect to many in Britain and its empire. Pearson presented his canine charges as representatives of the possibility that all human races could be so ‘improved.’ The new ethos of experimental hereditarian investigation that he helped promote did not herald a ‘retreat’ of scientific racism during the first decades of the twentieth century, but rather constituted new horizons of racial possibility. Due to the epistemic entities (animals) now positioned as
central to its practice, the scientific study of race could no longer be understood as the exclusive purview of anthropological investigation. Instead, it was incorporated ever more within the study of organic and developmental processes more generally.

The following then sets out the anthropological context of Pearson’s studies in biological inheritance, before addressing the intersection between imperial ideologies of whiteness and scientific animal breeding in Britain. It closes with a consideration of the extent to which the animal house that Pearson established at UCL both expressed and helped legitimate more broadly-held imperial anxieties and projections. Throughout, shows how animal breeding was brought to bear on matters of human racial concern. This process contributed to the creation of a ‘new race;’ the articulation of a set of strategies of imperial management and control in which experimentation with animal bodies would inform those imposed on human beings, and (crucially) vice versa.

I.

In his lectures of 1913, Pearson characterized the various types of dog that he along with his collaborators the ophthalmologists Edward Nettleship and Charles C. Usher had been breeding as different ‘races.’ Such nomenclature was fairly routine at the end of the nineteenth century: zoologists, fancy breeders and agriculturalists alike referred to strains of animals in such terms. Pearson and Nettleship had bred various strains of dog from their initial pair of albinotic Pekingese acquired in 1908. In total, Pearson claimed to have created four new canine ‘races,’ primarily by crossing the Pekingese ‘Dondos’ with a group of carefully selected Pomeranians (discussed more fully below). In addition to the Dondo
The making of a New Race

Pekingese, he announced a breed of ‘Pompeks’ constituted by blending the two original breeds, a sub-type of these named the ‘Galton Spaniel’, and a Pompek-albino Pekingese cross named after the French-Swiss ophthalmologist Édouard Cornaz. Pearson boasted to his wife, the poet and feminist historian Maria Sharpe Pearson, that these acts of creation demonstrated that he ‘had control of the vital processes.’

Nevertheless, Pearson’s approach to the differentiation of animals would have been surprising to casual contemporary observers. For example, rather than consider the various ‘points’ that fancy breeders valued, Pearson concentrated on the precise lengths and breadths of his dogs’ heads:

There can hardly be a greater contrast than [the] broad head of the Pekinese with its short muzzle and the narrow head & long muzzle of the Pom... The first cross between Pomeranian & Pekinese were all described by us as “short muzzled dogs”... The long fine muzzle of the Pom was clearly recessive, and it ought to come out again when the Pompek was crossed with Pompek... [Yet] what we have got are rather mongrel looking heads which are neither Pom not Pekinese.

Pearson’s obsession with what he elsewhere in the lecture called the ‘muzzle indexes’ of his animals was by no means incidental. As this section demonstrates, the criterion emerged directly out of an already-established set of anthropological concerns: Pearson’s programme for the study of inheritance (which he referred to as ‘biometrics’) was unapologetically human-oriented.
During the 1890s, Pearson had become a key proponent of one of the more complex attempts to define and differentiate between human races on anatomical grounds. The belief that humans could be distinguished using a single, measurable anatomical characteristic had its origins in the constitution of race as an object of scientific investigation by European explorers, natural philosophers and academics from the seventeenth century onwards. In this context anatomical characteristics of all kinds came to be deployed as indicators of imperial subjects’ political prospects. For such figures as Petrus Camper and Johann Friedrich Blumenbach, skull size and shape in particular came to be understood as a critical index of racial typology. Yet mid-nineteenth-century physical anthropologists found that individuals’ skulls often refused to accord with established classificatory expectation. European skulls, generally considered the largest and most symmetrical (and therefore the most capable) were not always shown to be so when subject to the discipline of measurement. New approaches to measurement and calculation grew up around such problems. Most notable amongst these was the ‘cephalic index’ – a ratio of the lengths and breadths of skulls. Towards the end of the century, cephalic indexes became indelibly associated with an increasingly influential strand of physical anthropology, in which statistics played a critical role. It was from this measurement technique that Pearson’s muzzle-related terminology was drawn.

Pearson’s mentor Francis Galton’s science of statistical differentiation, and especially his development of normal distribution curves, did most to legitimate the cephalic index as an authoritative technique of anthropological classification. Galton cast his nascent science as simultaneously a means of characterizing and differentiating between races, and a contribution to the newly respectable investigation of organic evolution: for Galton,
The making of a New Race
distribution curves described historical as well as spatial relations amongst races. Most notably, the centre or highest point of a distribution curve – the point representing the most ‘normal’ individual of a given race – was held to represent the historical origins of that race. Deviations from the norm were historical anomalies; expressions of ‘heredity defect’ that would, if allowed to propagate, distort the character of the group as a whole. The continuation of racial ‘types’ was nevertheless ensured by a mechanism Galton referred to as the ‘ancestral law,’ by which individuals were defined by the summation of characteristics passed down to them by all of their predecessors. Inheritance thus appeared as a force that was simultaneously constitutive of and potentially destructive to racial integrity: though populations tended to revert to their historically defined ancestral types, anomalous individuals, if allowed to pass their quasi-pathological characteristics on, could cause undue deviations from the historical norm (‘degeneration’). In exceptional cases, extreme deviations, or ‘sports,’ might also constitute new racial kinds.26

Pearson began to refine Galton’s work during the 1880s and 1890s. His contributions were twofold: firstly, he sought to re-cast Galtonian statistics as demonstrative of a gradualist vision of biological development. Along with figures such as W.F.R. Weldon and collaborators including Alice Lee and Ernest Warren, Pearson contended that statistical techniques made it possible to observe contemporary evolutionary change directly. These biometricians took anomalies in distribution curves as indicators of instances of developmental divergence, most famously in a population of Mediterranean crabs portrayed as two differently-constituted, diverging groups.27 Yet historians’ tendency to identify biometry exclusively with studies of non-human animals ignores the explicitly imperialist nature of much early biometric endeavour.28 Most notably, it elides the
The making of a New Race

significance for evolutionary thinking of a major element of imperial science at this time: archaeological anthropology. And it was Pearson’s contribution to this latter endeavour that had the most immediate relevance to his dog studies.

