to answer questions pertaining to phylogeny, phylogeography, evolution, and ecological niche modelling as has been pointed out by Graham *et al.*[9].

To provide integrated access to Indian specimens in museums overseas, we developed ABCDIO (Access to Biological Collections Data of Indian Origin), which collates information, and digitized images of specimens that are housed in these museums[10]. While this is happening across the globe, it is equally important that countries of origin too initiate appropriate steps in digitizing their own collections that would be complementary to these initiatives. Currently, we do not have data, in public domain, about specimens housed in Indian collections, making it difficult for academicians, researchers, especially taxonomists to ensure access to right specimens from any of these collections when they need it the most. In order to fill up this gap, we developed an easy-to-use, user-friendly software called 'SAMPADA', which is in compliance with the emerging standards for biological collections management. We believed that this would encourage the museum curators to undertake digitization of their specimen collections[1]. While several museums and collections within and outside India are using SAMPADA to digitize their repository, we are able to release data associated with one such collection, thereby providing a first glimpse to the valuable data associated with the vouchers of these specimens housed in Indian collections and museums.

The Department of Zoology, Modern College of Arts, Science and Commerce, Pune holds an identified and unidentified collection of some animal taxa or species such as insects, amphibians and fishes. These specimens were collected for research purpose under various projects and have been preserved for over a period of last 15–20 years. Postgraduate students of entomology collected some of the insect specimens. Using SAMPADA, we digitized the data associated with over 800 identified specimens housed in this collection. Specimens themselves were also digitized, which resulted in the collection of over 2000 images linked with the data associated with the respective specimen. In order to launch this information in public domain, we developed a web-based data portal called 'IndCollections', which is accessible at http://www.ncbi.org.in/indcollections/.

We believe that IndCollections would be a step ahead in achieving the dream of the 'National Natural History Management Information System (NHMIS)'[1], as it would encourage other small and big collection managers to launch their data in public domain, as it is happening in other regions of the world. Academic and research institutions and NGOs can use SAMPADA freely to digitize their own collections. Once digitized, these collections can use 'IndCollections' to launch their data in public domain.

Importance of such a digitized data need not be overemphasized. Traditional taxonomy work needs to be supported by modern technology and exposed in public domain on the internet. As discussed by Godfray[11], the new technology can make 'grassroots' taxonomy more accessible and useful because at present, results of taxonomical work are not available to end-users, especially ecologists, conservation and evolution biologists as well as amateur naturalists. Hence, we appeal to museum curators, collection managers and taxonomists in particular, to join this initiative by undertaking the task of digitization of their collections, and release the associated data in public domain.

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Astrophysical inaccuracies

I was disappointed reading Miller's recent book centred on the Eddington–Chandrasekhar controversy. The basic tenet of the book, that Eddington's persistent opposition to accepting relativistic degeneracy in stars and its remarkable consequences, and his open ridiculing of Subrahmanyan Chandrasekhar, hindered 'the progress of astrophysics for nearly forty years', is at best arguable and more likely, to be dismissed by astrophysicists. I found the book flawed on several counts, not just on its wrong historical emphasis. Reading it, a serious student of stellar physics may actually develop quite a wrong notion of the historical development of the subject, with particular reference to the end states of stars. With all due respects to the author, I should like to say, his comprehension of the subject matter has left much to be desired. His statement of the mass–luminosity relation – 'the more massive a giant star, the brighter it is' (p. 62), or his assertion Chandra 'had overthrown Fowler's theory' (p. 93), and 'Fowler's theory of non-relativistic degeneracy, on the other hand, predicts that the smaller the radius of a white dwarf, the bigger its mass', totally contradicting what is observed. If Fowler was right, we would expect to see

white dwarfs of a thousand or more times the mass of the Sun' (p. 158), and the statement 'he (Bethe) agreed that stars nine or ten times as massive as the Sun would be able to burn up enough fuel to get below Chandra's upper limit and expire as white dwarfs' (p. 196) amply show his total ignorance of the subject. There are hundreds of white dwarfs in the sky, of masses considerably lower than the solar mass, where the non-relativistic formula, due to Fowler, is entirely valid. A massive star cannot 'get below Chandra's upper limit' just by burning fuel. I am appalled that with these fundamental mistakes the book got past any referee and/or a knowledgeable editor and was published. In my view, the book has quite unnecessarily sensationalized some regrettable events of the immensely important period of the nineteen thirties, when our real physical understanding of the stars was growing and reaching maturity.

