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RESEARCH ARTICLE

THE EMERGENCE OF MODERN PUBLIC HEALTH IN 19TH-CENTURY INDIA – THE ROLE OF CALCUTTA MEDICAL COLLEGE (CMC)

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Abstract

The towering public health expert Michael Marmot once categorically remarked, "As doctors we are trained to treat the sick. Of course; but if behaviour, and health, are linked to people's social conditions, I asked myself whose job it should be to improve social conditions. Shouldn't the doctor, or at least this doctor, be involved? I became a doctor because I wanted to help people be healthier. If simply treating them when they got sick was, at best, a temporary remedy, then the doctor should be involved in improving the conditions that made them sick." This is a very big vexing question of modern public heath world, along with its ideology. In another article Marmot pointed out that "All societies have social and economic inequalities and all societies have social gradients in health, but the magnitude varies." If we take into consideration these observations, it is quite obvious that we ask to ourselves – how did the concept, techniques and working of public health evolve in colonial India? My paper is small step towards this direction a vast area of considerable interest. Public health is an umbre lla term encompassing various professions, policies and programs that promote positive community-wide health outcomes. It is also an interdisciplinary field. Epidemiology is a later incorporation within the ambit of public health.

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Introduction:-

In colonial India, first epidemiological study The etiology and epidemiology of plague. A summary of the work of the Plague Commission was published in 1908. Since ancient times to modernity the concept of public health has incrementally developed – from personal hygiene, to 'medical police' to anti-sepsis to state intervention, to name a few. But in colonial India, European science, as practised in the metropolis, got 'refracted' and, to an extent, 'mutated' – not exactly the same metropolitan science. Truly speaking, India was initially regarded as "torrid zone". Anderson, quoting Dipesh Chakrabarty, argues that in colonial India the discourse on filth in public spaces was a "language of modernity, of civic consciousness and public health, of even certain ideas of beauty related to the management of public space and interests, an order of aesthetics from which the ideals of public health and hygiene cannot be separated." The expansion of dispensaries succeeded to fill the gap.

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Outline of Colonial Public Health in 19th-Century India:-

Deepak Kumar raises a basic question regarding public health practices in colonial India, "how 'public' was public health? ... Could there be a Chadwick in colonial India?"[1] There will be a big NO to this pertinent question. Public health initiatives in its early years were basically focused on topography and demography, alleviating sufferings of common Indian people and gaining their confidence in European medicine. From utilitarian perspective, the guiding force of time, Martin observed, "From the natives we cannot expect any great aid, until they are shewn the usefulness of public work, when, I am confident, they will readily comprehend how clearing and proper draining will certainly make", as he assumed, benefits to them.[1] Lahariya shows, though Jennerian vaccine was introduced in 1802 in India it was not universally successful due to technical obstacles at least until 1850.[2] Sykes in his report on "Charitable Dispensaries of India" commented, "There is nothing peculiar to notice in their customs, and I shall proceed to a slight review of the state of public health."[1] (5, Sykes, p. 15) He meticulously reported about "Drainage", "Food of the Natives", various hospitals, health, surgery, disease causation etc. Thus dispensaries and public health were intertwined.

It gives me great pleasure to be able to state that there is a very marked improvement in the working of this Dispensary during the past year. The number of in-patients has increased slightly, and the number of out-patients has increased considerably; of the former class 12, and of the latter class 1,115 were treated in excess of those registered in the preceding year; and 20 large surgical operations were performed by the knife over and above the number operated on in the same way in 1865.

The progress of the Dispensary though slow is marked, and I hope that the year 1867 will show an improvement on the year 1866: not a little address, skill, and delicate management has been needed in the effort to render the Dispensary popular, and some commendation is due to the Sub-Assistant Surgeon, Jodoo Nauth Ghose, for the untiring zeal with which he worked for the advancement of the hospital, for the attention which he has bestowed on the sick, and for the skill which he has displayed in the performance of difficult operations.

(Fig. 1. Annual Report of the Dispensaries of the North-Western Provinces for 1865, Apendix II, p. 20A)

The first hospital for the "Native poor in Calcutta" was opened about the end of 1792 0r beginning of 1793.[3] An operational figure of that hospital can be given.