Pearson’s collaboration with W.H. Flinders Petrie, one of the most prominent archaeologists of the late nineteenth century, played a crucial role in his engagement with and revision of Galton’s ideas.29 By 1895, Pearson and Weldon had embarked on their above-mentioned crab claw study. Yet at this very moment, Pearson was addressing another set of measurements. These described the extensive collection of human bones that Petrie unearthed during his excavations in Egypt that year. Pearson and Petrie corresponded intensively during the appropriation of the remains of what they referred to as a ‘New Race’ of ancient Egyptian people; Pearson even found a temporary home for the collection at UCL.30 Pearson’s denotation of the dogs as themselves a ‘new race,’ then, was a deliberate echo of a pre-existing intellectual trope. Notably, a significant strand of nineteenth-century anthropology contended that Egyptians had been an originality prototypically ‘white’ people, and were thus potentially a common evolutionary ancestor of Europeans.31 Petrie’s initial report to Pearson declared the find to be of ‘great ethnographic interest’:32 skull size and comparison was central to their evaluation of the significance of this collection for evolutionary theory.

Critically, Pearson deployed the Egyptian ‘New Race’ to challenge a key element of Galton’s scientific programme of racial differentiation.33 The problem that the bones seemed to present was that they deviated from established ideas as to the anatomical proportions of both Africans ‘proper’ and of (more ‘European’) modern Egyptians. In correspondence with Pearson, Petrie thus initially characterized the ancient skulls as the
The making of a New Race
remains of a ‘cannibal race’ of ‘ancient Libyans’ who had he supposed migrated to Egypt, displacing a more primitive group.\textsuperscript{34} Pearson disagreed: comparisons between the lengths of skulls in a range of anthropological collections indicated that the New Race possessed heads of a size comparable to if not larger than those of modern Europeans. Including skull breadth via his cephalic index calculations re-positioned them as a transitional stage on an evolutionary continuum, in which ‘primitive’ humans with ‘long’ heads had gradually been replaced by those with ‘broad’ heads.\textsuperscript{35} Thus, Pearson insisted to Petrie, there had been no migration: ‘roundheads have been derived from longheads by a selection of breadth rather than length.’\textsuperscript{36} This contention would become something of a shibboleth for biometricians in the ensuing decades.\textsuperscript{37}

In asserting the primacy of anthropometric calculation over the civilizational speculations of his collaborator, Pearson was combining archaeological, evolutionary and historical claims in a manner that had become increasingly routine amongst contemporary theorists of empire. Nevertheless, his conclusions diverged from conventional wisdom regarding the causes and implications of racial evolution. Liberal theorists for example tended to identify education rather than organic development as the critical factor in civilizational progress: an assumption that led many to emphasize that social policy could improve racial stock. More biologically determinist thinkers tended to assume (following Galton) that populations free of distortion from degenerative environmental pressures would tend to ‘revert,’ or ‘regress’ to their original types (Galton’s statistical ‘means’).\textsuperscript{38} Pearson attempted to reconcile these stances, articulating a progress-oriented and yet simultaneously biologically determinist conception of civilizational change. To do so, he differentiated Galton’s identification of normal characteristics with ancestral origins.\textsuperscript{39} The
The making of a New Race

Egyptian and the canine new races were neither pathological deviations from racially pure ancestors, nor superior invaders that had displaced backward groups. Rather, they represented a universal, gradually progressive process of evolution.

Pearson’s attention to the muzzle indexes of his canine charges was not thereby an expression of scientific eccentricity. Rather, it reflected deep-seated investment in anthropometric anthropology, and a desire to extend its influence over zoology. The very denotation of the new statistical field as ‘biometry’ (replacing Galton’s ‘anthropo-‘ prefix with the more evolutionarily pertinent ‘bio-‘) belays Pearson, Weldon and their associate’s aspirations. The implications of this move moreover went beyond simply deploying techniques developed in relation to human bodies to account for differences amongst non-human beings. Specifically, Pearson re-opened Galton’s mathematics to the possibility that all organisms (humans included) might be enrolled in projects of gradual ‘improvement’. His interest in animal heads thus extended beyond dogs. Shortly before he and Nettleship began their canine studies, he attempted to instigate a farm-based program that would (as he related to Maria) ‘from black pigs with short heads and white pigs with long heads... produce a race of white pigs with short heads.’ ‘If that can be done,’ he claimed, ‘then most things are possible.’

Pearson adapted anthropometric techniques of racial characterization to new, experimental approaches to heredity: discernment by measurement was to be a means of defining generally biological rather than exclusively human difference.

If Galton’s science of statistical discrimination played into an increasingly prevalent conception of ancestrally-maintained racial stability, it also resonated with then-prevalent conceptions of canine nature. Galton himself conducted an extended survey of breeder’s records of Basset Hound mating, with a view to discovering the nature of coat-colour
The making of a New Race

inheritance. Breeders, as Worboys et. al. have recently emphasized, began to identify different kinds of dog with historically distinct ancestral forebears only towards the end of the nineteenth century. Pearson and Nettleship’s amateur breeder informants assured them that Pekingese were an inherently ‘civilized’ breed that evinced a peculiarly ‘oriental’ set of racial characteristics. Prominent breeder George Brown thus informed Nettleship that the dogs were the inspiration for the so-called ‘guardian lion’ (shíshī: 石獅) statues in front of China’s imperial palaces, probably making the breed over 2000 years old. Nettleship similarly asserted it to be ‘very ancient’, and asserted ‘one of the Chinese gods, a gentleman called Fo’ to be a ‘monstrous charicature [sic] of these dogs’. Orientalist assumptions that the dog was of both extreme age and mysterious import added important cultural inflections to the breeding program. Nor was Pearson alone in his scientific fascination with breeds originating from ‘the east’. Adopting such animals as means of discovering the nature of race itself imported European imperial concerns into the heart of the new experimental science.