I am further disappointed, therefore, to read the review of the book in *Current Science*[1]. Instead of refuting the author's flawed analysis, the reviewer seems to re-emphasize whatever is written in the book. The reviewer does no better than the author in describing the scientific matters, as his statement 'Chandra presented to the London Royal Astronomical Society (RAS) his dramatic discovery that massive white dwarf stars that burn up all their fuel collapse into nothingness' exemplifies. He appears to be overwhelmed by the social aspects of Miller's book, like racial prejudices that affected Chandra both in Cambridge and in the United States. Much of Miller's assertions in this regard are exaggerated and not reflected in the events in Chandra's life in either continent. Chandra's own perceptions of the time seem to be quite different.

I quote Chandra from a letter written by him to K. S. Krishnan in Calcutta dated 11 August 1934:

> Oh! How I wish that you had come to Cambridge. The atmosphere here is so pure, so encouraging and so wholesome and so free of personal animosities and jealousies. The sincere collaboration of the best minds, sacrificing personalities for the progress of science – it seems so impossible now that in India we could build a similar school – where the same spirit would prevail, even if a Rutherford, Eddington, Fowler or Dirac do not exist.

And again in another letter dated 20 February 1935:

> Any way in Cambridge I get the utmost sympathy and encouragement for my work. Fowler, Eddington and Dirac are all extremely kind & encouraging and even spend quite considerable time to clear up some difficulties that I may come across. When I first came to Cambridge, I used to look forward to returning home, but now after nearly five years in Cambridge, I feel so very unhappy that I should soon return.

Even such elementary mistakes, where the author states on p. 24 that Ramanujan was the first Indian to be elected FRS (when it was actually Ardaseer Cursetji in 1841) or that Chandrasekhar means moon (p. 25), or calling Mrs Atkinson (wife of R. d'E. Atkinson) Mrs Houtermans (p. 194)[2] seem to have escaped the reviewer's attention.

There are more serious historical issues concerning the author's remarks on the Indian Freedom Movement (pp. 26–27) as well as his description of the development of nuclear astrophysics (pp. 196–197) which the reviewer should have addressed, but I find no mention of any of this. Even as serious an omission as that of von Weizsäcker's name in a discussion on the CNO cycle has not been commented upon. Yet both the author and the reviewer wax eloquent how Chandra did not get the proper credit for his discovery.

Eddington died in 1944, less than ten years after Chandra's 'fatal collision' with him in January 1935. The last several years of Eddington's life were devoted to developing the fundamental theory, which only he believed in. His influence on the development of stellar astrophysics surely wore-off after nuclear physicists took interest in the subject and the theory of thermonuclear chain reactions took centrestage. The full implication of Chandra's discovery of the mass limit and the consequent acceptance of the possible existence of black holes had to wait for many related discoveries, among them the observational implications of supernova explosions, the theoretical studies of Oppenheimer and his students, the discovery and observational implications of mass loss in stars and finally the discovery of pulsars and their identification as rotating neutron stars. All these developments took about 30 years. We also had to wait for new developments in technology, advent of x-ray astronomy in the 1960s and of gamma-ray astronomy somewhat later. Eddington did not delay anything by asserting that 'there should be a law of Nature to prevent a star from behaving in this absurd way'. I do agree, however, that Chandra deserved to win the Nobel Prize at least fifteen years earlier. But then, the inscrutable deliberations of the Nobel Committee are another story.

I acknowledge the permission granted by V. R. Thiruvady to quote from Chandrasekhar's letters to K. S. Krishnan, which are in his personal custody.

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Response:

Mallik's substantive criticism of Arthur Miller's astrophysical accuracy may stand the ground, provided other astrophysicists join in the debate. Paraphrasing and direct quoting of Miller was a result of my own lack of knowledge about astrophysics. Not being an astrophysicist myself, my concern was to demonstrate that racism and neocolonial attitudes pervade Western academia. The subtext to the book I reviewed is the anti-Southerner behaviour in Western scientific establishments. That alone, as well as Chandrasekhar's remarkable struggle for the truth, was my focus in the review.

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