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The Merits and Faults of the Wind (Vātakalākaliyam)

BY

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There is included in the Corpus Hippocraticum a treatise by the name "On Airs". This treatise is included by M. Littré under his classification, "writings of the school of Cos, of the contemporaries of Hippocrates". It is generally admitted as a work of Hippocrates by the ancient authorities but rejected by the modern. It is noticed as genuine by Erotian, Galen, Gregory, Nazianzen and Stobaeus. Menon, the first of the medical historians, mentions in his Iatrica, that Aristotle attributed this treatise to Hippocrates himself.² W. H. S. Jones includes this treatise in his translation of the works of Hippocrates. He considers the subject matter of this treatise points to the end of the fifth century B.C. as the probable date of its composition³.

Le Clerc, though he doubts whether it is a genuine work of Hippocrates, does not hesitate to declare "that this book, upon reading it, seems to be one of the most rational and coherent of all Hippocrates' works⁴". F. Adams agrees with the opinion of Le Clerc, and comments that the contents of it are of great importance for the right understanding of the ancient theory of medicine, whether we refer the tract to Hippocrates or not⁵. Clifford Allbutt considers this treatise as a popular oration "as windy in its rhetoric as in its subject matter", but of importance as it indicates the prevalence through later Hippocratic tradition of the doctrine which took form as the school or sect of the Pneumatists⁶.

The writer of "On Airs" asserts that the wind is Lord, not only in things as wholes, but also in the bodies of animals. This theme of the writer is an ancient one and has exerted a singular fascination on the philosophers of the ancient world. The Ionian philosopher, Anaximenes of Miletus (570-500 B.C.) taught it was air that was the unitary world-ground. It

was the Italian philosophers that exercised a profound influence on the medical thinking of Hippocrates and Plato and subsequent writers. The most famous of these philosophers was Pythagoras of Samos (586-489, B.C.). He and his school believed that the Universe as a whole was a living creature and is surrounded with a boundless quantity of air or breath which permeates and give life to the whole; it is the same thing that gives life to individual living creatures. The breath of life of man and the breath of life of the universe was essentially the same. Plato, in his *Timaeus*, elaborated this doctrine of air and taught that life was bound up with fire which originates from the *pneuma* and is inherent in the blood. This, forcibly driven through all the members, nourishes the body and has, as its source the heart, where all the veins meet. This doctrine of the *pneuma* formed the basis of the doctrines of Erasistratus and later, of the school of *Pneumatists*. The writer of "On Airs" does not seem to belong to the school of Cos. In his predilection to a "local pathology" he is a more a Cnidian and in his conception of the air, a follower of the Italo-Sicilian school.

After a short definition of *pneuma*, breath and air, the writer of "On Airs", presents his thesis under three heads; the works of the wind as it exists in the external world; the action of the wind as it exists in the human body; and the mechanism of the production of diseases and its symptoms by air.

I. Wind in bodies is called breath, outside bodies it is called air. It is the most powerful of all and in all, and it is worth while examining its power. A breeze is a flowing and a current of air. When therefore much air flows violently, trees are torn up by the roots through the force of the wind, the sea swells into waves and vessels of vast bulk are tossed about. Such then is the power that it has in these things but it is invisible to sight, though visible to reason. For what can take place without it? In what is it not present? What does it not accompany? For everything between heaven and earth is full of wind. Wind is the cause of both winter and summer, becoming in winter thick and cold and in summer gentle and calm. Nay, the progress of the Sun, Moon and Stars, is because of the wind; for the wind is food for fire and without air fire could not live. Wherefore, too, air being thin causes the life of the sun to be eternal; Nay, it is clear that the sea too, partakes of wind, for swimming creatures would not be able to live did they not partake of wind. Now how could they partake except by inhaling the air of the water? In fact, the earth too is a base for air and air is a vehicle of the earth and there is nothing empty of air.

II. How air, then, is strong in the case of the wholes has been said; and for mortals too this is the cause of life and the cause of disease in the sick. So great is the need of wind for all bodies that while a man can be deprived of everything else, both food and drink, for two, three or more

lays and live, yet if the wind passages of the body be cut off he will die in a brief part of a day, showing the greatest need for a body is wind. However, all other activities of a man are intermittent, for life is full of changes; but breathing is continuous for all mortal creatures, inspiration and expiration being alternate. I must say that it is likely that maladies occur from this source and from no other. I will now show that diseases are all the offspring of air. To begin with the most common disease fever, for this disease is associated with all other diseases. There are two kinds of fevers: one is epidemic, called pestilence and the other is sporadic, attacking those who follow a bad regimen. Both of these fevers, however, are caused by air.

III. Coming to the fever caused by bad regimen. By bad regimen I mean, firstly, the giving of more, moist and dry, to the body than the body can bear, without counteracting the bulky food by exercises; and secondly, the taking of foods that are varied and dissimilar. Now along with much food, much wind too must enter, for everything that is eaten or drunk is accompanied into the body by wind, either in greater quantity or in less. When therefore the body is filled full of food, it becomes full of wind too, if the foods remain a long time and they do remain a long time because owing to their bulk they cannot pass on. The lower belly being thus obstructed, the breaths spread through all the body and striking the parts of the body that are most full of blood they chill them. These parts being chilled, where are the roots and springs of the blood; a shiver passes through all the body, for when all the blood has been chilled all the body shivers.

Headache with fever arises in the following manner: the blood-passages in the head become narrowed. The veins in fact are filled with air and when full and inflated cause the headache; for the hot blood, forcibly forced through the narrow passages, cannot traverse them quickly because of the many hindrances and barriers in the way. This too is the reason why pulsations occur about the temples. This then is the way fevers are caused and the pains and illnesses that accompany fever. When the wind strikes against places that are not usually attacked by it, it pierces the flesh like an arrow. In the same way the writer of *Airs* explains the causation of fluxes and chest haemorrhages by the wind.

If the breaths by passing through the flesh dilate the passages of the body and these breaths are followed by moisture, the way for which is prepared by the air, then, when the body has become sodden, the flesh melts away and swellings descend to the legs. A disease of this kind is called dropsy.

He thus explains the causation of the sacred disease. (Sacred disease is generally supposed to refer to epilepsy; other seizures, including certain forms of insanity, must not be excluded from this heading). When much

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wind has combined throughout the body with all the blood, many barriers arise in many places in the veins. Whenever therefore much blood weighs and continues to weigh, upon the thick, blood-filled veins, the blood is prevented from passing on. So in one place it stops, in another it passes sluggishly, in another quickly. The progress of the blood through the body proving irregular, all kinds of irregularities occur. So greatly does a disturbance of the air disturb and pollute the blood. Foam naturally rises through the mouth. For the air, passing through the veins, itself rises and brings up with it the thinnest part of the blood. The moisture mixing with the air, becomes white for the air being pure is seen through thin membranes. For this reason, the foam appears completely white.

He finishes with these remarks: So, breaths are seen to be the most active agents during all diseases; all other things are but secondary and subordinate causes. I have promised to declare the cause of diseases and have set forth how wind is Lord, not only in things as wholes but also in the bodies of animals⁷.

This theme of the writer of "On Airs" was a familiar one to the Vedic writers and the philosophers of the Upanishad period. There is in Rigveda x-168, a hymn addressed "To Vayu" which describes the power and glory of the Wind. "O The Wind's chariot, O its power and glory! Crashing it goes and hath a voice of thunder. It makes the regions red and touches heaven, and as it moves the dust of the earth is scattered. Along the traces of the Wind they hurry, they come to him as dames to an assembly. Borne on his car with these his attendants, the god speeds forth, the universe's monarch. Travelling on the paths of air's mid-region, no single day doth he take rest or slumber. Holy and earliest born, friend of the waters, where did he spring and from what region came he? Germ of the world, the deities' vital spirit, the god moves ever as his will inclines him. His voice is heard, his shape is ever viewless. Let us adore this wind with our oblation"⁸. Perhaps, the finest description of air as life-breath in any literature occurs, in a hymn in the Atharva-Veda XI, 4.⁹ This is a hymn in adoration of the life-breath (prāna) and gives a comprehensive description of the function and potency of life-breath, both in the macrocosm and the microcosm. This hymn is too long to be quoted in full; only a short synopsis can be given here. First there is an adoration of the Prāna as the cosmic life principle, the Lord of All, whose enlivening forces manifest themselves impressively at the rainy season as rain, thunder and lightning. Then the hymn dwells on the macrocosmic aspects of life-breath in the form of the fire of lightning, the divine babe that grows in the watery womb of the motherly clouds; of wind and rain and the vegetation stirred into existence by the cosmic prāna. From the macrocosmic aspect of breath the hymn turns to its activity in man. All its movements and expressions are worthy of worship; its flowing in and out; its turning away and its returning. There is a healing force (bheṣaja), a curative element or medicine in breath,

if it is properly worshipped and attended to. Breath can appear as deadly sickness, destructive fever (takman); nay, it is death incarnate. Breath (prana) excels over the other divine powers which animate the human body as sense faculties and active agents; for breath (prana) alone, partaking of the wisdom of Brahman, remains unwearied and ceaselessly active, while the others tire and lie down, when man falls asleep. The various vayus are alluded in the Atharva Veda and the prana, apana, vyana and samana are mentioned in A. V. X. 2-13. It is now supposed that the hymns of the Rigveda were composed between 1500 and 1200 B.C. and that the collection of the vedic hymns in the present form was completed by 800 B. C. The medical schools of Atreya and Dhanvantari are supposed to have been established in the sixth century B. C. Charaka Samhita is a revised version of the treatise of Agnivesa, who was a student of Atreya. That the vedic views with regard to vayus and prana had already permeated into the medical schools is evidenced by a discourse recorded in Charaka Samhita, Sutra Sthana, twelfth chapter. This is a discourse on "The Merits and Faults of the Wind" (Vātakalākaliyam).

This discourse starts with the questions: What are the virtues of the wind? What is meant by provocation of the Wind? What again are the things that can allay the provocation? The Wind is never stationary and it is also impalpable and those things that are said to provoke or allay it cannot come in contact with it. How then, without coming in contact with it, can they provoke or allay it? The provoked or unprovoked Wind moves within the body and without the body. What indeed, is its action within the body and outside it? The discourse deals with the first two topics raised by the writer of "On Airs".

