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Measuring Race, Space and the Citizen: Anthropology and Statistics in Early Post-Independence India

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ABSTRACT

This article explores how Indian anthropologists employed abstract concepts of 'space' and 'distance' in the mid twentieth century to reconfigure the racial scientific approaches to caste and community. Looking at the relationship between statistics and physical anthropology via the work of P.C. Mahalanobis and D.N. Majumdar in the United Provinces in the mid to late 1940s, the article explores how conceptual (or Euclidian) space interacted with geopolitical space (lived distances) in definitions of caste. The combination of anthropology and statistics produced new measurements of difference and distance that, in turn, privileged Brahmanical conceptions of hierarchy, reinforced the idea of spatial homogeneity and contributed to new ethnic definitions of the citizen.

The relationship between researchers and their subjects is an enduring theme in the history of social science disciplines. And in all respects, it is shaped by spatial considerations, not least by processes of 'Othering' in which cultural proximity or distance is axiomatic, while changing over time.[1] Looked at historically, the researcher-subject dynamic is a reflection on the changing needs of Western societies to define the 'Other' as a means to settle something in their own cultural space. As that requirement declined, the legitimacy of researching the 'Other' receded and the distances between researcher and subject narrowed. This 'critique of representation', as Trouillot described it, undermined and changed some fundamental assumptions about anthropological practice itself.[2] The anthropologist's position of observation

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1. See, for example, the discussions in Joel Robbins, 'Beyond the Suffering Subject: Towards an Anthropology of the Good', *Journal of the Royal Anthropological Institute* 19, no. 3 (2013): 447–62.
2. Michel-Rolph Trouillot, 'Anthropology and the Savage Slot: The Poetics and the Politics of Otherness', in *Global Transformations: Anthropology and the Modern World* (London: Palgrave Macmillan, 2003): 7–28.

and formally prescribed distance increasingly lost its validity.[3] But this history of transforming anthropological practice with its critiques of proximity and alienation takes on a different kind of characteristic when the researcher is located in a different cultural and spatial relationship to the studied 'Other', or shaped by different registers of global historical circumstances.

India's early post-Independence social scientists struggled with this different version of a proximity/distance complex. While the idea of the cultural isolation of anthropological subjects was still assumed within Indian social contexts, researchers nevertheless worked in a context in which there were other forms of political association. This positioning was, on the one hand, produced by Indian anthropologists' own comparison with their European predecessors and, on the other, the outcome of new political expectations in mid twentieth century India. Alienation that did arise between Indian anthropologists and their subjects was therefore premised on social frames that were embedded in the fracturing of the national project itself, rather than the bald differences of race and global identity.[4] The idea of difference or the anthropological 'Other' was therefore always inherently embedded within the debate about national belonging and its practical, emotional and cultural contradictions.

This is something that underpinned the processes faced by some of the most powerful interventions in anthropology and the human sciences in the 1940s and 1950s in India. This article explores how social science research in this period continued to be interested in the racial bases of 'caste' largely as a result, I argue, of new national concerns around citizenship. The latter required a configuration of anthropological research in relation to two kinds of spatial imaginary: conceptual and geopolitical. These trends are explored in the main part of this paper through the twinned work of the statistician P.C. Mahalanobis and the anthropologist D.N. Majumdar.

New ideas about space also came about in this work as a result of the changing interaction of the social science and scientific disciplines. Intellectual concerns of India's anthropologists in the mid twentieth century were influenced by a new array of other disciplines, which aligned ideas about caste with, for example, biological knowledge in novel ways. The arithmetic of colonial biopolitics, the flattening and grouping of communities by the abstractions of statistics has been well rehearsed especially in studies of colonial notions of race in South Asia.[5] But of more specific concern to this article is how concepts of race developed out of particular intellectual trends that borrowed from the colonial dynamic of proto-race science and simultaneously transformed it as a result of political and spatial considerations. Positivist approaches to race, which sought to explore 'natural' and supposedly universal

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3. In his detailed ethnographic work set in rural Malaysia (1985), Scott narrates the tensions inherent in the anthropologist's positioning in the field as a process of sociability that links to his larger arguments about 'hidden transcripts' of resistance to certain ideas, on which the researcher had to remain neutral: James C. Scott, *Weapons of the Weak: Everyday Forms of Peasant Resistance* (New Haven, CT: Yale University Press, 1985): xvii–xix.
4. This is not to argue that global intellectual trends were not pivotal. The debate about evolutionism was very important to disciplinary changes in India, for example: see Leslie A. White, 'Diffusion vs Evolution: An Anti-Evolutionist Fallacy', *American Anthropologist* 47, no. 3 (1945): 339–56.
5. See, for example, a number of approaches that have appeared in Peter Robb, ed., *The Concept of Race in South Asia* (Delhi: Oxford University Press, 1998); more recently, Jesus F. Chairez-Garza et al., *Rethinking Difference in India through Racialization: Caste, Tribe, and Hindu Nationalism in Transnational Perspective* (London: Routledge, 2023).

principles of difference, often to consolidate an evolutionist view of society, had been under challenge in (among other places) American sociology since the early twentieth century, especially in the work of Franz Boas.[6] Even before this more sustained work, earlier colonial ethnography had not always adopted the views of race scientists—for example, the studies of Denzil Ibbetson in late nineteenth century Punjab.[7]

The approaches of race science nevertheless continued to influence anthropological thought in India well into the mid twentieth century. Projit Mukharji has noted that scholars have mostly focussed on late nineteenth century formulations of race, either through visual,[8] discursive or anthropometric lenses,[9] and have tended, with the exception of Sarah Hodges' and Sekhar Bandopadhyay's work on eugenicists, to not much explore the mid twentieth century.[10] Mukharji's sophisticated and ground-breaking work has itself explored the perpetuation or change of race-oriented scientific approaches to caste, via the dynamics of a narrowing scientific approach which moved the study of blood groups increasingly from the field to the laboratory.[11] Yet we still need to explain the continued preoccupation with race in the mid twentieth century period among the likes of D.N. Majumdar and others. This article will argue that despite challenges to positivist and evolutionary concepts of race, the influence of biomedical approaches to caste was enhanced by two contexts and changes. Firstly, new considerations of interdisciplinarity in physical anthropology, and secondly, a wider notion of political space, and the attendant concepts of social distance.

Mid century ethnographic reflections on caste and community, I argue then, had changed not only by intellectual theme and fashion, but also by new spatial and political considerations. This article will explore this principally in changing concepts of geographical space, but it will also examine the distinctive notion of 'distance' as a conceptual category for examining difference in contexts where geographical changes were considered relatively insignificant. The idea of conceptual distance, as we will see, involved measurements and matrices of ethnic distance. Such configurations appealed to an urgency to define social spaces and rights, or to identify communally defined minorities, irrespective of their physical location. I argue, then, that ideas of space and distance/difference in this mid twentieth century anthropological work de-emphasised or flattened the significance of geographical space at a time when regional differentiation sometimes threatened larger national projects. By extension, it helped to reinforce a normative and ethnic concept of the citizen—a figure who was closer, in theories of distance, to the 'observer', scientist or core figure in the project of research. None of these projects took place in a closed laboratory: the Indian nation