Nevertheless, in contrast to Galton, Pearson invested in a then counter-intuitive conception of racial differentiation, in which the progression or degeneration of races primarily depended on the contingencies of transmission between individual generations. In announcing his creation of ‘new’ canine races, then, Pearson was advancing a specific claim regarding the prospects of hereditarian investigation. Though the muzzles of his dogs might be ‘mongrel looking’, that they blended two previously existing types into an apparently persistent new form indicated that it was possible to direct evolution itself. Biometric dog breeding thus helped constitute new horizons of political possibility. Firstly, it indicated that there could no longer be any certainty that a historically homogeneous
The making of a New Race

population, left to its own devices, would retain any inherent ‘racial’ integrity. Secondly, it appeared possible to cultivate entirely new biological (including human) kinds of being. It was not in relation to head size, however, but the more immediately discriminatory criterion of skin colour, that this latter prospect found its most complete expression in Pearson’s own work.

II.

Pearson and Nettleship’s breeding program was an explicit attempt to constitute a science of heredity that could account for and potentially direct the development of both human races and animal species. As such, the characteristics accorded most epistemic significance by them were not osteological, but epidermal. The fact that the dogs were apparently entirely devoid of pigmentation was for Pearson especially of great import. ‘We simply must have them,’ he had declared on hearing of the existence of the original albinotic pair.46

This section addresses the meanings that the dogs’ whiteness had for Pearson the theorist of empire as well as Pearson the biometrician. Albinism featured prominently in Pearson’s discussions of race during the 1910s. Before his and Nettleship’s discovery of the dogs, they had embarked on an extensive survey of albinism amongst British imperial subjects: a project that resulted in the publication of two volumes (in 1911 and 1913) of a longer-projected monograph series entitled Albinism in man. It was in order to exemplify and expand on this human-centred study that they embarked on their canine investigations. By determining the processes of transmission of coat colours between generations of dogs, Pearson in particular sought to position himself as an authority on one of the most
The making of a New Race

contentious and long-standing questions in imperial science: the nature of human skin
colour inheritance.

The year before he presented the dogs at UCL Pearson had made the following
portentous pronouncement:

My studies on... albinism of the dark races have convinced me that with
sufficient funds, dictatorial power, and longevity in the dictator, a very few
generations would suffice to produce a race of negroes with white skin, yellow
hair, and blue eyes. I do not believe that any funds or power or length of time
would enable me [sic] to reverse the process. The white [race] almost certainly
had a dark-skinned, dark-haired, and dark-eyed ancestor, and he has lost
something which it would mean reversal of selection to regain.\textsuperscript{47}

Three connected contentions are exemplified by this quote: first, Pearson conveyed a
conception of evolution in which characteristics could appear and disappear rapidly. Second,
evolutionary progression was non-reversible and characterized by a change in colour from
(undesirable) black to (desirable) white. Finally, ensuring the continuation of this process
was of necessity a matter of imperial government (the most certainly effective form of
which being ‘dictatorial power’). All three informed Pearson’s approach to dog breeding.
Most notably as far as this article is concerned, Pearson employed a group of Pomeranians,
selected for having the most complete black-coated ancestry possible, in place of ‘the dark
races.’\textsuperscript{48} The animals resulting from crossing these with ‘Dondos’ became exemplars of the
dangers and possibilities relating to human miscegenation. Most notably, Pearson appealed
to the albino Pekingese as embodiments of the possibility that ‘dark’ and ‘oriental’ imperial
subjects might be ‘improved’ through inter-breeding with ‘whites.’
The making of a New Race

It is difficult to over-estimate the extent to which associations between whiteness and civilizational superiority pervaded politics at this time.\textsuperscript{49} In addition to the above-described longstanding fascination with the possibility of biological change and its relation to archaeological and historical progress, anxieties regarding the perceived physical inadequacy of lower-class ‘whites’ had become a matter of intense domestic political concern. This was partly prompted by the perceived failure of British imperial projects in China and Southern Africa. In 1906, the reigning Conservative government in Britain suffered a crippling defeat at the hands of an alliance between Henry Campbell-Bannerman’s Liberal party and a burgeoning Trades Union movement. Electoral collapse came as something of a surprise, as Conservatives had recently presided over a much-anticipated (if frustratingly belated) military victory in South Africa: long-awaited suppression of Britain’s Boer rivals did not translate into Conservative votes. This, as historians have shown, was at least in part due to the prominence during the campaign of the so-called ‘Chinese slavery’ question.

Liberal and trade unionist politicians campaigned on a platform of protecting the rights of white labourers throughout the British empire. That this issue had such resonance in 1906 was however related to a specific set of policies regarding the movement of labour around the British Empire in general, and into South Africa in particular. Commitment to free trade extended for many imperial policy-makers to the free movement of people. Yet in the now-predominantly ‘white’ territories around which ideas of establishing a ‘Greater Britain’ circulated, ‘coloured’ labour migration seemed to many to threaten the integrity of the imperial project. South Africa’s status as a nominally white territory that nevertheless relied heavily on the exploitation of its indigenous population placed it in an especially
The making of a New Race

uncertain position. Gold mining industrialists had found themselves facing severe labour shortages following Britain’s assertion of military dominance. Yet many white mine employees remained deeply suspicious of free trade labour policy, and accused policy-makers of deliberately undercutting their bargaining capacity. When in 1904 the Conservative government sought to solve the labour shortage by importing workers from China, then, the stage was set for direct confrontation. Organized ‘white labour’, union leaders and liberal politicians contended, had been deliberately stymied by a contrived invasion of ‘yellow’ workers subjected to slave-like working conditions.50

It was precisely during this period of intense racial anxiety that experimental approaches to inheritance gained intellectual prominence in Britain. Biometric technologies and anthropological presumptions regarding the natural differentiation of races played a prominent role in Conservatives' reassurances regarding the possible consequences of racial mixing. Conservative policy dictated that Chinese workers would be carefully monitored, and their movements confined within exclusion zones strongly reminiscent of the concentration camps that had been used against Boer and indigenous groups during the war. For the first time, identificatory fingerprinting of a defined racial group – an approach that enrolled Galton’s new science directly into programmes of imperial government - would ensure that state control of a migrant population remained absolute.51 In any case, politicians suggested, such workers posed no risk to the racial integrity of their white counterparts, as it was not possible for distinct races to ‘blend’ to any long-lasting degree.52