As regards the Wind that blows outside the body, when it is in the normal state, it upholds the earth; it causes the fire to blaze forth; it causes the Sun, the Moon, the Stars and the planets to move ceaselessly in their respective orbits; it creates the clouds and causes them to pour rain; it causes all currents or streams to flow; it causes all flowers and fruits to appear; it causes all vegetation to grow; it causes the change of seasons; it causes the formation of the strata of minerals, etc.

When moving in the world in an excited state, without doubt, it breaks the summits of mountains; it uproots trees; it agitates seas; it swells waters of lakes causing them to run upwards; it causes the currents of rivers in opposite directions; it makes the earth tremble; it urges the clouds; it causes excess or, absence of, and contrariety of virtues in respect of the six seasons; it causes failure of crops; it produces diseases and plagues; it destroys many objects.

The Wind is the cause of both production and destruction. It causes all existent objects to start into life and also brings about their destruction.

It is of universal form. It is capable of going everywhere. It is the ordainer of all acts and rules. Of all existent objects it is exceedingly subtle, omnipresent and therefore embraces all things. The Wind is a divine object.

This rather rapturous description of the works of the Wind outside the body prompts the son of Marichi, one of the assembly, to raise the question: Why has our discussion on this topic commenced in connection with medical science? To this question, Varyovida, one of the chief participants in the discussion, replies: If the physician does not hear that the Wind is possessed of great might, that it is very fierce, that it is characterised by great celerity in respect of all its operation and that it is productive of evil, why will he make haste, with concentrated faculties, to restrain at the outset when it becomes suddenly excited. Indeed, the physician should at the outset, seek to allay or restrain the Wind from fear of the injury it is capable of doing. Then he proceeds to indicate the role of the Wind in health and disease of the human body.

In the healthy constructive process the Vayu performs the following physiological functions: it sustains the machinery of the body, it manifests itself as prana, udana, samana, vyana and apana and is the generator of diverse kinds of efforts; it is the force which controls the mind from all undesirables and directs it to all that is desirable, is the cause of the employment of the sense-organs, is the carrier of the stimulation of the sense-objects, collects together the dhatus of the body, harmonizes the functions of the body as one whole, is the mover of speech, is the cause of touch and sounds, as also of the corresponding sense-organs, the root of joy and mental energy, the air of the digestive fire, the healer of morbidities, the ejector of extraneous dirts, the operating agent for all kinds of circulation, the framer of the shape of the foetus and is, in short, identical with the continuity of life.

When it is in undue proportions, it brings about all sorts of troubles, weakens the strength, colour, happiness and life, makes the mind sad, weakens the functions of the sense-organs, causes malformations of the foetus, produces diseases and all emotions of fear, grief, delirium, etc. and arrests the functions of the prana (life-breath).

Varyovida in this discussion maintains, as the writer of "On Airs" has done, that air, powerful in nature generally, is also the prime factor in causing disease.

With regard to the mechanism of the production of diseases and their symptoms by air, which is the third topic dealt with by the writer of "On Airs" in his treatise, there is a close similarity between of the writer of "On Airs" and those of Charaka and Susruta. According to Charaka

and Susruta a disease can only be produced when there is a connection between the Nidanas or the causes which vitiate the dosas (humors), the dosas or the vitiators and the dushyas or the constituents of the body (dhatus). There are various stages through which the dosas (humors) have to pass in the course of production of disease. To begin with there is an accumulation of the dosas (humors), then there is an excitation of these dosas (humors), then a spread of the excited dosas (humors) to different parts of the body and lastly there is the localisation of these excited dosas (humors) in different parts of the body where they produce diseases according to the nature of the structures contained in these parts. The movement of the excited dosas (humors) is brought about by the Wind (vayu) which is the cause of all motor activities and they are carried from place to place through the ducts of the body (siras, srotas and dhamanis). Charaka and Susruta explained the causation of disease and its symptoms by the mechanical obstruction to the blood and nerve currents in these ducts.

Charaka first takes up the pathogenesis of fever as he considered fever as the foremost of all diseases. He is aware of the production of epidemic diseases due to the vitiation of the atmosphere. He says in Vimana Sthana "When the atmosphere becomes contrary to the season; exceeding moist, exceedingly changeable, exceedingly keen, exceedingly cold or exceedingly warm, exceedingly dry, constantly pouring vapours, fraught with awful roars, blowing in whirls and fraught with disagreeable scent, or vapour, sand, dust or smoke, it becomes destructive of health". (C. S. 111-3-6). He classifies fever into two kinds, viz., accidental and constitutional. Accidental fevers are produced by trauma and are characterised by pain to begin with and afterwards by the vitiation of Wind (vayu) and blood. Constitutional fevers are due to improper regimen of life.

Charaka explains the pathogenesis of constitutional fever thus: From excessive indulgence in things which are dry, light and cold, emetics, purgatives, dry enemata, errhines, physical exercises, suppression of the urgings of stools and urine, and fasts, acts that lead to violent shocks, sexual congress, anxiety, grief, operations that lead to loss of blood, night-keeping and disposing the body in uneven attitudes, the Wind becomes excited. When it becomes excited, it enters the amacaya (stomach). There it becomes mingled with the heat of the digestive fire. Overtaking in that state the food-juice which is the first product of food, it obstructs those ducts which bear the food-juice and the sweat. It then affects the digestive fire and expelling the heat from the pakvacaya (intestines) causes it to spread over the whole body. It is then that fever is generated. (C. S. 11-1).

Charaka explains the production of abdominal tumours (Gulmas) thus: The excited vayu enters the principal ducts. In consequence of its

dryness, it becomes hard and having blocked the great ducts it remains in a globular and condensed form in them. It then generates pain (sula) in the thorax, the rectum and the sides of the navel. (C. S. 11-3).

Describing the nidana of phthisis, he says, when a man takes such articles of food and drink as do not harmonise with his system, the dosas (humors) of his system become vitiated. With the falling off of these from their normal condition, they spread all over the body and remain obstructing the mouths of the ducts, then whatever food the person takes is not turned into any dhatu or ingredient of the body. (C. S. 11-6).

Discussing the nidana of insanity, he explains, the Wind being afflicted and the understanding being disturbed, the dosas (humors) become aggravated and provoked; then reaching the heart and obstructing the ducts through which the mind operates, they beget insanity. (C. S. 11-7).

Susruta was a surgeon and he relied on a local pathology for the explanation of many of the surgical conditions. He explains the symptoms of many diseases on the basis of a mechanical theory. Thus he explains the production of the symptoms of the disease called Vata-Raktham (wind and blood): Due to an overindulgence in grief, excessive sexual intercourse, inordinate physical exercise, improper food, etc., which tend to vitiate or agitate the vayu (Wind) and blood in persons of delicate constitutions. The vitiated blood tends to speedily obstruct the passage of the fleet-coursing vayu (wind). The vayu (wind) thus impeded in its course, becomes more and more agitated each moment and is prone to speedily agitate the blood in a similar way. The malady is called Vata-Rakta, owing to the precedence accorded to the action of the deranged vayu (wind) in bringing about the malady, although it effects this in concert with the vitiated blood of the organism. (S. S. 11-1-39 & 40).

Specially in explaining many of the convulsive and spasmodic phenomena he relies on this mechanical theory. Discussing the pathogenesis of Akshepaka (spasms, convulsions), Susruta says, the enraged or agitated vayu (wind), while coursing swiftly through the dhamanis (ducts) of the body, shakes it in quick succession and the spasms and convulsions result. Discussing the pathogenesis of another convulsive disease, most probably epilepsy (Dandāpatānakam) he says, the aggravated or agitated vayu (wind), charged with an abnormal quantity of kapham (phlegm), sometimes affects and stuffs the entire ducts of the body (dhamanis) and produces this disease. (S. S. 11-1-45 & 46). These remarks are interesting because another writer of the treatise called "The Sacred disease," which is also included in the Corpus Hippocraticum explained the causation of this disease on the same assumption. The disease, says the writer, attacks the phlegmatic and not the bilious. The sufferer is speechless when

suddenly the phlegm descends into the veins and intercepts the air, not admitting it either into the brain or into the hollow veins or into the cavities, thus checking respiration.¹¹ Both Susruta and the writer of The Sacred Disease implicate the air and kapha (phlegm) in their explanation of the symptom of this disease. Discussing the pathogenesis of convulsions (Apatantrakah), Susruta says, the vayu (wind) aggravated and dislodged from its natural seat or receptacle in the body in consequence thereof courses upwards and finds lodgement in the regions of the head, heart, and temples. It presses upon those parts and gives rise to convulsive movements of hands and legs or at times bends them. This is exactly the explanation given by the writer of "On Airs" for headaches and pulsations about the temples. (S. S. 11-1-56).

The above discussion is of great importance for the right understanding of the development of medical thought in general and of Indian one in particular. That "the principal forces and faculties which abide in the organism, giving it life and supporting its processes are microcosmic counterparts of the powers which pervade the cosmic body and maintain it through their various antagonistic and cooperative activities" is peculiarly an Indian conception and as such, a new contribution to medical thought in history. In the above discussion, Varyovida describes the cosmic functions of air and contrasts it with the functions of vayu in the human body and concludes that the just proportions of vayu leads to health, the growth of strength and complexion, etc. Arguing on the same analogy, the son of Marichi affirms, that the heat dwelling in the body within the pitta (bile) when excited produces evil and when in its normal condition leads to beneficial consequences. On the same analogy, Kasyapa argues that the soma that dwells in the body within the kapha (phlegm) unexcited and excited produces beneficial and evil consequences in the body. This concept was taken over by the Pythagorians and passed on to Plato, who gave it his philosophic sanction in his Timaeus.

The writer of "On Airs" is not satisfied with the theory of humors of the Hippocratic school. It left out of consideration the most important cosmic force, the air. He would make it the starting point of a monistic theory of disease, according to which diseases are all the offspring of air. He is the first critic of the humoral theory of the Hippocratic school and the formulator of a monistic conception of disease which took form as the school and sect of the Pneumatists.