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6. See Franz Boas, *The Mind of Primitive Man* (London: Macmillan, 1911).
7. Susan Bayly, 'Caste and "Race" in the Colonial Ethnography of India', in *The Concept of Race in South Asia*, ed. Peter Robb (Delhi: Oxford University Press, 1998): 165–218.
8. Christopher Pinney, *Photography & Anthropology* (London: Reaktion Books, 2011).
9. Crispin Bates, 'Race, Caste and Tribe in Central India: The Early Origins of Indian Anthropometry', in *The Concept of Race in South Asia*, ed. Peter Robb (Delhi: Oxford University Press, 1998): 219–59.
10. Projit Mukharji, 'From Serosocial to Sanguinary Identities: Caste, Transnational Race Science and the Shifting Metonymies of Blood Group B, India c. 1918–1960', *The Indian Economic and Social History Review* 51, no. 2 (2014): 143–76; Sarah Hodges, 'South Asia's Eugenic Pasts', in *The Oxford Handbook of the History of Eugenics*, ed. Philippa Levine and Alison Bashford (New York: Oxford University Press, 2010): 228–42; Sekhar Bandyopadhyay, 'Caste, Social Reform and the Dilemmas of Indian Modernity: Reading Acharya Prafulla Chandra Ray', *Bengal Past & Present* 126, nos. 242/243 (2007): 31–51.
11. Mukharji, 'From Serosocial to Sanguinary Identities'.

transformed physically and metaphorically in the 1940s for intellectuals, affecting in turn the funding and thematics of research.[12] Similarly, intellectual trends in sociology and anthropology connected to newly emerging paradigms of the citizen, conditioned too by the mass movements and conflicts of India's Partition. The realities of mid to late 1940s human displacement then also conditioned interspatial sociological analysis. The 1941 Census—research at the root of Mahalanobis' statistical survey, which forms the basis of this article—had also figured in Congress, Muslim League and Sikh representations to the Boundary Commission of 1947.[13]

India's mid twentieth century academic and intellectual trends were naturally informed then by the experiences of decolonisation, encouraging what contemporaries saw as 'new sciences' of development, including what one scholar has described as 'quantitative positivism'.[14] These new sciences—principally, in this case, statistics and serology—in some important instances shaped the practices and conclusions of ethnographers and sociologists. These approaches were, I would argue, an integral part of the state-building process. First, the anthropologist-administrator had a long tradition, and by the late 1940s, social science research mapped onto governance by setting out the responsibilities of scholars to projects of social welfare. Secondly, the persistence of the idea of race as a paradigm for caste in these early post-Independence years was partly shaped by larger concerns about the characteristics of a national community and, by extension, the constituent elements of citizenship. These in turn were framed by and related to a larger context of post-Partition India, which recalibrated the intellectually and socially defined spaces of community. There were of course important challenges and exceptions to these trends, not least in the anthropological work of B.R. Ambedkar, which suggested a different take on race and caste and the idea of national citizenry. Ambedkar, via the teaching of Alexander Goldenweiser, Franz Boas and John Dewey, rejected the positivists' insistence on the fixity of 'natural laws' in how they produced certain ossified characteristics of race and caste. For both Boas and Ambedkar, human differences were fundamentally cultural rather than racial, seen clearly in *Caste in India* (1916) and *Annihilation of Caste* (1936).[15]

This article explores these arguments using two case studies—first, a discussion of the early post-Independence attitudes towards what was then called 'action research', and its relationship to physical anthropology. I situate this in the early priorities of the newly founded Anthropological Survey of India, or, as it was known in its early years, the Anthropology Department. My second and central case study explores the Anthropometric Survey of the United Provinces, which was led by D.N. Majumdar and P.C. Mahalanobis in 1947. Here I look in particular at the application of the new

12. This was perhaps best illustrated in what Abhijit Guha has explored as the new 'national' anthropological research, epitomised by the work of Nirmal Kumar Bose in such works as *Peasant Life in India: A Study of Unity in Diversity* (Calcutta: Anthropological Survey of India, Government of India, 1961). We will explore this further below.
13. See, for example, 'Memorandum Submitted to the Punjab Boundary Commission on behalf of the Muslim League', *Partition of Punjab 1947, Vol. I* (Lahore: National Documentation Centre,1983): 281–96.
14. Arunabh Ghosh, *Making It Count: Statistics and Statecraft in the Early People's Republic of China* (Princeton, NJ: Princeton University Press, 2020).
15. Jesus F. Chairez-Garza, 'B.R. Ambedkar, Franz Boas and the Rejection of Racial Theories of Untouchability', *South Asia: Journal of South Asian Studies* 41, no. 2 (2018): 281–96.

approaches in statistics—a discipline that at the time was only recently recognised by the Indian Science Congress. The application of novel statistical and scientific approaches more broadly reinforced a new spatial logic around community and the idea of national belonging. Along the way, the article seeks to contribute to two specific fields of historical analysis: firstly, the nature and characteristics of Indian social science research, as its exponents struggled to set out the distinctive or new Indian contributions to their fields. The article suggests that the interdisciplinary course that Indian anthropology and sociology took in this period reflected larger contextual processes of political change (especially around political geography and citizenship), but at the same time referred back to older colonial paradigms. Secondly, the article connects to a wider field of research on concepts of citizenship and belonging, to which our anthropologists were intimately connected and, indeed (I argue), helped to produce. When the Anthropometric Survey of the United Provinces is placed within the context of wider projects in Indian anthropology, the significance of physical (geographical) and conceptual space in these works clearly contributed to a holistic agenda in rethinking the ethnic boundaries of the normative Indian citizen.

'Action research' at the Anthropological Survey in the 1940s–60s

If social scientists in newly independent India were imagining their work in terms of new concepts of space shaped by a transformed political geography, they were clearly doing so as a means of exploring what was distinctive or 'new' about India's social science research. Naturally, they were self-conscious about their disciplines' relationship to others and, by extension, to the supposed requirements of national development. This article does not have the space to traverse the many intellectual transformations in Indian social sciences, most of which developed out of global trends.[16] It will, instead, explore some of the areas where anthropologists and sociologists imagined their work might or ought to have an impact on governance and planning. This history of early post-Independence applied anthropology is then a history of the search for new interdisciplinary directions within India. And, I would argue, these interdisciplinary framings were developed out of the particular circumstances of decolonisation, the management of postcolonial governance and the puzzle of national belonging.

The Planning Commission, formed in March 1950, is of course central to how what some described as 'action research' was imagined. Its function was not only to plan India's economic progress via a centralised authority. It was also rooted in a history of anti-colonial protest which configured the ills of colonialism in terms of structural and material exploitation. It was also a panacea that could, according to people like Jawaharlal Nehru, potentially avert a state from such events as economic

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16. These have been amply covered in volumes such as Patricia Uberoi, Nandini Sundar and Satish Deshpande, *Anthropology in the East* (Ranikhet: Permanent Black, 2007); and L.P. Vidyarthi, *Rise of Anthropology in India: A Social Science Orientation, Vol. 1—The Tribal Dimensions* (Delhi: Concept Publishing Co., 1978); but also in numerous lectures and addresses by leading figures in the field, for example, P.C. Joshi, 'Advent of Anthropology and Birth of Social Anthropology in Delhi University', Department of Anthropology, University of Delhi, November 7, 2014, accessed January 29, 2024, https://serialsjournals.com/abstract/52964_4-prof_pc_joshi.pdf.

depression, communist revolution and a decline into the 'irrational' drives of communal mobilisation.[17] In the late 1940s and early 1950s, as new institutions of planning were developed, novel interdisciplinary conversations encouraged fresh ideas about 'applied anthropology'. This latter concept came into the foundation of the Anthropological Survey of India, and into a whole range of other projects, for example, B.S. Guha's own work on Partition refugees in Bengal.[18] Eventually, it took more ambitious shape in the Tribal Research Institutes and reshaped the contexts of social science research more broadly. The Planning Commission's 'village studies' from the mid 1950s onwards produced monographs by M. Opler, M.N. Srinivas, F.G. Bailey, M. Marriot, K.S. Mathur and R.C. Sharma, which were to relate to the census operations and in some cases produced planning-related data on rural life.[19] The relationship between academic anthropologists and policymakers, then, transformed by the circumstances of early post-Independence planning, had also changed some of the internal debates about the nature of the discipline itself by the 1950s.[20]

