

PAPER J

DOCUMENTATION OF THE HISTORY OF MEDICINE IN INDIA

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The various activities for the promotion of the study, research, collection of documents, and documentation of the history of medicine in India in the last fifteen years, are briefly described. The annual bibliography, Recent Indian medical historiography, for the period 1954-61 is analysed from different points of view. Indian contribution on Indian medical history has risen by about 65 per cent, while the foreign contribution to the subject has declined by about 30 per cent, in the 8-year period. Over 80 per cent of the papers are in English. Only 10 per cent of the papers are in Indian languages. Among the latter, Telugu, Hindi, and Urdu take up about 90 per cent. Ancient Indian medicine is the subject most widely written upon. The history of the development of medicine in India from about the 10th century to the 19th century AD has received little attention. Eighty per cent of the articles are to be found in 50 periodicals. Out of the 208 periodicals indexed during 1954-61, a little over 80 per cent of the papers are to be found in the 111 Indian periodicals. Coverage of the articles by certain indexing periodicals is also indicated. Periodicals from India, Great Britain, Germany, and USA together contain about 95 per cent of the papers. About 80 per cent of the papers have seeped into periodicals devoted to subjects other than history of medicine and the history of science. The possible reasons for some of the features mentioned are advanced. Periodicals in the General Medicine group gave over 50 papers per year but the number of

articles per periodical in that group was only about 6. Compared to this though the periodicals on the history of medicine gave over 18 articles per periodical, they gave only a little over 27 papers per year. The main types of the seventy-three books cited in the bibliography are also indicated.

0 INTRODUCTION

In the last two decades considerable attention has been focussed on the study of the medical history of India. This is not to suggest that Indian medical historiography gained interest only after post World War II. For, even the ancient Indian medical classics such as the works of Charaka, Susruta, Kasyapa, Vagbhata, and Bhela, mention the various theories and practices of medicine in India. India's contact with the western world became extensive from the 16th century AD. Foreign and Indian scholars have made sporadic attempts to reconstruct the scientific and cultural history of India. To stimulate research in India's past and to collect the necessary documents of information, Sir William Jones founded the Asiatic Society in 1783. Further, kings or maharajas in different parts of India patronised scholarship, built up valuable library collections, and sponsored the publication of learned treatises expounding the culture, tradition, and the

sciences of India. Some members of the late Indian Medical Service have written on broad or specific topics relating to the medical history of the country. A brief account of the story of medical historiography in India may be found in a lecture by Subba Reddy [SUE].

01 Search in Non-Medical Fields

The earlier documents on the subject are naturally scattered. Some of them are rare, and not all of them are in the conventional book form. Systematic and extensive searches have to be made in non-medical writings in the field of sociology, history, culture, archaeology and in travel accounts, to obtain a more cogent picture of the development of medicine in India, particularly from the 16th to 19th centuries. In this paper the activities for the promotion of the study, research, and documentation of Indian medical history during the last fifteen years are reviewed. Data on the writings on Indian medical history during 1954-61 are presented, and an interpretation of the data is also attempted.

1 LEARNED SOCIETIES

11 Indian Association of the History of Medicine

The Indian Association of the History of Medicine was formed in 1947, with its headquarters in Madras, for the purpose of promoting the study of and research in, medical history with special emphasis on India. With this in view lectures and symposia have been held under its auspices from time to time. The publication of the Association's official organ - the Indian journal of history of medicine (1956-) provides a definitive medium for the publication of original papers, reviews, news, notes etc of medico-historical interest. It is also the purpose of the periodical "to bring to the notice of the cultured public and the profession, various archaeological, epigraphical evidences, traditional lore, extracts from ancient literature, religious or secular or scientific, lists of manuscripts, records of documents, old books and works of art, useful for the study of

the history of medicine in India. It will collect and publish clues and traces of the influence of ancient Indian medicine on other lands and people in ancient and medieval times. . . . It also aims to bring medical science into closer relation with the humanities". Further, with a view to help scholars and bring about contact and collaboration among them, the periodical has been documenting the current writings on Indian medical history in a series of annual bibliographies. The first instalment covering the documents for the years 1954-55 was published in 1956. The Upgraded Department of History of Medicine (Hyderabad, AP) maintains a card index to the documents. The Department has a project to complete the bibliography for the years 1951-53 so that a decennial (1951-60) cumulative index could be issued.

12 History of Medicine Club

The History of Medicine Club was formed in 1958 in the Seth G S Medical College (Bombay) by a group of enthusiasts. The college itself possesses a valuable collection of documents on medical history received from the Royal Asiatic Society (Bombay). The Club has been successful in enthusing the medical profession in medical history. It has arranged several learned lectures on medical history subjects [SE].

13 Museum of Medical History

The Topiwala National Medical College (Bombay), has a hall in its new building set apart for a museum of medical history. Donations and loan of exhibits depicting the development of medicine in India are solicited by the institution [T].

2 TEACHING, RESEARCH, AND LIBRARIES

21 Prof Sigerist's Recommendations

The late Prof Henry Sigerist, recommended in a memorandum submitted to the Health Survey and Development Committee (Bhore Committee), the establishment of an Institute for the History of Medicine in India preferably in connection with or as an annexe to, the library of the All-India Institute of Medical Sciences, almost two decades

ago. He pointed out that the staff of such an institution should include scholars in Sanskrit, Greek, Arabic, Persian, etc, and that it should have a strong collection of:

"The basic medico-historical literature - books and journals - medical texts in the best editions and translations and as many reference books as possible. It should also include a number of non-medical books, such as basic books on political, social and economic history, the history of philosophy, religions and other disciplines, books that are constantly needed for general orientation".

"The institute will in addition collect other documents pertaining to the medical history of India, manuscripts photographs, portraits, objects such as instruments, etc, and it may consider the creation of a museum of indigenous drugs".

The Bhore Committee endorsed Prof Sigerist's recommendations [I].

22 The McDonald Report

Perhaps the first official attempt in recent years to evaluate the medical library facilities in India was that undertaken by Lt Col D P McDonald in 1945 under orders of the Director of Medical Services. Among other things he recommended the proper classification and cataloguing of the documents, and provision of additional grants for periodicals. Further, he suggested that a medical man conversant with medical literature should examine the collection of old and rare documents lying neglected in some libraries so that really worthwhile items may be preserved, and gaps in out-of-print periodical sets filled with microfilm copies [NM].

23 Madras Medical and Public Health Conference

The Medical Education Committee of the Madras Medical and Public Health Conference in its report of 1947 examined the library facilities in the Madras State. The Committee recommended that in addition to a chain of district medical libraries for the medical practitioners and public health men

of the districts, the library of the Office of the Director of Medical Service (formerly Surgeon-General's Office) should have a collection on such subjects as medical education, medical philosophy, history of medicine, etc, subjects in which the medical colleges might not acquire material to any appreciable extent.

24 Survey of Medical Publications

About 1949, Dr D V Subba Reddy sent out a questionnaire to several medical colleges and other institutions in the country to compile a list of the medical publications published before 1900, available in the respective libraries. A tentative schedule for the classification of these documents was also drawn up [SUC] [SUH].

25 Under-Graduate Medical Education Conference

In November 1955, the Under-graduate Medical Education Conference sponsored by the Government of India recommended, for certain laudable reasons, that history of medicine should be included in the medical curriculum.

26 Implementation of the Bhore Committee's Recommendations

In 1956, the Government of India passed legislation to implement the Bhore Committee's recommendation to establish the All India Institute of Medical Sciences. There was no provision for the institute of History of Medicine in this All India Institute although the A L Mudaliar Committee, appointed by the Government of India to work out the details of implementation of the Bhore Committee's suggestions, had recommended a Department of History of Medicine in that Institute.

27 Government Support

In 1956 the Ministry of Health of the Government of India offered financial support to proposals for the establishment of Chairs of History of Medicine in selected medical colleges as part of the programme for the promotion of indigenous systems of

medicine during the Second Plan period [C] [O].