The classical Indian humoral theory is pluralistic and postulates three humors (dosas) derived from cosmic analogy, Vayu (wind), Pitta (bile), and Kapha (phlegm). But Vayu is given the primacy amongst these three, as it is the cause of all motor activities. Thus Charaka writes "All acts and functions are due to Wind as their cause. The Wind has been called

the Life of living creatures. It is through the Wind that all diseases are generated. It is through the Wind also that all creatures meet with destruction. (C. S. 1-17-115).

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Abbreviations :—

- C. S. : Charaka Samhita : English translation by Avinash Achunder Kavi Ratna, Calcutta, 1890.
 S. S. : Susruta Samhita : English translation by K. L. Bhishagratna, Calcutta, 1907.
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Cesare Lombroso and Criminal Man

BY

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The founder of modern criminal anthropology was an Italian, a fat little man with heavy lenses in his spectacles and a psychiatrist by profession. He was Cesare Lombroso who was born January 10, 1836, in the historic city of Verona, in northern Italy.

Lombroso was very precocious. At four years of age he was able to read Plutarch in Italian. At about five he learned to recite verses of Dante. At the same age and for a few following years he had a sort of religious fervor, but ten he became an unbeliever, and so remained all his life.

At seven years of age he won a prize at school, amid great applause. At eight, after reading "Orlando Furiosa" he wrote a lengthy poem, and another after reading "Paradise Lost". Cesare was a very sensitive youth. He was particularly sensitive to the social prejudices of the times.

In 1854, when he was a second year medical student, Lombroso wrote an essay, which he considered as a forerunner of his future work on the insanity of genius. He graduated in medicine and from 1859 to 1863 he served as a medical officer in the Piedmontese army. During his service he proved to be a hardworking physician, but not a brilliant army officer. He was rather disorderly, almost untidy in his appearance. He was found sometimes with a rusty sword or minus a button on his coat. He was interested in work and notably in the study of the anthropology of his men. He measured anthropologically over 3000 soldiers to determine the characteristics of the different provinces of Italy and began to look for the supposed relations of those physical characteristics with particular psychological tendencies.

While still an officer, during a period of armistice, he served in the Hospital for the Insane at Pavia, and in a year or so, obtained the university rank of "private docent" in psychiatry and forensic medicine. He at length resigned from the army to devote all his time to his studies.

Cesare went to Florence where he became a member of a small group of very promising young scientists : all with radical philosophies and admirers of new ideas. Among them was Moriz Schiff, the physiologist and Charles Letourneau who was later to become a famous writer. At this time Lombroso had published his "The White Man and the Coloured Man", in which he expressed ideas so unorthodox that all the academicians of Europe protested.

Lombroso followed this up, almost immediately with the first enunciation of what became the dominant idea of his life: the criminal man. He believed that criminals formed a separate species of mankind, the *Homo Criminalis*.

The spark which set the machinery into motion was a fact which might have escaped the observations of a less perceptive student. Lombroso happened to see the skull of a murderer, Villella by name, which had a strange anomaly. The occipital bone (which forms the back portion of the skull) had a depression which is not ordinarily seen in the human skull. Lombroso was struck by this observation and by the complementary observation that the depression, rare in man, is normal in other mammals, the dog, for instance. It was then that Lombroso formulated the following hypothesis: Villella, a degenerate, had an anatomic character which is an index of reversion to inferior forms of evolution. His reaction to social surroundings is also a form of reversion to a primitive form of reaction, his conduct is that of a savage. It is possible, or likely that both the anatomic and psychic characters are the expressions of atavistic reversion. The criminal, then, is an abnormal product, a regressive phase of evolution, anthropologically a type, namely, *Homo Delinquens*.

It took a long time before Lombroso was able to interest the scientific world to an appreciable degree. However, the idea was launched. Lombroso was not interested in juridical or penal reforms: he was essentially concerned with a naturalistic problem, namely, the study of the criminal in his physical, somatic characteristics. Meanwhile, he had become a psychiatrist by profession, and more or less by chance.

Dominated as he was by his atavistic theory, and by the idea that abnormal behaviour was the expression of some physical anomaly, he naturally applied his ideas to the study of psychiatry. At that time, psychiatry was not a science; very little was done for the insane in the medical sense, and very little was known of the causes of mental diseases.

Lombroso began to examine his subjects clinically, as ordinary physicians would do with ordinary patients. He examined their height and weight, their heart and lungs, and their physiology. Most other psychiatrists laughed at him. They called him "the psychiatrist of the weighing scale", a title of scorn which he proudly assumed as a title of progress. And at the same time he continued to accumulate observations of the criminals from the physical and biological point of view.

In order to explain how the form of atavistic reversion which expresses itself in unsocial conduct was produced, he began to search into the personal and family history of the patients and was led to a study of alcoholism, infectious diseases and heredity as factors in criminal

degeneracy. He met with a frequent factor: epilepsy. Epilepsy and atavism went hand in hand with abnormal conduct—and crime was the result. But it was hard to believe even for the most enthusiastic of Lombroso's followers that crime was always the product of a form of atavistic reversion, of physical degeneracy, of heredity. Was passion to be excluded from the causes of crime? Was the occasion offered by circumstances, was the influence of economic and social factors unimportant? Was political crime due to atavism or epilepsy? Was prostitution the equivalent of epilepsy?

All these problems had to be studied. Meanwhile Lombroso had succeeded with his persistent work to persuade the world of at least this fundamental truth: that crime is a complicated problem to be studied: that it is not a matter of abstract juridical controversy alone: that the personality of the criminal must be studied with the same care as we would that of a patient, and that penal punishment is not all in the treatment of crime. This is the basic stone of Lombroso's philosophical structure, the fundamental principle of his doctrine.

Lombroso was thoroughly convinced that some bodily sign of degeneracy, of atavism, should go hand in hand with mental and social degeneracy of the criminal. It was then necessary to study the body of his subjects. He began by applying the data of general pathology to the study of criminal man. When followers began to flock to him, when similar groups happened to form in different centers of culture, they called the new movement Criminal Anthropology because the fundamental principles were accepted.

Lombroso persisted throughout his life in claiming the existence of a criminal type as an anthropologic entity. He added other data as science was advancing to fortify his contentions. Dr. Mosso had introduced a method for the study of blood pressure in man, and incidentally discovered a method of studying emotional changes of the circulation. This was received by Lombroso with great joy.

He made immediate use of this new method in clinical examinations of both the psychotic and criminal subjects. He was also the first scientist to use it as a means of detecting and checking up on the emotions of the subjects, as it is now done in all criminal investigations. Other investigators still further confirmed Lombroso's work by studies in sociology, statistics, history, psychology and anthropology.

Lombroso led a very ordinary sort of life. He made few demands and was content with his lot in general. He was a total abstainer from alcoholic beverages and from tobacco. He advocated moderation, but was never intolerant in that respect. He was a very loyal friend; very grateful

for any contribution, to his theories. He was especially fond of young people of intelligence and culture. He supported all his pupils and assistants in their career, and fought for them with utmost loyalty.

Lombroso was a prompt and keen judge of human character and would sometimes classify a man with a few words, and usually correctly. He was probably conscious of that ability, as he very often was led by the first impression a man would make on him. And he would seldom change his attitude or opinion of a man, once formed.

One of his assistants has the following interesting story to tell of Lombroso: "In the second year of my assistantship, Lombroso had me on the examining board in the yearly examinations of the class of Legal Medicine. Including Lombroso, there were three of us examiners; the examination was oral. The students were examined individually by turn, while the others waited in another hall. One of them, personally acquainted with me because we had belonged to the same class, had been rejected the previous year by Lombroso. He was trying again and was rather shy on seeing me, a former schoolmate, among his judges. Legal Medicine was the only subject that had prevented him from obtaining his final degree and he was of course very anxious to graduate. I felt a certain pity for him, and a certain duty of comradeship toward him, which urged me to say a word of recommendation to Lombroso just before the student entered. But when he appeared, Lombroso who had not forgotten the bad impression received the first time, had his judgment ready made. However, he was in very good spirits that day, and rather pleased with a certain research work which I was doing, and he wanted to oblige me. Therefore he charged me with the interrogatory and plunged himself into reading some interesting German review of anthropology.

The victim, sitting at the other side of the table, trembling with fear, was indeed a pitiful sight. He had a rather stupid face, and some characteristics of mild myxedema of cretinous origin. However, after the first two or three questions, I realized that he had made a terrible effort, and that he had studied his book lessons almost *'ad literam'*. He was reciting automatically, unintelligently perhaps but correctly after all. But Lombroso, while apparently absorbed in his book, would raise his head once in a while, moving his head in dissent, with no reason at all, and even making disapproving sounds to whatever the poor wretch would say. The fifteen minutes allotted for the examination passed, the candidate rose, bowed and went to the adjoining hall, waiting in probable despair for our decision. Whereupon I expressed my opinion that the pupil ought to pass. Lombroso was struggling hard between my opinion—that we were not to judge his intelligence in general, but his knowledge of the lessons—and his own, that the pupil was evidently a moron, that if we graduated him we

could not reasonably reject anybody else. At last he yielded to my insistence, through his wish to please me, not because of persuasion. He had judged right: two years afterward my protege was admitted to the hospital for the insane at Turin, because of some form of dementia.

It required about thirty years of hard struggle before Lombroso could see a real influence of his theories on the world at large, although he attracted universal attention almost at the beginning. His characteristic haste and lack of method, which derived from it, was most disconcerting. Not only was his desk a mess, books and important correspondence being thrown together indifferently with unimportant letters, circulars and newspapers, but even in his laboratory it was almost impossible to preserve any order at all.

Concerning this, Dr. C. Legiardi-Laura, one of his assistants says: "I was greatly surprised the first time I saw his old laboratory quarters, to find all the skulls of his collection—over two hundred—some very rare, some unique in importance for the demonstration of his theories, piled up on the ground in a corner of the room. I surmised that the collection was about to be moved, and it was so, in fact; but even at that, it was impossible to see why more care and method was not used in handling that precious material. Thanks especially to the methodical and careful work of Mario Carrara, the Lombrosian collection of skulls and skeletons of criminals, and a beautiful collection of lunatic literature, and the drawings by insane patients and the very important library, were all arranged in perfect order in the new laboratory at the Valentino Park.