The admissions to hospital, for the preceeding year, from 1st Sept., 1805, to 31st Aug., 1806, are also given, classified as follows:—

Wounds	77	Dysentery	2	Tumours	1
Fractures	34	Fistula in ano	1	Dislocations	1
Venereal	4	Stranguary	5	Concussion of brain	3
Contusians	18	Locked jaw	2	Mortifications	3
Scalded and burnt	4	Spleen	3	Cholic	2
Dropsy	7	Rheumatism	2	Catarrh	1
Abscess	8	Cancers	2	Scurvy	1
Fever	15	Ulsers and sores	21		
Palsy	2	Excessive vomiting	1	Total	220

(Fig. 2. Crawford, A history of Indian Medical Service, 1600-1913, p. 426)

[1] Deepak Kumar, Science and Society in Modern India. Cambridge: Cambridge University Press; 2023.

[2] Chandrakant Lahariya, "A brief history of vaccines & vaccination in India", Indian Journal Medical Research April 2014, Vol. 139, Issue 4, pp. 491-511. See Fig. 1.

[3] D. G. Crawford, A History of the Indian Medical Services, 1600-1913, Volume 2, London: W. Thacker &Co., 1914, p. 421.

But such an effort was actually drawing poor Indian people to the hospital to get some relief and treatment. It was never a process of reaching out to them – which is the basic matrix of any public health program. Keeping it in their minds, colonial governance/government opened two branch dispensaries in Bengal Presidency in 1825 in connection with the Native Hospital, "now known as the Chandni Hospital" and "Mayo Hospital".[1]Against this perspective, dispensaries largely served purposes like (a) building the premise for later organized public health programs, (b) extending the humane face of colonial/European medicine among general populace at large, and instilling new techniques of European hygiene and new codes of living rightly.Thus the expansion of dispensaries in a sense became an avenue to make the nascent "modern" citizenry.

Calcutta Hospital.

The Calcutta Hospital is entirely independent of the Dispensaries previously noticed, and with its dependent Dispensaries, relieves annually an amazing amount of suffering. The return is—

Relieved.		Funds.	
1842.	1843.	1842.	1843.
294,885	307,112	403,338 Rs.	419,838 Rs.

(Fig. 3. Sykes, "The Role Government Charitable Dispensaries", p. 21)

Some Reflections on the Beginning of Public Health from Colonial Perspective:-

GCPI, 1839 (General Committee of Public Instruction, 1839) reported that as the first four students – Umacharan Set, Rajkrishna Dey, Dwarakanath Gupta and Nobin Chnardra Mitra, to whom Shyama Charan Dutta was later included – did not complete the period of study of minimum four years, they were awarded the "letters testimonial" title, not the degree of Graduate of Bengal Medical College (GBMC). H. T. Prinsep, Secretary to the Government of India, wrote to the General Committee of Public Instruction on 5 December, 1838, "who appeared before us on the 30th October ... at the end of six months' probation to which we remanded two of them, and which others of their own accord fell back upon, may become candidates again for letters testimonial".[4] Moreover, "Should these young men be appointed immediately to dispensaries, or any other medical charge ... They should always keep regular case books as records of their practice with house patients.

"[1] It appears form later reports that more students passed and were entrusted with duties of dispensaries which were spread throughout distant of parts of the North-Western Provinces, established in 1836, through merging the administrative divisions of the Ceded and Conquered Provinces, and Bengal.Sykes provides an important observation related to the nexus between CMC graduates and the functioning of dispensaries – it was in a letter, dated 27th April, 1838, that the Government of India sanctioned the establishment of Dispensaries in some of the large towns in the Bengal Presidency. They were to be under the Civil Assistant Surgeon of the station, who was to be allowed fifty rupees per mensem, including his vaccination duties. An educated young man from the Medical College at Calcutta, on a salary varying from 40 to 100 rupees, but latterly fixed at 100 rupees, was to be placed in charge of the Dispensary. A small number of beds for extreme cases and for surgical operations were attached to each Dispensary, and the appointment of boys, as apprentices, for vaccine objects was suggested.[5] Nine of the graduate students were employed in the dispensaries at Delhi, Agra, Allahabad, 'Cawnpur', Bareilly, Benares, 'Moorshedabad', Assam and Meerut. It was mentioned, "It is recorded that many dispensaries were at this time opened in various parts of the Province, supported partly by the Government and partly by private subscription.

