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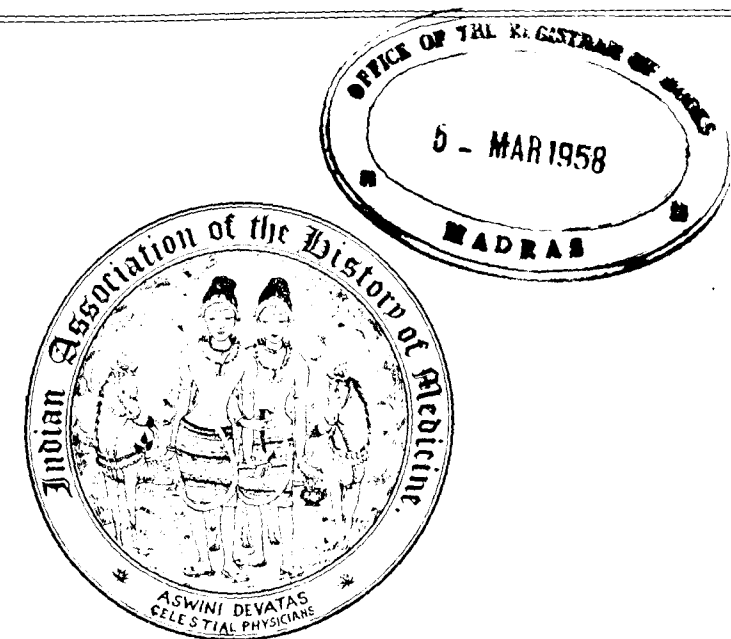
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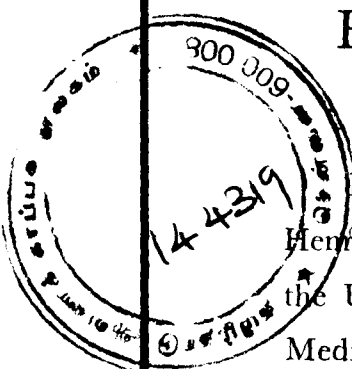
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Professor SIGERIST



HENRY E. SIGERIST

M.D., D.Litt LL.D., D.Sci., Dr. H.C.

Born on April 7, 1891, in Paris, of Swiss parents, Henry E. Sigerist received his M.D. degree from the University of Zurich in 1917. After a period of Medical Service in the Swiss Army, he devoted himself to the study of the History of Medicine and taught at the Universities of Zurich and Leipzig, succeeding Dr. Karl Sudhoff in the last named place. In 1932 he settled in Baltimore as Director of the Institute of the History of Medicine and the Professor of the History of Medicine at the Johns Hopkins University. In 1933 he founded the *Bulletin of the Institute of the History of Medicine*, which, with a change to its present title, in 1939, became the official organ of the American Association of the History of Medicine as well. He resigned from his position at the Johns Hopkins University in 1947 to devote himself to Medico-historical writing at his new home in Pura, Switzerland, where he died on March 17, 1957.

—From “*Bulletin of the History of Medicine*”
Volume XXXI, Number 4, Page 295, July-August, 1957.

Indian Journal OF THE *History of Medicine*

Vol. II

JUNE 1957

No. 1

Hippocrates and the Dawn of Medicine* (The Aegean Cradle of Medicine)

BY

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For two years I have been engaged in a voyage of exploration into the conditions that preceded, and ushered in, the dawn of Medicine. We have, ready to hand in the Hippocratic Writings, a clear conception of Scientific Medicine freed from superstition and prejudice, and with it the ethics that alone can make Medicine respectable. How could this have come from the mind of a single man, a practically unknown man? Surely he did not discover Medicine rising in all her beauty from the blue waters of the Aegean like Love as personified in the Greek myth of Aphrodite!

Let me set before you some of the notes that I have gathered on the background of the birth of Medicine. They are taken from the writings of others, the writings of historical, archeological and philological scholars, with such additions as a physician may make during his own travel and research.

Perhaps I might as well confess to you now that my eventual ambition is to draw a lively picture of Hippocrates and his times, taking the outline from all the history there is, and adding colour and detail from every available source, not the least of which must be imagination. The result can only be called fiction, historical novel, but the picture might also present the truth, if the basic research is good and if the light of understanding does not fail.

*Address delivered at the Annual meeting of the Indian Association of History of Medicine, on 21st February, 1957 in Madras. Requested for a copy of the address, Professor Penfield wrote that his address was based on his Weir Mitchell Oration, College of Physicians, of Philadelphia, 1st February, 1956, on “Aegean Cradle of Medicine”, and sent a reprint of the Oration. We publish this address, with all due acknowledgements.

—(Editor).

About 2,000 years before Christ there was an invasion of the Greek peninsula and the northern islands of the Aegean Sea by Indo-Europeans, from the region of the Danube. They were called Achaeans, a rough strong people using bronze tools and weapons. They worshipped Mother Earth and Father Sky and the Sun, later to be called Hera and Zeus and Apollo. Fortunately, the first conquering wave of invaders did not go too far. They settled down and learned from the civilization to the south of them.

The second wave of invasion from the north came, about 1200 B. C., when the Dorians swept south and settled in the Peloponnesus to colonize the southern coast of Asia Minor and the southern islands of the Aegean Sea. Crete fell to them, and the Cretan civilization from which the Achaean had learned so much disappeared.

In the 9th century, Homer wrote the Iliad, collecting the stories of the siege of Troy, an event which had occurred about 300 years earlier. Twice he referred to the blameless physician of Thrace whose name was Asclepius. Asclepius is better known to us by the Latin name, Aesculapius, but I shall use the Latin name only when speaking of him in his later role as the god of Medicine.

The Greeks brought with them, to the siege of Troy, two physicians. Homer called them "cunning leeches". They were the sons of Asclepius. "A leech", he wrote, "is of the worth of many other men, for the cutting out of arrows and the spreading of soothing simples".

Between the 12th century B. C. when Troy fell and the 5th century when Hippocrates was born, there were two lines of evolution. On the one hand the descendants of Asclepius became the true physicians. They called themselves Asclepiads (Hippocrates was one of them) and they handed down their knowledge and skill from father to son. On the other hand the Grecian story tellers gradually altered the memory of Asclepius the blameless physician of Thessaly, and made from it the God of Medicine, creating a splendid myth.

THE WORSHIP OF AESCULAPIUS

Sometime after the 9th century he was established as the god of healing, and it has been claimed that between eighty and a hundred shrines and temples were built in different cities in his honour. Aesculapius was provided with antecedents and descendants appropriate to this rank as follows:

He was made the son of the nymph Coronis by Apollo, the beautiful sun god, and his birthplace was moved from Tricca to Epidaurus. They even raised his newly created daughters, Hygeia and Panacea, to the rank of goddesses and gave him a new son called Iaso. He was said to have been educated by the centaur Chiron who taught him, along with Achilles, how to treat the sick.

Furthermore his elevation to the status of god was explained, you remember, as follows:

He became so successful as a man in the practice of medicine, that Pluto, god of the underworld, complained to Zeus of a serious shortage of shades in Hades, whereupon the Father of the Gods destroyed Aesculapius with a thunderbolt. But this was no sooner accomplished than he relented and elevated him to the great Olympian company of the immortals.

The temples of Aesculapius were called Asclepions and in them patients were treated for all manner of disease. It was the custom in these Asclepions that sufferers would sleep in a covered colonnade called an abaton. After night-fall the priest of Aesculapius would walk among the sleepers and waken them one by one to talk with each about his complaints. The priest was followed on his rounds by large harmless earth snakes that must have increased his power of suggestion enormously. These snakes were plentiful at Epidaurus, where the most famous and one of the first of his shrines was built and the serpent served to identify him in the minds of the people with the older Dorian earth-god who had been followed by mystic snakes.

But the priest had more than the power of faith-healing at his command, for the patient could be referred to operating surgeons in the god's clinic on the following day or to the trained temple gymnasts who were skilled in the most elaborate uses of exercise, massage, baths. The most celebrated of the Asclepions were the following three: the one at Tricca, near the real birthplace of Asclepius, the one at Epidaurus where his miraculous birth was supposed to have occurred and the shrine* on the island of Cos where Hippocrates was born.

EPIDAUROS

Let me introduce here a picture of this great classical shrine and "watering place", as it appeared to an imaginative tourist of today. Epidaurus was situated on the south shore of the Saronic Gulf across from Pyraeus and Athens. Thus it was on the Peloponnesus, and the shrine was set in the hills above the little harbour.

*It seems now quite certain that this temple, excavated by Herzog, was only built after the time of Hippocrates and one may assume that it was the fame that had come to Cos, because of the great Asclepiad and his school of medicine, that made it a suitable place to build such a shrine.

Withington (1921) points out that there was no particular antagonism between Greek physicians and the Asclepions. They carried on practice independently until the 5th century after Christ. The shrines of Aesculapius were closed then by order, and replaced by Christian shrines and dream oracles such as that of St. Cyrus and St. John at Alexandria.

Sophronius, Patriarch of Jerusalem who died in 640, was himself "healed". But from the beginning of the Christian era, sacred medicine was in open opposition to secular medicine, and physicians who suggested that methods of cure were rational rather than miraculous were punished. This serves to illustrate the tolerance so characteristic of the early Greeks.

Mrs. Penfield and I did not go to it by water, as the ancient Greeks would probably have done. We made our modern pilgrimage in a tiny Citroen car driven by our friend, Doros Oeconomos, the Athenian neurosurgeon. We crossed the Corinthian isthmus to the Peloponnesus, passing through Corinth, once the wealthy and sinful city whose women welcomed all comers with such luxurious hospitality.

We stopped, in retrospective wonder, at the ruins of Mycenae where Agamemnon had summoned the Achaeans to a Council of war before sailing away to the siege of Troy. That was when Asclepius was still a practising physician, long before he had his divine rebirth in Greek mythology.

The ruins of Epidaurus are above the sea in the hills of Argolis. We wandered through the ruins, rebuilding in fancy the beautiful temple of white marble and watching, in our imagination, stream of men and women, rich and poor, passing through its pillars to look at the statue of Aesculapius as he sat facing the morning sun, with bearded face and kindly expression, the staff in his hand and the snake coiling up the staff.

As the people walked out of the temple again, they must have heard the humming voices of the multitude and the water splashing from the mouth of a towering statue that stood before the entrance—splashing into a basin from which many drank and stood up again feeling strong and saying that even this would make them well.

To the left was the colonnaded abaton where the sick would sleep the night, and through the columns they could see the distant valley. Beside the temple was the surgical pavilion where wounds were dressed and small operations carried out on stone tables by the temple surgeons. The surgeons used the delicately made instruments which have been picked up there and are preserved now for inspection: curettes, scalpels, self-retaining retractors, thumb forceps.

On the other side of the temple they might look down on the sports stadium and then, turning back, might walk through the enormous gymnasium, watching the expert gymnasts at work. From there they would pass the therapeutic baths and join the throng in the great open square or enter one of the hotels of the well-to-do. From the square it was only a few minutes' stroll up the hillside to the outdoor theatre where 14,000 people could watch the drama, and listen to music and oratory.

We left the ruins and climbed slope to this outdoor theatre, which is remarkably preserved. It is shaped like half a bowl set into the side of the hill. The aisles, that lead outward and upward, radiate in perfect symmetry from the round stage. We climbed to the topmost bank of seats while our guide remained standing on the stage. He spoke in a low voice to demonstrate the remarkable acoustics.

How often did those who sat here listen to the voice of young Hippolytus* as he lay mortally wounded on the stage below:

“Weep for me, weep for me,
Scarred, broken, trampled under foot.
.....

In vain In strove with patience
To love and serve my neighbour:
Now pain sets painful foot upon my body.
Let go, hold me no longer,
But let Death come to heal me;
And, if you pity me, help me to die quickly!
.....

I am in love with the rending spear: Come cruel edge,
Cleave my heart and lull my life asleep!”

And then the chorus in swaying robes of gray and purple, chanting:

“Oh, for that quite garden by the Western Sea
Where the daughters of the Evening sing
Under the golden apple-tree;”

The Greeks loved beauty, beauty of nature, beauty of the mind, beauty of the body. Young men rejoiced to match their naked strength against their equals and old men took pride in the exercise of their intellects. Competition was certainly a most important element in Greek life, competition of mind as well as body. Every city, large or small, had its theatre where men might weep at tragedy and roar aloud with raucous laughter at the coarsest comedy.

From those topmost seats in the theatre at Epidaurus we could look down on the stage, the temple ruins beyond, the stadium and the rolling green slopes of the valley far below. As we climbed down the stone steps again the wind was cool and bracing. It brought with it the spicy scent of the pine forest, where the earth snakes still abound though men seem to have forgotten about the healing power of their slippery bodies. The good water no longer gushes from a god's mouth, but bubbles up still from the ground.

We drank it and ate fresh figs, talking with the wife of the guide who stood, as she talked, whirling her distaff while the snow white wool grew into twisted thread. Somehow we too felt refreshed and strong like so many pilgrims who came there long ago.

*Euripides—Hippolytus, in *Alcestis and other plays*, translated by P. Vellacott, Penguin Books, 1953.

The patients who came to the shrine in old times were urged to leave behind them testimonials to the healing power of Aesculapius, and many did so. A man, who wrote that he had been cured of "paralysis and Oedema", donated a marble carving of himself which may still be seen. In the carving, he lies on the ground with head and back arched and arms and legs extended in powerful contraction. The sculpture is so good that no other diagnosis than hysteria could be made.

The cult of Aesculapius was based on superstition and on the belief that devils and gods struggle for bad and good in our bodies and in our minds. Nevertheless, it has since provided the medical profession with a sort of mythology of their own. The rod and the coiled earth snake of the Greek god is now our cherished emblem.

Coming away from Epidaurus, we stopped to see a Greek Orthodox Church on a hill in the town of Nauplion. Here, pinned below one of the ikons, were many little testimonials of healing written on metal and on paper. The grateful messages of these testimonials were quite similar to those hung upon the walls of the Asclepion long, long ago.

Faith in our God still cures the broken heart and the troubled spirit. There can be no doubt that man will always have need of such healing, however much the way of worship may change on the one hand and however far scientific medicine may progress on the other.

ASCLEPIADS

But all this had little to do with Medicine itself and nothing to do with Medical Science. In the fifth century before Christ it is apparent that there were two medical schools, one at Cos, an island in the Aegean Sea, and the other at Cnidus, which was about fifteen miles away on the coast of Caria, now called Asia Minor or Anatolia.

The teachers in each school, if schools they may be called, belonged to the family of Asclepiads, which claimed direct descent from Asclepius. The students were sons, or apprentices who paid stated fees to be admitted to the family and to be taught the theory and the practice of Medicine. Withington (1921), who has made an excellent study of the Asclepiadae, makes it clear that they are not to be confused with the priests of Aesculapius. The god was mentioned only once in the Hippocratic writings and that was in the Hippocratic oath.

The Asclepion was built on the island of Cos about 350 B. C. (Edelstein and Edelstein, 1945), 110 years after the birth of Hippocrates, replacing an altar to Aesculapius which had stood in the famous grove of Apollo.

All of this renders more than absurd the statements of the historian Pliny who, writing in the first century A. D., stated that Hippocrates had been able to learn and to institute "that medicine which is called 'bedside medicine'" from reading the testimonials which patients had inscribed in gratitude upon the walls of the Asclepion of Cos, and furthermore, that he had burned the temple down so that others might not know the source of this great knowledge!