3 DEPARTMENT OF HISTORY OF MEDICINE

The Surgeon-General with the Government of Madras recommended the establishment of a Department of History of Medicine in the Andhra Medical College, Vishakapatnam. This Department, the first of its kind in India, was opened on 26 September 1956 with the object of teaching, conducting research, and training personnel to staff medical history departments. The Department also began organising a library of medical history. With the formation of the Andhra Pradesh in 1957 the Department was shifted to Hyderabad, the capital of the State, famous for its museum, art collections, large private and public libraries, and presenting a harmonious fusion of Hindu, Islamic, and European culture [INJ]. The Department which was first located in the Gandhi Medical College, is now in the Salar Jung Museum Compound functioning as a department of the Osmania Medical College. Since its establishment, the Department has been upgraded and receives Government of India financial support.

31 Organisation and Programmes

The Department is organised into five sections:

- 1 Library, with special emphasis on documents on Indian medical classics, and Indian culture and sociology;
- 2 Museum of pictures, sculptures, etc;
- 3 Archival records useful in the study of Indian medical history;
- 4 Art section; and
- 5 Photography section, for reprography work.

The teaching programme of the Department includes: Ten to twelve lectures on history of medicine to undergraduates in medicine; two to four lectures to postgradu-

ates; and guidance in preparing historical review of their speciality of study. The Osmania University has also approved the scheme and syllabus for a post-graduate Diploma in History of Medicine.

Research programmes of the Department include medicohistorical and other special studies relating to Andhra Pradesh, and investigations of the history of medicine in India in all aspects.

The publication programme comprehends a journal or transactions, bibliographies of medicine in India, reprinting of ancient texts and rare books on Indian medicine. The first number of the organ of the Department – Bulletin of the Department of History of Medicine – was issued this year. [U].

The Department has so far published nearly a hundred papers and a few monographs.

4 INSTITUTE OF HISTORY OF MEDICINE

In 1960 at a conference of eminent medical men and scholars who met at the invitation of Hakim Abdul Hameed Mutawali of Hamdard Laboratories (Waqf), Delhi, the formation of an Institute of History of Medicine was recommended. The Institute's building at Badarpur was recently opened by the Prime Minister. The Institute was inaugurated by Dr Jivaraj N Mehta on 12 August 1961.

The main objectives of the Institute are:

- 1 To found a vast library for extensive studies of the history of medicine with special emphasis on the collection of:
 - i) Books on the history of medicine in whatever languages available;
 - ii) Publications on Greek, Egyptian, Arab, Ayurvedic, Siddha, and Chinese medicine;
 - iii) Important publications on modern medicine;
 - iv) Literature on all important systems of medicine; and

- v) Old literature for research.
- 2 To establish a museum of history of medicine; and
- 3 To establish a herbarium of medicinal plants of medicohistorical interest.

This organisation named the Institute of History of Medicine and Medical Research is a registered body under the Societies Act of 1860.

The publications of the Institute include Unani and Arab medicine by M A Aziz, Notes on ethical basis of medicine by Ha-keem Abdul Hameed, A Survey of indigenous drugs by H H Siddiqi, and Theories and philosophies of medicine (a product of the Institute's research team) [A] [INSTI] [INSTZ].

5 STUDY OF INDIGENOUS SYSTEMS OF MEDICINE

From the early part of the nineteenth century, Western medicine steadily struck roots in the Indian soil. With the founding of the medical schools to impart instruction in English in Western medicine with a view to meet the medical requirement of the British army, Indian systems of medicine receded into the background. However, in the last two decades, there has been renewed interest in the study of Ayurveda, especially its materia medica. Fresh impetus came from the rediscovery of the medicinal properties of Rauwolfia or Sarpagandh.

51 History of Ayurveda

During the Third Plan Period special attention is to be paid to Ayurvedic studies. A programme for the study of and research in the history of Ayurveda during this period was recently outlined [SUP]. The scheme envisages three stages of work:

- 1 Collection of the material necessary for study. Study and analysis of the materials, their cataloguing, collation, editing and annotating of the texts;
- 2 Publication of papers, books, periodicals, bibliographies, translations, etc; and

- 3 Training of research workers and teachers of Ayurveda in the methods of historical research and teaching of the history of medicine.

Award of fellowships and scholarships to encourage research in the history of Ayurveda is also programmed.

52 Nagarjun Research Institute

The periodical Nagarjun was launched in September 1956 with a view to spread and revitalise the study and practice of Ayurveda. Encouraged by the warm reception received by the periodical in India and abroad, in 1960 the sponsors began planning for the establishment of a Nagarjun Research Institute to give "impetus to fundamental and post-graduate studies in various branches of the ancient science of life, in the context of the precepts of Charaka, Susruta, and Vagbhata, the three great teachers of Ayurveda". A fullfledged hospital of 125 beds, an outpatient department, a herbarium, and a drug research laboratory are to be established in association with the Institute. Such a large scale enterprise, costing about Rs. 50 lakhs, cannot succeed without adequate support from the Government as well as from the private sector.

The activity of the Institute of specific interest to the present review is its programme for the preparation of an Ayurvedic encyclopaedia. This compilation is to be in ten volumes of 1,000 pages each. The proposed contents of each of the volumes are as follows:

- 1 History of Ayurveda;
- 2 Ayurveda and its utility in modern days;
- 3 Different aspects of the art and science of Ayurveda with particular reference to Panch Bhuta Theory, Tridosh Theory and Nadi Vignan;
- 4 List of writers of authentic books giving their life-sketch and names of works;
- 5 Subject-wise list of books so far published in Indian and foreign languages;

- 6 History of Ayurvedic journals;
- 7 Ayurvedic materia medica - Vegetable kingdom; Therapeutic values of different herbs, when combined together and their utility in different diseases; Mineral kingdom; Animal kingdom;
- 8 Details of Ashtanga Ayurved - Shaiya Tantra (Surgery); Shalaky Tantra (Surgery of Ear, Nose, and Throat); Kaya Chikitsa (Medicine and treatment); Kaumara Brutya (Pediatrics); Bhut Vidya (Mental diseases); Aganda Tantra (Toxicology); Rasayana (Rejuvenation - Geriatrics); Vajeekarana;
- 9 What Ayurveda can take from modern medicine and surgery; and
- 10 What modern medicine and surgery have already taken from Ayurveda and what it can still take.

Once projected, the completion of the work is expected to take about five years. A thousand sets in Hindi and thousand sets in English are planned. The proceeds from the sale of the encyclopedia is to be used for reprinting of rare and valuable out-of-print books, rare manuscripts, etc [NAI] [NA2].

6 HISTORY OF SCIENCE

The several programmes for the promotion of the study of the history of science in India include the history of medicine in their purview. The documentalist needs to be aware of them. The more important efforts are described below.

61 Symposium on the History of Sciences in S Asia

A symposium on the history of sciences in South Asia was held in Delhi in November 1950 under the joint auspices of National Institute of Sciences of India (NISI) and Unesco. The history of medicine was well represented as evident from the several papers on the subject that were submitted to the symposium. The papers of direct bearing on history of medicine were:

Historical and chronological survey of the practice of hygiene and medicine in India from antiquity by G V Satyanarayana-murty;

History of Indian medicine from the ancient times to 18th century by A C Ukil;

Legal medicine: Its study and practice in India (from the historical point of view by S K Chatterji;

Medical man and his ideals in the golden age of Ayurveda by P M Mehta;

Study of medical history in India by B L Raina;

History of chemistry in India by P Ray;

India's contribution to chemical knowledge by N R Dhar; and

History of science in India by G P Majumdar [SY].

62 National Institute of Sciences of India (NISI)

The idea of writing the history of science in India was mooted at the above symposium and NISI was requested to institute a Board for the purpose. The programme has been actively pursued since then. At the invitation of NISI the Asiatic Society, Calcutta, offered cooperation.