These were placed under the charge of Sub-Assistant Surgeons passed from the newly formed Medical College, and under the immediate superintendence of Civil Surgeons."[1] To my analysis**,** it was the kernel of the beginning of a definite program on public health for the first time in colonial India – in its conception, structure, staffing, and penetration to the interiors of the Indian society. "General Committee learned with much pleasure the success of the

[4]General Committee of Public Instruction of the Presidency of Fort William in Bengal, for the Year 1838-1839 (hereafter GCPI). Calcutta: Baptist Mission Press, 1839, p. 77.
[5]Sykes, " Statistics of the Government Charitable Dispensaries of India", p. 1.

Dispensaries which have been placed under the charge of the Sub-Assistant Surgeons, and they trust, that the system will be further gradually extended as pupils are fitted for employment."[6] The report went on – "The number of patients treated, and the success of the practice is highly satisfactory. A number of operations were also performed by them with success, so that the Sub-Assistant Surgeons may be considered as capable of coping with all the usual exigencies of the profession."[1] My conceptualization of the origin of public health in colonial India does not fully conform to the ideas of the celebrated and esteemed historians like David Arnold or Mark Harrison, rather going at variance with their ideas. According to Arnold, "arguably, the moment of transition from enclavism to public health came only in the 1890s with the establishment of a new "tropical medicine," based on the germ theory of disease, and a corresponding intensification in state medical intervention in India as in many other parts of the colonial world, epitomized by the measures taken during the Indian plague epidemic of the 1890s and 1900s."[7] Elsewhere, Arnold argues that

IMS officers were employed in a wide range of civilian as well as military duties: they ran hospitals, supervised jails, and presided over provincial sanitation and vaccination departments. In times of war, however, the army's needs took priority and IMS officers were drafted back to military duties. This military nexus had far-reaching consequences for the nature of state medicine and public health in India. For much of the 19th century the army (supplemented by the jails) was the primary site of clinical observation and main source of medical statistics.[1]Arnold also contends that "Even if the reach and efficacy of Western medicine was strictly limited in the period up to the 1860s and, as Radhika Ramasubban contends, barely extended beyond a small European enclave, it was nonetheless important in laying the foundation for later developments and in establishing the claims of Western medicine, and of Western authority more generally, over India and its colonial subjects."[8] In Mark Harrison's argument,The history of public health administration in India also dates from the assumption of Crown rule. In 1859, in the wake of the mutiny, a special commission was set up to inquire into the sanitary state of the British Army in India. Epidemic disease had seriously depleted the fighting capacity of British troops in 1857, and, in the light of the public outcry over preventable deaths in the Crimea, there was increasing concern in Britain over military hygiene in India.[1]

To put the crooked historical facts in a simpler way, in our analysis, there were three stages in the beginning and development of public health in colonial India – (1) military medical teaching at the Native Medical Institution (NMI) and deployment of its students among the Indian community during the outbreak of cholera, which was the period of gestation of public health issues, (2) transition from military medical training to civilian and general European medical education at the CMC without religious, social status or caste bar, and (3) deployment of CMC graduates to various dispensaries to take care of general populace at large.Later on, the third phase, as we shall below, gave the much needed strength to a full-scale functioning of public health in India. It was not a simple journey from 'enclavism' to public health to battle with epidemics. But it goes without saying that the flourishing of public health in colonial India and the demonstration of its grit, strength and weakness were definitely tested in the times epidemics when mobilization of public health activities was done to save primarily the military and new recruits of the army, and eventually, general population at large. Even the protection of Indian population in the times of epidemic was also a big issue under the scrutiny of international sanitary experts.

At the same time it should be mentioned that the GRPI, 1855-56 (General Report on Public Instruction) reported – "It is now twenty-two years since the College was founded, and the new Hospital has been occupied for the last three years and a half. The 104 Sub-Assistant Surgeons, and 207 Native Doctors of the Secondary Class now in the Service were educated at this Institution."[9] Moreover, "Under the present system, the College does not supply half the number of Sub-Assistant Surgeons and Native Doctors for the public service".[1] (17, ibid, p. 127) We can assume that the emergence of public health was intertwined with public service for the first time in India. Below is a list of students who were appointed at various dispensaries just getting out of the College.[10]