Many British scientists’ discussions of heredity overlapped with and supplemented Conservative reassurances regarding the risks of miscegenation. Most notably, new conceptions of hereditary mechanics seemed to imply that even were Chinese or African
The making of a New Race

workers to procreate with colonizing Europeans, a natural re-assertion of racial integrity would be possible. Though Weldon and Pearson’s rival William Bateson did not actively support conservative causes, he was a close associate of Lord Balfour, who both sponsored Bateson and acted as British Prime Minister during the Boer War. Perhaps not coincidentally, Bateson was an early enthusiast regarding the German biologist August Weismann’s contention that an individual’s bodily characteristics were expressive of a more fundamental ‘germ-plasm’ that carried the originary characteristics of a race across generations. Even greater excitement surrounded the ‘rediscovery’ of Gregor Mendel’s investigations of hereditary transmission. Experimental animal breeding encouraged fellow enthusiasts of Bateson’s including Charles Davenport and George P. Mudge to declare that human bodily diversity was the product of as-yet imperceptible pairs of racial elements or ‘unit characters.’ Moreover, albinism featured as a placeholder for white racial purity in early British discussions of Mendel. As the avowedly conservative Mudge put it, ‘when two sex-cells unite, one carrying blackness and the other albinism, these... remain distinct’: ‘sex cells are the carriers of the characters of the race.’ The ‘blending’ of races, in this vision, was a temporary aberration rather than an irreversible ‘dilution’ of stock.

Pearson remained vehemently opposed to any suggestion that evolution occurred at the level of transmission between individuals: his was a population-wide inheritance in which change expressed itself as a series of pan-generational averages rather than along family lines. Accordingly, he characterized Mendelian unit characters as an unscientific attempt to re-assert a pre-Darwinian ideal of nature as static creation. As his dog lectures explained:
The making of a New Race

No other conception of heredity [than Mendelism] can today obtain a hearing.

Yet... the present experiments... indicate that there is still a chance for
philosophic Darwinism. Even by hybridization, a new race can be created which
is not a mere shuffle of old unit characters, but is a true intermediate.\textsuperscript{55}

This gradualist, quantitative notion of evolution nevertheless sat awkwardly with Pearson’s
imperial investments. Britain for him constituted a simultaneously racial and political unity:
it was through active selection of the white population above all else that national
ascendancy would be ensured.\textsuperscript{56} Yet it was also perfectly possible for entirely new races to
be created through interbreeding between historically distinct populations. The racial
integrity of the British Empire therefore relied on rigid sexual discipline amongst its white
constituents. The prospect of Chinese workers mythologized in the British imagination as
amoral and sexual promiscuous coming into contact with British workers was potentially
calamitous.\textsuperscript{57} Hence Pearson’s animal studies played directly into contemporary imperial
ideology. During initial attempts to adapt Galton’s dog colour data to his own evolutionary
concerns, he despaired of finding any pattern, lamenting to his mentor that ‘between the
Boers & the Bassett Hounds I don’t get much sleep o’ nights!’\textsuperscript{58} Without a more
fundamental, ‘hidden’ mechanism of hereditary transmission, there was no possibility that
the intermingling of populations could be undone.

Pearson asserted that all races were inherently capable of attaining white
characteristics, and thereby becoming civilized.\textsuperscript{59} Moreover, he contended, there was no
record of dark skin being produced from properly white parentage.\textsuperscript{60} Whiteness was a
progressive, fragile achievement rather than an originary state. Such claims challenged
conservative preconceptions regarding inherent racial separability. As Pearson reported to
The making of a New Race

Galton, the lecture audience, ‘while ready to accept a monkey ancestry were not prepared for the [suggestion that they were descendants of] negroes!’

As exemplary figures of whiteness, albinos were thus a (or even the) driver of evolutionary progress. They were marked by an increase of ‘delicacy’ that simultaneously rendered organisms more susceptible to disease and more capable of discerning the true nature of their surroundings. As Europeans had begun to attain their proper place in the global order, albinos had helped cultivate an aspiration towards whiteness amongst even the most ‘primitive’ peoples. This was in some respects of course a well-established assimilationalist trope: though presently below the standard of rationality embodied by white Europeans, colonized peoples might be ‘improved’ to approach it. Yet Pearson’s claims associated improvability with bodily change alone. It was only with proper procreative supervision that South African mine workers might attain the capabilities of their white overseers. During the lecture, Pearson noted his especial indebtedness to the ‘excellent photographic work of Dr. G[eorge] A[lbert] Turner of Johannesburg’, though neglected to mention that it was his position as a medical officer of the Witwatersrand Native Labour Association (a migrant worker recruiting agency for the gold mines) that had made his pictorial survey possible.

It should be emphasized that Pearson’s capacity to influence British imperial policy directly remained slight. Though he might have dreamt of attaining dictatorial power, his inability to directly implement his ideals led him to concentrate his efforts on the breeding of non-human ‘races.’ Dogs were thus employed as stand-ins for an imaginary in which ‘dark’ peoples would be coerced into becoming ‘light.’ By 1911, having established to their satisfaction that whiteness could be transmitted between generations, Pearson and
The making of a New Race

Nettleship – now in collaboration with Usher - began to experiment with hybridizing albino Pekingese with the black, ‘long-muzzled’ Pomeranians. To Pearson’s delight, subsequent generations did not seem to ‘revert’ on average to their black or white progenitors. Hence the announcement to his Dondo-contemplating audience that he had created multiple new races of dog. Pearson there proclaimed his ‘firm conviction... that if you can obtain in any species with a normal black or dull colouring, an absolute or imperfect albino, then you can secure every variety of colour... There is a very close parallelism between men & dogs.”