"But while Lombroso lived, he left the footprints and handprints of his haste very often. For instance, among the arms of criminals and famous brigands was a military sword: nothing less than the sword belonging to Lombroso when he was a second lieutenant in the Medical Corps of the Italian Army! It had been sent there by mistake and left there, God knows why!

"He would sometimes come to the laboratory in a great hurry, acknowledged my presence with a formal smile, go to the library, take a magazine, tear a few pages, put them in his pocket and run away happily: he had found what he wanted at the moment. But he would not return the pages, and after a month or six months, he would come back to look for the same article in the same magazine and complain bitterly that some one had torn the pages of it and just those pages which he needed so badly!"

Lombroso was suspicious by nature. It was because he dealt with thieves and other criminals who had taking ways. Sometimes this suspicion

was justified. At other times he was embarrassed to learn that he was very much mistaken. Another of his associates recalls the following incident in this connection:

"On one occasion he was for that reason on the point of having serious trouble with a young student of natural history, now a university professor, whom he accused of having stolen some skulls from the laboratory. There was no way of taking that idea out of his mind, and he was even outspoken about it.

"That happened when I was in Florence. On returning to Turin I went to see him immediately, as it was my habit to do whenever I returned after a long absence. I happened to be in the brilliant uniform of a second lieutenant. He greeted me and immediately told me of the loss of several important Etruscan skulls or were the Patagonian?—and they had been stolen by Dr. So and So, the young naturalist. I knew Lombroso by that time, and I felt sure that he was mistaken.

"He asked me to see the young man and get him to return the skulls; and he told me to use all the authority and prestige of my uniform. I met—in civilian dress—the supposed criminal the next day on the street, greeted him, asked him how his studies were progressing, and incidentally if he had met Lombroso lately. He was a Sardinian, easily inflammable, and knew that Lombroso had accused him of the theft of the important skulls. He became furious, threatened Lombroso with a duel which was very foolish; and a judicial suit for defamation of character which was not so very laughable. I told him that he was probably exaggerating, and that to sue Lombroso was simply blasphemy; that at any rate I would see the Master and that everything would be explained amicably.

"I then went to Lombroso: I expressed my conviction that the young man was innocent—to which Lombroso smiled with incredulity—and told him of the possibility of a judicial affair. Nothing happened afterward following the incident."

Cesare Lombroso and Sigmund Freud had a great deal in common. Both made great contributions to the understanding of the workings of the human mind. Dr. C. Legiardi-Laura, a well-known psychiatrist and former pupil of Lombroso has this to say: "Both Lombroso and Freud are evolutionists, in their methods: both believe in the working of atavism in the soul of modern man. Read again *Totem and Taboo* by Freud and you will see that comparative ethnology plays a great part in both psychological tendencies.

"Lombroso explains the criminal by the primitive: Freud tries to explain the neurotic by the primitive and compares the primitive man with the child and the neurotic. Letourneau tries to develop Darwin's ideas in the evolution of moral and social institutions from the primitive tribes to modern society. Both Lombroso and Freud tried to find the savage in modern man. Lombroso finds it in the somatic, physiologic reaction; Freud finds it in the unconscious mind. For both, unsocial behaviour is a reversion to some primitive form of reaction, stored in the unconscious mind.

"However the working of the unconscious mind was an exceptional thing for Lombroso: his criminal was semiconscious or unconscious: he was a reverted and a pathologic type: but the general law which escaped him, was discovered by Freud. In what relation stands pathology to atavism? Who do men who look bodily normal, behave abnormally, atavistically?

"Again the answer belongs to Freud. The working of the unconscious, which to Lombroso appeared as an exception, Freud proved to be the rule. At the same time, there are exceptional cases of abnormal behaviour, when the Freudian rule acts in a Lombrosian way. I will try and explain this statement, which I admit to be rather obscure. As Freud proved, the greatest part of our mental processes are worked out in the unconscious mind: The unconscious mind is, indeed, a common property of all humans, sane or insane: it is the accumulation of hereditary instincts and acquired experiences stored from the conscious into the unconscious.

"Lombroso, concerned as he was with the extreme deviation of behaviour from the normal type, saw the atavistic reversions, but failed to see that reversion of behaviour proceeds by degrees from extreme cases—insane or criminal born—to the neurotic, down to the normal, average man. Even accepting that 40% of the offenders are deeply degenerated and epileptic, we would be unable to explain the reversion of behaviour in the other 60% of offenders, unless we admit—in the light of the new psychology—that in every man of to-day are stored the impulses of the savage; in every adult man is the unconscious child: therefore in every man there is a potential neurotic or a potential criminal: the modern man may turn savage whenever a sufficient cause arises. The sufficient cause may be a Lombrosian organ atavism in extreme cases; it may be an epileptic discharge, it may be a general 'degenerescence' in the meaning of Morel, it may be a neurosis, it may be a working of a repression in the Freudian meaning. Whenever and for whatever process a man would be induced to an antisocial reaction, the process will be psychologically the same: the bursting into action of an unconscious reaction. The realization opens a great field to investigation: that of the influence of social environment on the development and treatment of crime".

Lombroso, the founder of the atavistic doctrine of crime, could not find atavism in such apparently absurd and individual examples of behaviour, and the atavistic nature of them would remain unseen if it were not for the work of Freud. In "Totem and Taboo" especially, Freud devotes a great deal of ethnological study to show the natural evolution of filial and parental libido, the influence it had on primitive customs and tribal rules, and the permanence of its vestigia in the unconscious mind of modern man. Thus this particular type of psychopathia sexualis – as many others – belongs to the atavistic reversion just as well as criminality does.

However, the importance of Freud's theory in regard to the sexual psychopathies consists essentially in the generalization of the reversion principle.

Before Freud, those psychopathies looked more or less as sad curiosities: the atavistic principle of Lombroso could be applied in a very few instances. Freud shows that they "always" represent reversions to child psychology, which is the ontogenetic equivalent of atavism.

It is very probable that the groups of criminal classified by Lombroso as criminaloids, occasional and habitual offenders, still contain some attenuated form of the atavistic-pathologic types, but that a considerable number of the passionals, belong to the field of neuroses, and the greatest number of all criminals are simply ordinary men and women whose powers of repression are directed toward the wrong direction or minimized because of environmental conditions.

Lombroso travelled to different European countries, occasionally. It was never for pleasure, usually it was to attend some scientific meeting. At one time he went to Russia and paid a visit to Leon Tolstoi at his country estate. He spent a few days with Tolstoi and greatly enjoyed his company and hospitality.

In Turin he received frequent visits from distinguished persons. His most intimate friend outside Italy was Max Nordau, another Jewish physician and ardent Zionist and author of "Degeneration".

Lombroso had an enormous ability for work. His articles numbered into the hundreds and his books numbered about a dozen. He wrote in haste, but very interestingly. He knew how to entertain his readers, and his books and articles were full of anecdotes on the latest and most fascinating subjects. They sold very well.

Lombroso's scientific activities, begun about 1860 and extending through the whole of his life, which ended in 1909, include an extremely varied group of subjects: toxicology, traumatology, hygiene, and especially the study of pellagra. However, his fame was built on his two chief works, namely, the study of the causes and remedies of crime and his book on the relation of genius to insanity.

The influence of Lombroso's work on criminals was, and still is, enormous. It caused the establishment of criminal anthropology as a study throughout the world. It caused many reforms in penal justice and the prevention of crime. It also influenced the thinking of many prominent men of letters. This influence can be traced in such writers as Zola and Anatole France, novels and plays were written which reflected Lombroso's ideas.

From his work, as from Darwin's theories and later from Freud's, evolved special problems, and many related fields of study became involved. In studying the analogies of the criminal with the primitive man and the savages, Lombroso came to study the evolution of morals and laws, and while examining the development of the conduct of the child, he contributed an important chapter to child psychology. In trying to find out the different factors influencing crime, such as different races, historic development, climate, economic conditions, education, political organization, he and his followers, notably Enrico Ferri and Garofalo, created a new branch of sociology. Philosophy was invaded through the Lombrosian studies of ethics and psychology. Art and literature were interested in the new conception of the organic bases of human behaviour, of atavism, of degeneration through heredity, also of the relations of genius to neurosis.

In the late years of his life, Lombroso who lived to the age of seventy-four, became interested in psychical research and sought to establish proof of existence after death. It is a matter of some interest that he had just finished correcting the proofs of his last book, which strangely enough was on this subject, when he died suddenly of a heart attack on October 9, 1909. For two years he had been somewhat handicapped by a heart ailment, which interfered with his usual activities. Knowing that death was not far off for him, he said on several occasions to his friends: "It is a secret that I shall penetrate before long!"

His daughter, Gina Lombroso-Ferrero, wife of the eminent historian, who was an historian in her own right, said of her distinguished father: "He had loved life intensely and passionately, and the enforced life of an invalid was irksome and distasteful to him. He was not afraid of death;

he had loved too deeply, and was too deeply beloved, to believe that all was at an end when death came. He knew to a certainty that he left in us, his survivors, more than his soul; he left his work. He did not consider disparity of age, of learning, of genius, as obstacles. He had faith in our love, and believed that love can triumph over time, space and oblivion".

In her story of her father's life, Gina points out how well the discovery (since Lombroso's death) of the enormous part played in the human body by the endocrine glands confirms Lombroso's work, since it is now everywhere recognized that interference with the secretions of these glands can both change the external characteristics of the individual and have a most decided psychological effect as well. All the discoveries in this field have not only lent support to his assertions but have paved the way for new methods of treating criminals. Beginning with the early elimination of juvenile delinquents by means of suitable education and physical treatment, a further school of thought has been developed which envisages the transformation of the antisocial instincts of criminals into definite social tendencies.

Evolution of the Study and Writing of History of Medicine

Endowment Lectures of Andhra University

BY

D. V. SUBBA REDDY,

Lectures on "History of Medicine" delivered before the staff and students of Andhra Medical College, Visakhapatnam in 1960 under the auspices of Dr. A. Lakshmipathi Endowment in the Andhra University, Waltair, with Dr. V. S. Krishna, Vice Chancellor in the Chair.