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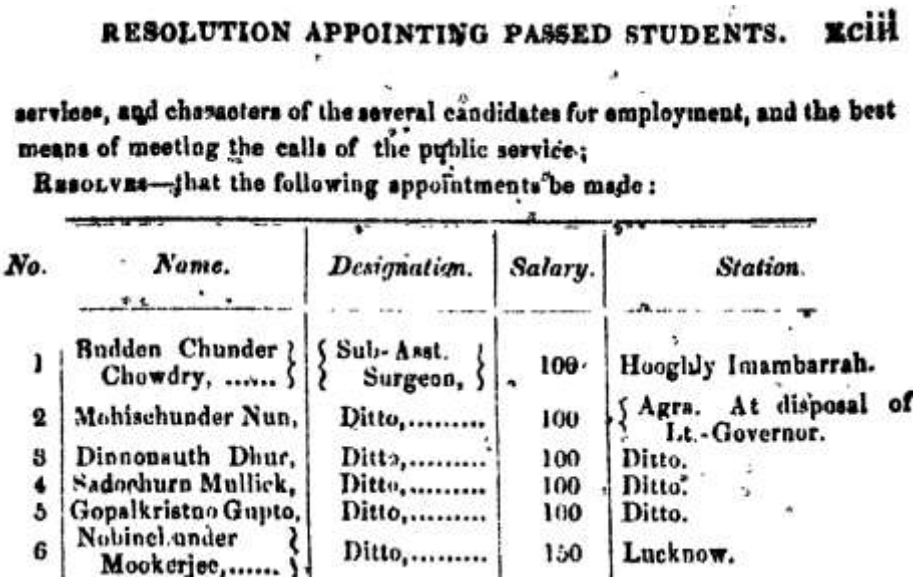
[6]GCPI 1839-1840, pp. 37-38.
[7]David Arnold, Colonizing The Body: State Medicine And Epidemic Disease In 19th Century India. Berkeley: University of California Press, 1993, p. 13.
[8]Arnold, Colonizing the Body, p. 18.
[9]General Report on Public Instruction in the Lower Provinces of Bengal Presidency, 1855-56 (hereafter GRPI). Calcutta: Calcutta Gazette Office, 1856, Appendix A, p. 126.
[10]GCPI 1840-1841, Appendix No. XII, p. xciii.



RESOLUTION APPOINTING PASSED STUDENTS. xciii

services, and characters of the several candidates for employment, and the best means of meeting the calls of the public service;

Resolved—that the following appointments be made:

No.	Name.	Designation.	Salary.	Station.
1	Budden Chunder Chowdry, ...	Sub-Asst. Surgeon,	100	Hooghly Imambarrah.
2	Mohischunder Nun,	Ditto,.....	100	Agra. At disposal of Lt.-Governor.
3	Dinnonauth Dhur,	Ditto,.....	100	Ditto.
4	Sadoohurn Mullick,	Ditto,.....	100	Ditto.
5	Gopalkristno Gupto,	Ditto,.....	100	Ditto.
6	Nobinchunder Mookerjee,.....	Ditto,.....	150	Lucknow.

(Fig. 4. GCPI 1840-41 & 41-42, Appendix XII, p. xciii))

In 1847, Balfour felt that perhaps one of the most striking features of the present history of India was the wonderful success with the opening of Dispensaries.[1]The branch dispensaries would, it was conceived, bring fair medical aid within the reach of many who were at present utterly deprived of it; would be a means of saving life and preserving health to the police ... and to what extent the people have availed themselves of the benefit offered to them ... I have sent vaccinators into the districts in which they are located, and have been obliged to withdraw them, in consequence of the excitement occasioned ... after obtaining the service of a good steady native doctor, was to give him all weight and influence I could...[11]Dispensaries, in his view, were held by the great majority of the people with increasing favour.

They were supported by graduate sub-assistant surgeons of the CMC. Thus, it was through the dispensary that a space for modern public health was opened up in a true sense. The success of these strategies was also dependent on the internalization of certain rules of behaviour by the population at large. "Medicine thus acquired political status inasmuch as it gained a new relevance to the interests of the state".[1] Taking stock of some of the dispensaries of Northern India, Sykes observes, "Confining myself to the broad features, I may state, that 267,456 cases including house and outpatients, were treated – of this number 168, 871 were cured, 2417 died, and 96,168 ceased to attend".[12] We have to keep in mind that these figures represent only statistics from the Northern part of India. If one added figures from the North-Western provinces and Bengal this statistics must show a greater number of patients to being benefited by dispensary services. The crux of public health question – bringing a great number of populace under the cover of modern medical supervision – was thus resolved at the outset.