Biometric dog breeding thereby helped support a conception of race in which all beings might attain the white mark of civilizational advancement. Yet it also conveyed deeply held anxieties about loss of whiteness through miscegenation. Imperial projects in territories such as South Africa, where white settler colonists had become acutely aware of their inability to dominate through force of numbers, appeared as especially vulnerable from this perspective. Strategies for the scientific control of dog mating overlapped with those aimed at ensuring national biological security. Racial integrity could only be guaranteed in one of two ways: by individuals of different races restraining themselves from having children, or by direct control of individuals’ sexual habits. Pearson’s presumption that white populations had attained the greatest degree of civilization implied that they were amenable to persuasion through such statements as his own *National life from the standpoint of science* (1900). Increasingly wild accounts of the dangers to empire of miscegenation amplified presumptions that non-white peoples were incapable of apprehending such calls. Those without recognizably European biological characteristics had, like the dogs under Pearson’s care, to be coerced into desirable, racially appropriate generational conduct.
The making of a New Race

Yet the means by which this was to be achieved was not settled. As the final section of this paper demonstrates, whilst the eventual strategies of canine sexual control deployed by Pearson paralleled the increasingly coercive policies of racial segregation being implemented in the British empire and elsewhere at this time, this was by no means inevitable. Indeed, during the early years of the programme, the rather different interests of Pearson’s medical, domestic and breeding enthusiast collaborators placed limits on his ability to conduct the sexual lives of the dogs, or with it re-define ideals of racial conduct.

III.

The previous sections have outlined some of the key features of and motivations for Pearson, Nettleship and Usher’s dog breeding program. Yet the animals concerned were more than sets of bones and coat colours. On a day-to-day level, they necessitated a level of care unfamiliar both to scientific experts in anatomical measurement and medical professionals inured to the routine of limited consultation periods. Such care, moreover, revealed pathological conditions of varying severity and longevity. Some of these appeared to be passed between canine generations. Faced with medical concerns more familiar to fancy breeders, Pearson tended uncharacteristically to defer to veterinary sources of authority. For the medically-trained Nettleship and Usher, in contrast, these conditions were critical.

The different concerns of the collaborators were accompanied by different approaches to dog breeding. Nettleship especially was more invested in interested in the production of genealogies of existing animals than the creation of new races. This
The making of a New Race encouraged him to collaborate with members of the Pekingese dog fancy, in turn facilitating the emergence of an extensive network of advisors and correspondents. In contrast, Pearson sought at every juncture to determine the dogs’ day-to-day lives and mating habits. The latter impulse was only fully realized with the construction of a dedicated site for dog-breeding at UCL in 1929. This final section emphasizes that investments in animals as sources of anthro-political authority were accompanied by diverse, contested strategies for the management of human-animal relations. The construction of an institution devoted to the scientific breeding of animals at UCL was not simply the consequence of burgeoning intellectual interest in the precise mechanisms of hereditary transmission: it also reflected a deep-seated desire to make the bodies of animals speak to questions of human social organization in particular ways.

As medical practitioners, Nettleship and Usher stood at one remove from the more strictly biological biometry-Mendelism debate. Hereditarian concepts had long been a feature of medical discourse. Since the eighteenth century, for example, gout, scrofula, and tuberculosis had been discussed in terms of familial inheritance. The apparent incurability of such conditions fed into a more general sense that poor health might be passed from parent to child. Yet by 1900, medical practitioners and public health officials were beginning to link their genealogical concerns more firmly to those of the state, often through statistical analysis. Medical practitioners became ever more aware of nineteenth-century anthropologists’ claims regarding the the low civilizational status of coloured bodies. Alongside this, prior hereditarian emphasis on the genealogical investigation of specific conditions began to give way to the more general concern with bodily or ‘constitutional’ strength of race theorists. Pace Pearson, medical men routinely identified albinism with
The making of a New Race

racial degeneration. The notion that albinotic weakness was heritable raised the prospect of accounting for a wide range of hitherto inexplicable conditions, including such ‘pathologies’ as blindness, deafness, immobility, mental defect, and moral deviance.\textsuperscript{70}

Nettleship’s professional concerns had made him acutely aware of these trends. The possibility that well-known conditions such as night-blindness and gradual sight-loss ran in families attracted attention from eye specialists. During the 1880s, his mentor Jonothan Hutchinson had highlighted ophthalmologic conditions that seemed to behave in a similar manner to other heritable pathologies.\textsuperscript{71} However, whereas Hutchinson adopted a wide-ranging, speculative approach. Nettleship devoted his retirement to the collection of specific eye disease pedigrees, substantiating a theory of hereditary in which pathologies could become more virulent over generations.\textsuperscript{72} Usher would in turn attain widespread recognition for his genealogical studies identifying retinitis pigmentosa as a hereditary condition, and again associating it with deaf-mutism (the link is now known as ‘Usher’s syndrome’).\textsuperscript{73} All three figures then were concerned above all with the transmission of ‘weaknesses’ between generations.

Nettleship and Usher thus engaged with the dogs as exemplars of heredity weakness rather than evolutionary strength. In this respect Pekingese were ideal objects of study. ‘Toy’ dogs had a reputation for constitutional weakness amongst breeders.\textsuperscript{74} Toys’ propensity to ill health was often portrayed as degenerational, and cast in terms of the effects of civilization: veterinary practitioner John Woodroffe Hill spoke for many in noting that ‘specimens of the Toy breed... have been “bred to death.”’\textsuperscript{75} Nettleship’s breeder informants similarly related their difficulties with Pekingese, which they noted was ‘scourged’ with eye troubles.\textsuperscript{76} The association was moreover fully borne out in the day-to-
The making of a New Race
day experiences of Pearson, Nettleship and Usher. Again, many of the dogs’ problems
centred on their eyes, and included the contraction of ulcers, inflammations, and congenital
defects in puppies. Many had poor sight, with Nettleship describing their ‘divergent squint’
and Usher reporting that the dogs in his care ‘occasionally run against things.’

For Nettleship and Usher, then, it was not so much in their capacity as living agents,
than as a source of genealogically identifiable pathological material that the dogs had their
greatest significance. The relative rarity of human albinism meant that it was extremely
difficult to obtain organic material relating to it. Even when it was possible to do so, family
histories were not always available or forthcoming. The faster-breeding dogs, deliberately
selected for albinism and routinely slaughtered as young pups when not hereditarily
interesting, raised the prospect of pathological genealogical investigation that could accord
more closely with the demands of the new mathematics. Medical hereditarians of all
persuasions were increasingly looking to animals as means of establishing the heritability of
particular pathological traits and tendencies. Concomitantly, human bodies were gradually
being displaced as pre-eminent objects of medical hereditarian research. Pearson’s
ophthalmologist collaborators were thus motivated at least as much by their own interest
adopting ‘scientific’ methodology in medicine as enthusiasm for his racial ideology.