621 The Project

The history of individual sciences are to be written up first, then the introductory and the concluding volumes will follow. As archaeological and epigraphical investigations bring to light fresh documentary evidences, and as more translations of source materials scattered in Nepal, Tibet, China, etc become available, parts of the history may have to be re-written. Accurate chronology has also to be established. To start with, to facilitate searches, the historical period has been divided into three sectors: Early period (up to 1200 AD), the medieval period (from 1201 to 1800), and the modern or British period (1801-1950).

When funds from the Ministry of Scientific Research and Cultural Affairs became

available in 1960-61, two research units composed of linguists and scientists were established. One of the units intended to work on the ancient period is located in the Asiatic Society (Calcutta). The location of the other unit shifted between Aligarh, Mysore, and Delhi depending on the assignment of a supervisor of the unit to the different CSIR establishments. In the current plan period NISI sanctioned another unit for the ancient period to the Asiatic Society. The two units in the Asiatic Society have been primarily concerned with the history of the biological and physical sciences up to the 10th century. The fourth unit for the medieval period is yet to be decided upon [H1] [H2] [H3].

622 Bibliography

As a preliminary step, the compilation of an exhaustive bibliography of the documents, with notes on their contents, available in India was taken up. The NISI research units have collected extensive data on source materials - over 3,000 Sanskrit and 3,000 Arabic and Persian manuscripts available in Indian libraries.

623 Symposium on the History of Sciences in India

As a further step in the promotion of activities for the study of the history of the sciences in India, NISI convened a Symposium on the History of the Sciences in India, at the Bose Research Institute, Calcutta in August 1961. Indian medical history was represented by the following papers submitted to the symposium:

Indian medicine by S S Misra;

Unani medicine by Azeiz Pasha;

Concepts of generation, evolution, reproduction, human embryology, genetics, etc as found in the writings of scholars during the early period up to 1200 AD by N H Keshwani;

Pharmacognosic classification of drugs by B C Kundu;

Medical lores found in the works of Kalidasa by B Rama Rao;

Scientific content of the Vedas by K Biswas;

Knowledge of insects by C S Gupta;

Botanical science in India by K Biswas [H2].

63 History of Science Unit (CSIR)

To supplement the work of the NISI units and to cover areas or periods left out or incompletely covered by them, the establishment of a History of Science Unit by the Council of Scientific and Industrial Research was recently announced [CS] [ST]. The unit would primarily undertake research on the history and philosophy of science and technology in India and their impact on the social development of the country in the different periods of history. It would also help and guide the universities by way of organising special courses, arranging lectures, working out syllabii for different levels of education, and writing books for special use in schools and colleges.

The unit is to have three sections:

- 1 Research;
- 2 Library; and
- 3 Museum.

The library would comprise of current literature published on the subject, catalogues, language and specialised science dictionaries and other reference material. It would also acquire manuscripts on science in different languages available in libraries of the individual or small institutions where they are likely to be lost or damaged. In addition it would also have microfilms and photostats of the relevant manuscripts now located in institutions in different parts of India and abroad.

The museum would grow as a part of the research activity. It would contain photographs of manuscripts, technological remains of different periods of history and models of the various discoveries in different periods.

The research programme is divided into the following units:

- 1 Prehistory;
- 2 Ancient;
- 3 Medieval;
- 4 Post 19th century; and
- 5 Method and the philosophy of science.

The work will comprise:

- 1 Compilation of bibliography of source-material including historical chronicles;
- 2 Period and subject histories;
- 3 Critical edition of selected texts;
- 4 Popular publications; and
- 5 Special studies for schools and colleges.

It is hoped that the work of the CSIR unit and that already being done by the NISI units will not duplicate. On the other hand, there should be good cooperation and coordination of the work of these bodies [H3].

64 Teaching and Research in Universities 641 Indian Society for the History of Science

At the Indian Science Congress held in Calcutta in January 1957, the Indian Society for the History of Science was formed. Its objectives include the promotion of the study research, and teaching of the history of the sciences including medicine, in all aspects. The Society appointed a sub-committee which drafted a syllabus for the history of sciences with a view to request the Indian universities to introduce history of science as a qualifying subject for the degree students.

642 Survey of Commonwealth Universities

Mays [M] in a survey of the facilities available for the study of the history and philosophy of science in the Commonwealth countries reported that Indian and Pakistani universities use these subjects mainly for giving science students a historical background and for broadening the interest of arts students. The subjects are mainly taught by science and philosophy lectures. The replies to his questionnaire indicated a general emphasis on the need for some historical study of the sciences. Eight universities in India were reported to have some

courses in the philosophy and/or history of science.

65 Retrospective Documentation List 651 Asiatic Society

From its very foundation in 1784, the Asiatic Society has done pioneering work in the promotion of studies and research relating to the history of the science and of the arts in India. The Society's illustrious founder, Sir William Jones, had outlined an interesting programme for the collection and cataloguing of documents on the subjects of enquiry in India. The Society has thus built up a collection of manuscripts and other documents of immense value in such studies. From time to time it has published in its periodicals and as separates, papers and bibliographies which are good approach materials for research into the history of science in India [B] [CH] [ND]. It is, therefore, in the fitness of things that the Society's cooperation has been secured by NISI in writing the history of the sciences in India.

652 The National Library

The National Library (Calcutta) has a valuable collection of documents of use in the research on the history of medicine and allied subjects in India.

In 1960 the National Library published a Bibliography on Indian anthropology, the first volume of a projected series of the Bibliography of Indology. Fifty six bibliographies on a variety of subjects have been announced. Under the scheme subject specialists are commissioned by the National Library to compile comprehensive retrospective bibliographies on their speciality. In this series on Indology, bibliographies of interest to the historian of medicine in India are those on Medicine, Anthropology, Antiquities, Ancient history, Medieval history, Archaeology, Epigraphy, Botany, Zoology, Sociology, Psychology, Philosophy, Biography, Bibliographies, and Science. The first volume of the author part covering letters A-J of the Bibliography of botany was published in 1961.

653 Other Institutions
6531 In India

Other institutions whose catalogues and current work should be of use to the historian of Indian medicine are:

The Deccan College (Poona);

The Bhandarkar Oriental Research Institute;

Government Oriental Manuscripts Library (Madras);

Oriental manuscripts libraries in Adyar, Mysore, Tanjore, and Trivandrum;

The National Archives (New Delhi);

Bombay Branch of the Royal Asiatic Society Library;

Institut Francais d'Indologie (Pondicherry); and

Similar organizations connected with anthropology, history, archaeology, epigraphy, and sociology in India.

There are also a few medical college libraries such as those of the Madras Medical College, Calcutta Medical College, and the Grant Medical College (Bombay), which were established before 1850, having collections of medico-historical interest. Some of the older university libraries, public libraries, and private collections, are also known to possess documents of interest to the medical historian. It will be worthwhile to examine these collections and either prepare a union catalogue of the rare materials or pool them centrally in a library to aid in medico-historical studies. The work of the NISI units for history of science preparing bibliographies of source manuscripts has already been mentioned. The Upgraded Department of History of Medicine in Hyderabad also reports on manuscripts and other rare volumes of medico-historical interest available in various institutions in India.

6532 In the West

In the West there are a few large national libraries such as the British Museum (London), the Bibliotheque Nationale (Paris), the Library of Congress (Washing-

ton D C), and the National Library of Medicine (Bethesda, Md), whose catalogues and publications are sources of information on documents of history of medicine in India.

Institutions with specific interest and programmes in Indology such as the School of Oriental and African Studies (London), and the Institut fur Orientforschung of the Deutsche Akademie der Wissenschaften, naturally collect and publish documents of use in the study of history of medicine in India. Because of India's close relations with Britain for the last three centuries, there are fairly large collections of source documents of relevance to the study of the medical history of India during the last three hundred years, located in some of the specialised libraries in the United Kingdom. Particular mention may be made of the Wellcome Historical Medical Library, the School of Tropical Medicine and Hygiene Library, the Royal Society of Medicine Library, the Royal College of Surgeons Library, the Royal College of Physicians Library, and the India Office Library.