Sir,

LECTURE - I

I am extremely grateful to the Andhra University for the invitation to deliver Dr. A. Lakshmipathi Endowment Lectures, on the History of Medicine. This is not only the first time that lectures under this endowment are delivered, but also the first time an endowment lecture specially provided for promotion of History of Medicine, is arranged, in any university in India. Therefore, while appreciating the singular honour conferred on me, I also feel the onerous responsibility involved in accepting this invitation. I was, however, emboldened to accept this task on account of my long association with the Andhra University and also with Dr. Lakshmipathi. I also cherished the hope that I might, through these humble efforts, repay my debt to both.

My association with the Andhra University has been close and intimate, not only from its birth and infancy at Bezwada, and its childhood at Vizag, but even earlier, from the time a separate university for Andhras was urged. I was one of those few who listened to the speeches of Mr. C. R. Reddy, then Vice-Chancellor of Mysore University on the proposed Andhra University for Andhras and also to the speeches in the Legislative Council, introducing the bill for Andhra University. I attended the inauguration of the Andhra University at Bezwada in 1926 and the opening of the Andhra University in Vizag in 1930 in the Bobbili Hall. It was the library of the Andhra University which grew from humble beginnings to its present magnificent collections, which afforded me both the stimulus and the facilities to study the historical and cultural background of History of Medicine in India. Your present Vice-Chancellor, who was then my neighbour and the late Dr. Saileswarasan, gave their precious time to translate some German articles and books. Later, Dr. Krishna as Registrar of Andhra University took personal interest and circulated to inter-university

Board meeting at Waltair, a *questionnaire* about the place of History of Medicine in medical colleges in India. Dr. Radhakrishnan and Dr. C. R. Reddy gave me encouragement in my early studies on History of Medicine.

Dr. Lakshmipathi was one of the well-known figures in Andhra when I was a student at Nellore, when I collected and read almost all the publications of Vignana Chandrika Grandha Mandali, of which he was one of the founders along with the late K. V. Lakshmana Rao Panthulu. The present generation cannot imagine what Vignana Chandrika Grandha Mandali was to our generation. It gave us fresh air to breathe and sweet water to drink by its historical and scientific publications. Then came the revolution in Dr. Lakshmipathi's life when he got interested in Ayurveda under the inspiration of Pandit D. Gopalacharyulu and started his Ayurveda Pharmacy, took over the Madras Ayurvedic College and the publication of the Ayurvedic journal, Dhanwanthari and other monographs on Ayurveda. When I was in the III year of the medical college, Madras, there was a curious coincidence which brought me closer to the Ayurvedic college and Dr. Lakshmipathi. Some students of the Ayurvedic college had taken rooms in an old house in Chandrabhanu Street near Harris Bridge, and this building was later taken on rent by the Reddy Jana Sangha, (of which the Raja of Munagal was the President and Mr. C. R. Reddy, Vice-President,) for opening a hostel for Reddy students in Madras in 1923. The Reddy Jana Sangha agreed to allow the shelter to Ayurvedic students, probably due to the long friendship of Dr. Lakshmipathi with the Raja of Munagal. I was in the IV year of my medical course and acting as Secretary of the Reddy Hostel. My old friend and former hostel mate in Victoria Hostel, Dr Y. Subba Rao, who was till then a lecturer in the Ayurvedic college, left India for England in quest of research facilities which he lacked in Madras. The Ayurvedic students had to frequently seek my help in connection with their studies and I, in my turn, began to study their books. In this manner, though I was a student of the Madras Medical College, I was in close touch with the students of the Ayurvedic college and their studies for some time. Then, in 1925, when I started practising in Nellore, where there were a number of learned Ayurvedic doctors and an Ayurvedic school, I was requested to give some instruction in Modern medicine to the students of the Ayurvedic college. It was about that time that I prepared and read my first paper on Ayurveda in connection with Dhanwanthari Jayanthi in 1925-26. It was, however, only in 30's when I was on the staff of the Vizag Medical College that I became interested in history and philosophy of Indian medicine, and I came into closer contact with Dr. Lakshmipathi, who, with his usual enthusiasm and generosity, gave me his time, his old journals and books. He himself planned and paid weekly visits to Vizag, to give a series of lectures on Ayurveda. I would like to add here, that Dr. Lakshmipathi's interest was not confined to mere practice of Ayurveda or to business aspects of Ayurveda, as in the case of many people, but his interest went deeper and he collected every piece of historical information and used them in his journal, lectures

and booklets and later spared no pains to make his Encyclopaedia of Ayurveda a veritable repository of the scientific and historical background, as well as the principles and practice of Ayurveda.

It was his patriotism and his love of Andhra University which prompted him to make an endowment to the University as early as 1930 for a prize or a medal for outstanding research work done by a student of Vizag Medical College on indigenous drugs. In the early 30's under the inspiration of Dr. Dixit, commendable work was done by two old students of this college, serving on the staff, who won the medal. Subsequently, due to various factors, interest in this field of research disappeared and there was no thesis submitted for this prize for nearly two decades. Then, in the course of a conversation, in view of the lack of enthusiasm and lack of candidates for the medal under the terms of the old endowment, I suggested to Dr. Lakshmipathi that he may alter the terms of the endowment to encourage and promote studies and publications on history of medicine in India, which was also as dear to him as the investigation of indigenous drugs. It is as a result of this suggestion that the Andhra University has now an endowment for lectures in History of Medicine.

EVOLUTION OF MEDICAL HISTORIOGRAPHY

Henry E. Sigerist, the most distinguished pupil of Sudhoff, and a former Director of the Institute of History of Medicine at Johns Hopkins, great teacher and writer (and one of the most accomplished scholars, who attempted to describe the development of medicine, global in scope in the broad setting of general history), traces briefly the development of the study of history of medicine. History of medicine, he says, is one which is, at the same time a very old and a very young field of study—old in the traditional sense and young according to the latest concepts. Even Hippocrates, one of the greatest men of ancient times wrote a tract on ancient medicine in which he attempted to interpret the work and concepts of the physicians of the earlier generations and thus became the first medical historian. His successors in ancient Greece wrote biographies of famous physicians. The Roman Encyclopaedist Celsus discussed the various schools of thought, their dogmas and reviewed the development of the art of healing, down to the period of the Roman empire. Soranus wrote a number of biographies. The Arab scholar Iban Ali Usaibia wrote a biographical dictionary giving lives and bibliography of physicians. It was only in the 17th century that an attempt was made to write something like a real medical history. Daniel Le Clerc wrote a history of medicine in which are seen the origin and progress of this art from century to century, the sects which had arisen in it, the names of the physicians, their discoveries, their opinions and the most remarkable circumstances of their lives. As it was the first attempt, it was imperfect and included legends and

wrong interpretations. Upto the middle of the 17th century, medicine of the schools was inclined to hold the ancient authors in higher regard than the most recent ones. Sydenham, the English Hippocrates and Baglivi, the Iatrophysicist, consulted Hippocrates frequently. Even in the 18th century, Van Swieten and other enlightened physicians frequently consulted Hippocrates, Aretaeus, Caelius Aurelianus, as if they were their colleagues. During the same period Haller, in whom erudition was combined with scientific work wrote many bibliographies. John Friend wrote history of Physic from Galen to 16th century. Both Germany and France had separate groups of medical historians, but the greatest medical historian of that period was Kurt Sprengel, who wrote a great book, a pragmatic history of medicine, guided by the idea of progress, based on a correlation of medicine, political events, the history of culture, dominating philosophical systems, all of which gave a key to the understanding of medical opinions. In the hands of these scholars, history of medicine was primarily history, but to the great majority of medical men, history of medicine remained part of the theory of medicine. The experience of the preceding generations had to be assimilated if progress was to be achieved. Even at the beginning of the 19th century, ancient medicine was still alive and ancient medical writings were consulted as authorities and as sources of useful information. In 1804, Laennec, inventor of the Stethoscope and one of the great clinicians, wrote an inaugural dissertation for his degree, on the views and methods of Hippocrates, comparing them with those of his teacher, Bichet. In the first quarter of the 19th century, in the University of Paris, all the teachers in medical school, were teaching medicine of the Hippocratic texts. Editions and translations of ancient medical texts were published primarily for the benefit of students and practitioners. "Thus we see", says Sigerist, "that until 100 years ago, history of medicine was primarily medicine. The approach to the past was not a critical historical one but was medical. Books were read for their content, irrespective of the period in which they had been written". Even in the first half of the 19th century many great contributions were made to history of medicine. Cabanis, a Frenchman wrote on *Revolutions in Medicine*. Hecker, a German wrote on *Epidemics of the Middle Ages*. Choulant published chronological tables and bibliographies. Haeser wrote a hand-book of history of medicine with a good account of epidemic diseases. In the middle of the 19th century, De Renzi published texts of School of Salerno. Daremburg who had a profound knowledge of ancient texts wrote a *History of Medicine* and on Hindu medicine as well, while Emile Littré the great philologist and author of a dictionary printed the first edition of Hippocrates with Greek text and French translation.

Suddenly in the middle of the 19th century, due to the unparalleled development of physical, natural and medical sciences, there came a period of stagnation. It was also a period of reaction against mysticism and romanticism, when the dominant philosophy of life was materialism and

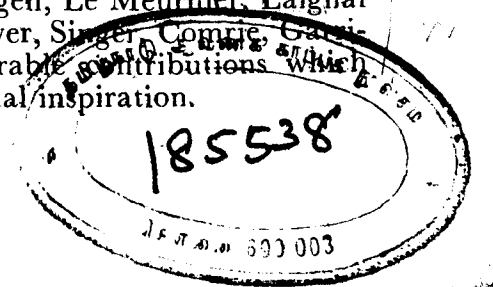
the medical man's fancy was attracted by the new fangled devices and his mind was overwhelmed with the series of discoveries in Anatomy, Physiology and Experimental Medicine and with the aid of microscope, in Pathology and Bacteriology. History of Medicine was completely forgotten. The past seemed dead and history of medicine appeared as ghosts of errors. Many thought that nothing could be learnt from it. A few like the great Pathologist, Virchow, and the great Physiologist like Bernard were prepared to take what was best, though they agreed with the current conceptions. But that generation of medical scientists was trained in humanities; a physiologist, a pathologist and a physician could still read Greek and Roman medical writers in their original language, but these doctors read the classics of medicine, not to learn treatment but as historical documents, to know what Greeks and Romans or people of renaissance period thought of or did, to protect and restore health.