More directly, the Tribal Research Institutes, community development programmes, and Sol Tax's notion of 'action anthropology' helped to drive a number of projects that were conspicuously driven by contemporary government initiatives.[21] This was evident in the central and state government's response to the lobbying of figures such as B.S. Guha during the Second Five-Year Plan, in the move to set up Tribal Research Institutes in Assam.[22] Parallel examinations took place of how research was furthering 'tribal welfare' across different parts of India.[23] It was also clearly evident in a number of contemporary academic publications produced by D.N. Majumdar, L.P. Vidyarthi and S.C. Dube in which, for example, direct connections were made between the anthropological questions surrounding social change or integration and the policy questions about welfare.[24] Although mainly focussed on India's rural margins, urban India was also included in this trend: Irawati Karve worked on urbanisation and displacement under the auspices of the Planning

17. Partha Chatterjee, 'Development Planning and the Indian State', in *The State and Development Planning in India*, ed. T.J. Byres (Oxford: Oxford University Press, 1994): 82–103.
18. Abhijit Guha, 'Nation Building on the Margins: How the Anthropologists of Indian Contributed?', *Sociological Bulletin 70*, no. 1 (2020): 59–75.
19. For example, P.P. Bhatnagar, ed., *Census of India 1961, Vol. XV Uttar Pradesh: Part VI Village Survey Monograph no. 4. Village Rafiulnagar, Tahsil and District Bijnor by R.C. Sharma* (Delhi: Manager of Publications, 1964).
20. This was, for example, a theme of the discussion of S.C. Dube in 'The Urgent Task of Anthropology in India', in *Proceedings of the IVth International Congress of Anth and Ethnological Sciences held in Vienna*, 1952, as printed in L.P. Vidyarthi, *Rise of Anthropology in India: A Social Science Orientation, Vol 1 – The Tribal Dimensions* (Delhi: Concept Publishing Company, 1978): 4–6.
21. Fredrick Gearing, 'Micro-Analysis and Action Anthropology', in *Currents in Anthropology: Essays in Honor of Sol Tax*, ed. Robert Hinshaw (The Hague: Mouton, 1979): 391–408.
22. Copy of letter no. TAD/CO/6/56 dated February 17, 1956, from the Government of Assam addressed to the Ministry of Home Affairs, New Delhi, Department of Anthropology—Establishment of a Tribal Research Institute in Assam at Shillong—Agreed, Ministry of Education, C-1 Section, File no. 8–13/57 CI, National Archives of India (hereafter, NAI).
23. Text from the Tribal Affairs Conference, held in New Delhi, December 4–5, 1954, 'Meeting of the Standing Committee of the Party of Tribal Affairs, New Delhi, December 1954—Welfare of Tribal People', MHA, file 74/57/54—Public II, NAI.
24. D.N. Majumdar, 'The Changing Canvass of Tribal Life', *Eastern Anthropologist* 3 (1949): 40–47; S.C. Dube, 'Approaches to the Tribal Problem', in *Indian Anthropology in Action*, ed. L.P. Vidyarthi (Ranchi: Council of Social and Cultural Research, 1960); see also Verrier Elwin, *A Philosophy for NEFA* (Shillong: Sachin Roy, 1957) centrally, and Christophe von-Furer Haimendorf, *The Raj Gonds of Adilabad: A Peasant Culture of the Deccan* (London: Macmillan and Co. Ltd, 1948) in Hyderabad.

Commission, and M.S. Gore mobilised sociological and 'social work' research into the policy implications of urban vagrancy in 1950s Delhi.[25] Other work grew out of the multidisciplinary projects on newly independent nations that were launched from the US, such as Morris Opler's Cornell India Project in the mid 1950s, which involved S.C. Dube and Leela Dube working on two Uttar Pradesh villages.[26]

We might view the Anthropological Survey of India (between January 1948 and 1961 called the Anthropology Department) as an intermediary institution that both served the purposes of its discipline and was simultaneously shaped by new national initiatives in development and planning. Importantly, its mission was, by its own account, to apply a sense of spatial conformity to India's margins. The central proposal at its foundation cited the successes of anthropological research elsewhere in unifying diverse ethnic and racial communities in single national units. According to B.S. Guha, the example of Soviet Russia bore testimony to how such research could successfully bring 'many tribes into a single nation', and in the US, it had helped to create 'a common national bond and centrifugal outlook among her European immigrants'.[27] In Seymour Sewell's view, 'backward' or 'aboriginal' communities had to be brought into a sense of belonging, without breaking up tribal life and authority, and this was to be achieved through survey research conducting such work as the following: 'The reconstruction of our racial history from a study of skeletal remains discovered in prehistoric sites, the fixing of our ethnic genetics … the norms of biological and psychological behaviour among the various racial units … '.[28]

In the first few years of the Survey's existence, this focus on the regional/national mapping of physical and cultural ethnographies was set out in concrete research projects and plans. In two short articles published in 1948, Verrier Elwin set out the Survey's national mission, relating state-orientated plans to an ethnographic gaze focussed on the biological and physical make-up of India's populations: 'The study of the physical characters of the people is still incomplete', he wrote. 'Since Risley's pioneering work in 1891, now rendered somewhat obsolete by great advances in the methods and techniques of science very little has been done … . Not only do bodily measurements and characteristics require the fullest investigation, but these measurements should be accompanied by the study of deep-seated physiological characteristics, such as the percentage of blood groups in each race, which may well provide evidence of the original source from which particular tribes or races have sprung … '.[29]

This focus on biological science was bolstered by moves to equip laboratory-style research facilities. The Survey's early purchases included an 'X Ray plant', apparatus

25. See, for example, M.S. Gore et al., *The Beggar Problem in Metropolitan Delhi* (Delhi: Delhi School of Social Work, 1959).
26. This resulted in S.C. Dube, *India's Changing Villages: Human Factors in Community Development* (London: Routledge & Keegan, 1958).
27. 'Proposals for the Establishment of an Anthropological Department after Separation from the Zoological Survey of India', ASI Archives, File no. 1-A, Vol. 1 (1945–46): 38–41, Rec. R.S1. no. 356, in K.S. Singh, 'Towards a Documentary History of Anthropological Survey of India' (New Delhi: Anthropological Survey of India, 1994) (hereafter, TDHA), Anthropological Survey of India Library, Kolkata (hereafter, ASI).
28. *Ibid.*, 3.
29. Verrier Elwin, 'The Anthropological Survey of India: Part I, History and Recent Development', *Man* 48 (1948): 68–69; 68, https://doi.org/10.2307/2793255.

for mental tests and arrangements for purchases from America of 'more delicate and complicated instruments for measuring primitive people'. Four of the first five projects of the Survey included (1) the cultural and racial affinities of tribes and 'problems affecting their administration' by comparison to other tribes globally; (2) work in Orissa on communities 'whose social customs present problems of peculiar difficulty and complexity to the administration'; (3) application of mental tests to schoolchildren in Banaras, as 'norms for comparison' in their application to 'primitive races'; and (4) a physical, psychological and economic survey of the aboriginals of the Andamans.[30]