In his presidential address to the Indian History Congress (1959), Prof D V Potdar commented that "documentary material for medieval and modern history is scattered in cities like London, Paris, Lisbon, Amsterdam, etc, and in the dilapidated houses of a number of old historical families in the country, the present heads of which do not always appreciate its value".

654 Bibliographies

A list of bibliographies of manuscripts and other documents of value in the study of the medical history of India may be found in the two volumes on Reference service by Dr Ranganathan [R]. Between 1500 and 1950 as many as 300 medical bibliographies are known to have been published [BR]. Some of these may be worth checking for source documents on the subject. In the last two decades few retrospective bibliographies of documents of value to the Indian medical historian have been published. Mention may, however, be made of the following which contain useful bibliographies:

Morton (L T). Garrison and Morton's medical bibliography. An annotated checklist of texts illustrating the history of medicine. Ed 2. 1961.

Ray (P), Ed. History of chemistry in ancient and medieval India, incorporating the "History of Hindu Chemistry" by Acharya Prafulla Chandra Ray. 1956.

Needham (Joseph). Science and civilization in China. 1958-. V 1-.

[Cites a large number of documents of specific value in the study of the history of the medical and allied sciences in India].

A new edition of Catalogus catalogorum is being attempted by the Madras University.

655 Indian Medical History Since 1700

Most of the writings on the history of medicine in India are concerned with ancient Indian medicine, that is the period earlier to 1200 AD. Bibliographies also mostly record source documents useful in the study of ancient Indian medicine. The history of medicine and the medical publications in India during the last three hundred years have not received adequate attention from either the Indian writers or the European scholars (See sec 83). To quote Dr Subba Reddy

"Most of the histories of medicine, written by American and European scholars, devote a few lines or a few paragraphs to ancient Hindu medicine (Ayurveda) but generally omit to mention the great names and contributions from India to tropical medicine in the 18th and 19th centuries. Still more surprising is the scant space allotted in monographs on tropical medicine and in books on the history of tropical medicine to the large number of reports, researches, monographs and treatises from India, by European physicians and surgeons and especially by that small but immortal band of British medical men, serving on the establishments of the three Presidencies in India. ... medical

men of the present century in India, the teachers of our medical schools and the few investigators scattered here and there, have not even heard of these mines of knowledge. Post-graduate students, preparing theses for degrees, or articles to medical journals, are blissfully ignorant of these treasuries of clinical observations, post-mortem findings and lines of treatment. In the course of historical survey of a disease or observation of clinical interest or a drug or a mode of treatment, Indian writers, begin abruptly with 1900 or preface the articles with the reported or distorted statements from Hippocrates, Galen or Sydenham." [SUB].

India having been under foreign rule and in a state of cultural exhaustion during the last three hundred years might have been one of the reasons for this lacuna. There being documents in the several languages in India besides those of the neighbouring countries, considerable effort and co-ordination in the collection and study of the source materials is required. Further, the important details on the practice of medicine, the state of public health and the social conditions in India during this period are to be searched for in works on sociology, history, anthropology, and in travel accounts. Published travel accounts by 'visitors' from the West, which contain useful information for the study of the medical history of India in the 18th and 19th centuries number nearly two hundred. A good proportion of these were published between 1650 and 1850.

6551 Works of IMS Officers .

During the present century there have been some sporadic attempts to list the medical publications in India during the 18th and 19th centuries. For obvious reasons these writings are motly by members of the East India Company's Medical Service, and the later Indian Medical Service (IMS). The two monumental works - History of the Indian Medical Service, 1914, 2V, and the Roll of the Indian Medical Service, 1615-1930, 1930 - by Dirom Grey

Crawford not only trace the history of the IMS but also record the publications of its members. The study has been brought up to the time the IMS was dissolved in 1947, by Donald McDonald in *Surgeons two and a barber*, 1950. This book also gives a list of the works by the IMS officers available in the library of the London School of Hygiene and Tropical Medicine.

In 1955 Magnanand published a list of the publications of the IMS officers available in the library of the Directorate General of Health Services (New Delhi) (Ind j med sc, 9; 1955; 138-43).

A bibliography of the books and tracts by IMS officers has now been compiled by me. It contains about 1,400 entries. Sixty per cent of the works are on medical subjects, the rest on a variety of other subjects ranging from engineering to zoology. The compilation will be published in due course.

6552 Other Bibliographies

Among other bibliographies (including narrative bibliographies) which refer to works of the 18th and 19th centuries in India and are of use in the study of the history of medicine of this period, the following may be mentioned. Of these 1-2 are directly on medical subjects. The others, mostly on botany, not only refer to works of the IMS officers, but also of help in locating documents relating to botanical sources of drugs.

1 Subba Reddy (D V). Bibliography of cholera. (J Ind Med Assoc. 19; 1950; 469).

2 Sinton (J A). Bibliography of malaria in India (Rec Malaria Survey India 1; 1930).

3 British Books on India. An exhibition arranged by the British Council. 1961.

4 Kirtikar (K R). Progress in natural history during the last century (In India). (J Bombay Branch Roy Asiatic Soc. Spec N; 1905; 353-81).

5 Merrill (E D) and Walker (E H). Bibliography of eastern Asiatic botany...

1938.

--- Supplement by E H Walker.

1960.

6 Blatter (E). Bibliography of the botany of British India and Ceylon. (J Bombay Nat Hist Soc. 20; 1911; 79-185).

7 Burkhill (I H). Chapters on the history of botany in India. 1. (J Bombay Nat Hist Soc. 51; 1953; 846-78).

8 -. - 2. (ibid. 54; 1956; 42-86).

9 -. - 3. (ibid. 58; 1961; 678-706).

10 Singhvi (M L) and Shrimali (D S). Reference sources in agriculture. An annotated bibliography. 1962.

11 Santapau (H). Contributions to the bibliography of Indian botany. Part 1. (J Bombay Nat Hist Soc. 50; 1952; 520-48).

12 -. -. Part 2. (ibid. 51; 1953; 205-59).

13 Butler (E J) and Bisby (G R). Fungi of India. Rev by R S Vasudeva. 1960.

14 -. -. Appendix 5: Bibliography. (Imperial Council of Agricultural Research, sc monograph, 1.) 1931.

15 Das Gupta (S N). History of botanical researches in India, Burma and Ceylon. Mycology and plant pathology. 1958.

Note: Contains a good bibliography. This is one in the projected series entitled "History of botanical researches in India, Burma and Ceylon", ed by P Maheswari and others.

16 List of publications relating to Indian fauna. (J Bombay Nat Hist Soc. 17; 1906; 505-18. 18; 1908; 469-81. 19; 1909; 225-52. 19; 1910; 95-120. 20; 1911; 184-217).

7 DOCUMENTATION PERIODICALS
71 Before 1954

With the growing interest in and enhanced facilities for the study of and research in Indian medical history, indexes to current writings in the subject to faci-

litate the work of the scholars and researchers have become necessary. Until about a decade ago there had hardly been any attempt to systematically document the current writings on the history of medicine in India. Prior to 1954, besides the Index catalogue, other documentation periodicals which included a small proportion of the articles on Indian medical history were the Quarterly cumulative index medicus, the Current list of medical literature (now the Index medicus), and the annual critical bibliography on history of science in ISIS, all published in the United States.

72 Since 1954

721 Bibliography of Scientific Publications of S and S E Asia

In 1949 the Bib sc pub S S E Asia was begun by Unesco Science Cooperation Office for South and South East Asia in New Delhi. Since 1955 the coverage and scope of the bibliography has been extended, and it is being published by Insdoc (New Delhi) in cooperation with the Unesco Science Cooperation Office (New Delhi). It is now a monthly and covers a number of Indian scientific periodicals. Thus it includes papers on Indian medical history also.