Again, towards the end of 19th century and at the beginning of 20th, when need was felt for searching in the past for the story of medical thought through centuries, enlightened medical men turned to study of history of medicine. It is possible that two new factors instilled zeal in scholars for study of medical history; one was the growing spirit of nationalism anxious to establish the historical importance of each country. The second was the rapid diffusion of culture and discovery of much new material among peoples of different civilizations. Medical history societies were formed and journals were started for the promotion of history of medicine. Medico-historical studies began to cover all countries, all periods and all branches of medicine. Relation between culture, art and medicine, was closely explored. Ancient manuscripts and forgotten incunabula were resurrected and made the basis of new investigations. Iconography of the sick in the home or during epidemics threw fresh light on the history of the diseases.

At the same time the scope of historical and philological studies of ancient texts was broadened considerably and history of medicine became a critical historical discipline in which historians, philologists, philosophers and physicians collaborated. Plans were laid to prepare critical editions of basic sources and classics of medicine.

It is, therefore, not surprising that once again this intensive study produced great contributions. Puschmann, published his hand-book of history of medicine, Nueberger wrote a *History of Medicine*, emphasising philosophical aspects. Pagel, Sudhoff, Paul Deipgen, Le Meunier, Laignal Lavastine, Casliglione, Osler, Allbutt, D'Arcy Power, Singer, Comrie, Garrison, Packard Robinson and Sigerist made memorable contributions which have enlarged our horizons and still offer perpetual inspiration.

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To-day, in the words of Sigerist "medical history without any doubt is first of all history, a historical discipline like the history of philosophy, the history of art, or the history of music. It therefore had the general methods of historical disciplines. But, it is a special history and, therefore, different from all others, with problems and methods of its own."

MODERN CONCEPTS OF HISTORY OF MEDICINE

What is History of Medicine? Prof. Karl Sudhoff, one of the greatest historians of medicine of all time, the founder of newly organised science of history of medicine (employing as tools and adjuncts, the data of archaeology, anthropology, ethnology, folk-lore, comparative and ethnic psychology, palaeopathology, comparative philology, palaeography, bibliography, numismatics, the plastic and graphic arts, the history of science, of religions and every other phase of cultural history), has discussed this question at length. In an address entitled "What is History of Medicine" Prof. Sudhoff states "The answer will vary and depend on how much the questioner or the person questioned knows of the subject matter, how deeply he has entered into the spirit of medical history....." One man, he says will speak of it as an old curiosity shop, another may call it a catalogue of exploded theories, a third will use it as a means of glorifying the present and belittling the past. This is really not history of medicine. "Their understanding of the matter is as remote from the true meaning of it as Heaven from Earth." Sudhoff then defines true history as "serious scientific labour based upon the inductive establishment of facts by strictly methodical and critical tests, prompted by self discipline and conscious veracity." It resembles modern science and always asks: "How reliable are our findings? What is the incontestable basis of exact knowledge? What needs to be revised by the most modern and advanced methods of investigations?" Sudhoff proceeds "What is needful is co-aptation of the results obtained by incessant investigation of the distant past, with the daily increasing findings unearthed by the spade, as well as by the study of ancient texts and the examination of their material and intellectual content. From a thoughtful synthesis of all this, we shall obtain a true picture of the medical and hygienic ideas and achievements of single epochs as well as of the total developments down to the present day. For, only the past can furnish the key for understanding of the things of the present." Sudhoff also emphasises another point that history of medicine forms an essential part of medical science and is indeed as serious a science based on experience and observation as any other department of natural philosophy. "It links every new finding with previous findings, tests and analyses every detail, lays bare the inner connection to reconstruct finally from a whole series of single facts, the things of the past, whether they took place amongst a whole diseased people, in the lecture halls of a medical school, or in the mind of a great physician of bygone days."

WIDENING HORIZONS OF HISTORY OF MEDICINE

The scope of medicine has become so broad that we require to know infinitely more than the physician's actions. The task of medicine to-day may be outlined under the following four headings:—

- (1) Promotion of health.
- (2) Prevention of ill-health.
- (3) Restoration of health.
- (4) Rehabilitation.

History of Medicine, therefore, has to study health and disease through the ages, the condition for health and diseases, the history of all human activities that tended to promote health, to prevent illness, to restore the sick, no matter who the actual individuals are, whether it is the physician or another man. As Charaka said: "He is a physician who cures diseases", "Whatever cures disease is medicine."

The medical historian must find out what the health conditions were in a given society at a given time. Whether there was much illness or little, what diseases were prevalent, whether people died young or old. To know the answers to these questions is the task of the medical historians.

The problem has to be studied under the following subheads:—

1. General Health Conditions:—Geography of a country - Physical features, climate.
Religio-socio-economic conditions - Modes and standards of living.
2. Sickness:—Heredity.
Environment:—Physical:—Weather.
Availability of food - Nature of food - Mountains, forests, Sea, Housing - Occupations and Recreations.
Social Customs - Mental Attitudes.
3. How Health was Promoted: Individual health. Religion - Purity of body and mind.
Education - Physical - sports, athletics - Dancing.
Community Health. This needs strong authority.

Pure water supply aqueducts, wells, tanks, drainage, streets, towns, housing, town planning.

State ; Legislation for health. Punishments.

4. Prevention and treatment of diseases. (Depends on ideas of causation, nature and mechanism of the diseases).

Prayer.

Magic - incantations.

Dietetic.

Drugs.

Physical agents - cooling - heating.

Physical methods - Massage.

Cutting with knife.

Cautery.

5. Basis of action for physicians. (Medical science).

Experience : —Drugs somehow relieve can't explain.

Science may explain.

Ideas of theories of physicians.

Sin.

Possession.

Humoural disturbances.

Physical.

Psychic.

Religions - Theological.

6. Contributions of individuals :—Great Discoveries.

Great writings - great teachings.

Unknown contributors - general practitioners.

Non-medical scientists - Philosophers - Patrons.

7. Medical care :—State :—Royalty
Community. Urban

Private :—Groups. Rural
Individual.

8. Patient :—Literature on the patient.
Effect of disease on patient's body and mind.

Social position of the sick.

9. Literature on doctors :—Physical features, dress.
Social position and Economic status.
Literary achievements.
In war and peace.

10. Patient-physician relationship.

11. Medical Education :—Apprenticeship, schools - curricula, methods of teaching.

12. Guilds and societies of physicians.

13. Arrangements for treatment :—Doctor's house.
Patient's house.
Dispensaries - temples.
Hospitals - Sanatoria.
Poor-houses - Streets.

14. How did society protect itself by setting standards for physician's behaviour and prescribed qualifications.

Examination-Registration.

Bath - Medical Ethics.

15. Organised medical services (Did state assume responsibility for organised medical services).

Army Medical Service.

City and Town or Village.

Poor and Infirm.

Epidemic and Health.

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LECTURE - II

SOURCES, MATERIALS AND METHODS OF THE
HISTORY OF MEDICINE

I. Direct Sources :—

(i) *Human remains* :—Skeletons and Mummies - These can be studied by the latest methods of science to unravel historical mysteries.

(ii) *Physicians Tools* :—Instruments and apparatus which doctors actually handled. These sources are very valuable in the case of surgery and surgical specialities. So, history of surgical instruments and techniques can be studied satisfactorily only by such sources.

(iii) *Anatomical Preparations* :—Wax models, physiological apparatus, microscopes etc.

(iv) *Diagnostic Instruments* :—Early types of Thermometer, Stethoscope, Ophthalmoscope etc.

(v) *Antiquities or Monuments* :—Arrangements for personal hygiene and public health like aqueducts to bring water to cities, drains, water closets, hospitals and drug stores.

Medical schools, libraries and societies or medical institutions may collect such sources, and every country should have at least one museum of medical history, as a repository for the medical objects of that country and as a centre for historical research. These direct sources and objects are very few and are also scattered all over the world. Some of them are being lost or destroyed by peoples or ravages of time. It is, therefore, necessary to search and preserve them wherever possible and at least take photographs or prepare replicas which can be studied by scholars at distant places.

II. Indirect Sources :—

Most of the questions raised in medical history cannot be answered by examining direct sources alone. Suppose one wants to know the incidence of a disease or what was done to arrest the disease or if one wants to know the influence of one author on successive generations or on the development of medicine, one has to consult indirect sources, in which one reads about past events, sees them in the mirror of literature, in mirrors which are never accurate. One does not see the patients who suffered from Malaria. There is between us a third individual, one who wrote about Malaria patients. But the mirror should give a correct picture.

(i) Chief sources of medical history is medical literature, e.g. books, pamphlets, broadsides, articles and other documents.

Medical literature, in which observations, experience, ideas and actions of medical men are recorded and medical texts are found among the oldest literary documents.

(a) *Manuscripts* :—Before the era of printing, medical books were preserved as manuscripts. The originals are copied and the copies had many mistakes. Many of these books were written for practical purposes, not for literary enjoyment. The doctor or his descendents made changes in his book, added recipes and struck off. Some copies from such note-books differed from one another. These books, therefore, require large amount of philological work before they can be understood.

(b) *Old Printed Books and Classics* :—Many medical texts are reprinted from the renaissance editions and many have not yet been published. Critical editions of ancient classics are yet to be published. Corpus Medicorum Graecorum launched in 1901 has not yet been finished. Similarly, Corpus Medicorum Latinorum is still incomplete. The project Corpus Medicorum Arabicorum has been planned, but no work has been started. Texts that have not been printed so far must be published after studying all the extant manuscripts. Different texts in classical and oriental languages should have a translation into a modern language.

(ii) *Non-medical literature* :—Books and documents.

(a) *Dairies*, collection of letters tell us how diseases affect human beings and how treatments are seen from the patient's angle.

(b) *Works of fiction* :—Tales of Decameron by Boccaccio give word pictures of plague ridden cities.

(c) *Other literature* :—Political manifestos, law codes, account books etc.

(d) Proverbs - Songs - Ballads.