Key to the survey's early work and agenda, then, was a particular framing of bodily measurement in relation to governance, but also, more crucially, in relation to a normative (caste Hindu) subject. The Survey's Five-Year Plan was divided into the areas of biological, physical and cultural themes.[31] Under the heading of Cultural Studies, the Survey's remit was to stress the need to collect data on the cultural institutions of 'primitive tribes' which were considered to be in stages of disintegration due to 'forces of civilization', and comparisons were made to the Americas, Africa and the Pacific.[32] The widening out of specific regional studies to more general questions around such things as 'tribal development', according to B.S. Guha, had been suggested on the advice of Verrier Elwin and J.P. Mills. And it was clear that in its early proposals to the government, the suggestion of international collaboration was key: the anthropometric study of the Marathi people to be undertaken by 'Dr Mrs Irawati Karve', for example, was, Guha stated, made possible by an Emilie Horniman scholarship granted by the Royal Anthropological Institute of Great Britain.[33]

In its overt reference to other scientific disciplines, the early Survey documents mentioned the following: somatology, craniometry, osteometry and radiology. Here, too, a consciousness of new nationally (and internationally) defined geographical spaces of research was important. The Royal Asiatic Society of Bengal assisted in the collection of Indian crania. Skeleton remains were to be compared across different sections of the population and with other races around the world, as well as inhabitants of the past to explore the effects of 'miscegenation' and 'environment'. Bone maturation was a means of comparing 'races' and cited the work of T. Wingate Todd, which compared the pubis of male and female African Americans with that of white females in the USA.[34] The report on the progress of the Survey in these first couple of years also made reference to scientific strides in human biology elsewhere, and note was made of the study of such things as hereditary criminality. Differentiated patterns of growth by race, the report stated, had progressed in Japan and the USA, and similar studies were necessary in India to maintain judicious use of diet and sport.[35] Reference was made to 'European standards'. Here, the report cited

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30. *Ibid.*
31. 'Proposals for the Reconstitution of the Anthropological Survey after Its Separation from the Zoological Survey of India', File no. 1-A-V1 (1945–7): 49–65, TDHA ASI.
32. Elwin, 'Anthropological Survey: Part I', 68.
33. 'Proposals for the Reconstitution of the Anthropological Survey'.
34. T. Wingate Todd, 'Age Changes in the Pubic Bone', *American Journal of Physical Anthropology* 4, no. 1 (1921): 1–70.
35. Verrier Elwin, 'The Anthropological Survey of India: Part II, The Five Year Plan', *Man* 48 (1948): 80–81.

a study by Eleanor Mason in 1934, which had compared the metabolism of European and Indian women in Madras (now Chennai).[36]

We can therefore explore these mid century changes in India's social sciences in terms of a new consciousness of national space as both a frame of research project development, and as a site for its possible application in administration. These geopolitical frames influenced the proposals and decisions made about how anthropologists and sociologists might make connections to other 'planning' friendly disciplines—economics, demography or biological sciences, for example. The idea of new national space in this was also always related to international comparisons. However, if a concept of space was geopolitical in these areas of wider interdisciplinary discussion, in some of the important detailed areas of physical anthropological research, other more abstract concepts of space (and in a related sense, distance) played a more defining role and also flattened a notion of geographical distance. As we will see next in the central case study of this article, 1940s anthropometric research, wedded to statistics, created a notion of ethnic 'distance' that indirectly reinforced core principles of normative Indian citizenship—a concept that could be applied in multiple geographical spaces.

Anthropometry at the dawn of Independence

Somewhat paradoxically, scientific methodologies, as well as the application of new multidisciplinary approaches to physical anthropology, sustained older assumptions around race and caste, effectively moulding them around new spatial circumstances. Projit Mukharji, in his work on early Indian studies of blood groups or serology, has shown how the modalities of science tended to draw on much older racial measurement data, including in some cases that of Herbert Hope Risley. He describes this as a process of 'circulating referent', in which ' … an object of study [is] extracted from its embedded material context and reinserted into a wholly distinct, but more pliable, material form'. Mukharji showed how Eileen Macfarlane took the blood group idea of older research by Hirszfeld and made it vertical and applicable to caste.[37] As we will see in a moment, in a related way, the new discipline of statistics also served to reinforce other circulating referents in anthropology.

But unlike serology, which, as Mukharji shows, had a short-lived significance in physical anthropology, statistics was supported by both the full weight of the early Planning Commission, with all of its modernist agendas, and by colonial precedents. Nikhil Menon's study of Mahalanobis has shown how statistical data took on an even greater power and significance in the context of India's sudden transition to postcolonial governance. The centralisation of the national statistics system was also intimately linked to the projects of 'planning'. This was a highly bureaucratised and top-down process in which the role of the academic technician was crucial, and as

36. Eleanor D. Mason, 'The Basal Metabolism of European Women in South India and the Effect of Change of Climate on European and South Indian Women: Four Figures', *The Journal of Nutrition* 8, no. 6 (1934): 695–713.
37. Mukharji, 'From Serosocial to Sanguinary Identities', 143–76. Medical sciences work is quite developed: see Lawrence Cohen, 'The Other Kidney: Biopolitics beyond Recognition', *Body and Society* 7, nos. 2–3 (2001): 9–29; Aditya Bharadwaj, *Global Perspectives on Stem Cells* (New York: Springer Verlag, 2017); Kaushik Sundar Rajan, *Biocapital: The Constitution of Postgenomic Life* (Durham, NC: Duke University Press, 2006).

such, its means justified its ends. Organising the economy itself should be measurable and its outcomes calculable.[38] Since all such things should be quantitatively intelligible, they could be taken as normative reference points for holistic approaches to social change and reform.

In some ways these developments were not novel. Bernard Cohn, David Ludden and Nicholas Dirks have written about the colonial 'enumerative modality', 'orientalist empiricism' or 'ethnographic state', exemplified by the gazetteers and the All India Census from 1881.[39] But after World War II, as huge new postcolonial democracies appeared, the power of this data was globally networked. Mahalanobis was the leading influencer in the UN's decision to set up a subcommittee to harmonise international statistics sampling. Moreover, he made the convincing case that statistics sampling was crucial in particular to the alleviation of poverty in poorer countries.[40] As Arunabh Ghosh has argued, the power of this 'quantitative positivism' appeared elsewhere, most notably China.[41] The decade that followed decolonisation was then, in many respects, an era in which older research disciplines confronted the new, embraced by India's Planning Commission with a significant investment of time, labour and money in the lead-up to the First Five-Year Plan. Developing India's economy and society were to be rooted in measurement, analysis and the potential computerisation of empirical data embracing all forms of human activity.