The first reference to the family of Asclepiads appears in the writings of Theopompus, who stated that they came from Syrnus, a town in Caria. The coast of Caria (Asia Minor), together with the adjacent islands, was divided into three general districts: Aeolian to the north, Ionic in the midportion, and Doric to the south.

The six great Dorian seaport cities of the South Aegean (Cos, Cnidus, Halicarnassos, and the three cities on the island of Rhodes—Lindos, Ialysos, and Camiros) formed a Doric Hexapolis largely for the purposes of sports competitions in honor of Apollo. These games were held at Cnidus, and occasionally an outstanding athlete from one of the cities was able to bring honor to his city by winning at the Olympic Games. This is of considerable importance, for the records of the sports of these cities are much better preserved than the records of governments or of the two centers of medical teaching. The sports records throw a good deal of light on the way of life.

Although the settlements were Doric, the Hippocratic writings were in Ionic Greek like the poetry of Homer and the books of the first historian, Herodotus. Herodotus was born in Halicarnassos and was contemporary with Hippocrates. The first great philosophers were Ionic. Thales was a Milesian and Pythagoras came from the island of Samos north of Cos.

THE LIFE OF HIPPOCRATES

Next to nothing is known of the actual life of Hippocrates, although the impact of his thinking on posterity was so great. Galen, who was born in Pergamus (Caria) in 130 A. D., was a most ardent admirer of Hippocrates and made much propaganda of his teachings. But some of the sources to which Galen had access have disappeared.

A contemporary of Galen's Soranus, by name, a physician of Ephesus, whom Galen apparently disliked, wrote a short biography of Hippocrates drawn from such records as he could find 500 years after his death. The account states that Hippocrates was born in Cos, a descendant of Hercules and of Asclepius, the 20th generation from the one and the 19th from the other.

According to the Archives of Cos, the biography continues, he was born on the 18th day of the month of Agrianus, a day long set apart by the Coans for his honor. "He left his own country for burning the library in Cnidus, if we may believe a malicious writer, Andreas, in his book of the Origin of Physick."

Obviously, this accusation is as preposterous as the tale that Pliny had told a century earlier, since it would hardly be consistent with the high character of the man as judged by other evidence, especially the Hippocratic writings. Strange gossip to have survived 500 years!

However, the story is important for it is the only historical suggestion that there were libraries in those days and that a medical one existed in Cnidus. It might well have been the private library of the leader of the Cnidean Asclepiads. But it seems likely that there was a similar library in Cos, and that when the writings of Hippocrates were collected in Alexandria by order of Ptolemy 2nd a century later, the collection was made up of scrolls from such libraries.

The biographer continues with the description of the great successes of Hippocrates as a physician, and how he refused the invitations of various kings to come to other countries. Finally, when Artaxerxes urged him to come to Persia, "offering him, at the same time, great rewards; he, from a regard to decency, a contempt of riches and a love of his country, refused him..."

He died in Thessaly, in the city of Larissa, having "taught his art, with great candour and liberality, to those who were studious of it".

Then the biographer adds the charming remark that near the monument "a flight of bees made their honey for a long time", and it is reported that children, who were anointed with the honey by their nurses, at the side of his grave, were cured of "aphtha's" or little ulcers in the mouth.

Cos is a wind-swept island in the Aegean Sea, mountainous for the most part, with pleasant foothills and valleys. It is about 30 miles in length and 3 to 4 miles in width at the widest. On the west end there is now a village called Cephalos, high on the hill above the beautiful bay of Camara. This was the site of the most ancient capital, which was called Astypalia. It was apparently from here that ships were sent to join the other Greeks when they besieged Troy under the Leadership of Agamemnon.

Sometime before the fourth century B. C., the chief seaport of the island was built on the eastern end of the island of Cos Meropis on the site of the present city of Cos. Hippocrates probably left Cos soon after the

outbreak of the Peloponnesian War in 431 B. C. Certain earlier scholars believed that this transfer of the capital took place after that time (Sudhoff, 1930), but later evidence indicates that the time was much earlier. Laurenzie* studied the ruins of the present city after the earthquake 1933 and found what he considers to be a large pre-Hellenistic city there.

At the time of that earthquake, a tablet of Pentelic, or Athenian, marble was shaken out of one of the houses in the present city. The tablet, which had obviously been sent from Athens to be set up in the city's market place, bore an inscription demanding that the city should pay, as a member of the Delian League, a tribute to Athens of three talents. This bore the date when Hippocrates would have been a young man.

It is in the present city also, in a carefully guarded enclosure near the shore that looks to the eastward toward Halicarnassos, the famous plane tree of Hippocrates stands. The Islanders maintain, and have done so for many centuries, that it was beneath this tree that Hippocrates taught his disciples. It is dwarfed as to height but has an enormous hollow trunk, 45 feet in circumference. Sturdy new trunks are growing up from its roots.

During the 400 years of Turkish occupation, it was guarded by them carefully and the branches supported by stone pillars. They built a mosque before it so that the tree now stands in front of the mosque built by the Turks and behind the Governor's Palace, built by the Italians during their brief occupation between the two world wars. All the world reveres Hippocrates, especially those whom the Greeks once called Barbarians.

I must conclude that the evidence is strongly in favour of the truth of the legendary tradition. Hippocrates the second, whom we may call Hippocrates the Great, the Father of Medicine, lived and taught here at the eastern end of the island; and doubtless his father Heracleides and his grandfather Hippocrates the First did so before him.

Many of the inscriptions found on the island of Cos by Paton and Hicks (1891) refer to Hippocrates and to members of his family. His mother, Praxithea, and his grandmother, Phainarete, seem to have come from the pleasant farming town on the south shore, half way between the ancient Astypalia and the more recent Cos Meropis. There are references, likewise, to his brother Soranus, who was also an Asclepiad.

Contemporary with Hippocrates was the great leader of the Cnidian Asclepiads, Euryphon, a physician with a special interest in the diseases of women. The Cnidian School was probably older than that of Cos. Most

* Personal Communication.

scholars agree that some of his writings are included with those of Hippocrates in the *Corpus Hippocraticum*. Euryphon was probably the author of a book called the *Cnidian Sentences* that was still in existence at the time of Galen, but disappeared some time after that.

Ctesias was another famous physician of Cnidus. He became court physician to the Persian king Artaxerxes and spent much of his life there. He wrote a history of Assyria and Persia in 23 volumes; a work with which Xenophon was familiar. The history unfortunately was lost and we know little of Ctesias the physician.

The writings of these physicians were probably collected in the following century after the centre of Greek culture had moved to Egypt in the wake of the conquests of Alexander the Great. There, at the new court in Alexandria, Herophilos, a physician from Cos, wrote commentaries on the doctrines of Hippocrates and discussed his terminology. There also Erasistratos of Cnidus upheld the teachings of the rival school. There, no doubt, scholars from various parts of the world copied and translated the writings of the Aegean Asclepiads and carried their copies away to various cities of Europe and Asia before the destruction of the Alexandrian Library.

It was not until the tenth century A. C. that an effort was made to collect, re-translate and edit the works then attributed to Hippocrates. In 1861, Littre finally completed a splendid translation of the *Corpus Hippocraticum* into French, a task to which he had given 23 years of his life. And in the first decade of the twentieth century, there appeared a scholarly English translation by the philologist, W. H. S. Jones, whose discussions and introductions added much to the text.*

There are in the *Corpus Hippocraticum* discussions that reflect a certain rivalry and difference of opinion between Cos and Cnidus. It contains: textbooks for physicians, textbooks for laymen, pieces of research, lectures for medical students, essays by philosophers on the fringe of medicine, and note books or scrap books. Many are unfinished and none is signed. There are no originals; all have been copied and recopied through the ages.

But in spite of all that, it is clear that certain books were written by a great man, a man who stood by the bedside of many a patient looking at the face of disease until he learned to predict the outcome. He passed over those things that he could not know and suppressed the irrelevant. He swept away religious superstition and the unprovable assumptions of

*Professor Henry Sigerist (1934) has urged that every English speaking physician should own this work which appears in four small volumes in the Loeb Classical Library Series, entitled "Hippocrates".

philosophy, to record what he could see and hear and feel. He based his reasoning on observed fact and learned to assist the body in its vital struggle against disease. He reduced fractures and he carried out operations. He established a wise regimen, taking thought for the mind as well as the body, and making a careful record of his failures, for the instruction of others.

The man who wrote the best tracts, and left the most perfect clinical case records of disease that were to appear for 2,000 years, was a genius. He saw more clearly than other men in his time. No one can bring the final proof that the name of this genius was Hippocrates, nor can it be disproven.

Plato quoted Socrates as saying that "Hippocrates of Cos, of the house of the Asclepiads" was a physician as distinguished in medicine as Phidias, greatest of Greek sculptors, in his art. Again, Plato reported a discussion which Socrates carried out with his pupil Phaedo regarding the opinion of Hippocrates, of the Asclepiad family, on philosophical question—the relation of the soul to the body (or the universe). They did not enquire as to what other physicians might think of the matter. And Aristotle used him as a symbol of greatness a generation later: "Hippocrates", he wrote, "would be called greater, not as a man but as a physician, than a man who is superior to him in stature".

So many writings must have been lost. Who can say? They may have been superior to those that have come down to us. But these, we have, are random samples of the medical thought in Cos and Cnidus. If the great leader did not write the best of them; if, like his contemporary Socrates, he only taught by word of mouth, he was no less great. On the whole, it seems fair to assume that the best works in the *Corpus* are the direct or indirect expression of the thinking of Hippocrates the Second.

Finally, listen to the voice of Hippocrates: Sometimes I shall quote directly, sometimes paraphrase with the help of Singer (1921), Elisha Barlett (1852) or Osler (1921).

"Do not believe that the gods cause illness and madness and do not hope to bring healing and help to the sufferer by means of magic or spells or false sorceries. Know rather that we must turn to nature itself, to the observation of the body in health and disease to learn the truth".

"Men ought to know that form the brain and the brain only, arise our pleasures, joys, laughter and jests, as well as our sorrow, pains, griefs and tears. Through it, in particular, we think, see, hear and distinguish the ugly from the beautiful, the bad from the good, the pleasant from the unpleasant....."

“It is the same thing which makes us mad or delirious, inspires us with dread or fear, whether by night or by day, brings sleeplessness, inopportune mistakes, aimless anxieties, absent-mindedness, and acts that are contrary to habit. These things that we suffer all come from the brain when it is not healthy.....”

“He who would become a good physician must have a natural disposition; instruction; favourable position for study; early tuition; love of labour; leisure.”

When in doubt every physician should ask for medical consultation. “At all times he should make no effort to dazzle the patient; give no lectures for the purpose of increasing his reputation, and resist the temptation to trick out teaching with quotations from the poets; make no pretence of infallibility; have regard to personal cleanliness, use elegance without luxury and perfumes with restraint.”

“Life is short, art is long, opportunity is fugitive, experience is deceptive, judgement difficult.”

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“Tubular System” of the Body

Ancient Egyptian and Hindu Medical Views.

BY

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The “Tubular system” of the body comprising the arteries, veins, nerves, lymphatics and the various ducts of internal organs and channels has always exercised the imagination of the medical men of ancient times. The absence of any method for preserving dead bodies made a methodical dissection of a well-preserved body impossible, and so any first hand knowledge of the tubular system based on actual observation was out of question. Of necessity their views had to be based on speculations, and these speculations were deeply coloured by the animistic and metaphysical theories prevalent in the medical schools. We have records of such speculations on the “tubular system” of the body in the Ancient Egyptian, Hindu and Greek medicines. This article is an attempt at a comparative study of the ancient Egyptian and Hindu medical views on the “tubular system” of the body. Our knowledge of the views of the Ancient Egyptians is derived from the Papyrus Edwin Smith (1720 B.C.), Papyrus Ebers (1565 B.C.) and Papyrus Berlin (1350 B.C.) and that of the Ancient Hindus from the Samhitas of Charaka and Susruta. Both these Samhitas were written about the 6th century B.C.

I. ANCIENT EGYPTIAN MEDICINE.

1. Papyri Edwin Smith and Ebers (Ebbell's translation).

There are 4 vessels in his nostrils, 2 give mucus and 2 give blood.

There are 4 vessels in the interior of his temples which then give blood to the eyes; all diseases of the eyes arise through them, because there is an opening to the eyes.

There are 4 vessels dispersing to the head which effuse in the back of the head.

There are 4 vessels to his 2 ears together with the (ear) canal, 2 on his right side and 2 to his left side. The breath of life enters into the right ear, and the breath of death enters into the left ear.

There are 6 vessels that lead to the arms, 3 to the right and 3 to the left; they lead to his fingers.

There are 6 vessels that lead to the feet, 3 to the right foot and 3 to the left foot, until they reach the sole of the foot.

There are 2 vessels to his testicles; it is they which give semen.

There are 2 vessels to the buttocks, 1 to (the right) buttock and the other to (the left) buttock.

There are 4 vessels to the liver; it is they which give to it humour and air, which afterwards cause all diseases to arise in it by overfilling with blood.

There are 4 vessels to the lung and to the spleen; it is they which give humour and air to it likewise.

There are 2 vessels to the bladder; it is they which give urine.

There are 4 vessels that open to the anus (rectum?); it is they which cause humour and air to be produced for it. Now the anus opens to every vessel to the right side and to the left side in arms and legs when (it) is overfilled with excrements.

2. Papyri Ebers and Berlin (Combined version of Sigerist).

There are 22 vessels in man; they carry the air to his heart and also carry the air to all his limbs.

There are 2 vessels in him to his breast; they make burning in the anus.

There are 2 vessels in him to his thigh; if he is ill in his thigh or his feet ache (?), then thou shalt say concerning it: it is that the vessel *srtjw* of his thigh has received the illness.

There are 2 vessels in him to his neck. If he is ill in his neck and his eyes are dim sighted, then thou shalt say concerning it: it is that the vessels of his neck have received the disease.

There are 2 vessels in him to his arm; if he is ill in his arm or his fingers have.....then thou shalt say concerning it: one suffering from.....

There are 2 vessels in him to the back of his head.

There are 2 vessels in him to his forehead.

There are 2 vessels in him to his eyes.

There are 2 vessels in him to his eyebrows.

There are 2 vessels in him to his nose.

There are 2 vessels in him to his right ear; the breath of life enters into them.

There are 2 vessels in him to his left ear; the breath of death enters into them.

They together go to his heart, divide at his nose, and unite at his hinder parts, and illnesses of the hinder parts arise through them; it is excrements that are carried, it is the vessels of the feet that begin to die.

In the papyri the term used for vessels is “Metu”. This means vessels, pipes through which everything moves that is in motion in the body carrying internal fluids as well as air.

“Papyrus Hearst contains a number of very important prescriptions for the treatment of the “*metu*”. The purpose was to quiet the metu when they are irritated, to soften them when they are stiff, to animate and refresh them when they are inert and tired, to cool them when they were too hot, or to remove swelling and pain. In other words abnormal conditions of the metu caused disease. They also were believed to take in disease and to carry it into certain parts of the body, just as they also took in remedies. Treating the metu was etiological therapy. If excrements ascended the body, causing illness in another part, it was advisable to treat the metu of the anus. It was important for the physician to understand the internal fluids” (Sigerist).