(iii) *Pictorial Sources* :—

(a) Illustrations of animals in biological books, plants in herbals, illustrations in surgical, obstetrics and anatomical books. Illustrations of pathological anatomy, cutaneous diseases, endoscopic views.

(b) Portraits, Medical scenes, pictures, engravings, sketches, photographs and movie or talkie pictures.

(iv) *Works of Art* :—Statues of Saints, images of Gods, form important sources of the history of plague and other epidemics. Panels and paintings representing doctor and his work, his costume, patient's costume, the sick-room, the doctor's office, the apothecary shop etc., give information not available in the literature.

(v) *Transmission of Practical Skills*:—This plays a very important part in the transmission of medicine. A good deal of medicine is a sort of craft and this skill is not acquired from books but by serving a master as apprentice. Surgery was for centuries without written records and was transmitted from master to pupil.

(vi) *Ancient traditions*:—Ancient traditions are still alive to-day in many countries like India, Middle East, where practitioners of indigenous systems treat according to Ayurveda or Unani. Here one can study history of medicine not only from books, but from life around, see the physician examining or treating a patient or compounding his medicine.

(vii) Another source that can be consulted is medical folklore or folk medicine. The patients treat themselves because illness is a minor one or because no physician is available or because they cannot afford a physician. This is common among peasants in rural areas, among whom religious and magical treatments are performed, according to beliefs that survived thousands of years.

Therefore, for re-constructing the past in medicine, we hunt for evidence—for sources. We may have to make an intelligent analysis of the sources, then we have to analyse and investigate them from various points of view. "The interpretation of historical sources of medicine is a difficult analytical process that requires wide experience and profound knowledge, philological as well as general historical and medical."

CULTURAL AND SCIENTIFIC VALUE OF KNOWLEDGE OF HISTORY OF MEDICINE

The cultural and scientific value of medical history may be discussed under three headings:—

I. Value to the Cultured Public:—

(a) According to Sudhoff, History of Medicine can now claim academic majority, regarded purely as a science, and as one of the most considerable off-shoots of cultural history. A cultured man or woman is expected to know or to be familiar with history of civilisation and history of culture. History of Medicine, like History of Literature or Philosophy, art or history of nations, is an important branch of cultural history or social history. The health and welfare of every individual is the concern of the society and human solidarity beyond boundaries, nationalities, race and creed, is a true criteria of civilization.

(b) A civilized person must understand the close relation between "Civilization and Medicine" which is the title of a book by Sigerist.

Civilization is the creation of human mind and activities. Disease is the sum total of abnormal reactions of the organism to parts to normal stimuli. Disease, by affecting man's life and actions, has influence on his body and mind and actions. Disease sometimes attacks not merely single individuals but the entire groups, temporarily in epidemics and for long periods in Endemics. The cultural life of such group cannot but reflect the influence of the disease. Disease has influenced the course of the historical events and disease may attack individuals or large groups as epidemic diseases. Plague was one of the epidemics which affected Europe in the middle ages, once in the 6th century and again in the 14th century. Plague forced enemies to withdraw or even compel them to sign truce.

Hans Ziser in his very witty book "Rats, Lice and History" has a chapter entitled "On the Influence of Epidemic Diseases on Political and Military History and on the Relative Unimportance of Generals."

Religion, economics, philosophy, science and arts, all manifestations of civilization, have felt the impact of diseases. The problem set by diseases and suffering, entered into religion, philosophy, and Law. Control of disease or conquest of diseases was an important part of man's attempt to master Nature through science.

On the other hand, civilization in the course of its evolution has produced changes in the social and physical environments detrimental to health or favourable to diseases and, therefore, has profoundly altered man's life. We no longer follow the rhythm of nature, awakening at sun-rise and going to sleep at sun-set. With the progress of civilization we have many advantages but also more hazards. Civilization also taught man how to improve the natural healing power of the body and forged weapons to fight the diseases. Therefore, the relation between civilization and diseases is extremely complex. But one thing is definite. Civilization is the factor in the genesis of disease, affecting his food, clothing, housing, occupation and social relations.

The study of epidemics that spread from Asia to Europe in the previous centuries, indicate that they are driven out of economically advanced countries and that they re-appear during the wars without any regard for political boundaries. These epidemics cannot be stamped out by simple medical measures. They require even more widespread, social and economic measures. Thus, as Sigerist says "The problem of health is ultimately, political."

II. Value to the Medical Profession:—

The great Goethe said "History of Science is science itself". As Professor Sudhoff points out "In all branches of science the need for

cultivating the study of historical developments is beyond question and this is equally true of natural science including medicine."

(a) Medicine is an art based on experience and observations of many generations. History of Medicine contains the archives of medicine, the records of all medical experience, discoveries and theories from early beginnings to present day. It is the sum total of all medical knowledge. Medicine, therefore, cannot get on without its archives.

(b) Just as the structure of the adult body will not be understood without Embryology, the history of its development, the present state of medicine cannot be understood, if the historical aspect is neglected.

(c) In an age when science and art of medicine is becoming very complex with numerous divisions and sub-divisions and specialities, History of Medicine gives vantage point from which medicine can be seen as a whole. It affords a valuable means of bringing together all the various specialities and promotes interest in the profession, Art or Science, as a whole.

(d) Study of history of medicine provides possibilities of re-discovery in the older literature, concepts or procedures that may be applicable to the present day medicine. This is specially true in the case of epidemic diseases. The fate of the greatest empires was determined on the health of the armies and the epidemics. The religious, social and economic conditions and the cultural background of medieval Europe can only be understood after a study of the epidemics of the middle ages.

(e) Medical history cautions against pitfalls and blunders committed in the past.

(f) Older authors are found to have mentioned symptoms of diseases though they may not have identified them as separate entities. Reading of classic descriptions of diseases in their original gives a new comprehension of old truth or to interpret new facts.

(g) Medical history is the bridge between medicine and pure science. The present-day physician has a good scientific training. He lacks general cultural knowledge of history, literature, philosophy etc. History of medicine supplies this deficiency in the medical curriculum. As Puschman says there is also a need for a philosophical approach to medicine so that reason might keep pace with observation and experiment. History of medicine can also provide revive a spirit of high idealism and noble ethics for the medical profession.

The use of historical studies manifests itself in three ways. First, they complete general education, then they form the foundation of professional knowledge and fortify it; and finally they further the education and ennobling of the character.

When the history of medicine and of the sciences is seen as a part of the general history of culture and is thus presented, when the teacher follows its relation to the other arts and sciences, and, *vice versa*, calls attention to the influence of the latter on natural sciences and medicine, when he considers at once political events and social conditions, and gives to the whole, the characteristic aura of the age, his lectures will complement and broaden the education of the students in every way.

III. Value to India in the present critical period of Transition :—

Professor Sigerist, in a memorandum submitted to the Bhore Committee, urged the need for an Institute of History of Medicine in India, on account of the fact that indigenous systems play a very important part in the life of the Indian people and that Indian practitioners are admitted to the medical register. He also adds that it may seem strange that indigenous systems are able to compete with modern systems. It was not strange in 17th and 18th centuries, when the European medicine followed the same practice as Hindu or Arabic medicine.

(1) He writes that the doctors trained in modern medicine are very few, that they stick to towns and that the doctors in rural dispensaries, can only give a primitive type of first aid and a bottle of medicine, which can hardly demonstrate the superiority of Western medical sciences. So the sick villager, calls on the indigenous practitioner who himself is a villager, whose drugs consist of native herbs that are cheap and whose theoretical views conform with the religious views of the patient, and Tridosha theory of Ayurveda or humoral theory of Unani medicine. Sigerist further adds, that even highly educated men prefer the indigenous system of medicine as it is rooted in religion and represent the general attitude of people towards nature and man.

(2) There is still another powerful force that is backing indigenous systems of medicine, that is nationalism. People look back with pride to their cultural heritage and when it comes to medicine, they remember the history of Indian medicine, their great physicians, surgeons and authors, Charaka, Susruta, Vagbhata (or Arabic and Persian authors), the dispensaries of Asoka etc. The Indian tradition in medicine is not dead. It is still active, like the Vedas, like the works of Kalidasa, like India's art and music or dance.

(3) But if Indians take a historical attitude towards their indigenous systems of medicine, they can justly be proud of what advances these systems represented at their time in antiquity and middle ages. They brought many effective drugs to the people, many valuable dietetic and surgical treatments. But, Indians should also realise that conditions have changed. The new science that developed from the 16th century created a new anatomy, physiology and pathology, on the basis of which our present systems of public health and medicine have been developed. No nation can expect to survive in this present world unless it accepts science with all its implications.

(4) Therefore, scientific medicine must be developed and scientifically trained doctors, will have to replace indigenous doctors. The people who plan medical colleges must be aware of the changes in medicine that have occurred in society under the social and economic structure into which the products of the college will have to fit. It would be a mistake, therefore, to merely to copy the British or American pattern.

(5) We have to investigate the indigenous systems of medicine not only for their ideological content but we have also to evaluate their practical achievements on the basis of the studies of medical texts and of field work before we can point out which treatments and drugs should be tested by the pharmacologists and physicians.

(6) Whoever plans a campaign against diseases must take many non-medical factors into account as he will be confronted with religious, social, economic conditions which are the result of historical developments.

(7) Health education is wasted unless it is combined with education in citizenship which is impossible without history. When India is planning medical and health services to insure health to villages, the co-operation of the medical men who can think in terms of history will be extremely valuable.

(8) Medicine is not a natural but a social science. We are producing technicians without education in humanities. The doctor must not only be a therapist but a teacher and a friend of the people. Instruction in medical history will contribute to the training of a physician or educated citizen. It would teach patient and physician to look at modern medicine from the perspective of history.

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Let me now proceed to review very briefly, the progress and present state of historical studies with reference to Indian medicine.