Nettleship’s relative indifference regarding coat colour meant that he
accommodated fancy breeders’ concerns far more readily than Pearson. This circumstance
fed into a more generally liberal approach to breeding practice. During the early years of the
study, he and Pearson kept their first few pairs at home, relying on their wives and servants
for their day-to-day upkeep. Yet the proliferation of dogs soon outstripped the families’
accommodative capacities, and presenting puppies as gifts to friends could only temporarily
The making of a New Race

solve the predicament. Moreover, volunteers could assert considerable influence over the direction of the study. When Nettleship requested that one breeder friend assist with their crossing experiments, she expressed horror at the prospect of her charge being made, as she put it, to ‘marry a black Pug.’ In 1912, perhaps in response to such intransigence, the two scientists began searching for professional breeders willing to take some of the less valued dogs on. As the population of experimental dogs expanded, they thereby came to be dispersed across Britain.

Whereas the medical scientists remained sanguine about the need to negotiate breeding strategies with carers unschooled in the intricacies hereditarian science, Pearson’s concern with racial improvement raised more deep-seated anxieties. Pearson’s ideals necessarily excluded the lived reality of his purported objects of study: their tendency to ill health was necessarily subordinate to his racial investigations. Though Pearson commissioned pathological reports on his charges, these were as directed towards the substantiation of his contentions regarding the increased sensory ‘delicacy’ of albinos as establishing causes of death. Nettleship’s own death in 1913 thus not only prevented Pearson from continuing their monograph series, but marked a turning point in the experimental programme. He would subsequently assert ever greater control over canine mating and living conditions. Just as the racial logic of imperial government helped justify intense monitoring and confinement of migrant labourers and the constitutionally ‘weak,’ Pearson’s miscegenation-fuelled fears would culminate in the construction of a site specifically designed to contain and exclude the racially purified dogs from outside contact.

There was nothing inevitable about this eventuality. Indeed, Pearson had earlier been a proponent of a rather more bucolic vision for the institutionalization of scientific
breeding in Britain. The Royal Society’s ‘Committee for Conducting Statistical Enquiries into the Measurable Characteristics of Plants and Animals,’ with Galton at its head, Weldon as it’s secretary, and Pearson a prominent member, had in 1897 expanded to include more senior botanists and zoologists, including Bateson. Galton had hoped that widening membership would provide momentum for the establishment of a farm that could undertake experimental investigation into ‘race, heredity, and variation’ (as Galton’s title for the initial meeting put it). Though Pearson had not been present at this meeting or the one following, and vehemently disapproved of non-’biometricians’ joining the project, he responded positively to the plan itself. The scheme eventually collapsed, and Pearson became increasingly bitter over what he perceived as the hijacking of the (eventually renamed ‘Evolution’) Committee for ‘Mendelian’ ends. Yet it was precisely a more distributed version of this rural cultivation model that he and Nettleship adopted during the project’s early years. Farms, it initially seemed, might be ideal sites on which to improve the biological characteristics of dogs.

By the 1910s however, Pearson found himself troubled by the lack of supervision that housing the animals in the British countryside entailed. Pragmatically, the changing circumstances of breeders and their kennels created time-consuming logistical difficulties: a notebook from the time charts Pearson’s logistical struggles, and he lamented the ‘the space, time and energy required for dog-breeding’ in Albinism in man. Yet other concerns centred on the perceived risks that carers unversed in the intricacies of biometry seemed to pose to canine racial purity. The extent to which this was a personal concern for Pearson is indicated by a comment to his wife Maria regarding her habit of walking the dogs on Hampstead Heath (to which the family home adjoined): ‘I fear for you... it is such a place for
The making of a New Race
dogs & the gypsies... bring dogs from all the country & mongrels of all kinds.'
Here, the intersection between Pearson’s beliefs regarding the threat posed to the ‘white race’ by miscegenation and his concerns regarding the purity of his own living circumstances are particularly prominent: putting faith in breeders unaware of the racial consequences of miscegenation risked the failure of the entire project. Given the presumption that sexual discipline could not be instilled in dogs, it was necessary to completely eliminate any possibility that they might come into unsanctioned contact with racially distinct bodies.

From 1913 then, Pearson became ever more preoccupied with enclosing the dogs in a space amenable to his direct personal supervision. An early opportunity arose in 1911, with the construction of a new building to house the Department of Applied Statistics. ‘Isolation from other kennels’ was, he claimed, of utmost importance, as ‘any man who has done work of this sort knows the importance of having these animal rooms under his eye and at hand.’ Though the building committee remained sceptical, extensive wrangling elicited temporary accommodation for small animals such as ‘rats and mice’ in an old adjoining stable. Despite initially housing some dogs here, the premium put on space at UCL during the First World War soon forced them back to their country lives.

Following the war Pearson again turned his attention to canine accommodation. By the early 1920s he had cast his net far and wide in his search for funding, discussing possible additional contributions to the Galton Laboratory from the Drapers’ Company, as well as the American Universities Union and personal contacts. The failure of these schemes had also begun to grate, especially in the light of large-scale investment in similar projects then being made in continental Europe and North America. In yet another application, this time to the Carnegie Institution, he characterized ‘the accommodation for animal breeding’ at UCL as
The making of a New Race

‘absurd... an old stable, unsuited to its purpose and improperly fitted from the sanitary aspect.’ Despite his claim that the work undertaken was only ‘such as relates to heredity in man’ and an approving quotation of Benito Mussolini, this submission also failed. Yet Pearson would not have much longer to wait. In 1922 a bequest from the Liberal M.P. Lewis Haslam had facilitated the fitting out of the temporary animal house, and in 1929 a new building was commissioned in the same location. Finally, it would be possible to contain the experiment at a single site. Unfortunately for Pearson, he was by this time finding the maintenance of his productivity-fetishizing approach to academic life increasingly unsustainable. He would retire in 1933, with only a preliminary report in press.