II. ANCIENT HINDU MEDICINE.

1. Charaka's version of the tubular system of the body (C. S. III 5. 2-16)

There are as many kinds of vessels in the body as there are different substances in it. Substances or processes do not come into existence, or cease to be, without their proper vessels. The vessels carry the ingredients of the body as they undergo transformation; they serve as passages for their circulation. These vessels are extremely numerous, hence, as some teachers say, they are countless; other teachers, however, say that the vessels can be counted. The vessels carry the force of life-breath that is rooted in the body (*prana*); they carry water and food, chyle and blood, and the transformations of the latter, namely, fat, bone, marrow and semen. They carry urine, excrements and sweat. Besides they carry the humours, *vata*, *pitta* and *kapha*, which travel through the whole body. All the vessels which pertain to the other substances of the body also serve as passages for the humours.

The root, or the main vessel, from which the vessels carrying the life-breath spring, is the heart. When these are affected, there is either too much or too little respiration; the respiration may be very slow or very quick, and it is attended with sound and pain.

The root from which the vessels carrying water spring, are the palate and the lungs (kloma). When these are affected, the tongue, palate, lips, throat and kloma become dried up and there is great thirst.

The roots of the food-carrying vessels are the stomach and the left flank. When these are affected, there is no desire for food, but indigestion, vomiting and the like.

The roots of the vessels carrying rasa are the heart and ten tubular vessels (dhamani) ;

The roots of the blood-carrying vessels are the liver and the spleen.

The roots of the vessels carrying flesh are the tendons and sniews (snayu), and the skin.

The roots of the vessels carrying fat are both the kidneys and the omentum (vapavahana).

The roots of the vessels carrying the semen are the testicles and the male organ.

The roots of the vessels carrying the urine are the bladder and the groins.

The roots of the vessels carrying excrements are the upper and lower intestines (pakavasaya and sthulaguda).

The roots of the vessels carrying sweat are the fat (medas) and the hair follicles of the skin.

When these vessels grow irritated, the constituents of the body which abide in their places or move along their ways grow irritated, too. This irritation spreads from one kind of vessel to the others. Vessels harm vessels, and constituents harm constituents, when irritated. Vata, pitta, and kapha, however, harm and irritate all other constituents; they are "harmers" (dosa) by nature (Zimmer's translation modified).

2. Susruta's version of the tubular system of the body (S. S. III. 7 & 9)

The total number of dhamanis is 24. Of these, 10 proceed to the upper part of the body, 10 to the lower part and 4 cross-wise.

Of the 10 which go to the upper part of the body, branch out and are divided into 3 classes and are 30 in number.

Of these there are altogether 10 for carrying vata, pitta, kapha, sonita and rasa—2 for each.

There are 8 for carrying sabda (sound), rupa (sight), rasa (taste) and gandha (smell), 2 for each.

There are 2 for the organ of speech.

There are 2 for making noise (gosha) as distinguished from speech.

There are 2 for going to sleep.

There are 2 for being awake.

There are 2 for bearing tears.

There are 2 for carrying milk in women, and it is these same dhamanis that carry semen in men.

It is by these dhamanis that the body on the upper side of the naval (*i.e.* sides, back, chest, shoulder, hands etc.) is held to the lower part. The carrying of vata, pitta and kapha is the common quality of all these dhamanis.

Those dhamanis which branch out downwards are 30 in number. They eject vata, urine, excreta, semen, menstrual blood, etc. downwards. They are connected with the place of pitta (pittasaya), draw downwards the material not fit for being absorbed, and nourish the body with the assimilable products of digestion. The dhamanis connected with the pittasaya carry the food juice (rasa) throughout the body as soon as it is digested by the action of heat, by supplying it to the upper circulatory dhamanis and through them to the heart, which is designated as the seat of rasa (rasa-sthana).

10 dhamanis carry vata, pitta, kapha, sonita, and rasa (2 for each).

2, connected with the intestines, carry the food-juice (rasa).

2 carry water.

2 are connected with the bladder for ejecting urine.

2 for the production of semen.

2 for the ejection of semen; and it is these which regulate the menstrual flow in the case of women.

2, connected with the larger intestines, eject the excreta.

8 others which carry perspiration.

It is by these dhamanis that the intestines, waist, urine, excreta, rectum, bladder and penis are held together.

Each of the other 4 dhamanis which go crosswise, has hundreds and thousands of branches, which, innumerable as they are, are spread all over the body like so many windows; their mouths are at the holes of the hairs, through which perspiration goes out, and which nourish the body with rasa, and through these the effective principles of oil, watery sprinklings, ointments, etc. enter the body after being acted on by the heat of the skin.

It is again these which carry the pleasurable and painful sense—impressions of touch. (S. S. III. 9. 4-8).

The total number of siras is 700. The principal siras are 40 in number; of these 10 are for the circulation of vata, 10 for pitta, 10 for kapha, and 10 for rakta. The siras of vata circulation again branch out into 175 siras and the same is the case with those circulate pitta, kapha and rakta. Thus we have altogether 700 siras.

Besides the dhamanis and the siras, Susruta mentions also srotas, whose number is given as 22. These ducts emanate from the cavity of the heart and are found to course through the whole body. They are the channels for carrying the life (breaths), the food, the water, the rasa, the blood, the muscles, the fat, the urine, the stools, the semen, and the catamenial blood (S. S. III. 9. 11-12).

There is a close resemblance between the description of the "tubular system" of the body in the Egyptian papyri and the description of the same by Charaka. The term used in the papyri for the vessels is "metu". Sigerist defines the term as vessels, pipes, through which everything moves that is in motion in the body carrying the internal fluids as well as air. Charaka in his description uses the term "srotas" to denote the vessels. He defines srotas as the passages or conduits of the dhatus *i.e.* the constituents of the body. No attempt seems to have been made either in the papyri or by Charaka to differentiate the vessels into blood vessels, nerves, lymphatics, ducts and channels. The numbers given in the papyri may be traditional or speculative. Charaka, though he gives the number of the dhamanis as 200 and of the siras as 700, acknowledges these counts are inferential and not ascertained by observation.

Concerning the function of the vessels also, there is a close resemblance between the two. From the description in the papyri it is clear that their function is to carry air, liquids such as blood, urine, tears, sperm and solid matters such as faeces. Charaka also attributes the same function to the srotas. These vessels carry life breath that is rooted in the body (prana). These vessels carry water and food, rasa, blood and its transformations, fat, bone, marrow and semen; they carry urine, excrements and sweat. Besides they carry vata, pitta, and kapha, the humours of Ancient Hindu Medicine. (C. S. III. 5-4). Susruta also attributes the same function to them. They are channels for carrying the life (breaths), the food, the water, the rasa, the blood, the muscles, the fat, the urine and the stools, and the semen.

(S. S. III. 9. 11-12). In some of the descriptions of the functions of the Metu it is implied that urine and alvine secretions are produced by the vessels. Charaka expresses the same opinion. The vessels are called srotas because the rasa etc. which nourish the body are secreted (Sravanath) out of these. (C. S. I. 30-11). Some other points of interest may be mentioned. In the papyri it is mentioned that there are 4 vessels to the lung and to the spleen. This is interesting as it traces the air to the lung. Charaka traces the vessels carrying life-breath to the heart and according to him the lung is the seat of moisture. Ancient Hindu Medicine ignores completely the role of the lung in respiration. The other point of interest is, in the papyri, the lung is coupled with the spleen whereas in Ancient Hindu Medicine the liver is always coupled with the spleen as the seat of blood.

The resemblance is very striking when we consider the role of the vessels in the production of disease. In Egyptian medicine abnormal conditions of the metu were considered as the cause of disease. They were also believed to take in disease and to carry it into certain parts of the body. Treating the metu was aetiological therapy. Charaka also expresses the same opinion. He enumerates the various vessels and then mentions the results of the affection of these vessels. Then he says when these vessels grow irritated, the constituents of the body grow irritated. The irritation spreads from one kind of vessel to the others. Vessels harm vessels, constituents harm constituents, when irritated. He also discusses in great detail how to allay the irritation and correct the affections of the ducts by therapy. (C. S. III. 5).

One thousand years intervene between the production of the papyri and the medical school of Atreya-Charaka. Yet the knowledge of anatomy of the internal parts to be found in them both is about the same. The Egyptians were adepts in the art of embalming dead bodies; but the custom of embalming did not seem to have provided opportunities for anatomical studies. So also in the medical school of Atreya-Charaka, anatomy did not lead to much knowledge of the internal parts. It was quite different in the school of surgery that of Susruta where dissections were practiced. But here also the method of dissection, that of gently scrubbing asunder a soaked body on the verge of melting away, did not lead to any "real insight into the intricacies of the nervous system, the blood vessels or into the exact course and purpose of the various other canals and organs essential for metabolism". Even then, in spite of these disadvantages, advances are discernable. Susruta divides the vessels of the body into 3 separate groups *viz.* the dhamanis, siras and srotas. Dhamanis appear to be thick-walled vessels, siras thin-walled vessels, and srotas, a peculiar conception of Ancient Hindu Medicine, the channels for the circulation of the dhatus of the body. In a general way dhamanis stand for arteries, nerves, lymphatics, and the various ducts of the body. The siras mainly stand for blood vessels, mostly veins. For our study, Susruta's classification of the dhamanis is particularly interesting. The dhamanis include all the vessels described in the papyri. These vessels are traced to

the heart as in the papyri. We have here vessels for the carriage of air, of liquids such as blood, urine, tears, sperms, and solid matters such as the faeces. There are also vessels for the carriage of the "humours". Here for the first time in the history of medicine, nerves are discerned as separate from vessels (dhamanis). The nerves are conceived as hollow vessels. Susruta attributes to 4 pairs of dhamanis the function of carrying the sensory impressions of sound, sight, taste, and smell and to another 4 pairs the function of conveying motor impulses of speech, making noise, opening and closing of the eye-lids. This appreciation of motor and sensory cranial nerves is a momentous advance. The carriage of blood is assigned to the siras. It is curious to note that Susruta counts the srotas as 22, the same number given in the Papyrus Ebers and Papyrus Berlin. The "srotas" of Charaka and Susruta correspond to the "metu" of the papyri. As Zimmer remarks "the co-existence of both systems, that of Charaka and Susruta, side by side in classic Hindu medical tradition points to the fact that the means by which to verify their individual values was lacking, even at the period of Susruta".

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A sketch of Avicenna as a Scientist

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As a prelude to the sketch of Avicenna's Scientific and philosophical achievements, it is necessary to mention here a few characteristic features of Eastern science, and the debt European and Modern science owes to Asian culture and learning. Robert Briffault in his "the Making of Humanity" has expressed the indebtedness of Europe during Renaissance to the Arabs, Iranians and other nations in the following words :

"When at the Renaissance, the spirit of man was once again filled with the zeal for knowledge and stimulated by the spark of genius, if it was able to set promptly to work, to produce and to invent, it was because the Arabs had prescribed and protected various branches of knowledge, kept the spirit of research alive and eager, and maintained it pliant and ready for future discoveries".

The great scientists in the Islamic countries realised for the first time in human history that "Science could not be advanced by mere speculation; its only sure progress lay in the practical interrogation of Nature. The essential characteristics of their methods were, therefore, experiment and observation. In their writings on the various sciences like Mechanics, Hydrostatics, Optics, etc., the solution of a problem is always obtained by performing an experiment or by an instrumental observation." "It was this that made them the originators of Chemistry, that led them to the invention of all kinds of apparatus for distillation, sublimation, fusion, filtration, etc., that in Astronomy caused them to appeal to divided instruments, as quadrant and astrolabe; in Chemistry to employ the balance, the theory of which they were perfectly familiar with; to construct tables of specific gravities and astronomical tables; that produced their great improvements in Geometry, Trigonometry, the invention of Algebra, and the adoption of the Indian numeration in Arithmetic".

In this atmosphere was born Abu Ali al-Husain Ibn Abdullah Ibn Sina in 370 A.H./980 A. D. at Afshana near Bukhara. There he was introduced to religious and secular learning and was also influenced by Ismailite creed. In the early stages of his education, he mastered theology, physics, metaphysics and medicine. At the age of 17, after the study of one of al-Farabi's works, his bent of mind was dovetailed to al-Farabi's metaphysical and logical speculation which originated in the Neo-Platonic commentaries and paraphrases of Aristotelian works. His practice of medicine led him to the court of Nuh b. Mansur, the Samanid ruler of Bukhara, whom he cured successfully, and

was given access to the royal library. His marvellous memory and prodigious powers of assimilating knowledge enabled him to acquire the title of the Shaikhu'r-Rais or the prince of scholars. At the age of 21 he began his marvellous career as a philosopher, mathematician, physician, astronomer and encyclopaedist and has left nearly 242 independent works and treatises enumerated by Yahya Mahdawi in his *Bibliographie D'ibn Sina* published by the University of Tehran in 1954 which is an improvement on Anawati's *Bibliographie* Cairo, 1950.

Ibn Sina's life was full of work and enjoyment and also disappointments. He wrote a great part of his major work during his leisure from political and administrative engagements. The courts of Jurjan, Ray, Hamadan and Isfahan were the centres of his great literary activity. His most important medical works are the *Qanun* (Canon) and a treatise on cardiac drugs. The *Qanun-fit-Tibb* is an immense encyclopaedia of medicine of about a million words in which he has codified the whole of ancient and Eastern learning. Being similar in many respects to Galen, Ibn Sina elaborated the Galenic theory of medicine and classification to the extent that the Canon superseded Rhazes's *Hawi* and Ali Ibn Abbas's *Maliki* and even the works of Galen, and remained supreme as the Medical Encyclopaedia of Europe for another six centuries. Although theory dominated his original clinical observation, the *Qanun* contains many examples of clear observation and distinction of mediastinitis from pleurisy, contagious nature of phthises; distribution of diseases by water and soil; careful description of skin troubles, of sexual diseases and perversions of nervous ailments (including lovesickness) and many psychological and pathological phenomena. His materia medica takes into account 760 drugs and mentions various pharmacological methods that were used at that time.

As regards Avicenna's philosophical achievements, I am inclined to quote the opinion of Reverend Antoine which he has expressed in his article on Avicenna's influence on medical thought, which runs as follows:

"It is a fact of considerable importance for the history of mediaeval philosophy that its evolution should have been at least two centuries behind that of Arab speculation—Mediaeval Europe did not inherit Greek philosophy directly, but indirectly, through the channel of Syrian, Persian and Arabic scholars scientists and philosophers.

Two great precursors of Avicenna must be mentioned in the history of Arabian philosophy. Alkindi, who died in 873, and Alfarabi, who died in 950, had gone a long way already in the process of blending Platonism and Aristotelianism into a unified system. But Plato and Aristotle were not the only ones to be reconciled. Muslim philosophers had a strong religious faith and they were not long before realizing that the ideal of Greek philosophy which is an ideal of architectural necessity did not square with the

Koranic conception of a free and all-powerful God creating the universe by an act of his free will. This antinomy was to be the starting point of the momentous philosophical distinction between essence and existence.

Avicenna (980-1037), while drawing from his predecessors, succeeded in building up his own personal system which "can be considered as the source of a distinct doctrinal stream". In the midst of his absorbing professional occupations as a doctor, a lawyer and a statesman he found the time to put down in writing the conclusions of his versatile and encyclopaedic genius. Doctor, scientist, mathematician, logician, metaphysician, he excelled in all the branches of learning and left behind him an imposing number of treatises. Of his philosophical works, only a few were translated into Latin in the Middle Ages. They were taken mainly from his big treatise *Al Shifa* (The Healing), which was divided into four parts: Logic, Physics, Mathematics and Metaphysics. In the twelfth century, Dominicus Gundisalvus and Ibn Da'ud translated into Latin substantial portions of the work.