722 Current Work on the History of Medicine

The publication of a comprehensive current indexing periodical for the history of medicine was initiated in 1954. This is the Current work on the history of medicine, issued quarterly by the Wellcome Historical Medical Library (London). With the cooperation of several British medical librarians, the Current work covers about 2,000 periodicals. For the foreign publications on the history of medicine in India it is a good index.

723 Index to Indian Medical Periodicals

Since 1959 the Directorate-General of Health Services (New Delhi) has been publishing the Index to Indian medical periodicals. It is issued twice a year. It covers about 95 Indian medical periodicals.

724 Recent Indian Medical Historiography

The existing documentation lists were found to be inadequate in respect of their coverage of the writing on Indian medical history. Therefore, a comprehensive annual bibliography entitled Recent Indian Medical historiography, Bibliography was started in 1956. Since then it is being regularly published in the Indian journal of history of medicine. The first instalment in 1956 covered the documents published during 1954 and 1955. The bibliography covering the documents for 1962 is under preparation.

8 ANALYSIS

The numerous programmes which have been instituted in the country in the last decade for the study of and research in, Indian medical history will, naturally, have an effect on the publications in the subject. Now that we have had a fairly comprehensive bibliography of Indian medical historiography for the period 1954-61, it will be useful to examine the trend of the writings, the scatter and seepage of the papers in periodicals, in various languages, and to examine the extent of coverage of the documents in some of the existing indexing periodicals for medical history. The results of a study on these aspects are reported below.

The basis for the analysis is the bibliography Recent Indian medical historiography, 1954-61 (RIMH).

81 General Trend

Table 1 and Fig 1 present an analysis of the Indian and foreign contributions on Indian medical history during the eight-year period 1954-61. Indian contributions on Indian medical history have risen by about 65 per cent during the period. The total percentage of contributions, Indian and foreign, on the subject, has not, however, changed to any appreciable extent. The percentage of Indian writings on medical history, excluding those pertaining to India, has remained fairly constant at about 20 per year. Foreign contributions to Indian medical history has declined by nearly 30 per cent. The ratio of Indian contributions

to foreign contributions has increased from 1.1 to 5.1 during 1954-60 and then dropped to about 4 in 1961.

82 Language-wise Distribution of the Papers.

From Table 2, which analyses the papers by language, it is evident that English is the most widely used (82 per cent) of the languages in recent writings on Indian medical history. Other western languages take up about 6.6 per cent.

For historical reasons English has been the most widely used language in higher education, research publications, and for administrative purposes in India for the last two centuries. Hence the predominance of contributions in English.

Among the Indian languages, Telugu takes the lead. In fact it ranks second among all the languages represented in the Table. A partial explanation would be the fillip given to publications in Telugu from the establishment of the Department of History of Medicine in Andhra Pradesh, a predominantly Telugu speaking area. In fact, the Department has special projects for study of the local medical history.

Telugu is followed by Hindi and Urdu. These three languages together account for nearly 90 per cent of all the papers in Indian languages.

For each contribution in an Indian language there are 7.4 English and 8 in all foreign languages taken together.

83 Subject Emphasis

A subject analysis of the papers (Table 3) contributed during 1954-61 indicates that ancient Indian medicine (before 1200 AD) has been the topic most written upon (36.6 per cent) by Indian as well as foreign authors. A great proportion of these writings centre round Ayurveda and the classical authors and their work (e.g. Charaka and Susruta).

Next in rank are biographies, mostly on the 19th and 20 century medical personalities. The Indian Medical Service played a great role in the development of

medical services and medical education, and forms an illustrious segment of the medical history of India for the last two hundred years. Hence, obituary notices of the IMS officers have been indexed (for 1954-56) and that accounts for a swelling of the number of papers on biography.

History of learned bodies, research institutions, associations, and libraries in India devoted to medical sciences, occupy the third rank with a total of nearly 10 per cent of the papers on them. Practically all these papers are by Indian authors.

The above three topics - ancient Indian medicine, biography, and learned bodies etc - together form the subject of 71 per cent of the papers.

831 Gap in Medical Documentation

It would appear that the study of the development of medicine in India from about the 10th to the 20th century has received little attention. It is probably a fertile field for research and documentation.

84 Frequency Table

Table 4 lists the periodicals which have been cited in RIMH. The periodicals are ranked according to the number of papers published in them during 1954-61. Within each rank-group the listing is alphabetical by title of periodical. The rank number (in column 2) is not repeated for each member of a group. For example, the periodicals serially numbered 41 to 50 occupy the twentieth rank. In column 5 the periodicals referred to in the Current work (CW) during 1954-61, and the periodicals index by the Index to Indian medical periodicals (I) according to its V 5 (Jan-June 1961) are indicated. The periodicals indexed in the Bibliography of scientific publications of S and SE Asia alone (and not included in the two documentation periodicals mentioned above) are also indicated by the later 'B'.

About 80 per cent of the papers indexed in the RIMH were published in the first fifty periodicals of the list. Out of this 80 per cent, over 75 per cent of papers is

carried by forty Indian periodicals. On the whole, 82 per cent of all the papers indexed during 1954-61 is to be found in all Indian periodicals and 18 per cent of the papers in 97 non-Indian periodicals. (CW) has indexed 29 out of the 111 Indian periodicals, and 96 out of the 97 non-Indian periodicals. In terms of papers, the 29 Indian periodicals carried about 25 per cent of all the papers indexed during 1954-61. For the papers published in Indian periodicals (CW) has to be supplemented with other current bibliographies and indexes. (I) indexes 27 periodicals not scanned by (CW); and (B) supplements with a further list of 25 Indian periodicals not in the (CW) and (I) lists. That leaves 30 Indian periodicals not indexed by the three services. During 1954-61, over 20 per cent of the papers on Indian medical history were published in these 30 periodicals. The greater proportion of these unindexed papers were in local languages - Telugu, Hindi, Urdu.

85 Analysis by the Places of Publication of the Periodicals

Table 5 analyses the periodicals indexed in RIMH by the country of publication of the periodicals. Periodicals from India are, naturally, most numerous, accounting for over 50 per cent of all periodicals cited and 75 per cent of all papers indexed. Periodicals from Great Britain rank next, 23 periodicals accounting for about 10 per cent of the papers. Although Germany and USA rank next with 19 periodicals each, Pakistan with 7 periodicals accounted for 4.3 per cent of the papers as compared to 3.1 and 2.2 per cent from Germany and USA respectively. From these 5 countries - India, Great Britain, Germany, USA, and Pakistan - came over 83 per cent of the periodicals cited which carried about 95 per cent of the papers.

86 Analysis by Subject of the Periodicals

In Table 6 the periodicals are classified by their major subject specialisation and the classes are ranked according to the total number of papers published during 1954-61 in each class of periodicals.

In the group of 12 periodicals devoted to the history of medicine only 21 per cent of the papers were published. That is, nearly 80 per cent of the papers were scattered in 196 periodicals devoted to other subjects. The periodicals on history of medicine (12), history of chemistry (1), and history of science (4) together carried 230 (i.e. 22 per cent) papers.

General medical periodicals carried the largest number (406) of papers - that is 39 per cent. However it is to be noted that there were more than 5 times as many periodicals in this class as there were in the history of medicine group. In the latter class, one periodical - Indian journal of history of medicine - alone carried 128 (i.e. 12 per cent) papers since it began as a half-yearly publication in 1956.

Other Inferences from Columns .4 and 8 of Table 6 are:

Per cent of papers	Scattered in periodicals
62 .	141
40	129
30	123
18	95
10	60
5	42
3	31
1	12

Indian medical history figures prominently in periodicals on Ayurveda, Unani, and Pharmacognosy. Also, periodicals in the classes General science (Natural science), Generalia, and Orientalia come higher up in the ranking.

The documents on Indian medical history is scattered, though to a small extent, in periodicals in alien regions such as Engineering, Technology, Language, Economics, etc.

Periodicals in the four subject fields Medicine, Generalia, Natural science, and Sociology account for 183 (90 per cent) of the periodicals and 1,015 (96.6 per cent) of the papers.