The construction of the Department of Applied Statistics’ animal house marks the culmination of Pearson’s longstanding concerns regarding the maintenance of his new race. Just as the Chinese mine workers of South Africa had been cordoned off from the surrounding world, the new space would entirely isolate the dogs from their environment. Inspecting the old building, Pearson’s son Egon highlighted the risks that planned drainage along a sloping floor and out onto the street would risk ‘wild mice coming in’ – a difficulty circumvented via the creation of metal coverings over the holes. Conditions within the construction would be tightly controlled: the fluctuations in temperature experienced in the old building would be ameliorated by a carefully designed heating system involving raised pipes and electric radiators, allowing temperature to be maintained at exactly 62°F. Dedicated spaces for litters and the quarantining of ill dogs were also included. At long last, the new race would be housed in a space that could simultaneously isolate them from foreign bodies, protect them from threatening diseases, and prevent sexual indiscretion. Within such a building, it would truly be possible to demonstrate the
The making of a New Race

prospects for the improvement of all life that that experimental investigation into heredity raised. Pearson’s imperial ideals appeared finally to have found a permanent place in British institutional life.

Pearson’s project was of course only a small part of a widespread movement. The institutionalization of animal breeding programmes during the inter-war period helped legitimate a new wave of writing on human race and its management. In 1930s Germany Eugen Fischer and his colleagues at the Kaiser Wilhelm Institute became keen advocates of the integrated study and manipulation of experimentally bred animals and human populations. Saraiva demonstrates moreover that this was by no means the only path by which breeding science came to inform fascist policies and practices. Paul Kammerer in Vienna and Nicola Pende in Rome adapted endocrinological research to articulate ‘biotyping,’ by which the extent to which individuals inherited and conformed to racial ideals could be measured and controlled. In North America the institutional connection between the United States’ Eugenics Record Office and Station for Experimental Evolution, both proposed and run by Charles Davenport, helped legitimate his and Harry H. Laughlin’s notorious calls for forced sterilization and hostile immigration policy there. Clarence Cook Little and William Ernest Castle drew on experiments with (Japanese ‘waltzing’) mice to pronounce on matters of human heredity, most notably in Castle’s textbook Genetics and eugenics (1916). Helen Dean King drew on her rat experiments at the Wistar Institute to pronounce on the significance of inbreeding in racial improvement. And, in perhaps the most ambitious example of research in this vein, at Cornell Charles Rupert Stockard conducted extensive experiments in dog crossing in an attempt to develop a hereditarian account of personality types. Though Pearson may not have left a lasting intellectual
The making of a New Race

The making of a New Race

legacy in hereditarian experimentation at UCL, he was by no means alone. In fact his work helped set a trend.

Conclusion

The early twentieth century saw considerable investment in animals and animal breeding as means of defining and policing human difference. Though this article has concentrated on a single example, the influence of experimental hereditarian research on fascist forms of imperial governmentality outlined by Saraiva, as well as the investment of scientists in explicitly genetic conceptions of eugenics, do allow more general conclusions to be drawn. Experimentally bred animals such as Pearson’s dogs became significant objects of concern for race theorists during the early twentieth century. By investing in the creation of ‘new races’, theorists of biological inheritance helped sustain metropolitan scientific and cultural concern with the superiority of particular human kinds of well into the twentieth century. In the process, they contributed to a broader trend in which scientific investigation and the theorization of imperial government would both diversify and align ever more closely.

To make the bodies of animals speak to questions of imperial concern, however, experimenters had to circumscribe their capacity for autonomous life. The construction of controlled breeding environments such as the animal house at UCL created means by which certain features of certain animals (albino dogs’ coats, muzzle proportions) could appear as representative of their biological nature, and other features of other animals (coloured coats, visual and reproductive capacities, sexual proclivities) could be either ignored or suppressed. Far from being mere artefacts of the abstract concerns of experimental
The making of a New Race

breeders, such schemes drew on already-existent strategies for the control of imperial subjects. Experimental animal breeding programmes and imperial population control strategies became co-constitutive at the start of the twentieth century. The creation of institutions and environments that would control the reproductive capacities of both humans and animals contributed to a break-down of distinctions between biological populations of all kinds: increasingly standardized strategies of more explicitly ‘genetic’ control would come to be applied to all living beings, be they plant crops, farm stock, or racial groups. Similarly, walls, borders, fences and boundaries between groups of human and animal bodies came to play an ever more significant role in nominally ‘human’ politics.

Pearson’s Pekingese studies, then, can be taken as exemplifying changing governmental strategies at the start of the twentieth century: whereas nineteenth-century forms of imperial government considered non-human life only to the extent that it could directly facilitate imperial economic expansion, subsequent approaches to the study of population would incorporate human and non-human bodies within a single conceptual and institutional framework. Biological inheritance rather than anthropological classification would become the canonical means by which race theorists would seek to define and police human biological and cultural difference. It is this shift that characterizes the ‘new race’ of the early twentieth century.

1 “Professor Pearson and the dog,” Illustrated Sporting and Dramatic News, Thursday, 29 March, 1913, p. 20.

The making of a New Race


3 Karl Pearson, “Albinism in dogs & men” (Lecture B) [1913], University College London, Special Collections: PEARSON/2/1/34/1. Unless otherwise stated, all archival references in this article denote material held at UCL Special Collections.


6 On breeding animals in early experimental hereditary science see e.g. Robert E. Kohler, Lords of the fly: drosophila genetics and the experimental life (Chicago, IL and London, 1994) and Karen Rader, Making mice: standardizing animals for American biomedical research, 1900-1955 (Princeton, NJ, 2004). See also Alexander von Schwerin, “From agriculture to genomics: the animal side of human genetics and the organization of model organisms in the longue durée,” in Gausemeier et. al., Human heredity (cite n. 4), pp. 113-125.

7 Foundational texts include Catherine Hall (ed.), Cultures of empire: colonisers in Britain and the empire in the nineteenth and twentieth centuries (Manchester, 2000), Antoinette Burton (ed.), After the imperial turn?
The making of a New Race

*Thinking with and through the nation* (Durham, NC, 2003) and Catherine Hall and Keith McClelland (eds.), *Race, nation and empire: making histories, 1750 to the present* (Manchester and New York, NY, 2010).