Avicenna's thought, however, was to find its way to mediaeval Europe through another channel. Another historical contingency was instrumental in strengthening Avicenna's influence. Islamic theology looked askance at the free development of philosophy. Towards the end of the eleventh century, a great theologian, Al Ghazali decided to refute the errors of the philosophers. He wrote to this effect several works among which two must be remembered: Restoration of Religious Knowledge and Destruction of Philosophers. In order to make his refutation more effective, he prefaced it with a clear exposition of Alfarabi and Avicenna's teachings, under the title "On the Intentions of the Philosophers". Destiny was unkind to him, for the mediaeval translators limited their attention to the preface and left the refutation itself untouched. As a result, Al-Ghazali was known to the Scholastics as the 'Abbreviator', i.e. the summarizer who popularized the doctrines which he intended to refute. Two factors contributed to the success of Avicenna. The first is that the translation of his works preceded that of Aristotle's by half a century. Being universally considered as a faithful commentator of the Greek philosopher, his theses were naturally accepted as the accurate rendering of Aristotle's doctrine. The second factor is to be found in the affinity between Avicenna's speculative preoccupations and those of the Christian theologians. At first, it was these affinities which attracted, and especially the Neoplatonic aspect of his thought. We have the enthusiastic testimony of Roger Bacon, whose scientific researches were under the direct inspiration of Avicenna. For him, Avicenna is comparable to Solomon and Aristotle, he is the Prince and renovator of philosophy".

Amongst the numerous articles that were contributed by International Scholars and Orientalists who had thronged to Hamadan to pay

homage to this great philosopher and scientist at the time of his millennium in 1954, one contribution of Prof. Dr. Julian Huxley with the title "Some Reflections of an Evolutionary Biologist on Avicenna", has appealed to me most strongly which I reproduce below:

"I am not a professional scholar in the history of science or the history of thought; but, as an outsider in these matters, it seems to me that Avicenna's individual importance in this vital process of the transformation of knowledge and ideas resides in a combination of several of his characteristics. First, his immense erudition, combined with his exceptional industry and his flair for presenting his knowledge in readable and orderly fashion, meant that his works were sought after read and digested as being authoritative summaries of what Western scholars wanted to know. Secondly, the critical and empirical streak in this make-up saw to it that he was not a mere transmitter of the ancients' knowledge. He was also an active critic and commentator, and to some degree an original investigator. This we find the apparent paradox that, while on the one hand he was helping to establish a philosophical orthodoxy grounded in authority, on the other he introduced into the world of medieval thought a dose of that very necessary intellectual medicine, the scientific method of putting authority to the test of critical observation and experiment. Though his reverence for Aristotle and Galen would not, I think, have let him agree with the Royal Society's motto, *nullius in verba*, he yet took one of the early steps towards the adoption of the scientific temper of mind.

Thirdly, his passion for comprehensiveness, and for a highly logical organization of thought and knowledge on an essentially theological basis, was especially congenial to the temper of Western Thought in the early Middle Ages, and predisposed Western theologians and philosophers—or rather theologian-philosophers, for the two functions were always combined—to accept his presentation of the Greek case.

It is indeed curious to see how similar in many ways were the movements and processes of thought in East and West in the early Middle Ages. Both Eastern and Western thinkers tended to be obsessed with the idea of minute and detailed classification and definition; both were inclined to scholasticism; and both endeavoured to arrive at universal conclusions, and at a single overall organization of thought, on the basis of purely rational and logical deduction from a single fundamental premises.

For Avicenna this central premises was God—a monotheistic Creator who was philosophically equated with the Absolute and the First Cause. This premiss was not itself logical. It was something to be taken for granted, something assumed by all the thinkers of the age. Furthermore, it was the basis of the revealed religions around which both Eastern and Western societies were then built.

The monotheistic premiss was thus necessary for any one who, like Avicenna, was confronted with the task of reconciling the philosophical and scientific fruits of the Greek spirit of rational and empirical enquiry with the theological and often dogmatic tenets of official religion. The concept of a single Creator God, the First Cause of everything in the universe and the arbiter of human destiny, was not arrived at as a result of logical rationalization or scientific enquiry. But it lay at the root alike of Judaism, Christianity and Islam. It was the central organizing or ordering concept which determined the pattern of their theologies and their views on human destiny and gave form to their *Weltanschauungen* or philosophies of life. By taking this concept as basic premiss, refining it philosophically to the limit, and then using the logical intellect to work out its philosophical and scientific implications and its practical consequences, a bridge could be thrown across the frightening gulf which yawned between orthodox religious dogma on the one hand and the world of nature and of human society affairs on the other.

Even in his own times people questioned Ibn Sina's faith and considered him as a heretic. Ibn Sina strongly condemned such an imputation in a well-known Persian quatrain.

'It is not so easy and trifling to call me a heretic
No belief in religion is firmer than mine own
I am the unique person in the whole world and if I am a heretic
Then there is not a single Musulman anywhere in the world'.

In later times as a representative Muslim Philosopher, Ibn Sina was the main target of Imam Ghazzali's attacks in his *Tahafat*. The latter has specially condemned him for his three views, viz., (1) the eternity of the world, (2) God's ignorance of the particulars, and (3) denial of the corporal ascension of the human body on the last day of judgment. But as it has been rightly remarked, the Imam has wrongly interpreted Ibn Sina's views, and criticized him severely.

Ibn Sina's interest in mathematics was philosophical rather than technical, and such as we would expect in a late Neoplatonist. He explained the casting out of nines and its application to the verification of squares and cubes. Many of his writings were devoted to mathematical and astronomical subjects; he composed a translation of Euclid. He made astronomical observations (probably chiefly toward the end of his life in Hamadan), and devised a contrivance the purpose of which was similar to that of the vernier, that is, to increase the precision of instrumental readings.

He made a profound study of various physical questions—motion, contact, force, vacuum, infinity, light, heat. He observed that if the perception of light is due to the emission of some sort of particles by the luminous source, the speed of light must be finite. He made investigations on specific gravity.

The musical part of the *Shifa* marked much progress upon al-Farabi's musical treatise, itself so far ahead of occidental knowledge on the subject. It deals with magadizing (*tad'if*), doubling with the octave, and organizing (*tarkib*), doubling with the fourth and fifth, this being a great step toward the harmonic system; doubling with the third seems to have also been allowed. Considering the series of consonances represented by the series $(n + 1) / n$, Ibn Sina observed that when $n = 33$, the intervals begin to sound alike, and that above the value $n = 45$ the ear is unable to distinguish them (note that the value $n = 32$ corresponds to a quarter of a tone).

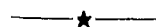
He did not believe in the possibility of chemical transmutation, because in his opinion the differences of the metals were not superficial, but much deeper; coloring or bronzing the metals does not affect their essence. It should be noted that these views were radically opposed to those which were then generally accepted.

In this conquest, so little recorded, of the human spirit over the dominating political force of that time, no one played a greater part than Ibn Sina, while Al Biruni influenced Sultan Mahmud directly, with teachings gained from India Ibn Sina, attached to no great patron, reached out to humanity as a whole. In him the three factors of hope were present.

In him the force of religious faith was felt. In his teaching of the sciences he had the gift so rarely found among philosophers, of simple expression that could be understood by all peoples of the world. You might say that he was an Aristotle inspired by faith.

His writings went from land to land, from Egypt to Spain, and on into a Europe thirsting for knowledge of the universal sciences. Seekers after the new knowledge journeyed to Moslem Spain for enlightenment. After Gerbert of Aruillac, who later became Pope, Roger Bacon, studying Ibn Sina's *Qanun* in Spain, complained because so few books of Ibn Sina had been translated, to allow Christians to share his great and all-inclusive wisdom. That wisdom helped the greatest of western scholastics, Thomas Aquinas, to find a method of reasoning from the known toward the unknown.

So the true picture of the world in his time is one of political disintegration, and intellectual revival. The first was temporary, the second enduring. And when we seek for the prime mover of this recovery of the human spirit, we find Ibn Sina before any other.



Transfusion of Blood in ancient India¹

BY

Sri. K. K. SEN.²

(A Judge quotes a clinical case-report)

[Dear Sir, Your letter has been passed on to me by the Editor of the Journal of the Indian Medical Association for a direct reply to you. I am indeed grateful to you for the interest with which you have read my notes on "Transfusion of Blood in Ancient India" published in the November 1946 number of the Journal.

Avadankalpalata, like Lalitvistara, Buddha Charita, Maha Vastabdan and Avadan Sathak, is a work in Sanskrit poetry. When the last book was edited by the Royal Asiatic Society of Bengal, only the rare Sanskrit text with the corresponding Tibetan translation was published. So far as I am aware, there has been no English translation of the work by any one as yet though a Bengali Version of the book was published by the Sahitya Parisad of Bengal through Rai Bahadur Sarat Chander Das, C.I.E., a Tibetan scholar of Bengal. Avadankalpalata is now out of print and is not available for sale. I got a loan of the book from my friend Mr. Nirad Ranjan Barua, Professor of Pali in the Vidyasagar College, Calcutta. I have great pleasure in enclosing herewith a transcript of the relevant verses with an English translation of my own. With the kindest regards.—K. K. Sen.]

The anecdote of *Hitaishi Avadan*, like other stories in connection with his previous births, was related by *Bodhi Sathwa* himself to the *Bikhus*, who addressing him thus, said :

"How is it, O! Lord! that thou who art so kind to physicians who heal the sorrows of birth, art more kind to physicians who cause the ills of the body."

The Lord said that in previous births in less congenial climes he had always showed greater partiality to the sick and their physicians.

The Lord said unto them, "There, it is true, that the sick are really dearer to me than others, since there was nothing more distressful to a man than their sufferings of the body."

¹ The letter was written on 13—3—47, but the contents deserve a careful perusal, even after 10 years.

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“In the city of Sikhghosh. I was born as King Shibi and as such I was always anxious to do good to others, as a man of wealth should always be ready to do good to the poor.”

To the king, truthful as he was, the determination to render treatment to sick persons of every place and at all seasons, was an overmastering passion.

Once on an occasion, the citizens of his capital brought to him a certain diseased person suffering from a long time and prayed to the king that he might render proper treatment to this patient.

Thus solicited the king requested his physicians, who after a prolonged consultation, in view of the serious condition of the patient, pronounced their opinion.

Addressing the king, they said that the patient's illness was very serious and they were unable to prescribe any remedy for it, except the giving of blood by a person who had never yielded to passion.

Hearing this advice, the King became depressed as he did not know what to do in order to save the life of this long suffering patient.

Reflecting again, the King recalled to his mind that he himself had and never been, subject to passion like his mother who had avoided passion, since her conception.

Therefore, there was nobody in the world like him who could be said to have been above passion all his life and that the physicians' direction should be carried out by giving his own blood to the patient so that a life might be saved therewith.

Thus resolved, the King in the face of opposition of his dependents, gave the blood of his own veins to the patient as often as required.

Thus in six months, the patient being restored to health with the blood given by the King, left with a happy mind, the palace of the King, after obiesance to him, while the King had become thin and emaciated.

Evolution of Anaesthesia¹

BY

D. HARI RAO, M.B., F.R.C.S.²

The study of the development of Anaesthesia offers prospects no less interesting and stimulating than those of any branch of medicine. The use of anaesthetics dates back to remote antiquity. It would be very helpful at the very outset, to know what anaesthesia means and what it stands for. It is of Greek derivation *An-Aesthesia* - 'an' is 'no' or negative and 'aesthesia' or aesthesis is 'sensation'. When taken together, it simply means lack or absence of sensation. It denotes a state of insensibility and is primarily concerned with the relief of pain incidental to surgery. Its introduction into the medical terminology is comparatively recent. In the year 1846, when Ether was ushered into anaesthetic practice, the term was accepted by the profession at the suggestion of Oliver Wendel Holmes.

For ages, little was known of the nature of pain and attempts at relief of pain were but empirical. It was the woman, *the Great Mother*, who administered anaesthesia by magic and charm to the primitive man, suffering from pain. Pain was regarded as a demon and it was banished by touch, passes and the wearing of tiger claws and amulets etc. The Healing Art itself, which began with the *Mother* passed on, in quick succession, to the hands of Priesthood and the early Christian kings. The clergy and the king invoked the devine healing by touch and prayer. To the ancient man, Nature in all her bounty provided the means of relief in the cold of the running brookes, in the radiant warmth of the sun's rays. Amongst the many drugs that were employed for inducing sleep were the Henbane, Hemp, Poppy and Mandragora.

The earliest recorded evidence is to be found in the old Testament (4000 B.C.) “And the Lord God caused a deep sleep to fall upon Adam, and slept: and he took one of his ribs, and closed up the flesh instead thereof”. The clay tablets of the Babylonian times point clearly to the use of Henbane and gum mastic in dental caries (2250 B.C.) Aesculapius the God of Medicine (C 1200 B.C.) is reputed to have used a potion containing Nepenthe to abolish the pain of operations. The renowned physicians of India, Charaka and Susruta make mention of the administration of medicated wines in relieving pain and in inducing artificial sleep. Hippocrates refers to the use of vapours of the ‘Bhang’ for the

1. Summary of a lecture delivered before the Indian Association of History of Medicine, at Madras, on 16th September 1948, with Col. Sangham Lal, in the chair.

2. Dr. Hari Rao was then Lecturer in Anaesthesiology, Madras Medical College, and Chief Anaesthetist, Madras General Hospital, Madras.

same purpose. Chinese surgeons anaesthetised patients with the extracts of drugs in wine for surgery. Dioscorides—the famous Greek Physician of the 1st century in the court of the Roman Emperor Nero, is said to have used Mandragora wine for destroying pain of surgery. This was also known as the potion of the condemned as it made them insensible to the tortures of the Scaffold. The monastic hospitals of 16th century used alcoholic fumes containing some of these drugs. Compression of nerves and blood vessels of the region to be operated on were also employed in abolishing pain of operations. The method employed in early days was perhaps the local analgesia, which John Hunter is known to have used, in a case of amputation below the knee.

The dawn of 13th century synchronised with the development of chemistry which enabled a study of pure chemical agents and their effects. "Sweet Vitriol" was discovered by a Spanish alchemist, Raymundus Lullius. It receded into oblivion until it was distilled by Paracelsus of Switzerland (C.1540) nearly two hundred years later, by mixing, sulphuric acid with alcohol. He experimented on fowls and discovered sleep-inducing properties of the Vitriol—the chicken after inhalation went into sleep and recovered without any ill effects on withdrawal of the drug. He suggested its use as an anaesthetic. Paracelsus may well be regarded as the founder and discoverer of Ether anaesthesia. Two years later Valarius Cordius of Germany confirmed the usefulness of Ether anaesthesia. These brilliant researches lay dormant, unheard and unseen, for three long centuries when Morton, in America, appeared on the scene and firmly established Ether Anaesthesia.