The approaches of anthropology and sociology, although in the former case sitting quite uncomfortably with many of the ideals of the post-Independence state, were also integrated into this knowledge and data economy. Rooted within the projects of data collection for planning were suppositions about marginal communities as 'pre-modern' or in a process of transition. In theory, the data economy's modernist agenda promoted the idea, by extension, that ethnically or religiously defined social inequalities were to be eliminated or reformed. Many contemporary anthropologists had readily embraced the methods if not the conclusions: Radhakamal Mukherjee in Lucknow in 1942 pointed out how statistics demanded the attention of social scientists around the world. Others were more reticent: Verrier Elwin argued against modernist interventions, instead promoting the notion that communities should 'grow according to their own genius and tradition'.[42] But most anthropologists could not ignore the trends. In his keynote address to the Conference of Tribes and Tribal Areas in April 1957, N.K. Bose opened with the comment that anthropology should be 'a serious science', concerning itself with the

38. Nikhil Menon, *Planning Democracy: Modern India's Quest for Development* (Cambridge: Cambridge University Press, 2022).
39. Bernard S. Cohn, *Colonialism and Its Forms of Knowledge: The British in India* (Princeton, NJ: Princeton University Press, 1996); Nicholas Dirks, *Castes of Mind: Colonialism and the Making of Modern India* (Princeton, NJ: Princeton University Press, 2001); David Ludden, 'Introduction: Ayodhya—A Window on the World', in *Contesting the Nation: Religion, Community and the Politics of Democracy in India*, ed. David Ludden (Philadelphia: University of Pennsylvania Press, 1996): 1–26. For a detailed study of the resulting and lasting relevance of hegemonic colonial discourses of race that ran through Indian ethnography in the nineteenth and early twentieth centuries, see Crispin Bates, 'Race, Caste and Tribe in Central India: The Early Origins of Indian Anthropometry', in *The Concept of Race in South Asia*, ed. Peter Robb (Delhi: Oxford University Press, 1998): 219–59.
40. Menon, *Planning Democracy*, 93–118.
41. Ghosh, *Making It Count*.
42. Verrier Elwin, *A Philosophy for NEFA* (New Delhi: Isha Books, 1957).

mapping of communities in transition, especially in relation to modernity and caste society.[43]

Paradoxically, the infusion of anthropological research with new developments in the discipline of statistics and other sciences did not significantly challenge the application of older approaches in physical anthropology, despite the claims of 'greater accuracy' or more robust methodologies on data. If anything, the partnership reinforced pre-existing ideas about race and ethnicity and, crucially, renewed particular kinds of social hierarchy around the idea of a caste Hindu subject. This was not principally a problem with the science itself. Rather, *a priori* assumptions about ethnography were reinforced and embedded by the processes and methodologies of data collection, and particularly in the intersection of fieldwork and the statistical laboratory. As I will argue below, these disciplinary intersections also prioritised, in their conclusions, an abstract idea of distance and space which had a flattening effect on considerations of physical or geographical space and proximity, and tended to reinforce a racial concept of normative belonging within the national space as a whole.

The Statistical Survey

One of the most detailed and thorough examples of this interdisciplinary engagement came in 1949, with the publication of the 'Anthropometric Survey of the United Provinces, 1941: A Statistical Survey' in *Sankhya: The Indian Journal of Statistics* under the joint authorship of P.C. Mahalanobis, D.N. Majumdar and C. Radhakrishna Rao.[44] Although this study drew from 1941 Census data, historians have shown that the latter was largely a failure, given the conditions of the War. Nevertheless, Majumdar's specific ethnographic work in the United Provinces, which formed the basis of the survey, was still, to quote Mahalanobis, 'one of the largest sets of individual measurements taken by a single observer',[45] and related to Majumdar's other anthropometric study in Bengal.[46] Most importantly, this was, the Survey noted, the first application of statistical methods to physical anthropological measurements.[47] Majumdar's differences on the subject of caste with J.H. Hutton, who had previously rejected the racial profiling of H.H. Risley effectively, pushed him much closer to the views of the statistician Mahalanobis, which in part explained the collaboration.[48] Both men were uniquely interested in the application of serological and statistical data, in ways that I am going to talk more about below.

Majumdar's entire fieldwork for the 1941 Census was handed over to the Indian Statistical Institute, which undertook 65 computer months of analysis at a total cost

43. 'Address of N.K. Bose—Chairman of the Anthropology Section of the Conference, 30 April 1957', in *Report of the Fourth Conference for Tribes and Tribal (Scheduled) Areas (Koraput, April to May 1957)* (Delhi: Bharatiya Ajimjati Sevak Sangh, 1957).
44. P.C. Mahalanobis, D.N. Majumdar and C.R. Rao, 'Anthropometric Survey of the United Provinces, 1941: A Statistical Survey', *Sankhya: The Indian Journal of Statistics* 9, nos. 2–3 (1949): 89–324.
45. *Ibid.*, 90.
46. D.N. Majumdar and C.R. Rao, 'Bengal Anthropometric Survey 1945: A Statistical Study', *Sankhya: The Indian Journal of Statistics* 19, nos. 3–4 (1958): 201–408.
47. We cannot conjecture how close the relationship was between Majumdar and Mahalanobis, but eventually, D.N. Majumdar would become part of the Research Programmes Committee of the Planning Commission, while Mahalanobis was its chairman.
48. Mukharji, 'From Serosocial to Sanguinary Identities', 143–76.

of ₹12,000. Mahalanobis noticed two sets of errors in how the data had been recorded, and so the entire research had to go back and forth two further times—another indicator, the report noted, of the importance of using statisticians in anthropological research. Further delays were created by the ISI's work during the 1943 famine. As luck would have it, Rao and Mahalanobis were on a trip to Cambridge in 1946. Being in the presence of 'more advanced' computers in the Fens, the report noted, they 'increased the range of statistical analyses'.[49]

A clear commitment to 'quantitative positivism' was encapsulated in the foreword to the Survey, provided by the 1941 Census commissioner, M.M. Yeats, who addressed the problem of how the 'individualistic' methods of anthropologists were often slow to pick up on the necessary focus of measurement in the sciences. The Statistical Survey therefore engaged squarely with the older anthropological approaches of Herbert Hope Risley and William Crooke in particular, using the argument that since much of Risley's data was likely to have been faulty (especially given recent archaeological discoveries), there was a need for a more careful analysis of similar data sets. To this end, the survey made much of the unconscious bias inherent in Risley's work—the deliberate selection of 'standard types' which applied *a priori* notions of racial difference by caste, and the rejection of the measurement of 'outliers'. Risley's legacy was also applied in a critique of data collected as late as 1931, noting the criticisms of 'Mrs Karve' [Irawati Karve] about the fact that most of the data for 'Marathas' in the 1931 Census had been collected from Maratha students of the Fergusson College at Poona (now Pune); and that Guha, in the same year, had collected 'Bengali Kayasthas and Brahmans in Ahmedabad from the textile mills there'.[50]

But the critique of Risley and anthropologists of his generation was focussed squarely round their use and analysis of the data they had collected, and not the character of the data itself, or its means of collection. None of these anthropologists, least of all Risley, the Survey noted, had used even basic statistical methods such as 'standard deviations or probability errors'. This was a problem that did not, by any means, overturn the value of physical anthropology, but simply weakened its development: Karl Pearson's 'Coefficient of Racial Likeness', for example, used by B.S. Guha in the 1931 Census, had not, the Survey argued, been 'standardised'. The size of samples in previous work, they noted, were also dangerously small, suggesting that 'the amount of confidence with which racial theories are made is very often inversely proportional to the evidence obtained from the physical data'.[51]

In the field

The Survey discussed fieldwork methods with light-hearted anecdotes, also revealing older assumptions about researcher-subject interactions. A laboratory for obtaining blood tests was set up in Lucknow, but in many cases, subjects attempted to evade measurement and analysis: in Mirzapur, Majumdar reported, members of the Kharwar tribe disappeared when asked to assemble, and some did not return to their homes for

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49. Mahalanobis, Majumdar and Rao, 'Anthropometric Survey', 112.
50. *Ibid.*, 97–98.
51. *Ibid.*, 101.

fear of the anthropologists' tools. When Majumdar entered the Criminal Tribe settlement in Moradabad[52] to take measurements from 'Bhatus', he was confronted by a 'rowdy group' of women who 'demanded that he release their menfolk from military service'. Majumdar evaded the threat by arguing that he could not be measuring for the military, since he had not done their chest measurements. Nevertheless, he had, by his own report, 'faced danger to my person and it was the vigilance of the chowkidar that saved me from being a martyr to the cause of science'.[53]