87 Papers per Periodical

Table 7 indicates that periodicals in General medicine group gave the highest number of papers (over 50) per year but the number of articles per periodical in that group was only about 6. Compared to this the periodicals in the history of medicine gave over 18 articles per periodical but only a little over 27 papers per year. In respect of the number of articles per year the history of medicine group and the Ayurveda group of periodicals gave the highest (18.3). Then comes the group of periodicals on Unani with 11.4 articles per periodical. The analysis is presented graphically in Fig 2.

88 Books Indexed

Seventy three books on Indian medical history were recorded in the RIMH for the period 1954-61. Of these, 53 publications were by Indian authors, and 20 by foreign authors. Eight books were translations into Indian languages of foreign medical history publications of the last five years, and nine were reprints of texts, some with commentaries, of medical texts. Nine were souvenirs with historical notes issued on the occasion of a silver or golden jubilee of some institution or other; and 47 medical history works. In the last group, ancient Indian medicine was again the subject most written upon.

Table 1 Indian Medical Historiography, 1954-61

Year (1)	Papers by Indian authors on		Total of (2) and (3) (4)	Foreign Contrib on Indian med hist (5)	Total of (2) and (5) (6)	Total of (2), (3) & (5) (7)	% of (2) to (7) (8)	% of (2) to (6) (9)	% of (3) to (7) (10)	% of (5) to (6) (11)	Ratio of (2) to (5) (12)
	Indian med hist (2)	Other med hist subj (3)									
1954-55	66	28	94	59	125	153	43.1	52.8	18.3	47.2	1.1
1956	69	35	104	44	118	153	45.1	58.5	22.5	22.8	1.6
1957	82	32	114	34	116	148	55.4	70.7	21.6	29.3	2.4
1958	55	21	76	20	75	96	57.3	73.3	21.9	26.6	2.8
1959	115	24	139	30	145	169	68.0	79.3	14.2	20.5	3.8
1960	121	40	161	22	143	183	66.1	84.6	21.8	15.3	5.5
1961	98	28	128	26	124	152	65.0	76.2	18.1	20.6	3.8
	606	208	816	240	846	1054	57.5	71.7	19.7	28.3	4.0

Table 2. Language-wise Distribution of the Papers

S N (1)	Language (2)	N of papers 1954-61 (3)	% of total N of papers (4)	Rank (5)	Rank among all lang (6)
	<u>Foreign</u>			<u>Among foreign lang</u>	
1	English	868	82.3	1	1
2	German	41	3.9	2	3

(1)	(2)	(3)	(4)	(5)	(6)
3	Spanish	10	0.9	3	6
4	Portuguese	9	0.9	4	7
5	French	5	0.5	5	8
6	Russian	3	0.3	6	9
7	Hungarian	1*	0.1	7	11
	<u>Indian</u>			<u>Among Indian lang</u>	
8	Telugu	56	5.3	1	2
9	Hindi	29	2.7	2	4
10	Urdu	21	2.0	3	5
11	Marathi	3	0.3	4	9
12	Arabic	3	0.5	4	9
13	Tamil	2	0.2	5	10
14	Malayalam	2	0.2	5	10
15	Kanarese	1	0.1	6	11
16	Bengali	1	0.1	6	11
17	Sanskrit	1**	0.1	6	11
	Total	1054	100.2		
	Total in foreign languages	936	90.0		
	Total in Indian languages	118	10.0		

* Article in Hungarian and German

* * Article in Sanskrit and English

Table 3. Subjects most written upon during 1954-61

Subject (1)	N of articles 1954-61		Total (4)	% of all papers on med hist of India		% of (4) to all papers on med hist of India (7)
	Indian (2)	Foreign (3)		Indian (5)	Foreign (6)	
Ancient Indian Medicine	250	61	311	29.5	7.1	36.6
Biographics	98	112*	210	11.5	13.3	24.8
Institution, Learned bodies, libraries, etc	78	4	82	9.1	0.5	9.6
	426	177	603	50.1	20.9	71.0

*78 Obituary notices (1954-56) of officers of the Indian Medical Service.

Table 4. Frequency Table

- B = Bibliography of scientific publications of South and South-East Asia (New Delhi)
 CW = Current work in the history of medicine (London)
 I = Index to Indian medical periodicals (New Delhi)

S N (1)	Rank (2)	Periodical (3)	Papers 1954-61 (4)	Indexed in (5)
1	1	Ind j hist med	128	CW, I
2	2	Brit med J	82	CW
3	3	Nagarjun	73	CW, I
4	4	Sri Dhanwantari	49	
5	5	Antiseptic	37	CW, I
6	6	Hamdard med dig	35	CW
7	7	J, Ind Med Assoc	29	CW, I
8		J, Osmania Med Col	29	CW
9	8	Sachitra ayurved	25	I
10	9	Calcutta med j	20	CW, I
11	10	Med dig (Bombay)	19	I
12		Patna j med	19	I
13	11	Ayur maha sammelana patr	15	
14		Hamadard-e-sehat	15	
15		Swasth hind	15	I
16	12	Pharmaceutist	14	I
17	13	Maharash med j	12	I
18	14	Deccan chron	11	
19	15	Ind j med sc	10	CW, I
20	16	Ayurveda	9	
21		Ind j pub health	9	I
22	17	Ind pract	8	CW, I
23		J, Christ Med Assoc India	8	CW, I
24		J obst gynaec India	8	CW, I
25		Madras Med Col mag	8	CW
26		Swasthya	8	
27	18	Arq, Escola Med Cirur, Goa, Ser A	7	CW
28		Ind med forum	7	I
29		Ind med j	7	CW, I
30		J, Govern Ayur Med col (Hyderabad)	7	
31		Mediscope	7	
32		Pag stor med	7	CW
33		Sc and culture	7	I
34		Suddhoff's arch gesch med	7	CW
35		Z mitt, Inst Orient-forsch	7	CW
36	19	Brit j clin prac	6	CW
37		J, Anat Soc India	6	I
38		J postgrad med (Bombay)	6	CW, I
39		Nature (London)	6	CW

S N	Rank	Periodical	Papers 1954-61	Indexed in
(1)	(2)	(3)	(4)	(5)
40		Unani med j	6	
41	20	Illustr week India	5	
42		Ind j malar	5	CW, I
43		Ind j paediat	5	CW, I
44		Ind j pharm	5	I
45		Iqbal (Lahore)	5	CW
46		J, Gandhi Med Col	5	B
47		Med Hist	5	CW
48		Punjab med j	5	CW, I
49		Scientia (Milano)	5	CW
50		Tagafatual hind	5	
51	21	East pharm	4	I
52		Ind j derm vener	4	CW
53		Ind j radiol	4	CW, I
54		J, Bengal Tuberc Assoc	4	CW, I
55		Pharm j	4	CW
56	22	Arch Iber-amer hist med	3	CW
57		Bul, Med Lib Assoc	3	CW, I
58		Ind j neurol	3	CW
59		Ind med record	3	CW
60		Janus	3	CW
61		J trop med hyg	3	CW
62		Man in India	3	B
63		Osiris	3	CW
64		Pharmstudent	3	I
65		Probl tuberk	3	CW
66		Proc, Ind Sc Congr	3	B
67		Ther med (Mannheim)	3	CW
68		Tohofa	3	CW
69		Trans, Roy Soc Trop Med Hyg	3	CW
70		Vignankarmee	3	B
71	23	Aesculape	2	CW
72		An, Acad Farm (Madrid)	2	CW
73		Anthropos	2	CW
74		Asia bul	2	CW
75		Bol, Inst Vasco da Gama	2	
76		Centaurus	2	CW
77		Cesra-sauele	2	CW
78		Chymia	2	CW
79		Cur sc	2	CW
80		Deut apoth Z	2	CW
81		Dia med	2	CW
82		Ind heart j	2	I
83		Ind j psych	2	B
84		Ind med gaz	2	CW
85		J, All-India Inst Ment Helath	2	B
86		J, Assoc Phys India	2	I
87		J, Bombay Nat Hist Soc	2	B