To note, "These establishments are calculated to prove of great public benefit by reducing the cost of the drugs used in the practice of medicine to the means of the larger classes of the community who, from the consideration of economy, were hitherto compelled to use the cheap nostrums and poisons of the Bazar."[1] Moreover, "as almost all of them are natives of Bengal, and consequently strangers both in point of customs and language to the people of the Western Provinces, among whom many of them are appointed to labour, sometime must be allowed for the for the softening down of mutual prejudices."[13] If we carefully look at the last sentence it seems to be a replica of British colonization of India.Let us now do a quick survey of the dispensaries reinforced by the graduates of CMC.

According to the GCPI, 1839-40, the following report was furnished:-

(1) **Dacca** – sub-assistant surgeon Nabin Chandra Pal.

(2) **Chittagang** – sub-assistant surgeon Rajkrishna Chatterjee.

[11]Ibid, pp. 121-122 & 124.

[12]Sykes, ibid, p. 4.

[13]Ibid, p. clxxiv.

(3) '**Pooree Dispensary and Pilgrim Hospital**' – sub-assistant surgeon Nilmani Dutta.
(4) '**Moorshedabad**' – sub-assistant surgeon Panchanan Shrimoni– some country medicines like 'Kala Dana' and 'Kut Kelija' were introduced into use.
(5) **Patna** – sub-assistant surgeon Ram Ishwar Awasthi.
(6) **Benares City Hospital & Secrole Dispensary** – sub-assistant surgeon Ishan Chandra Ganguli.[1]
(7) **Allahabad Dispensary** – sub-assistant surgeon Shyamacharan Dutta – quite good number of surgeries done – 1 of amputation of the leg, 1 of the penis, 6 for cataract, 3 for fistula in ano, 1 for fistula in pereneo, 8 paracentesis abdominis, 8 for ectropian, and 2 for the removal of encysted tumours. Keeping in mind that it was pre-anaesthetic era and sans modern cutting-edge equipments, the number of surgeries done in such a dispensary was no doubt laudable and must have drawn respect from local population.
(8) **Bareilly Dispensary** – sub-assistant surgeon Jadab Chandra Seth. It was reported that Seth through his skill and efficiency had "excited jealousy of the Hakeems, who do all in their power to thwart him, but prudence on his part and time will no doubt overcome their opposition."[14]
(9) **Agra Dispensary** – sub-assistant surgeon Uma Charan Seth – number of out-patients 3490 and average daily number of applicants 307 – quite a good number even in today's respect.
From Seth's activities and fierce opposition from traditional practices of Hakeems it transpires that there was a lingering epistemological struggle between the two systems of knowledge – European and indigenous. At a much later date, this question was again dealt with in the Indian Medical Gazette (IMG).

On perusing lately the census returns of the North-Western Provinces, we were deeply interested, and strongly impressed, by that part of the returns which gave information as to the number of hakeems and baeds (Hakims and Vaidyas) in the different districts of that Government. From this we gather that there are 7,000 practitioners of medicine and surgery in that division of the country, giving a proportion of one medical man to every 4,285 of the general population.[1]This is quite irrespective of Government employees, who are European Officers, supplemented and assisted by Sub-Assist- ant Surgeons and Native Doctors educated entirely on the European system, These, taken together, are, comparatively speaking, very few in number, and widely separated in their medical creed and practice from the baeds and hakeems, with whom they have the least possible intercourse and sympathy ... Under British rule, however, they have disappeared altogether from political life, and socially have little or no standing in European society, where they are virtually ignored.[15] Moreover, it was anxiously noted, "In native society, all over the country, these men still hold their own, and are greatly respected, ministering as they do to the troubles of both body and mind of the people, and generally possessed of a superior education."[1] According to the GRPI, 1842-43, which was placed on 30th April, 1843, we come to learn a lot about its developments, consolidation and ramifications of dispensaries through various tributaries.[16] Regarding dispensaries, it was mentioned in the report of GCPI, 1842-43 that sub-assistant surgeons "educated in the College, perform their duties, and the amount of good which has already resulted from their exertions … will add to the intrinsic value of the Dispensaries, which are so well adapted by their internal economy to obtain the confidence of the native inhabitants."[1] Thus these dispensaries became the nidus of the future public health system in colonial India.