The making of a New Race


18 Ritvo, “Race, breed, and myths of origin” (cite n. 14).

19 Pearson, “Albinism in dogs & men” (Lecture A) (cite n. 3), ff. 10-15.
The making of a New Race

20 Karl Pearson to Maria Sharpe Pearson, 14 May 1908: PEARSON/11/1/16/46.


22 Qureshi, Peoples on Parade, Ch. 6 (cite n. 13); Keevak, Becoming yellow, pp. 48-51 (cite n. 16); Michael F. Robinson, The lost white tribe: explorers, scientists, and the theory that changed a continent (Oxford, 2016), pp. 55-63.

23 Bancel et. al., The invention of race, esp. Chs 2-4 (cite n. 9); Gissis, ‘Visualizing race’ (cite n. 9), on 91-102.

24 Manias, Race, science, and the nation, pp. 119-120 (cite n. 12).


28 For a significant exception see Sarah Jansen, ‘Den Heringen einen Paß ausstellen: Formalisierung und Genauigkeit in den Anfängen der Populationsökologie um 1900,’ Berichte zur Wissenschaftsgeschichte, 2002 25:153-169. I am grateful to Raf de Bont for alerting me to this publication.
The making of a New Race


33 It should be noted here that although Galton’s statistical studies retain their status as key contributions to modern science, the programme of human categorization and manipulation that he developed his statistics to facilitate do not. During his own lifetime however, the two strands of investigation were understood as part of a single set of scientific claims, and were evaluated as such. See e.g. Stepan, *The idea of race in science*, pp. 124-134 (cite n. 9) and Stone, “Race in British eugenics” (cite n. 12).


35 On long versus short heads see Manias, *Race, science, and the nation*, pp. 119-120 and 157-162 (cite n. 12).


37 Challis, ‘Skull triangles,’ 5-6 (cite n. 29).
The making of a New Race


40 Karl Pearson to Maria Sharpe Pearson, 12th May 1908 and K. Pearson to M.S. Pearson, 14 May 1908: both PEARSON/11/1/16/46.


The making of a New Race


48 Pearson, “Albinism in dogs & men” (Lecture A) (cite n. 3), f. 10.


52 As Conservative Prime Minister Arthur Balfour asserted, ‘Men are not born equal... The differences between one family and another of mankind lie deep in the remote and unfathomable past, and it is folly to suppose that... petty educational regulations... can obliterate distinctions deep-seated under the laws of nature.’ A.J. Balfour, ‘Chinese labour (Transvaal),’ Hansard, HC Deb 21, March 1904. Vol 132, Col. 321-71, on 351-352.
The making of a New Race


55 Pearson, “Albinism in dogs & men,” (Lecture B), f. 29 (cite n. 3).


57 See e.g. Bright, Chinese labour in South Africa, Ch. 5 (cite n. 51).


59 Karl Pearson, “Lectures on albinism in man at the Royal Institution” (Lecture A) [1909], f. 3 and passim.: GALTON LABORATORY/2/1/3/1.

60 Ibid, ff. 22-23.


63 Duncan Bell, Reordering the world: essays on liberalism and empire (Princeton, NJ, 2016), pp. 173-177.
The making of a New Race

64 Pearson, “Lectures on albinism in man” (Lecture A) (cite n. 59); George A. Turner to [Prof. Reid], 19 July 1908: PEARSON/3/13/70. Pearson did note Turner’s mining connections in Albinism in man, however. See Pearson et. al., A monograph (Text Pt. I), p. 114 (cite n. 62). In addition to photographs, in 1912 Turner sent Pearson samples of ‘black skin shewing cicatrization [scarring] marks,’ an ‘ear shewing ear marks’ and ‘a strip of Xanthism skin.’ See Turner to Pearson, 29 April 1912 and Turner to Pearson, 17 May 1912: PEARSON/11/1/19/64.

65 Pearson, “Albinism in dogs & men,” (Lecture A), ff. 16-17 (cite n. 3).

66 See e.g. Sascha Auerbach, Race, Law, and “The Chinese puzzle” in imperial Britain (Basingstoke and New York, NY, 2009), esp. pp. 65-68.


70 On albinism as pathology see Thomas White, “Their whiteness Is not like ours’: a social and cultural history of albinism and albino identities, 1650-1914,” (PhD thesis, University of Manchester, 2011).
The making of a New Race


72 Friedman, “Coming full circle” 35-46 (cite n. 67).


79 On medical genetics and inheritance more generally see e.g. Müller-Wille and Brandt (eds.), *Heredity explored*, Chs. 12-14 (cite n. 4).

80 See e.g. Maria S. Pearson to Julia Bell, 26 Aug. 1912; M.S. Pearson to Ethel M. Elderton, 8 Dec. 1923: both PEARSON/3/13/39.

The making of a New Race


83 Nettleship to Pearson, 16 Sept. 1912; Nettleship to Pearson, 26 Sept. 1912: PEARSON/3/13/38; Nettleship to Pearson, 6 Dec. 1912: all PEARSON/3/13/38.


90 When one breeder, a Mr Albert Clack, unintentionally allowed an albinotic dog to mate with another breed Pearson wrote furiously that he had ‘allowed her to be served by a strange dog at first heat,’ and demanded the animal back immediately. Pearson, “The dogs of 7 Well Road” (cite n. 88).


The making of a New Race


96 Karl Pearson, “Appeal for funds to maintain and extend The Institute of Applied Statistics, including the Biometric Laboratory and the Galton Laboratory for Eugenics, University of London” [c.1925]: PEARSON/4/26.


100 W.G. Dowie to Pearson, 24 Sept. 1929: PEARSON 4/27.

The making of a New Race


103 Saraiva, Fascist pigs, (cite n. 8) pp. 101-113.


106 Rader, Making mice (cite n. 6), pp. 30-33.


108 Charles Rupert Stockard et. al., The genetic and endocrine basis for differences in form and behaviour: as elucidated by studies of contrasted pure-line dog breeds and their hybrids (Philadelphia, PA, 1941).
"Pekingese Dogs Kept at UCL by Karl Pearson" (c. 1913), UCL Special Collections: PEARSON 7/158/2