S N	Rank	Periodical	Papers 1954-61	Indexed in
(1)	(2)	(3)	(4)	(5)
88		J, Clin Soc, K G Med Col (Lucknow)	2	B
89		J, Ind Acad Foren Sc	2	
90		J, Maulana Azad Med Col	2	I
91		J, Sc Club (Calcutta)	2	B
92		Med J Austral	2	CW
93		Med press	2	CW
94		Medico (Porto)	2	CW
95		Medicus (Karachi)	2	CW
96		Mod med (Minn)	2	CW
97		Nova acta Leopold	2	CW
98		Persp biol med	2	CW
99		Pharm industr (Aulendorf)	2*	CW
100		Poona Orient	2	CW
101		SPEM (Karachi)	2	CW
102	24	Adyar lib bul	1	CW
103		Ajmal mag	1	
104		Ambix	1	CW
105		Amer hist rev	1	CW
106		Amer j gastroent	1	CW
107		Andhra prabha	1	
108		An, Inst Med Trop (Lisbon)	1	CW
109		Aradhana	1	
110		Arch, Inst Pasteur Alger	1	CW
111		Aryan path	1	
112		Arztl prax bild	1	CW
113		Asiatica (Leipzig)	1	CW
114		Bharat jyoti	1	
115		Bharati	1	
116		Bombay hosp j	1	CW, I
117		Brit j educ stud	1	CW
118		Brit j phil sc	1	CW
119		Bul, Bot soc Bengal	1	B
120		Bul hist med	1	CW
121		Bul, Intern Soc Sec Assoc	1	
122		Bul, Intern Soc Hum Anim Mycol	1	CW
123		Bul prev tuberc	1	I
124		Centen rev arts sc	1	CW
125		Chron, WHO	1	CW
126		Chukkani	1	
127		Ciba symp	1	CW
128		Coconut bul	1	B
129		Concours med	1	CW
130		Cur med prac	1	I
131		Daily telegr	1	CW
132		Deuts med wochen	1	CW
133		Drug chem exports	1	CW
134		East anthrop	1	B

S N	Rank	Periodical	Papers 1954-61	Indexed in
(1)	(2)	(3)	(4)	(5)
135		Eugenics rev	1	CW
136		Forsch fortschr Deuts Wiss	1	CW
137		Geogmag	1	CW
138		Golkonda Patr	1	
139		Heraldo med	1	CW
140		Hist med	1	CW
141		Ind ceram	1	B
142		Ind j anaesth	1	I
143		Ind j Chest dis	1	CW, I
144		Ind j child health	1	I
145		Ind j homoeop	1	I
146		Ind j med educ	1	
147		Ind j surg	1	CW, I
148		Ind med abstr	1	
149		Ind oil soap j	1	B
150		Ind pharm	1	B
151		Indo-Iranian j	1	CW
152		Jornal med (Porto)	1	CW
153		J, All-India Dent Assoc	1	I
154		J, Amer Dent Assoc	1	CW
155		J, Anthropol Soc Bombay	1	B
156		J, Asiatic Soc	1	CW
157		J Indian med prof	1	I
158		J, Inst Eng India (Hindi suppl)	1	B
159		J intern col surg	1	CW
160		J, Iowa State Med Soc	1	CW
161		J, JJ Group Hosp	1	I
162		J, Madras Univ, Ser B	1	B
163		J med educ	1	CW
164		J, Pak Med Assoc	1	CW
165		J, Roy Army Med corps	1	CW
166		J, Roy Inst Pub Health Hyg	1	CW
167		J sci industr res (India)	1	CW, I
168		J, Univ Bombay	1	CW
169		J, Zool Soc India	1	B
170		Kinderarztl prax	1	CW
171		Licentiate	1	I
172		Madras clin j	1	I
173		MD med news mag	1	CW
174		Med biol illustr	1	CW
175		Med world (London)	1	CW
176		Medico	1	CW
177		Med Welt	1	CW
178		Middlesx Hosp j	1	CW
179		Miscel Stud Stor med	1	CW
180		Nat med j	1	I
181		Neurology (Bombay)	1	I
182		New Engl j med	1	CW

S N	Rank	Periodical	Papers 1954-61	Indexed in
(1)	(2)	(3)	(4)	(5)
183		Nutr mews	1	
184		Orsz Orvostort Aerzte	1	CW
185		Pak j surg gynaec obstet	1	CW
186		PHMA (Muenchen)	1	CW
187		Planta med	1	CW
188		Press med	1	CW
189		Proc, Acad Med Sc	1	CW
190		Proc, Roy Soc Med	1	CW
191		Rajasthan med j	1	
192		Rev Brazil hist med	1	CW
193		Riv studi orient	1	CW
194		Roczni orient	1	CW
195		Scalpel (Brux)	1	CW
196		Science	1	CW
197		Sem, Hop Paris	1	CW
198		Sovetsk med	1	CW
199		Sprache	1	CW
200		Surgery	1	CW
201		Temple Univ Med Cen bul	1	CW
202		Trans, Bose Res Inst	1	B
203		Univ Mich med bul	1	CW
204		Vanyajati	1	B
205		Veroeff int ges gesch pharm	1	CW
206		Wien med wochen	1	CW
207		Wien Z Kunde sued u Ostasiens	1	CW
208		Wiss Z, Karl Marx Univ, Math	1	
209		Naturwiss reihe	1	CW

Table 5 Country-wise Distribution of the 209 Periodicals listed in Table 4

S N	Country of publication of periodical	N of periodical	Approx % all papers carried in the periodicals
1	India	106	75.0
2	Great Britain	23	10.3
3	Germany	19	3.1
4	U S A	19	2.2
5	Pakistan	7	4.3
6	France	6	0.6
7	South America	4	0.7
8	Portugal	4	0.4
9	Italy	4	1.3
10	Switzerland	3	0.3
11	Austria	2	0.2
12	Belgium	2	0.2
13	USSR	2	0.3
14	Spain	1	0.2
15	Algeria	1	0.1
16	Australia	1	0.1
17	Denmark	1	0.2

Table 5 Contd.

S N	Country of publication of periodical	N of periodical	Approx % all paper carried in the periodicals
18	Iraq	1	0.2
19	Netherlands	1	0.2
20	Hungary	1	0.1
		208	100.0