Though the origins of Indian medicine extend into depths of pre-historic past much earlier than the civilization of the Harappa-Mohenjodaro and the culture of the Vedic Age in the north and the Sangam Age in the

South, there is not even a brief reference to the genealogy of medicine or Vaidyaka Ithihasa, till very late period. The earliest references to ancient sages who either discussed the theoretical basis of medicine or theories of causation of diseases can be traced in the Agnivesa, Charaka Samhita, Susrutha Samhita, Kasyapa Samhita, Bhela Samhita etc., for which the earliest date is given as 6th century B.C., in contrast to the treatise of Hippocrates on ancient medicine which can be exactly dated in the 4th century B.C. The old names of sages and writers of medicine have been mentioned without any chronological order or date both in Indian books and probably in Greek, Roman and Arabic literature also. Even in the middle of the 16th century, Bhava Misra in his work 'Bhavaprakasha' gave a brief account of the development of Ayurvedic medicine. But it was all repetition of old myths. There has not been any attempt for nearly two thousand years to trace the development of medicine, the chronology of medical schools or the development of medical profession or medical relief. It was in the middle of the 16th century that India came into contact with European physicians. For about two centuries, due to the political turmoils, famines and pestilences, thugs and pindaris, lack of patronage for learning and for learned families, medicine, especially indigenous systems fell on evil days, except in a few centres where Indian native princes held their courts. The European medicine represented mainly by the East India Company doctors, began to take root and spread as in the cities of Madras, Calcutta and Bombay. In native states, however, the ancient systems of Ayurveda or Unani and sometimes both, continued to secure the patronage of the Indian potentates and the nobles. Therefore, the old systems continued to flourish. It was only towards the end of the 18th century, that under the inspiration of Sir William Jones, the Asiatic Society of Bengal initiated a programme for the revival of the study of ancient Indian literature and sciences. Jones himself wrote some fragments on Indian botany, Indian Chemistry and some observations of Indian Materia Medica. Other members wrote learned articles on Hindu Medicine. Similar activities were promoted in the western India by the Bombay branch of the Asiatic Society and in South India by the Madras Literary Society. Medical periodicals made their appearance, monographs appeared on medicine of India, e.g., Ainslie's *Materia Medica of Hindustan*. The existence of Ayurvedic schools and Unani schools of medicine, spurred the British officers of the Indian Medical Service serving in presidency capitals and contonement areas, to take interest and study either the Hindu medicine or Unani medicine and even to be on fairly friendly terms with the indigenous practitioners even to the extent of recommending their medicines to be purchased by the Government and the Army, for use in hospitals and in the military. As an example, I might cite the purchase of black oil from a family of hakims in Masula for the treatment of the native sepoys suffering from Beri-beri in the first quarter of the 19th century. Wilson, one of the great Sanskrit scholars made a study of Ayurvedic classics and wrote valuable articles or essays, while Dr. Royle, a medical officer of the Bengal Establishment wrote on 'Antiquity of Hindu Medicine.' Another

medical officer of the Bengal Establishment, Dr. Wise made a profound study of Ayurveda and wrote not only on Hindu Medicine but also a review of History of Medicine. Balfour, the founder of the Madras Museum and later Surgeon-General of Madras and author of 'Cyclopedia of India' wrote a small booklet, the 'Vaidyas and the Hakims: What do they know', and also, a "small biographical dictionary of medical writers". The first attempt by an Indian to compile a history of medicine was made by Eduljee who wrote a book called "History of the Medical Art", including a chapter on Indian medicine. But the first Indian author to write a book on "History of Aryan Medical Science" was Thakur Saheb of Gondal, Bhagawatsinghji, himself an Alumnus of Edinburgh University. About this time, attempts were made to translate into English and other European languages, the ancient classics in Medicine, Charaka, Susrutha, Vagbhata. Haesler, translated Susrutha into Latin. Under the auspices of the Asiatic Society of Bengal, Udaychandra Dutt and Hoernle began translation of Susrutha into English but there was not much progress. A. C. Kaviratna translated Charaka Samhita into English. Dr. Kunte of Bombay edited Vagbhata. There were a number of other writers and works on Ayurveda.

The revival of interest in oriental learning and the intensive search for manuscripts including medical manuscripts in all parts of India enriched the collections and stimulated further study of old medical classics. Almost simultaneously, the increasing enlightenment and the influence of European scholars, on native states, led to a re-examination of the valuable manuscript collections in different states, cataloguing them and describing the contents to make them available for further study. Scholars like Hoernle studied Indian medicine with the critical eye of the scholar and began to write learned treatises comparing them with Greek and Roman classics. Meanwhile, the German orientalists as well as the French orientalists and Sanskrit scholars were devoting some attention to Sanskrit literature, including medicine and this resulted in their writing chapters or sections on history of Sanskrit medical literature, in their books on history of Sanskrit literature. The medical profession of Germany and France, also took increasing interest in the medical classics of India as instanced by some of the rare contributions to Ayurvedic medicine, translations of Vagbhata into German and the article on Indian Medicine by Daremberg. The India Office Library and the Libraries of Oxford helped not a little in promoting interest in the study of ancient classics of India. The re-organisation of the Surgeon-General's Library in Washington under the guidance of Billings created a collection of history of medicine in America and this served as a nucleus for studies of medicine of India. Leitard translated Ayurvedic texts into French. Susrutha was translated into Latin and German. The real advance in the history of Indian medicine in India was the discovery of a manuscript in Central Asia by Sir Arel Stein under the name "Bower Manuscript". It was edited and published by Prof. Hoernle. Contributions of P. Cordier to medical literature of India and the learned

monograph of Julius Jolly on Indian Medicine have earned deserved fame. At the commencement of the century, there was little interest in history of medicine in India. Neither the orientalists nor the Sanskrit scholars nor even the Ayurvedic medical practitioners cared to study seriously and write a scientific history of medicine in India. Here and there, somebody published a note on a medical writer or a medical classic or on a commentator; that was the end of all medical history. The majority of the British officers as well as their pupils, the Indian medical men, were either completely ignorant of the origins, historical background, the rise and fall of Ayurveda or had a sort of contempt or antagonism to the old systems. The revival of Sanskrit learning combined with the new love for European sciences or western sciences, created a new yearning and atmosphere, as in the case of Europe during the renaissance in XV & XVI centuries. In the foot steps of this Indian renaissance followed a new national awakening led by Vivekananda, Arabindo Ghosh, Rabindranath Tagore, J. C. Bose resulting in a new appreciation of Indian culture and Indian achievements, in literature and science. The University of Calcutta, under its distinguished Vice-Chancellor, Dr. Sir Asutosh Mukerjee, gave a new impetus to the studies in Indian medicine by announcing prizes and medals for historical studies in Indian medicine. Girendranath Mukopadhyaya wrote 'The Surgical Instruments of Hindus' and won the Griffith Prize Essay for 1909 and later wrote 'History of Indian Medicine' (containing notices, biographical and bibliographical of the Ayurvedic physicians and their works of medicine) and won the Griffith Prize for 1911. At the same time, there were other learned and detailed studies on Ayurveda, its principles and practice and its achievements. Other scholars attempted critical assessment of Ayurvedic medicine, as an art and science, compared with modern medicine. There were a few sincere but amateur efforts at writing a history of medicine in India; such were the books written by Dr. Muthu and Mariadas. Early studies on history of Indian medicine commenced as Philological or literary studies developed into bio-bibliographical studies but did not develop into real scientific study of history of medicine in India, as envisaged by Sudhoff and Sigerist. It is hoped that the Universities and Medical Associations, will arrange meetings and discussions in which the various contributions will be discussed and endeavour to stimulate a scientific study of history of medicine, on the most up-to-date lines—employing all procedures and techniques, utilised in the West. I have traced briefly the story of the historiography of Indian Medicine till the end of the first quarter of the 20th century. So far as I know, the Archaeologists and the Epigraphists and the historians did not make any contribution from their respective fields of study, till the 20's of this century. Dr. Lakshmipathi must be given the credit, as a pioneer in attempting a historical survey of Indian medicine, from period to period and century to century, presenting evidences from archaeology, epigraphy, history as well as from literature and medical manuscripts.

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A Programme for Study and Research in the History of Ayurveda in the III Plan Period

The Scheme consists of four stages or types of work.

I. *Collection of Materials for Study:*

- (a) Collection of lists of centres, institutions, libraries and individuals in India and abroad, who have to be contacted.

This involves correspondence with various libraries and scholars in India and abroad to collect information regarding manuscripts and other historical information in India and foreign countries.

- (b) Collection of lists of catalogues of libraries and other collections in different parts of India and the world.
 (c) Collection of lists of articles in journals dealing with Indian Medicine.
 (d) Collection of lists or catalogues of printed books—printed catalogues or manuscript catalogues or microfilm copies of such catalogues.
 (e) Collection of lists or catalogues of medical manuscripts or MSS containing sections on medicine—printed catalogues or manuscript catalogues or microfilm copies of such catalogues.
 (f) Location, search and collection of fresh manuscripts, not catalogued as yet.
 (g) Microfilming or copying of rare manuscripts and different copies or readings of well known texts.

II. *Study of Materials:*—This involves preparation of descriptive catalogues and more detailed description of selected items which contain historical material.

- (a) Critical and analytical study of manuscripts with the help of philologists, historians and medical scholars.

- (b) Collating, editing, annotating and preparing for publication texts and some of the other source materials useful for History of Medicine.
- (c) Translation of classics of Indian medicine or important sections or portions of them, with critical notes or annotations.

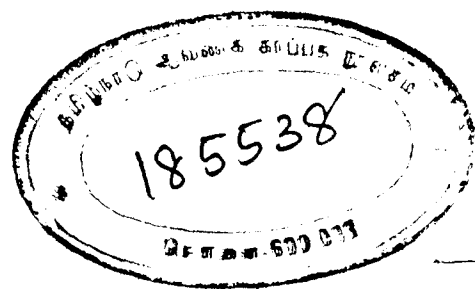
III. *Printing and Publication*: Printing and publication of journals, lists of books, bibliographies, notes on manuscripts and other historical materials, publication of selected readings and translations into English and regional languages, of classics and monographs and selections from classics.

IV. *Training*:—Training of Research Workers and Teachers of Ayurveda in methods of historical research and teaching in the History of Medicine in Ayurvedic Colleges. This envisages the grant of Fellowship; (Two Senior Research Fellowships and Two Junior Research Fellowships) to qualified Ayurvedic doctors, for a period extending over one or two years.

A short term training programme of about three months may also be conducted for the teachers of Ayurvedic colleges.

D. V. SUBBA REDDY,

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