Nineteenth century was remarkable for the renaissance and its accomplishments in sciences. The discovery of Oxygen and Nitrous Oxide by Priestly (1772) influenced Medicine profoundly. Franz Mesmer, a Viennese Physician elaborated the theory of Vitalism which was anything but scientific. It stated that "pain and suffering were caused by cosmic rays and that certain individuals were endowed with the capacity for transmitting the harnessed powers of cosmic energy". Mesmerism was a great success in Mesmer's hands. It failed to carry conviction amongst scientific men who denounced the author as a humbug and a cheat. Somnambulism, an offshoot of Mesmerism flourished even better. In essence, these methods were only old wine of divine healing by touch and prayer, of the middle ages, in the new bottle of science—rather pseudo-science. While these were useful in mitigating the pain of diseases, they did little or nothing to abolish the pain of surgery.

In 1795, Sir Humphrey Davy a brilliant experimental Chemist and one who worked as assistant to a surgeon, discovered in the course of his researches on gases, the anaesthetic properties of laughing gas. The excruciating pain, he was having from the cutting of wisdom tooth, had disappeared

on inhalation of the gas. He suggested its use as an anaesthetic but the suggestion remained unheeded for several years to come. His disciple, Michael Faraday, working on Ethers, noticed its soporific effect and recommended its adoption in Anaesthesia. Henry Hill Hickman, a member of Royal College of Surgeons of England made notable contribution to the knowledge of anaesthesia. He conducted animal experiments with carbon-dioxide gas. On inhalation, the gas, according to him, reached the lungs, whence it passed on to circulation and the artificial sleep was thus produced. The discovery made no impression amongst his own colleagues and contemporary scientific men. He went over to France in the hope of securing wide recognition of his work by the Royal Academy. Disappointment was in store for him there. He returned home sad and broken hearted.

There was revival of interest once again in Nitrous Oxide. In 1844, a young dentist, Horace Wells, observed, during a demonstration of gas by an itinerant lecturer, Colton in Connecticut, how injuries received as a result of fall, were not noticed by the person concerned after the inhalation of Nitrous Oxide. Wells wished to test the effects on himself and so offered to get his tooth extracted, under the influence of the gas, by a fellow dentist, Riggs. He felt no pain and so convinced was he, that he began introducing it in his practice. At his request, a practical demonstration was staged in the operation theatre of Dr. Warren of Harvard Medical School. To his ill-luck, the patient yelled with pain at the first stroke of knife. There was hissing and hooting from the assembly, witnessing the performance. Anaesthesia with gas had failed to destroy pain.

Attention now centered round Ether. The exhilarating (properties) effects of Ether frolics at country parties were known. Dr. Crawford Long of Georgia drew his inspiration from the Ether Frolics and started using ether on his patients before operations. He was too modest to give publicity to his work. William Morton, a successful dentist of Boston, was present on the occasion of the unsuccessful attempt of his master and partner, Horace Wells, to demonstrate the effects of Nitrous Oxide. Jackson, a physician and a chemist of repute, under whom Morton studied, suggested, to his pupil the use of Ether for deadening pain by sprinkling it over the skin and mucous membrane surfaces. Morton took up the suggestion. In a case where excess of Ether was used, it ran over the face and produced numbness of the entire face. The idea then occurred to him of using ether for inhalation. It was obvious Morton was ignorant of the work on ether done by the gallant band of pioneers of the past over three centuries, down to his contemporary Crawford Long. He worked on animals, pups, godfish and worms etc. and later administered ether to human beings. The results with commercial ether were not very satisfactory and at the direction of his master, Jackson, he changed over to pure sulphuric ether. He experimented on himself and later, on his patients successfully. At the Massachusetts Hospital - the scene of dismal failure of Horace Wells Morton very successfully

administered ether for a case of tumour of the neck, operated by the distinguished surgeon, Warren. With the warm support of Drs. Warren and Bigelow, etherisation was accepted and widest publicity was accorded to it.

Owing to the irritating and unpleasant odour of Ether, search was made for other volatile agents. Chloroform was discovered in 1831 by a French chemist, Soubeiran, by Samuel Guthrie in America and by Justius Von Liebig of Germany, all working independently of each other. James Young Simpson of Edinburgh, who was not quite satisfied with Ether, for obstetric anaesthesia, was asked to use Chloroform, instead, by his Liverpool chemist, David Waldie. Simpson took up the suggestion and the Chloroform, anaesthesia proved in his hands a great success and in November 1847, its use in Obstetric Analgesia was announced before the Medico-Chirurgical Society of Edinburgh. The popularity of Chloroform lay in its potency, sweet odour and smoothness in administration, in contrast to the drawbacks of Ether. The dangers of Chloroform were also quickly realised. Experience with the trial of Nitrous Oxide, Ether and Chloroform were not quite satisfactory and served, as a great impetus, to the promotion of research work in physiology and pharmacology and the establishment of basic principles of Anaesthesia. Germany, France and England have all had their due share in building up this edifice of knowledge through their architects, Von Bibra and Harless, (?) Flourens and John Snow respectively. Claude Bernard, the distinguished pupil of Majendie, endeavoured to place the practice of Anaesthesia on sound physiological principles and put forward the theory that anaesthesia was produced by the reversible coagulation of the constituents of nerve cell—a theory which was not accepted. Paul Bert, a student of Claude Bernard and a great physiologist, started on the quest for an ideal anaesthetic and his valuable contributions to the theory and practice of anaesthesia stand out as great landmarks. He showed that measured volumes of Nitrous Oxide and oxygen eliminated the chief danger—asphyxia. The illustration of his anaesthesia chart bears out the thoroughness of his method. According to him, the lethal dose of Chloroform was just the double of that of the anaesthesia and the safety lay in regulating the dose of Chloroform at a constant level in blood and the inhaled mixture. Although the toxicity of chloroform was common knowledge, the actual cause of death from Chloroform was not known and constituted the subject of great controversy which was settled by the valuable findings of Levy. John Snow of England has the unique distinction of leading the anaesthesia from handicraft to science based on physiological principles. Elimination of lack of Oxygen in anaesthesia is the main key note of his contribution.

In spite of these advances in general anaesthesia it was realised that general anaesthesia paralysed higher cortical centres and that the conduction pathways remained unaffected, leading to shock from the arrival of painful impulses from the field of operation. It was also realised that the surgery of ear, nose and throat and genito-urinary systems called for only

drugs acting locally in preference to drugs producing general anaesthesia. People of Peru in South America were familiar with the stimulating properties of the leaves of *Erythroxylan* Cocoa long before the Spanish conquest. Scherzer, during his trip to South America, observed that numbness of the tongue was caused by chewing dried leaves, and returned with a plentiful supply of these leaves. In 1860, Niemann of Germany isolated the alkaloid from the leaves and termed it cocaine. In 1884, Karl Koller, a hospital interne in Vienna, working in collaboration with Sigmund Freud, on the problem of cocaine, as an antidote in Morphia addicts, discovered the surface action of cocaine on conjunctiva—penetrating even to the depths of cornea. This discovery was laid before the congress of Ophthalmologists, Oto-Rhino-Laryngologists, at Heidelberg.

William Halstead and Hall of Johns Hopkins Hospital, injected cocaine into nerve trunks and produced the conduction anaesthesia. Leonard Corning of New York, in 1885, experimented with infiltration analgesia by subcutaneous injections. While following this technique between the spinous processes of 11th and 12th Dorsal vertebra, for a case of seminal incontinence, he noticed the onset of anaesthesia of the hind legs and genitals. The possibility of spinal analgesia, at once suggested itself to him. Quinke was making spinal punctures for diagnostic purposes. Von Bier of Germany was the first to demonstrate spinal analgesia with cocaine in 1898—first in experimental animals and later on human beings. The fatalities from toxicity of cocaine stimulated a search for safer drugs. In 1904, Einhorn synthesised Novocain and with this, local anaesthesia was firmly established. The short comings of purely local methods and purely general methods were overcome by a combination of local and general anaesthesia, by Dr. Crile under the caption "Anoci-Association". Local anaesthesia abolished the traumatic shock through sensory block, while psychic shock was eliminated by the General anaesthesia.

Further advances in Anaesthesia consisted mostly of newer agents—improved appliances and newer methods of administration—the rectal anaesthesia, intra-tracheal anaesthesia, intravenous anaesthesia and controlled respiration.



A Historical Note on Somatometric Measurements as given in Susrutha Samhita

BY

A. A. AYER,

(Institute of Anatomy, Stanley Medical College, Madras).

A knowledge of the measurements of the body and its parts is necessary for the medical man generally from the view point of normal growth and constitutional types, for the anthropologist for racial comparisons, and for the artist for the appreciation of proportion in painting and sculpture. There is a wide range in measurements even in normal people depending on sex, type of body build, race and environmental factors. But yet there is the necessity of having a norm in relation to which any variation can be recognized and assessed.

The measurements as given by Susrutha are not absolute linear measurements but measurements in terms of a unit which is individualistic *i.e.* applicable to the person only. This unit used by Susrutha is the finger-breadth. I could not make out which particular finger and which particular part of it is chosen as the standard. Nevertheless, we have to admit that the linking of the measurements not to an absolute standard of length but to a variable unit relative to the individual's anatomy, is, in some respects, a convenient method as it invokes the properties of similar figures. As a rough and ready method of reasonable approximation and accuracy, it is not possible even at present to devise a more convenient measure of the human body and its various parts better than what has been given in the Susrutha Samhita about 2,500 years back.

The entire length of the human body, which we will take as the total height, is given as 120 finger-breadths. Instead of repeating the word finger-breadths frequently we will hereafter only use the word 'finger' to denote 'finger-breadths'. If the normal adult human height be taken as 6' equalling 72" or 180 cms. a finger will be about 1.5 cms. or 3/5th of an inch. This is approximately correct for the mid inter-nodal portion of the index, ring or middle finger. The only comment we can make is that Susrutha's measurements are fundamentally correct and reasonably accurate. If, in any particular instance, it is found that the measurement is obviously discrepant it can only be due to the fact that in translating and understanding the sanskrit words we are not able to know the precise topographical landmarks about which the measurements were taken. The following data are gathered from Susrutha Samhita, translation by Kunjalal Bhishagratna, published in Calcutta in 1907; Volume I, chapter 35, page 311 *et. seq.* I have however omitted some measurements whose precise topography I was not able to comprehend.

Measurements of face, head and neck:

Face.	Total length of face	...	12	fingers
	The forehead	...	4	"
	Two rows of teeth	...	2	"
	The chin	...	2	"
	From front of ear to outer corner of eyes	...	5	"
	Fissure of mouth	...	4	"
	Nose	...	4	"
	Exterior of nostrils	...	2	"
	Cavities of nostrils	...	1 1/2	"
	Intervening parts between eyes	...	2	"
	Space between two pupils	...	4	"
	Ears	...	4	"
	Roots of ears	...	2	"
	Iris 1/3 part and pupil 1/9th part of sclera.			
Head.	The arch extending from the hairy extremity of the temporal region to the middle point of the back of the head	...	11	fingers
	From middle of head to terminal part of hairy region of neck	...	10	"
Neck.	(probably in front)	...	4	"
	Girth of neck from back of one ear to the other	...	14	"
Trunk.	Space between nipples	...	12	"
	Distance from pubis to umbilicus	...	12	"
	Breadth of waist of man	...	18	"
	Root of scrotum	...	2	"
	Flaccid penis	...	4	"
	Female genital passage (probably uterus plus vagina)	...	12	"
Upper limb.	Entire arm (probably from anterior axillary fold to tip of middle finger)	...	32	fingers
	From elbow to tip of middle finger	...	24	"
	From elbow to wrist	...	16	"
	Girth round wrist	...	12	"
Palm of the hand.	Length	...	6	"
	Breadth	...	4	"
	From ball of thumb to root of index finger	...	5	"
	Middle finger length	...	5	"
	Index and ringer fingers	...	4 1/2	"
	Thumb and little fingers	...	3 1/2	"

Explanatory note :—If the length from the elbow to the middle finger be 24 fingers and that from elbow to wrist be 16 fingers, then the length of the hand plus middle finger should be 8 fingers. But the actual length of palm given by the author is 6 fingers and the length of the middle finger is 5 fingers, thus giving the length of the palm plus middle finger to be 11 fingers. There is hence an obvious discrepancy which can only be explained by assuming that the total upper extremity length is given for the limb with the fingers slightly flexed as in the living individual and not with the fingers extended as in the conventional anatomical position.

<i>Lower limb.</i>	Waist to knee	...	32	fingers
	Knee to heel	...	32	"
	Girth round thigh	...	32	"
	Leg (probably from calf to heel)	...	18	"
	Entire leg (probably from fork to heel)	...	50	"
	Length of foot	...	14	"
	Girth of foot	...	14	"
<i>Foresole of foot</i>				
	Length	...	4	"
	Width	...	5	"
<i>Heel</i>				
	Length	...	5	"
	Width	...	4	"
	The great toe or the next one	...	2	"
The third, fourth and fifth toes each successively diminishes by 1 finger.				

Explanatory note :—This obviously indicates that the anterior border of the living foot and not the individual length of the corresponding toes is considered here. Otherwise if from a length of 2 fingers we subtract 3 finger lengths, the length of the fifth toes will come to be—1. This is absurd. So we have to infer that Susrutha was giving the step ladder like gradation of the tips of the second, third, fourth and fifth toes and not the individual lengths of the third, fourth and fifth toes.

Concluding remarks.—These somatometric measurements given by Susrutha 2,500 years ago are reasonably accurate approximations of the norm and we cannot imagine any scale of measurement more convenient than the relative finger scale devised and used by him. I am convinced from this and other instances that Susrutha's knowledge of Anatomy was precise and scientific and is worth a re-study by us for our benefit and advantage.

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Primitive Medicine at a Malabar Temple

BY

Dr. A. AIYAPPAN, M.A.

Superintendent, Government Museum, Madras.

Near the Mullukara railway station in the Cochin State of South India, there is a flat-topped hillock surmounted by a huge dolmen and covered with scrub jungle. A vertical wall of granite on one side of this hillock has a niche about 10 ft. high, hollowed in it, on the back wall of which, sculptured in medium relief, is a spirited figure of Siva as Dakshina-murti, the teacher, in an unusual pose. Mr. T. N. Ramachandran, now joint Director-General of Archaeology, New Delhi, is of opinion that, on iconographic grounds, the sculpture could be referred to a period between the sixth and eighth centuries A. D. The deity is here represented as teaching (or as turning away from) the two students who are at his feet. This interesting sculpture was accidentally discovered by some workmen who were collecting green manure for their master's field. When the bushes that covered the niche were cleared, they found there the rotten remains of a wooden doorway for a ruined passage towards the niche. Without knowing what special manifestation of the deity was represented by the sculpture, people began worshipping it, low caste men first, and then high caste. The power (sakti) of the deity was felt to be so great that very soon the unheard-of hamlet became an important pilgrim centre; the niche was roofed over and a long hall and a platform were built in front of it, and also several rest-houses for pilgrims of all castes hailing from the various parts of Malabar.

One speciality about this shrine is that, though it is in the possession of Nayars, even unapproachable castes are admitted into the temple and are allowed to make their offerings in person, without doing it through the mediation of a priest. The reason for this departure from the ordinary custom may be that low caste men first began the worship here. I understand from the manager of the temple that there is a move now to consult the astrologer through whom, it is hoped, the deity will reveal his identity.