Table 6 Seepage of Documents

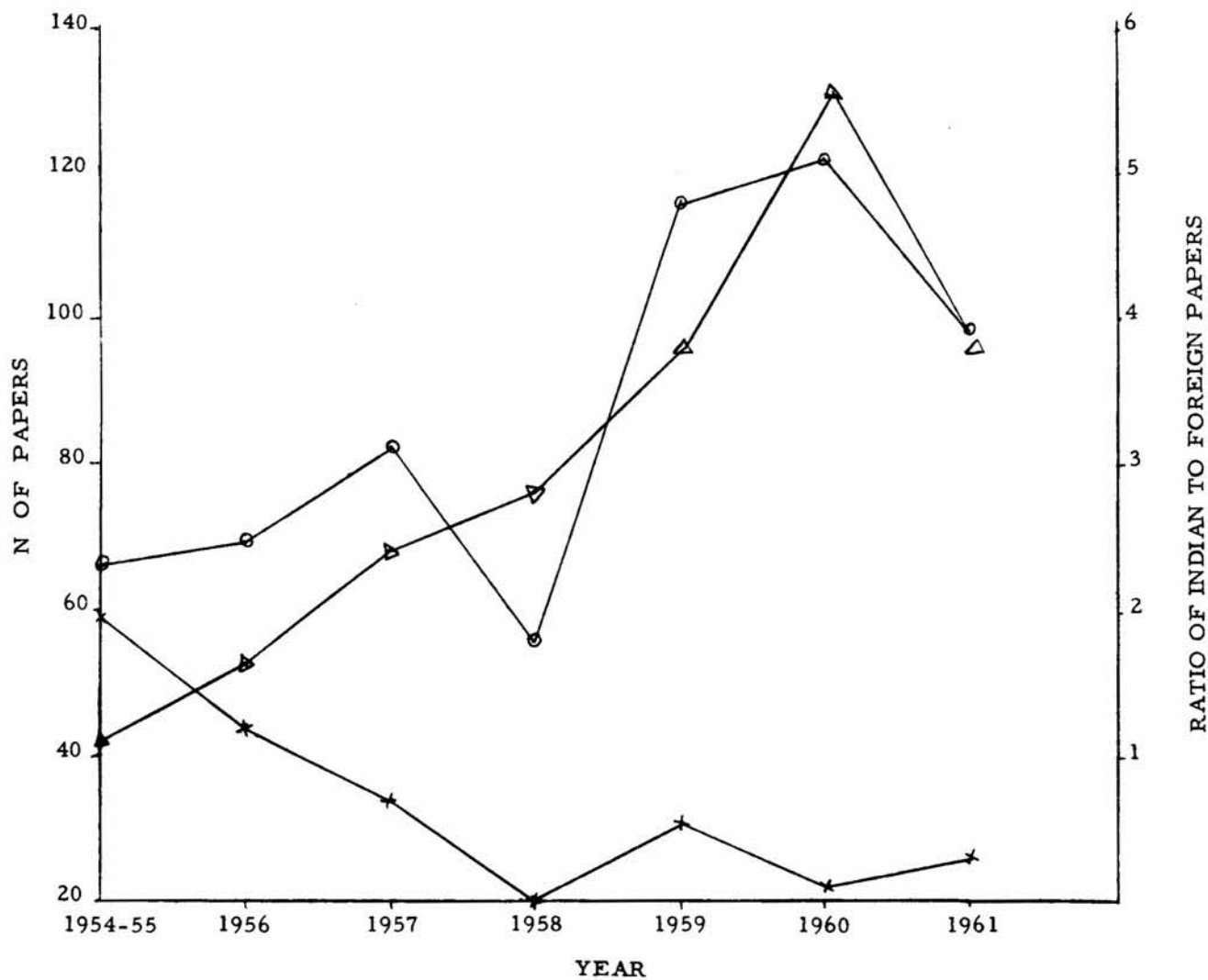
Rank accor to (5) (1)	Colon Class N (2)	Subj of periodical (3)	N of perio- dicals (4)	N of papers 1954-61 (5)	Cumul total of papers (6)	% of (5) to total 1954-61 (7)	% of (6) to total 1954-61 (8)
1	L	Medicine	67	406	406	38.6	38.6
2	Lv	Hist of medicine	12	220	626	20.8	59.5
3	LB	Ayurveda	6	110	736	10.4	69.9
4	LD	Unani	5	57	793	5.4	75.3
5	LX	Pharmacognosy	9	34	827	3.2	78.5
6	A	Natural science	14	33	860	3.2	81.7
7	z	Generalia	12	31	891	2.9	84.6
8	z4	Orientalia	10	19	910	1.8	86.4
9	L:5	Hyg & Pub health	4	12	922	1.1	87.5
10	L9F	Female med	2	9	931	0.9	88.3
11	Av	Hist of science	4	8	934	0.8	89.1
	L:421	Tuberculosis	3	8	955	0.8	90.7
12	L9C	Paediatrics	3	7	962	0.7	91.3
	L9H	Tropical medicine	3	7	969	0.7	92.0
13	L:2	Anatomy	1	6	975	0.6	92.5
	L7	Nervous System	3	6	981	0.6	93.0
	Y7	Anthropology	4	6	987	0.6	93.6
14	L35:4261	Malaria	1	5	992	0.5	94.1
15	G	Biology	2	4	994	0.4	94.5
	L:4:3253	Radiology	1	4	998	0.4	94.9
	L87	Dermatology	1	4	1,002	0.4	95.3
	Y	Sociology	3	4	1,006	0.4	95.7
16	24(L)	Medical library sc	1	3	1,009	0.3	96.0
	L:4:6	Therapeutics	1	3	1,012	0.3	96.3
	L:4:7	Surgery	3	3	1,015	0.3	96.6
17	Ev	Hist of Chemistry	1	2	1,017	0.2	96.8
	L:t	Medical education	2	2	1,019	0.2	97.0
	L:(Z)	Medical jurisprudence	1	2	1,021	0.2	97.2
	L214	Dentistry	2	2	1,023	0.2	97.4
	L3	Circulatory system	1	2	1,025	0.2	97.4
	S	Psychology	1	2	1,027	0.2	97.6
	X8(F56)	Drug industry	1	2	1,029	0.2	97.8
18	2	Library science	1	1	1,030	0.1	98.2
	A:(R)	Philosophy of sc	1	1	1,031	0.1	98.3
	D	Engineering	1	1	1,032	0.1	98.4
	F4414	Glass & Ceram tech	1	1	1,033	0.1	98.5

Rank accor to (5) (1)	Colon Class N (2)	Subj of periodical (3)	N of perio dicals (4)	N of papers 1954-61 (5)	Cumul to total papers (6)	% of (5) to total 1954-61 (7)	% of (6) to total 1954-61 (8)
	F56	Drug technology	1	1	1,034	0.1	98.6
	F94	Oil & soap tech	1	1	1,035	0.1	98.4
	G:6	Genetics	1	1	1,036	0.1	98.5
	I	Botany	1	1	1,037	0.1	98.6
	J582	Coconut	1	1	1,038	0.1	98.7
	K	Zoology	1	1	1,039	0.1	98.8
	L:17	Anaesthesia	1	1	1,040	0.1	98.9
	L:433	Fungus diseases	1	1	1,041	0.1	99.2
	L24	Gastroeterology	1	1	1,042	0.1	99.2
	L4:4	Respiratory syst dis	1	1	1,043	0.1	99.3
	LL	Homeopathy	1	1	1,044	0.1	99.3
	M1440bL	Book illustr irt Med	1	1	1,045	0.1	99.4
	P	Language	1	1	1,046	0.1	99.5
	Q	Religion	1	1	1,047	0.1	99.6
	R	Philosophy	1	1	1,048	0.1	99.6
	T	Education	1	1	1,049	0.1	99.7
	U	Geography	1	1	1,050	0.1	99.9
	V	History	1	1	1,051	0.1	99.9
	X:958	Social security	1	1	1,052	0.1	100.0

Table 7. Distribution of Papers in Medical Periodicals

S N	CC N	N of Periodicals cited	N of Papers			% of Coverage
			1954-61	Per Year	Per Periodical	
1	2	3	4	5	6	7
1	L:t	2	2	0.1	1.0	0.2
2	Lv	12	220	27.5	18.3	24.2
3	L	67	406	50.7	6.1	50.0
4	L:17	1	1	0.1	1.0	0.1
5	L:2	1	6	0.7	6.0	0.7
6	L:4	11	27	3.4	2.6	3.0
7	L:5	4	12	1.5	3.0	1.3
8	L:(Z)	1	2	0.3	2.0	0.2
9	L2	3	3	0.4	1.0	0.3
10	L3	1	2	0.3	2.0	0.2
11	L4	1	1	0.1	1.0	0.1
12	L7	3	6	0.7	2.0	0.7
13	L87	1	4	0.5	4.0	0.4
14	L9C	3	7	0.8	2.3	0.8
15	L9H	3	7	0.8	2.3	0.8
16	LB	6	110	14.0	18.3	12.1
17	LD	5	57	7.1	11.4	6.3
18	LL	1	1	0.1	1.0	0.1
19	LX	9	34	4.3	3.8	3.7
		135	908	113.3	7.0	86.4

Fig 1 Indian & foreign contributions to Indian medical history (Ref Table 1)



○ — ○ Indian contributions (1)
 × — × Foreign contributions (2)
 Δ — Δ Ratio of (1) to (2)

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