While in the field, Majumdar's team used traditional means for selecting groups for analysis, an approach that suited the statistical applications too, in their stress on a sampling methodology. Majumdar had measured 22 different groups across the United Provinces, making reference to a racial 'parabola' across the entire province with the 'upper arm related to Indo-Aryan and Mongoloid castes and the lower to Dravidian and proto-australoid'. Between these two groups was another selected for measurement—'Criminal' and Nomadic Tribes, who, he noted, 'wander about as nomads, acrobats, snake-charmers and dealers in charms and narcotics'. In the selection and sampling processes of communities then (perhaps also in the choice of the administrative unit of the vast and relatively undefined United Provinces), already certain broad spatial conformities were assumed and then framed as the bases for later statistical analysis. The methods lent themselves to generalised comments too: randomised selection, Majumdar suggested, was made more difficult the further one went up the social hierarchy, and different tribes resented being measured or photographed together.[54] Most subjects were measured in 12 ways—stature, sitting height, head length, head breadth, minimum frontal breadth, nasal length, nasal breadth, nasal depth, total facial length, upper facial length, bizygomatic breadth and bigonial breadth (width between cheek bones and jawbones, respectively).[55]

The methodological approach therefore contained geographical assumptions or framings that extended or flattened detailed local and regional differences—for example, the idea of a broad 'racial parabola', with its generalised north-south dimensions. Arguably, this elision of geographical spaces was necessary for the effective application of *abstract* spatial analyses which sought to create ideas of 'distance' between the physical measurements of different communities, as anthropology was allied with statistics. New methods of 'multivariate analysis', for which Mahalanobis was internationally famous, suggested that the number of measurements did not need to be large in a particular subject.[56] Indeed, the statistical approach made it necessary to 'use the more stable ones' suggesting *a priori* reasoning not unlike Risley's

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52. The Moradabad settlement was run by the Salvation Army: see Alfred H. Barnett, 'The Salvation Army in India', *Journal of the Royal Society of Arts* 85, no. 4391 (1937): 202–15.
53. Mahalanobis, Majumdar and Rao, 'Anthropometric Survey', 102–3.
54. *Ibid.*, 105.
55. The report gave details about measuring equipment and verified its quality with reference to its European manufacture: An Anthropometer (manufactured by Hermann Rickenback and Sons), with a footplate; sliding and spreading callipers, by the same manufacturers; steel tape; head spanners; standard beam scales and a Stangenzirkel (beam compass). These measuring instruments are still routinely used in more contemporary studies of physical anthropology in India: see, for example, K.N. Dewangan et al., 'Anthropometric Dimensions of Farm Youth of the North Eastern Region of India', *International Journal of Industrial Ergonomics* 33, no. 11 (2005): 979–89.
56. This theory was drawn from M.S. Bartlett, for example, 'Multivariate Analysis', *Supplement to the Journal of the Royal Statistical Society* 9, no. 2, (1947): 176–97.

dismissal of 'outliers'. This statistical method depended upon Mahalanobis' 1936 concept of generalised distance, which gave a more accurate idea of distance between a point and its distribution when multiple variables are taken into account, compared to traditional Euclidian distance measurements.

The mathematical sophistication of these geometrical analyses no doubt contributed to an idea of scientific certainty, hardening expectations of social hierarchy by community observed across the data sets. Curiously, the attention paid to statistical distances was not similarly applied to those of physical space. Instead, geographical distance was overdetermined by structures of governance and administrative boundaries. The process of field research itself, as was the case in the Criminal Tribe settlement, was facilitated by the intervention of local administrative officers. The names of assembled subjects were recorded and selected by local administrators, patwaris and assistants in tehsils. Further, in selecting the particular districts for samples, the guidance of administrative and forest officers was pivotal, who 'were a great help in securing for us the subjects we measured in several districts'.[57]

It is likely that the local officers who helped choose the individuals surveyed particular castes on the basis of their local knowledge and that, therefore, as Irawati Karve had complained for the 1931 Census, caste groups were selected from individual villages or neighbourhoods. Their physical similarities to those in their 'group' may, therefore, have been just as much about location and environmental proximity as it was to do with caste. There was no mention in the Survey that the same caste from diverse or relatively remote locations were sampled.[58] In other words, as I will argue in a moment, the alliance of mathematical with phenotypical data created conceptual distances between communities based on notions of these discrete categories of data. But these distances effectively collapsed the spatial category of geography.

In the laboratory

It was in Part II of the Survey—the 'Statistical Analysis'—that the detailed treatment of the anthropological data took place. As I will discuss more below, *a priori* assumptions about social hierarchy and communal difference were required for this analysis to take shape around the proposed statistical models. Chapter 4 of the Survey introduced the 'basic statistical concepts' that would be used across the measurements of the 22 groups. This principally involved the grouping of population 'types' and then the calculation of distance between those groups, in relation to the measurements recorded. A consolidated 'D2' statistic (originally developed by R.C. Bose, S.N. Roy and Mahalanobis)[59] for each group took into account variances in measurements and their stability for each caste group. Mahalanobis pointed out that it was only when samples were selected at random that this statistical approach could be used, and

57. Mahalanobis, Majumdar and Rao, 'Anthropometric Survey', 105.
58. There were of course other figures assisting Majumdar. Some measurements were also gathered by a group of mathematicians and physicists who were recent PhD graduates—P.R. Roy, U.K. Bose and Indrajit Singh, as well as the laboratory peons, Bhosiali and Hiralal. Mentioned in familiar terms, these assistants were still considered 'invaluable', and Majumdar noted that each measurer cross-checked their results throughout.
59. R.C. Bose and S.N. Roy, 'The Distribution of the Studentised D2 Statistic', *Sankhya: The Indian Journal of Statistics* 4, no. 1 (1938): 19–38.

that, typically, anthropologists 'selected' samples and thereby introduced 'unconscious psychological bias'.

For Majumdar's data, the authors suggested that these statistical analyses proved his samples were large enough to determine differences between the caste groups. However, it was noted that not all of the 12 standard measurements showed a wide enough distance between the D2 statistic for each caste group. In other words, the Survey based most of its calculations on the eight measurements in general that did remain 'stable' in differentiating the caste groups. Overall, the statistical conclusions went further to suggest that most of the variations could be put down to three or four measured variables.[60] Such was the confidence, however, of the authors in the usefulness of D2 that they suggested that calls for a 'standardisation' of physical measurements (which had arisen at the 1941 Indian Science Congress in Banaras)[61] should not be based on typical anthropomorphic measurement but on D2 itself.

D2 usefully allowed the authors to not only confirm the relevance of older hierarchies, but also to juxtapose multiple subsections of those hierarchies to give them more definition. From the 22 groups (Brahman (Basti), Brahman (Other), Agharia, Chattri, Muslim, Bhatu, Habru, Bhil, Dom, Ahir, Kurmi, Other Artisan, Kahar, Tharu, Chamar, Chero, Majhi, Panika, Kharwar, Oraon, Rajwar, Korwa), the Survey created three clusters: a 'Tribal' (T) cluster, an Artisan (A) cluster (in which 'untouchable' communities were placed towards the T group), and a Brahman group (B). The T group was found to be 'sharply contrasted' from the B group. In the Survey's A group, Ahirs were found to be somewhat closer to the B group than Chamars, who were closer to T (Figure 1).