The chief anthropological interest here centres about the offerings made at the shrine. People are engaged in the task of making new tradition by compounding old ones together. They have discovered that Dakshina-murti could be successfully invoked for driving away pestering spirits. Just in front of the shrine, under a sacred fig-tree (*Ficus religiosa*) one finds three stone images of spirits that made life rather difficult for a devotee who has them now placed under the control of this deity. To an unsophisticated Hindu, his temple and deity are more hope-giving than a hospital, when he

is confronted by disease. The largest number of offerings are for curative purposes. When only a limb is affected, figures of it in wood, granite, or pottery are offered; when the disease is more general, effigies of the entire body. Similar figures are offered of the farmers' livestock when they ail. Cradles are offered for getting children; figures of breasts by young women who have them under-developed. Figures of animal pests that destroy crops, *e.g.*, the boar, rat, etc., are also offered for protesting from them, the object of such offerings being only to draw the attention of the deity to the existence of such trouble.

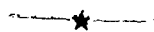
Similar offerings of animal figures are placed in the dolmen on the top of the hillock.

One of the strangest of offerings that I saw was a wooden tortoise said to have been made in a case of stomach-ache. It is not easy to see the connection between the tortoise and this particular malady, except that it may perhaps be based on the belief that abdominal pain is very often caused by tumours which the *vaidyas* (doctors) hold have a tortoise-like shape, and also are the cause of abortion and sterility in women.

All these offerings are placed in front of the sculptured image for a short while and then removed and heaped up by the side of the temple. Worshippers at the shrine make rice porridge and place it as *nivedyam* (food-offering) before the image.

Some of the richer people have had the figures of human feet carved on the granite slab flooring of the hall of the shrine as a mark of continued devotion.

The poorest pay a few pice to the manager of the temple to have a lamp lighted in their name before the image, an act of worship, very much like the offering of candles, in Roman Catholic churches.



Indo-British Medical Pioneers and Classics

(i) John Peter Wade, M.D. and His Works

BY

D. V. S. REDDY,

Professor of History of Medicine, Osmania Medical College, Hyderabad.

Books on history of Medicine, written by American and European Scholars, devote a few lines or a few paragraphs, to Ancient Hindu Medicine (Ayurveda) but generally omit to mention the great names and contributions from India to Tropical Medicine, in the 18th and 19th centuries. Still more surprising is the scant space allotted, in monographs on Tropical Medicine and in books on the history of Tropical Medicine, to the enumeration and assessment of the value of the large number of reports, researches, monographs and treatises, based on India, by European Physicians and Surgeons, and specially by that small but immortal band of British Medical Men serving on the establishments of the three Presidencies in India.

Among the pioneers in clinical investigation, in the 18th century, John Peter Wade, M.D., of the Bengal establishment, had great opportunities for making many interesting observations on sailors and soldiers in ships, in camps and hospitals, and arranging and publishing his data and opinions along with proofs for his statements. No records or other sources of information are available here to prepare a connected sketch of his life and career.

A few scattered autobiographical references in his books indicate that he had a long voyage to India, and a long residence of over 10 years in India, particularly in Bengal, that he knew well the Calcutta Hospitals, and that he was in charge of patients on board the East India Man "Houghton" on its homeward journey from Calcutta, touching at Madras, Cape of Good Hope etc.

Of the three works of Dr. Wade, printed and published by J. Murray, No. 32, Fleet Street, London, who specialised in the "Medical books, chiefly those upon Diseases of Seaman as well as those incident to Hot Climates and in Long Voyages", only two have been traced in Madras Medical College Library. The third book is advertised as follows in the Catalogue of J. Murray. "The Nature and Effects of Emetics, Purgatives, Mercurials, and Low diet, in Disorders of Bengal and familiar latitudes. By John Peter Wade, M.D., of the Honourable East India Company's Bengal establishment. 8 vo. 6s".

Wade's First Book.

"Select evidence of a successful method of treating Fever and Dysentery in Bengal by John Peter Wade, M.D., of the Honourable East India Company's Bengal Establishment. 8 vo. 6s.....Murray, Fleet Street, London, 1791".

Dedicated to Warren Hastings with the hope that the influence of such a name would attract the attention of the Faculty in India to the new method.

In a short Preface, the author explains that the cases described occurred in the General Hospital at Chunar, a very unhealthy station, with River Ganges on one side and the hills on the other side, in the Province of Benares. After describing the seasonal variations of the climate, the author gives the following information:—....."The hospital was a spacious mosque, raised considerably above the level of the ground, and built in a very open and elevated situation. From the nature of the edifice, it was not possible to prevent a very free ventilation at all seasons"....."All the patients afflicted with Fevers or Dysentery must be understood to have been on low diet, and without an allowance of wine, unless where the contrary is noticed"....."The Hour of visiting the hospital was generally between six and seven in the morning, or about sun-rise. From the commencement of the year 1788, the patients principally consisted of invalids"....."In general, each case was written at the bed of the patient, in the form in which it is now printed. Some of them, however, were completed on recollection in the closet. All, it is hoped, are accurate"....."The periods of the moon were not marked during the treatment of the cases; but were afterwards directed to be added from a London almanack. It is to be presumed that these cases may prove a body of evidence, by which the system of lunar influence in Fevers may be judged".

Medicines principally used in the cases, were the following :—

1. Solution of Salts, either Glauber or bitter salts.
2. Febrifuge saline mixture, or solution of tartar emetic.
3. Infusion of sena.
4. Caster-oil.
5. Purging pills.
6. Antimonial anodyne draught.
7. Anodyne draught.
8. Cut Celloyjee, a bitter nut, esteemed by the natives, as a medicine of great efficacy in intermittents.

Wade's Second and Most Important Publication

"Disorders of Seamen and Soldiers in Bengal: A paper on the prevention and treatment of.....Presented to the Honourable Court of East India Directors, in the year 1791. 8 vo. 6s.....Murray, Fleet Street, London, 1793".

In the Dedication, dated September, 1792 : a list of Directors is given and followed by the passage:—

"Honourable Sirs,

Permit me to entreat your favourable acceptance of the following pages, and to express an humble hope, that they may be an additional, though inconsiderable, proof of the attention of the Medical Department to the interest of the service".

The next page gives the Contents of the book which run as follows:—

Introduction.—

Prevention of disorders.—Contagion, Maisma, Liquor, Provisions, Cleanliness, Exercise, Ventilation, Intestinal Evacuations, Recapitulation.

Fevers.—Remedies, Venefaction, Sweating, Vomiting, Purging or the Cure.

Dysentery.—Liver : Symptoms, Treatment, Letter from Dr. Paisley.

In a short introduction, the author states the reasons that prompted him to publish his book. The information procured from books, regarding the health and diseases of Europeans in Bengal, is neither ample nor satisfactory. It was intended to enlighten the Company medical servants, previous to the departure of the ship for the ensuing season. Another very interesting feature of the books is the emphasis laid on prevention. "The subject of prevention has a natural title to precedence. Under this head, a few observations will be suggested on the subjects of contagion, marsh effluvia, excesses, drink, diet, cleanliness, exercises, ventilation, exposure to open air, posture, recumbent and erect : and intestinal evacuations; with a concise recapitulation of the whole. Many of the remarks under the article of prevention will necessarily prove applicable to the treatment also".

The author closes his treatise with remarks from an authority on the subject, Dr. Paisley, "who was as much respected as a man and a physician in India, during his useful life, as any medical man, perhaps, in any part of the world. Doctor Paisley, Surgeon-General at Madras, enjoyed such an extensive fame, that he was consulted and even visited by sick Europeans from every part of India. Medical practice in that country is much indebted

to his judgment, sagacity, and original practice, for the most important improvements. The following is a letter, which he wrote to a young gentleman of the Bengal Medical Establishment, who has since risen to eminence as a practitioner in Calcutta". (The letter is omitted from this note).

A Writer of Great Originality and Learning

The wide learning of the writer is reflected throughout his book. He refers to "authors" and to "authors but not of the first eminence". He mentions Tissot, Doctor Glass, Sir William Fordice, Doctor Moore, Dr. Duncan, etc. He also quotes Dr. Cullen extensively. Among the medical writers on Tropical diseases, he refers to the authority of Lind and the doctrines of Dr. Brown published in Calcutta newspapers in the years 1788-89 and to Dr. Robertson's "late publications", and to the observations of Dr. Paisley of Madras. The originality and independent thinking of the author can be appreciated by the perusal of the following sentences:—"Authors who have written large treatises on the disease of warm climate, from the warm climate of a chimney corner in Europe"..... "The remarks that may be made on the treatment of the most frequent disorders in Bengal will contain few of opinions perhaps but several modes of practice of which the faculty are less generally appraised.....Some of them must necessarily appear of a nature the most extraordinary to European judges as well as to most medical gentlemen in India". Though a fearless thinker and writer, he was aware of the actual situation in Europe. "To oppose or even to controvert, the doctrines and practice of the most eminent writers, teachers, practitioners of the present age, is a service of danger, in which no man whose livelihood depends on the extent of his practice and consequently on the recommendation and protection of his senior brothers, will venture to engage". Then he goes on to praise "the happy predicament of the Faculty in Bengal, which renders their income independent of the opinions of their brethren or of the public at large, allows them a liberality of thinking and talking on professional subjects and gives scope to the exertions of their own judgment, in deviations from common practice. With such advantages in favour of medical gentlemen in that country, it is very surprising that more improvements have not originated amongst them". He adds that "Dr. Paisley at Madras was probably the first who ventured to confide in his own observations and to deviate from the destructive practice of his times".

The entire book deserves to be reprinted as one of the classics on Tropical Medicine. Will India do it or Britain do it?



Nursing in Madras in XIX Century

(Extracts from Reports of General Hospital, Madras for 1895).

In 1871, the question of improving the nursing at the General Hospital was discussed; for, at that time, women after a short course of instruction in midwifery at the Hospital for the Women, were passed on to this hospital for three months' further training. Dr. Chipperfield remarks in his very interesting memorandum on the subject: "There is some difficulty in making these women understand that they have much more to do than to pass on, to the inferior hospital servants, the instructions that are given concerning patients".

The Inspector-General had then given orders that "the next batch of nurse pupils is to be composed of women who have had no previous nursing experience of any kind". Dr. Chipperfield makes a strong point of an experienced *Working English* nurse being required in addition to a superintendent matron and says, "for it is very important to keep prominently in mind that it is example more than precept which is required"; he further recommends that 12 pupils might be under training at first, and that, at the end of eighteen months or two years, 6 pupils might be retained as Hospital nurses and 6 sent out to gain a livelihood by the exercise of their calling in private houses; then, 12 more pupils may be taken under tuition "for the experience the 6 hospital nurses will have obtained will render them efficient aids in tuition". "At the end of other eighteen months or two years, 6 more of these women might be employed as hospital nurses, and this would complete the hospital establishment, for 12 nurses ought to form an efficient *Nursing Staff* for the General Hospital; the average daily number of in-patients at that time being 140. Subsequently, as many pupils as might be required could be taught and for them provision might be made to fill up any vacancies which might occur in the hospital staff. Thus, a complete training school might be established capable of considerable ulterior development, and then perhaps, the time might arrive for the inauguration of *nurses' home* capable of furnishing, as occasion might arise, competent matrons and nurses for the various hospitals throughout the Madras Presidency and sufficient to meet all the demands to be made by the general public". Dr. J. L. Paul, on the same subject and under date of 3rd October 1871 writes, as follows:—"A Superintendent of nurses would be an undoubted boon to the nurse establishment of the General Hospital"; "she would infuse into it what it wants—life". Dr. Paul also urges that "it is example, not precept", that we require: the nurses would then "naturally and gradually fall into the way of putting their own hands to their own work instead of" remaining motionless, automatus and mute spectators or passing on the directions they receive "from the medical officers to the under-servants of the hospitals". He further points out the lack example and the necessity of a lady trained in England being engaged as matron, as

no amount of theoretical teaching will ever make a nurse; "the very essence of her profession is action, and in action, the Eurasian is wanting". Dr. Paul also states "the wards too would require some change to make them suitable for nurses, as each ward or suite of wards, ought to have a small room commanding it, set apart for the nurses' use". His nursing scheme is as follows:—

"A permanent establishment of 12 nurses (6 pupils and 6 passed nurses) would secure good "nursing and a constant stream of educated nurses turned out every six months".

These *Utopian* schemes were ventilated and discussed just a quarter of a century ago; and had Dr. Chipperfield's scheme been then introduced, there is no doubt nursing in the General Hospital, Madras, would be second to none even in the best hospitals of Europe or America.

It will be observed that Dr. Chipperfield recommends a staff of 12 nurses exclusive of pupils, the hospital then containing 250 beds, and the average daily number of in-patients being 140.

When the first matron superintendent, Miss Martyr, accompanied by a head nurse, Miss Pierpoint from England, joined the staff of the General Hospital in October 1874, there were only 6 women undergoing training for short periods from three to six months but soon after a permanent establishment was sanctioned with 6 first grade trained nurses and 6 second grade or pupil nurses; and in 1877, when Miss Martyr resigned, there were 5 first grade nurses and 6 second grade pupils, a great difficulty being experienced in obtaining the services of trained women. Miss Pierpoint, head nurse, was then appointed matron superintendent and Mrs. Anderson was head nurse. Miss Pierpoint remained as matron superintendent for one year and eight months, and on her resignation in December 1878, she left 6 first-grade or pupil nurses. During this time, the nurses were trained practically by the head nurse and had lectures from the matron superintendent and the Senior Apothecary twice weekly and a lecture from the Resident Medical Officer every Saturday.

Mrs. Anderson, the former head nurse, was appointed acting Matron Superintendent on Miss Pierpoint's resignation and matron superintendent two years afterwards, which post she held five years, leaving the service in July, 1885. The staff of trained nurses at that time had been increased to 9, the pupils remaining 6, the same number as previously. Mrs. Anderson worked without a head nurse, and the classes for nurses as well as their practical training was in the hands of the matron superintendent and senior apothecary, the Resident Medical Officer, holding weekly classes.

Both Miss Pierpoint and Mrs. Anderson found it difficult to get suitable women to work as nurses, and there were no distinctions between the duties or responsibilities of trained or untrained women.

From July 1885 to September 1887, two Madras trained nurses Mrs. McIntyre and Miss Coady—acted as matron superintendents, the former for nearly two years and the later for five months. From 1874 to 1887, the number of women entertained was 164, the number who left 158, there having been 6 on the books when the first matron superintendent took charge. This left 12 employed in September 1887.

Mrs. McIntyre having died in May, 1887, Miss Coady acted as matron superintendent until September 1887, when I (Nisbet) joined the staff, finding 11 nurses holding certificates and 4 pupil nurses. The then Acting Senior Medical Officer, Dr. Sibthorpe requested me to give him my opinion on the nursing staff of the hospital. Under date 31st October 1887, I wrote; "At present the nursing staff entertained consists of 9 first-grade nurses and 6 second-grade nurses are principally untrained and uncertificated persons. These of the first-grade now entertained are satisfactory in the performance of their duties, and with one exception, capable of supervising nurse pupils in their ward duties. The second-grade nurses at present entertained are a long way from being fit for promotion, and in more than one case, I fear never will be, and through lack of experience or natural incapacity are totally unfit for the grave and responsible charge of the sick without the close supervision of an experienced and trustworthy nurse. The system of giving a person (so-called nurse) of a few weeks or months' hospital experience (which is unavoidable under present arrangements) entire nursing charge from 40 to 50 patients, either on day or on night, is subversive to order or discipline, as neither can be reasonably expected or enforced. A higher rate of pay and distinctions in dress, with an opening for promotion, would act beneficially on the trained nurses". In December 1889, when Dr. Sibthorpe was again acting as senior medical officer, the subject of improving the nursing was re-opened and a revised scheme for the nursing of the General Hospital submitted through the then Surgeon-General to Government, the result being that in 1891, a radical change was effected, the number of trained nurses being increased and graded differently, pay being also raised.