What benefits did people get from the dispensary services? Besides vaccination and learning hygienic practices, (1) "Many have their sight restored", (2) "others have been cured of hydrocele and relieved when in the last stage of dropsy", (3) "some have also derived effectual relief from the successful operation for 'stone in the bladder'", (4) "a few have been saved from a miserable death by amputation of diseased members" (in many cases cancerous), and (5) "large tumors have been removed."[17] It was observed that such operations "could not have been achieved by native practitioners without producing an impression on the minds of the most apathetic natives, and they must tend to spread far and wide the value of the Government Dispensaries." (32, ibid, p. 90) Country medicines were generally used in each of those dispensaries, where their application was deemed proper and sufficient.[1] In this report we find new entries of dispensaries both within and outside Calcutta – (1) Bhowanipore Dispensary, sub-assistant surgeon Kalachand Dey, (2) Chittagong Dispensary, sub-assistant surgeon Raj Krishna Chatterjee, (3) Cawnpore Dispensary, sub-assistant surgeon Ramnarayan Das, (4) Furruckabad Dispensary, sub-assistant surgeon

[14]Ibid, clxxix.
[15]Ibid, p. 87.
[16]GCPI 1842-43, p. 67.
[17]Ibid, p. 90.

Sadhu Charan Mallik, (5) Agra Dispensary, sub-assistant surgeon Umacharan Seth.[18] (34, ibid, p. 91-95)Under the section "Medical Hospital" it was made clear that "The patients are all dieted according to the annexed diet roll, and the charge for the diet of each patient is calculated for Europeans at 4 annas, and for natives 1 anna per diemThe significant exception in the secular nature of the new medicine was determined by its colonial context, where differences were often noted through caste and racial inscriptions. Importantly, an American observer remarked on Indian medical graduates and Indian education as well,"

The Indian medical graduate fails to find in the villages an opening similar to that existing in the American rural and village sections. The Indian landed class does not ordinarily send its sons to the University, where they could come in contact with their fellows from the professional and commercial classes, and be moulded by the current social reform movements. Instead these youths, who are later to control the lives of the ryots on their vast estates … One is safe in saying that in India there is almost a complete absence of honorary services and personal interest in educational activities by the wealthier and educated classes, who in America have done so much to foster public education.[19] The solution to this problem was found in government employment in dispensaries and medical colleges, employment in private enterprises like tea gardens, railways or as personal physicians/surgeons to zamindars or kings of various localities. As a sum total, the emergence of public health was made possible by recruiting graduates of CMC to so many dispensaries across different parts of India, sometimes in the remotest corners. Finally, to note, "A small number of beds for extreme cases and for surgical operations were attached to each Dispensary, and the appointment of boys, as apprentices, for vaccine objects was suggested. It was proposed to limit the monthly charge for each institution to 250 or 300 rupees. The Dispensary was to be furnished with medicines and surgical instruments from the Government stores, and instruction was to be given to any youths who might desire to attend. The native assistant might practise privately."[1]

Half-Yearly Vaccine Return of the Cawnpore Government Dispensary, from 1st August, 1844, to 31st of January, 1845.

Stations.	Corps and Medical Officer.	Successful.	Unsuccessful.	Doubtful.	Total.	Subjected to Bryce's Tests.	Grand Total.	
Cawnpore.	Mr. Assistant Surgeon E. Goodeve, Superintendent. Native Vaccinator							
	Durrewah	5	3	....	8	....	8	Aug.
	Ditto	6	4	....	10	....	10	Sept.
	Ditto	5	4	....	9	....	9	Oct.
	Ditto	8	5	1	14	....	14	Nov.
	Ditto	7	3	2	12	....	12	Dec.
	Ditto	5	4	1	10	....	10	Jan., 1845.
	Total.....	36	23	4	63	....	63	

(Fig. 5. Sykes, "The Role Government Charitable Dispensaries", p. 37)

[A paper of mine of much abridged and truncated version on this particular topic was published in the Preventive Medicine: Research and Reviews July-August 2024, 1 (4): 214-216]

[18]Ibid, pp. 91-95.
[19] George Allen Odgers, "Education in India", The Phi Delta Kappan October, 1925, Vol. VIII, No. 2, pp. 2-3.