In presenting the data, tables and diagrams for specific castes were mostly presented in pairs, again suggesting a pre-existing juxtaposition by hierarchy which was now further reinscribed with hard statistical data. For example, the Dom and Bhil were aligned (Figure 2), and the two 'Criminal Tribes', Bhatu and Habru, likewise, enabling them to be grouped together as 'degraded castes'. Because the tribal groups were shown 'to resemble one another apart from in nasal characteristics', it was suggested that they could therefore be classified on that basis. In other words, the primary basis for classification was determined by a specific correlation of biometric and cultural data selections.

Crucially, the survey did not confine itself to the biometric dynamics of communities by caste, but also examined patterns of physical categorisation around religious community: the 'Muslim' group were described as being 'very close' to Chhatris in physical appearance (Figure 3)—an observation that was connected by the authors to region and long-term administrative work under the Mughals. The statistical analysis itself then allowed the authors to conclude that Muslims and Chhatris 'fell between' Brahmans and artisan groups. Majumdar added new observations on the Muslim group in 1949, pointing out that the main samples for that community had been collected from the Bareilly region and were mixed in terms of social standing between

60. Mahalanobis, Majumdar and Rao, 'Anthropometric Survey', 177–80.
61. See the Ardeshir Dalal Presidential Address of 1941, in *The Shaping of Indian Science 1914–1947* (Hyderabad: Universities Press, 2003): 482–97.
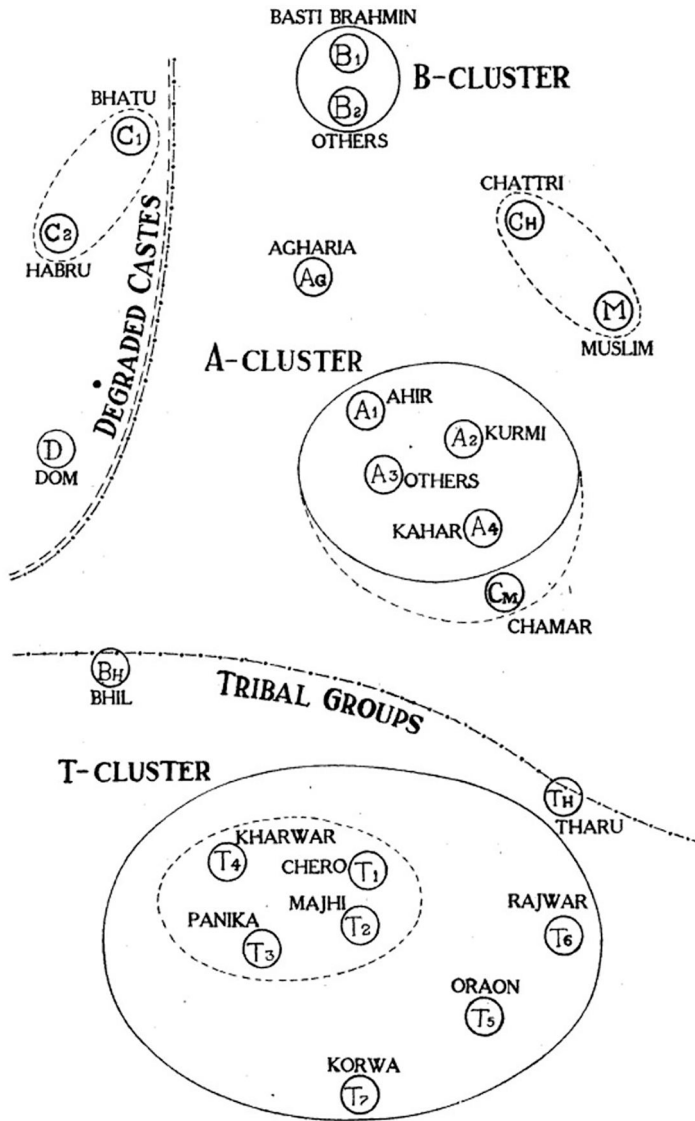
Chart 8(b). Distribution of castes and tribes indicating physical differences in relation to the ethnological classification

Figure 1. Cluster map showing 'Distribution of Castes and Tribes Indicating Physical Differences in Relation to the Ethnological Classification'.[72]

'Sheikhs, Syeds, Mughals and Pathans', but many subgroups within—for example, the Sheikh group—adapted that definition among converts from Hinduism.

Overall, the statistical conclusions not only reaffirmed but, to a great extent, fine-tuned what the authors already suspected about the data. Further, the relative 'distancing' of groups by physical characteristics set up new forms of evidence for hier-archising communities by caste. There was one exception in the research. Both of the 'Criminal Tribe' communities showed a closeness to the Brahman group in their D2
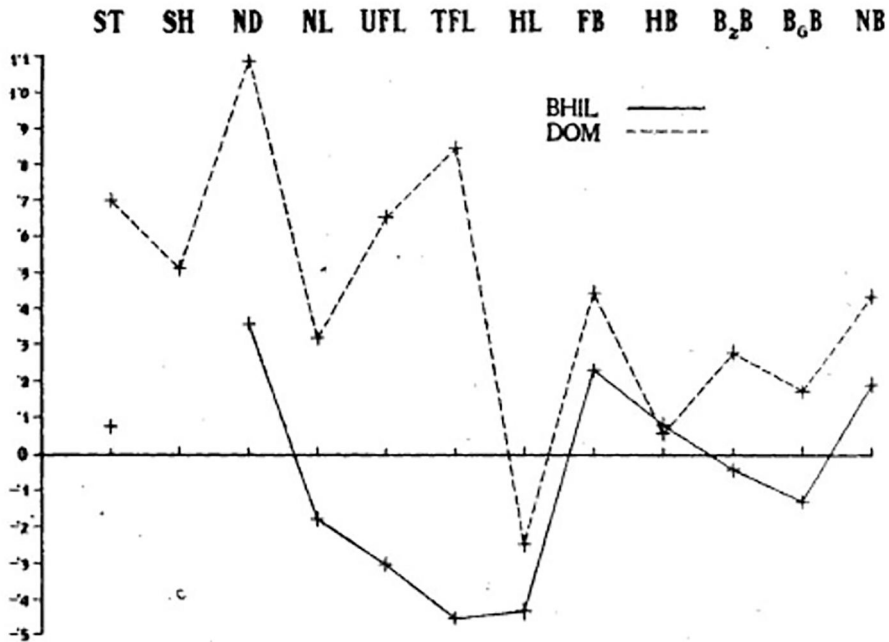
Chart 9.7 A comparative study of Bhil and Dom.

Figure 2. Chart of the normalised mean measurements of the Bhil and the Dom by specific groups of measurements—e.g. TFL: Total Face Length; ND: Nose Depth.[73]

value that surprised the authors. But Majumdar and Mahalanobis pointed out that these 'fineness of features' was also what allowed them to 'move freely among high castes', an aspect of their nomadic existence and suspicious occupational *modus operandi*.[62]

The final section of the survey explored ethnological and historical accounts of the communities. The authors compared their results to existing ethnological accounts which explored the deeper 'racial' histories of each community, Dravidian and Austric families of languages, and degrees of autochthony or geographical 'nativeness'. In the appended supplement of 'Ethnological Notes', the authors deliberately chose to bypass some recent American work that had claimed to compile a bibliography of several thousand works,[63] instead drawing heavily on William Crooke's four volumes of *Tribes and Castes of the North-Western Provinces and Oudh* (1846), 'from which extensive extracts were taken'.[64] This work was combined with that of Herbert Hope Risley, S.C. Roy, E.A.H. Blunt and D.N. Majumdar himself.[65] A repeated refrain was the question of how far the new data analysis had any bearing upon older familiar questions: for example, could *x* community be considered a 'mixture of Vedic people