The staff then sanctioned being—1 Head nurse. 1 Assistant head nurse. 4 First-grade nurses. 6 Second-grade nurses. 6 Probationers.

The five nurses (senior) were put in charge of nursing blocks on permanent day duty, the remainder exchanging day and night duty fortnightly instead of weekly as previously, when the whole staff of nurses changed every Monday, leaving that day as a *Dies Non*, with regard to nurses' attendance on patients as it took several hours for nurses to hand over everything pertaining to the wards—linen, instrument & c.,—and during the week, it was difficult to fix delinquencies on the offenders as they were apt to throw the blame on the nurse who had been the previous week in charge. The nurses strongly objected to this prolongation of night duty, as they also

did to wearing caps and carrying scissors, and forceps. They were also much mortified in the spirit at having to lay aside what they called their jewels consisting of bangles, necklets, and large earrings.

In November 1892, I resigned my appointment on my marriage; Miss Hammans joined the staff as Matron Superintendent. The principal change made by her was a still longer tour of night duty, the time being increased to one month. I had frequently recommended this change, but was overruled by the opinion of the Resident Medical Officer, who was not quite satisfied as to how it would act on the health of nurses in this climate. I would still further like to see the time extended to three months as in English hospitals, as the night nurses have their time quite free for rest and recreation during the day. I do not consider probationers under six months' training should be put on night duty, and three months out of their year's training would be ample experience in night work. Miss Hammans resigned on her marriage in January 1894, having held the appointment of matron superintendent for one year and three months. I rejoined on the 1st February, 1894. Though the staff of nurses had been increased in twenty years from 6 to 12, still the progress made in training nurses to an efficient standard was abnormally slow. This was due almost entirely to the fact that average number of patients increased from 140 to 252. The trained nurses were consequently never in sufficient number to allow of their taking entire charge of wards and having probationers working under them, as they do in English hospitals, where a ward of thirty beds is a unit in itself, with a head nurse in supreme authority with a trained day staff nurse and also a trained night staff nurse, the probationers being an irregular quantity and partly due to the fact that women cannot be got to remain in the nursing service for any lengthy period. From 1874 to 1894, there were 559 women entertained as nurses or probationers; 244 left the hospital during that time. The exact number of probationers who obtained certificates cannot be ascertained, as some of the old records were lost or destroyed in 1893. From September 1887 to November 1894 (seven years), 16 probationers obtained certificates in the General Hospital, of these 8 married and left the service, 2 died, 2 are still employed in the hospital, 1 is attached to the private nursing institution, 1 is doing independent work as a private nurse, and the remaining 2 have been lost sight of.

In 1894, there were 6 temporary second-grade nurses sanctioned. This brought the staff of trained up to 18, the probationers numbering 6 with also an addition of 2 lady probationers paying their own expenses, but still the same difficulty prevailed in getting well-trained nurses to join the hospital staff and aid the practical training of pupils, for the Eurasian nurses who join seem wanting in ambition and are not capable of exercising authority over juniors, preferring to treat them as personal friends and companions and shielding them from the consequence of their delinquencies and ignorance at the cost of the well-being of patients.

On the 1st January 1895, the hospital contained 375 beds. There were 16 trained nurses and 6 probationers on the books. Thirty trained nurses and 41 probationers in all were employed during the year 1895. Seventeen trained nurses and 22 probationers left the service, some to be married and some for better situations, but the greater number proved unsuitable for the work.

There was an increase of 1 head nurse and 1 assistant head nurse sanctioned after the amalgamation of the Women and Children Hospital with the General Hospital and an increase allowed in the number of probationers, as a temporary measure pending the sanction of a scheme for the re-organisation of the nursing staff submitted by the Surgeon-General to the Government. During 1895, 4 probationers received certificates, 2 of them being well educated English gentlewomen. A trained English nurse also joined the staff as second-grade nurse during the year, and is now doing excellent work as head nurse.

The nursing staff at this date, 1st January 1896, is as follows: 2 Head nurses. 2 Assistant head nurses. 4 First grade nurses. 9 Second grade nurses, there being three vacancies in the second grade.

There are also 15 probationers, and I regret to say that, with few exceptions, the Eurasian probationers are not of a superior class to those who joined in 1887, though the pay and prospects are much better. The women of the country find no pleasure in nursing work and escape from it on the first opportunity, only taking it up when forced to do so through adverse circumstances, but a distinct advance has been made in the work done by nurses and ward attendants as the Senior Medical Officer issued an order that toties were not to attend patients under any pretext. The private nurses, who are permitted to reside in the hospital under my direction, have worked successfully during the year, the receipts having exceeded the expenditure by Rs. 327-9-3.

General Hospital,
MADRAS,
10th January, 1896.

(Sd.) M. A. NISBET,

Matron Superintendent.

Nursing Department in 1896.—The Matron Superintendent reports as follows: "On the 1st January 1896 there were 17 trained Nurses. Eight trained Nurses joined during the year, 10 probationers received their certificates as Nurses and were promoted to higher grades. There were 22 applications from trained Nurses during the year 1896; 17 trained Nurses left during the year. This leaves a staff of 18 trained Nurses to begin the year 1897.

"The chief changes during the year 1896 was the appointment of an Assistant Matron. Two head Nurses left the service and 2 senior Nurses have been on sick leave during the greater part of the year. The Assistant Matron joined the service in March, the duties allotted to her being

principally house-keeping for the Nurses and the training of Probationers. She has had to be closely directed by me in her work, as she was unaccustomed to the rules and regulations of a large Government institution, but is most exemplary in the discharge of her duties. The nursing staff was very much crippled by the loss of two of the best nurses who left to be married and also by the ill-health of two well-trained experienced Nurses, one of them having been over fifteen years on the Nursing establishment. One of the first-grade Nurses was promoted to be head Nurse, as the assistant Head Nurses, though very excellent as surgical Nurses, are not fitted for the post of head Nurse. It is a noteworthy fact that 10 of the 17 trained nurses, who left the service during the year, had been trained in other hospitals and left this after a short trial, as they found the responsibilities with reference to furniture, instruments, crockery etc., too heavy when combined with their nursing duties.

"There have been numerous applications from other hospitals for trained Nurses as Matrons or head Nurses notably from Colombo, Ootacamund and Calcutta. Owing to the large increase of patients since the amalgamation of the Women and Children's Hospital, with the General Hospital and the number of untrained subordinates, which were unavoidable, my work and responsibilities were heavier and all engrossing than ever".

—*Golden Jubilee of foundation of School for Nurses.*

Training School for Nurses.—In G. O. No. 191, Public, Dated 26th February 1897, the constitution of the school was settled and the school has been working on the lines therein laid down since 1st April. The Matron Superintendent submits the following report on the General Hospital Training School for Nurses for the year 1897 :

"On the 1st January 1897, there were 12 probationers in the General Hospital Training School. During the year, 20 joined and 14 left the service; 7 received certificates and were promoted to third grade. Applicants for training during the year 1897 numbered 102, but the proportion of and idates suitable for the work was very small. Eleven Probationers are still on the books.

"Classes according to the curriculum have been held throughout the year. No paying probationers have as yet joined as separate cubicle can not be given them until the Station Hospital is annexed. (Part of G. H. who then Military Hospital.)

"The better class of Eurasians seems to be awaking to the fact that the Hospital nursing is a suitable employment for their unmarried daughters. This is due, no doubt, to the fact the three English ladies who joined the hospital about three years ago have done such excellent work and set so good an example in every way to probationers."

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Professor Sigerist's Visit to Madras in 1944

BY

D. V. SUBBA REDDY,

*Professor of History of Medicine and Principal, Gandhi Medical College,
Bashirbagh, Hyderabad.*

One day, early in November 1944, I was delighted to hear from Professor Sigerist, that he had come to India as one of the foreign experts to assist and advise the Bhore Committee, appointed by the Government of India, to survey the existing conditions, in India with regard to Health, Medical Relief and Medical Education, and to make suggestions and recommendations for improving the Health of the Nation. He mentioned the dates of his visit to Madras and desired that I should try to be in Madras at that time. In spite of war-time restrictions and difficulties in getting permission to leave the station, at short notice, I managed to make the necessary arrangements and came to the Waltair platform to board the Mail Train from Calcutta to Madras.

In those days, the trains were either late or overcrowded. The train that steamed in came in time and had something of a look of distinction-- a special carriage or a saloon attached. Adjoining it was another carriage containing officials. I walked up to the compartment nearest the special carriage, and made discrete enquiries. One of the officials of the Health Department of the Government of India, whispered that foreign experts, who are the guests of the Government of India, were travelling in that saloon.

My heart began to beat faster, as I realised that it was an extremely lucky coincidence that my old correspondent, friend, guide and Guru, Professor Sigerist, was at that very moment, in that luxurious coach, though I could not immediately see him, face to face and exchange greetings.

My figure and dress were not such as to impress the Delhi officials. However, I asked the Assistant Secretary or Manager of Health Secretariat, whether Professor Sigerist was one of the party travelling in that train. Instead of officially refusing to talk or saying curtly, "I do not know", this gentleman was very courteous, and informed me that Professor Sigerist was one of the distinguished group.

I became a little confident, gave him my visiting card and requested him to pass it on to Dr. Sigerist, assuring him, that the Professor and myself were old correspondents and that I had been specially asked by him to meet him. The official was, at first, a bit puzzled, hesitated but watching

my earnest talk and looks, he later consented to inform Dr. Sigerist, that I, (D. V. Subba Reddy) was travelling by the same train and wished to meet him. At the next station, Anakapalli, I learnt that Professor Sigerist was contacted and informed about my request. The next big station was Tuni, where the train stops for 10 to 15 minutes, to enable the passengers to have their lunch or refreshments. As soon as the train stopped, I jumped down to the platform and went near the special carriage and was trying to contact the Health Secretariat official.

Suddenly, I saw in front of me, a European, with a large head, bright piercing eyes, walking up to me, extending his hand and saying "Dr. Reddy". My joy knew no bounds. I could not speak for a while. I was looking at this great man in flesh and blood, standing alone, by the side of the Indian villagers, on Tuni platform. Then, noticing my silence and admiration, the Professor started talking to me in a most encouraging manner. "Dr. Reddy, we have been in correspondence for many years. I am glad we have met now". I was still undecided how to begin the conversation with him, whom I had admired from afar and adored as my Guru. I had intended to start with an apology for disturbing him in the train, but after seeing his radiant face, wreathed in smiles and his laughing eyes, and listening to his affectionate tone and words, there was no further need for such formal phrases. I could only mumble that I was happy to see him and talk to him, after many years of correspondence, during which I was the recipient of many gifts and acts of kindness. Time passed on quickly and the train was about to move.

Observing my reluctance to leave him so soon, as if reading my mind, Professor Sigerist, asked me to come into the special carriage, into the common drawing room of the saloon. I was a bit embarrassed and even afraid, being then only an "Assistant Surgeon", in Government service, with very restricted privileges and always liable to be warned or censured for doing anything without the previous permission of the Surgeon-General or the Government.

But Professor Sigerist was my ideal, and almost my Guru. How could I disobey him or displease him, while he was persuading me to get into his carriage? I was myself reluctant to miss an opportunity of spending some time in his company, listening to him, asking some questions and learning many things, first hand from his vast knowledge and experience. I took courage and climbed into the compartment, just before the train moved.

I found myself in a small square room with chairs around a large central table. At first, we two alone were the sole occupants of the room. By that time, I had recovered from the first excitement and could think calmly and speak freely to my heart's content. I made many enquiries about Leipzig and Sudhoff, Yale and Fulton.

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I told Professor Sigerist about the historical studies I had recently undertaken, as well as about the articles and books in preparation, and the difficulty of collecting, not only references to sources of information which lie hidden or scattered all over the world, but also the delay and obstacles for getting replies, extracts or photostats of such sources. He listened patiently, making a suggestion here and there. He spoke very appreciatively of my amateur or youthful contributions to the "Bulletin". He told me about the Oriental Manuscript collection in Johns Hopkins and invited me to Baltimore.

As an editor, in words almost apologetic in tone and paternal in their affection, he desired me to try and give a fuller lists of references and bibliography at the end of my articles. He fully sympathised with me, when I explained that I was trying to follow the rules and conventions of scientific papers and that it was more a matter of race, against time as well as lack of library facilities which forced me to omit what I had otherwise intended to furnish. He enquired how far I had completed my book on "Mouryan Medicine" and expressed his eagerness to read it and write his long promised Introduction.

I do not know whether he kept a diary and made any entries of the happenings or conversations on the train on that day.

Time passed on very quickly—probably the happiest hour of my life, sitting at the feet of the Master, deriving not only encouragement and inspiration, but also undergoing physical and mental transmutation, as "Tapaswies" and "Bhaktas" are said to have undergone, in the presence of the Omniscient Being.....

At that stage, one by one, other members of the party, in the special saloon, who were taking their mid-day "siesta" started walking into the drawing room, unaware of the little intruder. I was feeling a bit awkward and nervous. I felt like jumping out into the fields, or flying into air. Dr. Sigerist was not aware or conscious of my feelings and sensations; but appeared to take pleasure in introducing me, a humble and distant disciple of his, to the distinguished experts and advisers, as they sauntered into the room. I had a suspicion that some of them did not expect or relish the presence of a stranger in their private and aristocratic drawing room, on the train, and that they tolerated me or suffered my presence, in their midst, only out of consideration and respect for Dr. Sigerist.

The party consisted of Dr. J. H. L. Cumpston, Director-General of Health, Commonwealth of Australia, Sir Weldon Dalrymple-champneys, Deputy Chief Medical Officer, Ministry of Health in U. K., Professor J. A. Ryle, Professor of Social Medicine, Oxford University, Dr. Janet, M. Vaughan, Member of the Goodenough Committee for Medical Schools

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in the U. K., Dr. J. W. Mountain, Medical Director in the United States Public Service and Professor H. E. Sigerist, Professor and Director, Institute of History of Medicine, Johns Hopkins University, Baltimore. Leut. Colonel C. A. Bozman, I.M.S., Additional Public Health Commissioner, Government of India was accompanying the party in their brief tour of Bengal, Orissa, Madras and Bombay.

The American and the British officials were courteous but formal and laconic. The Australian official was quite different, both in his figure; bearing and speech. He was a big stout man with an equally big heart, and the tone of greetings and his words are still ringing in my ears. When introduced to me, he made a bow and said, "I salute you, Sir, in the name of Sushruta". I did not fully catch the sounds and pronunciation, and therefore looked puzzled. He repeated his salutation. I was pleasantly surprised and expressed appreciation of his wide interests. "I am delighted that the youngest nation (Australia) knows and honours the most celebrated surgical teacher of ancient India". We had a very pleasant conversation and particularly about Dr. Lee, then in Australia and his studies on physiology of hot climates.

It was time for tea for the distinguished guests. Col. Bozman was acting as host on behalf of the Government of India. It was a most thrilling experience for me, an unknown stranger, as a guest at the Imperial table. The conversation was quite pleasant and ranged over various topics of medical and non-medical interest. I was there in the role of a listener but I wished to celebrate the great occasion and requested them all to sign their names on a page in my pocket note-book, as a memento or a souvenir of my unusual good fortune.