62. Mahalanobis, Majumdar and Rao, 'Anthropometric Survey', 191.
63. This was suggested in J.H. Hutton, *Caste in India* (Cambridge: Cambridge University Press, 1946).
64. Mahalanobis, Majumdar and Rao, 'Anthropometric Survey', 203.
65. H.H. Risley, *Tribes and Castes of Bengal: Ethnographic Glossary* (Calcutta: Bengal Secretariat Press, 1891); S.C. Roy, *The Oraons of Chota-Nagpur* (Calcutta: n.p., 1915); E.A.H. Blunt, *Caste in the UP, Census of India 1911, Vol. V, Part 1* (Calcutta: Thacker Spink & Co., 1912); D.N. Majumdar, *The Fortunes of Primitive Tribes* (Lucknow: The Superintendent Provincial Census Operations, 1944).
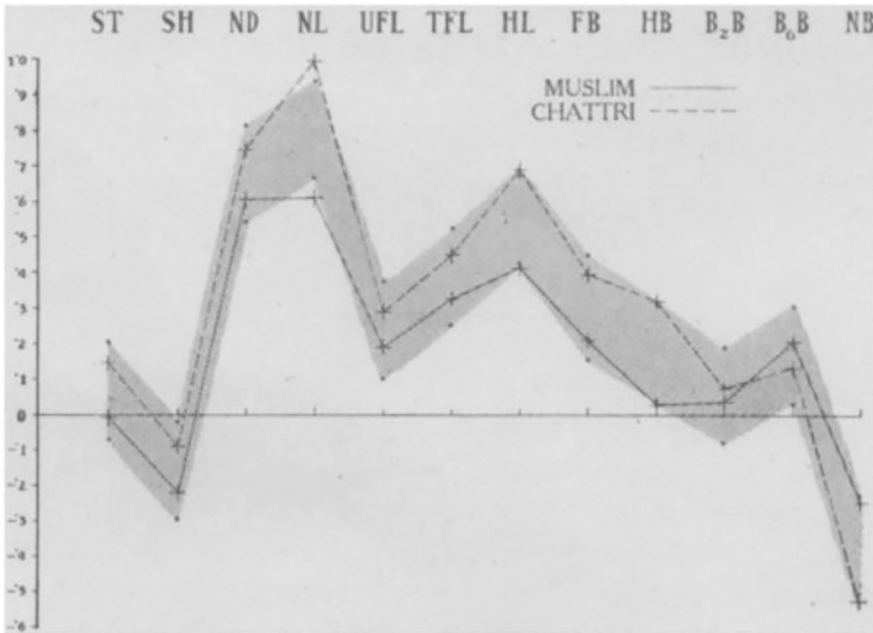
Chart 9.2   A comparative study of Muslims and Chattris.

Figure 3. Chart of the normalised deviation from the mean for a range of anthropometric measurements, comparing Muslims and Chattris.[74]

with Tribal groups'? [66] On the other hand, the Survey's authors did not attempt to relate the data to contemporary sociological research, despite being suggested by Hutton in later editions of his work.[67] Instead, caste and (by extension) religious community patterns, heavily structured around pre-existing ethnographic approaches, were made central in a research process designed to showcase and promote what was innovative in statistical analysis of anthropological data.

Conclusion

In this article I have argued that the methodologies and academic practices of social scientists in the 1940s and 1950s followed a newly emerging idea of nationhood that in some key areas embraced quantitative positivism and new scientific methodologies. As Sarah Hodges' work shows on eugenics and population control in popular science, the entanglement of race and science was increasingly transnational in the twentieth century and saw strong continuities between colonial and postcolonial trends, in moves to 'revitalize the nation'.[68] India's international scientific celebrities, epitomised

66. Mahalanobis, Majumdar and Rao, 'Anthropometric Survey', 180–85.
67. See J.H. Hutton, *Caste in India: Its Nature, Function and Origins* (Glasgow: Oxford University Press, 1963). The Foreword to the first edition (1946) and the prefaces to the second and third editions (1951 and 1961, respectively) all make the point about the rapidly changing research context of the 1940s to late 1950s in work on caste from both anthropological and sociological traditions.
68. Hodges, 'South Asia's Eugenic Past'.

by Mahalanobis, were figures of a particular moment: an early post-colonial era of nation-building and data collection, in which new laboratories were tasked with the project of making sense of 'traditional' social structures. This application of the modern statistical laboratory, drawn from world-leading universities, applied globally circulating scientific referents to the idea of the particular, the local and the historically static.

I have argued that this interaction had wider intellectual and political effects: at an intellectual level it resulted in the peculiar use of longer-term colonial data and enumeration methodologies, but to now critically frame them using contemporary statistical methods. A cynical researcher might suggest that the inner rationale of such new scientific methods required the manipulation of (contrasting) data relating to assumed social status and tradition. But rather than breaking down or disturbing older archives of enumeration and racialised categories for exploring communal difference, the methodological and disciplinary use of statistical information seemed to reinforce the social hierarchisation of race, via caste and ethnicity. This was done, I would argue, through the construction of a normative caste Hindu body against which other, differently categorised bodies were statistically measured. By extension, this new form of hierarchy often reinforced 'evolutionist' concepts of culture, which placed the normative high-caste Hindu as the evolutionary exemplar.

This implied a new spatialisation of community and communalism, alongside this temporal logic, in which geographical spaces—the spaces of social science—were in many ways de-emphasised in relation to conceptual or abstract spaces measuring matrices of ethnic distance. At a regional level after Independence, it suggested the importance and power of data on ethnic grouping—an idea that was to later inform the parallel constellations of ethnicity in the work of Majumdar (whose ethnography work on Dangs suggested the idea of a maha-Gujarat) and that of Irawati Karve, whose data, in contrast, supported claims of the Samyukta Maharashtra movement, at a time when new states were being carved out.[69]

How this mattered to citizenship can be taken a step further. If, as Ian Haney-Lopez has suggested, race can be formed by legal definition and the boundaries of rights, then the interrelationship between citizenship and race science in India was especially fraught at the moment of definition of the two independent states of India and Pakistan. Here again, the conceptual analysis of cultural difference displaced, to a great extent, considerations of geographical space: Joya Chatterji has shown how India gradually moved away from a *jus soli* based territorial definition of citizenship, to a more exclusive *jus sanguinus* notion, following the movement of refugees and the need to hinder minorities claims to rights in the late 1940s.[70] Other states, for example the USA in its prerequisite laws up to 1952, had ascribed a common-sense idea of race to concepts of naturalisation, which in turn reproduced the legal basis of race through the courts.[71] In India, anthropologists helped to determine the role of

69. Mukharji, 'From Serosocial to Sanguinary Identities', 163–65.
70. Joya Chatterji, 'South Asian Histories of Citizenship, 1946–1970', *The Historical Journal* 55, no. 4 (2012): 1049–71.
71. Ian Haney-Lopez, *White by Law: The Legal Construction of Race* (New York: New York University Press, 2006).
72. Mahalanobis, Majumdar and Rao, 'Anthropometric Survey', 200.
73. *Ibid.*, 163.
74. *Ibid.*, 160.

the state in 'administering' the many peoples of India, whose differences continued to be subject to ideas of racial differentiation, in turn apparently reinforced by some cutting edge sciences of the time. From this too emerged the normative Indian citizen, effectively a caste-Hindu figure or cluster (aligning perfectly with the ideal citizen type in social reality through the late 1940s), against whom other identities might be measured. Yet, these formations were always inherently global too. In relation to this article, that emerged through the application of older colonial ethnographies that drew on international academic trends and frames, and other mid century attempts to build an ethnicised idea of national community.

Disclosure statement