After the evening tea, the party dispersed to their respective compartments. Though I would have sat there, talking to Professor Sigerist all the evening, I felt that I should not unduly tax the Professor's kindness. He was a foreign savant travelling in India. He would like to see the country, get his own impressions or think over the scenes and scenery observed along the Railway line, or rest for a while, to compose his thoughts or type his letters. Taking his permission to meet him next morning at Central Station at Madras, I got down from the carriage at Rajahmundry Station, in time to enable him to have a good view of the ancient historical town and from the bridge across the River Godavari, admire the islands, the country boats, and the distant landscape of low hills against an evening sky of variegated colours—as the sun was moving fast to take a dip in the sacred waters of Godavari.

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Next morning, as soon as the Mail stopped at Central Station, Madras, I rushed towards his saloon. There was a large gathering of officials

to receive the distinguished visitors from abroad. Introductions and usual courtesies of reception were going on. I managed to thread my way to Professor Sigerist. He told me that he was staying as the guest of Mr. Austin, I.C.S., then Advisor to the Government of Madras, (and Incharge of Health and Medicine) and also gave me an idea of his arrangements for the next day, and desired me to meet him in the afternoon, at the Madras Medical College, which the team was visiting. According to his wishes, I awaited the arrival of the visitors. As the party were received and conducted to the Pathology Department by the Principal, Dr. B. T. Krishnan and Col. MacRobert, Superintendent of the General Hospital, I also joined the group.

On seeing me Professor Sigerist slowed down his pace and I rushed up to him. We walked through the Verandahs and Museums, chatting about various things, the college, departments, buildings and their history, etc. I was feeling a bit nervous. I could see or read some annoyance on the faces of the local dignitaries, who looked upon my presence there and my conversation with the Professor, as intrusion or presumption. The Professor, however, was oblivious to the local atmosphere. He was asking questions and recounting his impressions. One incident is still fresh in my memory. When he saw the large picture of pioneer in pathology, Virchow in the Pathology Museum, he stopped there, while other members of his party were walking quickly. He told the little crowd of followers around him, what a great teacher and fighter for science Virchow was and described graphically the commemoration celebrations he witnessed in honour of the great scientist and patriot in Germany. It was a delightful and inspiring moment for all assembled there.

At the end of the visit, to the College, the party went to see other institutions in the City. I may mention here that he had only one occasion in Madras to address a public meeting. The meeting was held in Madras Medical College. Dr. A. L. Mudaliar, Vice-Chancellor of Madras University presided. There was a large and distinguished gathering of the staff of both the medical colleges and other medical men in the city of Madras. The subject of the lecture was "Some Trends in Medical Education". Professor Sigerist read his address. His pronunciation, accent and fluency was such that no one who heard him would have believed that his mother tongue was not English. The ideas and thoughts he presented were so novel and lofty that the audience felt, as if they were taken, on an aeroplane flight, surveying medical education all over the world.

For many years after that meeting, many of my learned friends of the Medical Faculty used to refer to that meeting and the tremendous impression Professor Sigerist made in Madras. My good old friend late Dr. S. K. Sundaram used to embarrass me by calling me Indian Sigerist—our Sigerist—a compliment and honour, which I least deserve.

After the meeting, I had a few minutes of conversation, at the end of which I was asked by the Professor to meet him next afternoon, at 2 p.m. in the Maternity Hospital, Egmore, Madras, which the party was scheduled to visit. The Professor kindly promised to reserve a few hours entirely to me—to enable me to take the Professor to the museums and libraries and to sit together in a quiet place and exchange our ideas a bit more intimately than in the hurry or buzzle of conducted tours around the hospitals, by government officials.

* * *

Next day, I went to the Maternity Hospital, and joined the procession, as visitors were walking through the corridors of the first floor of the main building. The moment he noticed my presence, the Professor greeted me joyfully and started introducing me to the Superintendent of the Hospital and the Surgeon-General and other high officials, telling them about me and my work in History of Medicine. I was a bit afraid, lest I should become the target of jealous people.

After walking through the various sections of the hospital, the party reached the portico, where according to previous understanding, the members of the visiting team dispersed to attend to their private and personal engagements.

The Professor parted from his colleagues and coming to me enquired “where shall we go now?” He had arranged everything and a Government car was waiting for us.

It was quite natural that from the Hospital, we drove to the next compound, to see the Museum, specially the Archeological Galleries, containing Buddhistic Sculptures of Amaravati and other famous centres of early Christian era and polished Stone and Metal images of the Hindu Period, and Plaster of Paris replicas of collections in other Indian Museums. The time at our disposal was so short and the exhibits to be seen were so numerous, that we had literally to run through the various galleries, drawing his attention to only some extraordinary beautiful or significant exhibits. His mind and his eye seemed to devour all that he saw.

At the conclusion of the visit to the Museum, I selected a set of publications and presented them to him. He hesitated to accept. I told him that it was the least that I could do, as a token of my gratitude to him, for the reprints and books he sent me, as present during the past few years. He accepted the books graciously, thanked me profusely and appeared quite

happy. Then, we proceeded to the next building and entered Connemara Public Library, where I introduced the Professor to Mr. Janardanam Naidu, the Librarian.

Professor Sigerist admired the architecture, and the arrangement of the Library and congratulated Madras on having such fine institutions.

From Egmore, we cut across Mount Road and then through the Marina, to see the University Library. It looked to me that he was very much fascinated, both with the beauty of the Marina and the location of and the facilities in, the Madras University Library. I had intended to take him also to the Oriental Library, with vast collections of Manuscripts, as he would have been delighted to handle and read the Sanskrit Manuscripts, but we had little time left.

* * *

Driving through another road, I brought him ultimately to No. 18 Conran Smith Road, Gopalapuram, residence of my cousin, Dr. Govinda Reddy, then Professor of Pathology and Vice-Principal, Madras Medical College. Dr. Govinda Reddy had met him the previous day in Madras Medical College and had taken him round his department. This day, we sat in the drawing room of Dr. Govinda Reddy, who introduced his children Miss Bharati, Miss Sarada and Mr. Venkataram to the Professor. We formed a small pleasant party. The Professor made many enquiries, and was delighted with the atmosphere of a Hindu home. He told us about his home, his family and children and invited Dr. Govinda Reddy's family to visit him. We served some Indian refreshments, which he tasted and relished. It is this picture of Professor Sigerist, sitting in our little drawing room, surrounded by children, that is permanently stamped on my memory.

A few minutes before 6 O'clock we looked at each other intensely, as he had to leave for another engagement at 6 p.m. I accompanied him up to the gate, put him in the Government car and wished him good-bye and farewell. He expressed a hope that we would meet again, very soon, somewhere in Europe or America or India. I also hoped and prayed that I should have an opportunity to see him, either in his home surroundings in the midst of his family circle, or in India.

* * *

In spite of all the memorable happenings and experiences, of that afternoon, I have always felt a pang of sorrow, whenever I think of that day. I had planned everything but I did not expect Fortune or Nature would suddenly turn against me. Though it was November, the monsoon

was over. But unfortunately, the afternoon which was a bright sunny day to start with, suddenly became cloudy and as we drove in the car from place to place, the clouds became thickler and there was a great downpour of rain, continuously for an hour. The Professor did not carry his camera on that day and I had none, myself. I did not take even an umbrella, which I was accustomed to carry.

I had thought of going to a photographic studio, with the Professor, to take a photograph, as a souvenir. But, I could not even dare to step out of the car into any studio on account of the heavy rain. I have therefore, felt that fate cheated me of a rare opportunity of taking a photograph of our visits that afternoon. The Professor remembered this cherished desire of mine and sent me his photographs, on different occasions, but none of them could be substitutes or compensate for the one I dreamed of having, either in Madras or in Europe, with the Master and the disciple together.

Now, I know and feel poignantly, that I can never have such a photo, for, Professor Sigerist, My Master, has joined a company of the Immortals, the great doctors, whose biographies he wrote for the benefit of Medicine and Mankind.



Appreciation from International Journals

The First Chair for the History of Medicine in India.

“This year 1956 may be taken as the beginning of a new era in the History of Medicine in India. The Government of India and the Indian Parliament have completed legislation for the starting of the All India Medical Institute suggested by the Bhoré Committee, nearly a decade ago. At present, however, there is no provision made for a chair of History of Medicine, in the Institute at Delhi, though a department of History of Medicine was one of the divisions included in the recommendations of Mudaliar Committee. It is, however, some consolation that, India with its great heritage of medical tradition and literature, will have, at least, one centre for medico-historical teaching and research in History of Medicine. The youngest of the Indian States, the two-year-old Andhra state, has sanctioned the creation of a Department of History of Medicine with full-time chair and has appointed Dr. D. V. Subba Reddy, as Professor of History of Medicine, to impart instruction in the medical colleges and to initiate investigation and research on up-to-date scientific lines”.

*Extract from Archives Internationales D'Histoire Des Sciences,
(Financed by Unesco) No. 36 (July-September, 1956), Page 305.*

India's Contribution to the History of Medicine.

“By the creation of a new chair and a Journal—India has recognized, most opportunely, the importance of a historical perspective in medicine. The medical Education Conference, set up by the Government of India, which met in Delhi in November 1955, acted wisely in recommending that History of Medicine should be included in the medical curriculum. This decision was made for several reasons. Not only has the subject special cultural and humanistic value, but also, as the report of the Conference states, “After studying the history of medicine, the future medical practitioner will be better equipped for his profession under conditions prevailing in this country. Our people think and talk about their illnesses in terms of ideas and expressions based largely on our ancient systems of medicine. How can a physician understand fully what his patient describes as his symptoms unless he has an acquaintance with these ideas and ways of giving expression to them?”

This very appropriate argument in favour of the study of medical history may not apply in every country, but it is certainly valid for India.

Reprinted from Nature, Vol. 178, pp. 1101-1102, Nov. 17, 1956.



Medical Relief and Practitioners in Andhra Pradesh in Medieval Hindu Period

I. KAKATIYA EMPIRE

One of the earliest inscriptions of medical interest and of a definite date in Andhra Pradesh is the "Malkapuram Inscription" of Queen Rudramamba, unearthed and published by the late Jayanti Ramiah Pantulu, in the Journal of the Andhra Historical Research Society, Vol. IV, Part III & IV on pages 147-162. This inscription dated Saka 1189 (A.D. 1267) is engraved on three sides of a huge stone pillar, 14' 7" × 2' 10", standing in front of the ruined temple of Visveswara in Malkapuram, Guntur Taluk. It is a long inscription of 182 lines, written in Sanskrit prose, but in Telugu Script. This inscription, refers to a "Prasutyarogyashala" (Maternity Health Centre or a Maternity and Health Centre), to a College and hostel for training of students and to a physician.

II. REDDY KINGDOMS

After the fall of the Kakatiya Empire, the Reddy Kings and the Nayaka Chiefs who established independent kingdoms patronised Ayurvedic Medicine and Physicians. The inscriptions of this period mention a family of Ayurvedic physicians, known as "Parahita" family.

There is an interesting legend relating to how this family acquired this title "Parahita", which means "doing good to others". A serpent (eating) sticking up between the jaws, was relieved of its pain by a member of this family, who took pity on the snake and removed the foreign body. The serpent is said to have revealed secrets of medicine to its saviour. It is also said that the members of this family were experts in medicine, especially in *Sarpachikitsa* (Treatment of snake bite) and in *Vishavidya* (treatment of poisoning).

The Pundit who relieved the suffering of the serpent is said to have assumed the name "Parahita" by practising *Sarpachikitsa*. His son Ramanadha was also an expert in the treatment of diseases. Ramanadha's son, Kalanathabhatta was also a great scholar and physician and is said to have taught Ayurveda to pupils. Singayya Nayaka, a chief of Korukonda, gave a grant of village Akkalapundi to this physician in Saka year 1290 (A. D. 1368). His descendent was also a great scholar in Ayurveda and received from a noble lady, Anitalli, the Queen of Allaya Veerabhadra Reddy of Rajamahendravaram, a gift of the village, Kaluva Cheruvu, in Saka year 1345 (A. D. 1423).

Among the Reddy kings of Kondaveedu, Peda Komati Vema Reddy also patronised Ayurvedic physicians. He gave a grant of villages to one Bhaskararya, a descendent of the "Parahita" family, who had the title of Bhooloka Dhanwantari, in Saka year 1326 (A. D. 1404). Another grant, in Saka year 1330 (A. D. 1408) records the gift of village Ponnupalli to Singanarya, another great scholar and Ayurvedic physician and grandson of Bhaskararya.

III. SOME SIDELIGHTS ON MEDICINE

There is a treatise on medicine in Sanskrit named "*Parahita Samhita*" ascribed to one Srinatha Pundita of the "Parahita" family. A manuscript is in the Madras Oriental Library. Recently Messrs. Vavilla Rama Sastry & Sons, have published a part of this treatise in Telugu script from a manuscript, in their possession. Its contents are interesting and deserve a careful and comparative study by all lovers of medical knowledge.

The kings of ancient and medieval times, were constantly under fear of being poisoned. They did not readily take the food, sweets or cloths or Jewels without subjecting them to preliminary examination by an expert in Toxicology. Therefore, at every Court there was an expert appointed as "*Pranacharya*", Personal Physician to the King, as the guardian of the King's life, and to look after the health of the King. Parahita Pandita III, was the "*Pranacharya*" of Singayya Nayaka of Korukonda and Lakshmanacharya was the "*Pranacharya*" of Prince Bukka II son of Harihariraya II of Vijyanagar Kingdom.

One branch of medicine which developed rapidly during this epoch was "*Rasavidya*" (Knowledge of mercurial compounds), due to the stimulus and interest of Siddha Cult of Navanathas in Mercury and Alchemy and the search for the Elixir of Eternal Life.

Centenary of the foundation of Medical Faculty, Madras University

(GLIMPSES OF THE FIRST FEW YEARS)

The First Annual Report of the Syndicate of Madras University (for 1857) records that Dr. Kellie was one of the Members of the Provisional University Committee to prepare notices relative to the affiliation of Educational institutions to the University. This Provisional Committee requested the several faculties to meet for the purpose of framing the rules for conferring degrees in Arts, Law and Medicine and Civil Engineering. The faculty of Medicine consisted of the Physician-General as President and Surgeon J. Kellie as member of the Syndicate ;

Three educational institutions located in the city applied and were affiliated to the Madras University, one of them was Madras Medical College.

* * *

(*Second Annual Report is not available*).

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The Third Annual Report (for 1859) contains the report on the examination for the degree of Doctor of Medicine, held in 1858. This examination commenced according to regulations on the 1st Monday of December and continued for 6 days and was conducted by means of printed papers, except the last day which was '*viva voce*'. There were but one candidate Mr. G. W. Flynn, a graduate of the Madras Medical College.

The subjects of the examination were :—

1. Medicine, including practice of Physic.
2. Surgery.
3. Midwifery.
4. Medical Jurisprudence.
5. General Pathology.

The Examiners for M. D. held in December 1858, were :—

1. W. C. MacLean, Esq., M.D. Medicine.
2. W. Porteous, Esq., Surgery.
3. J. Shaw, Esq., F.R.C.S. Midwifery.
4. J. Urquhart, Esq., Medical Jurisprudence.
5. J. W. Mudge, Esq., General Pathology.

The candidate, as required by the regulations, produced a thesis, on a professional subject. Examination was in every respect a satisfactory one to the examiners and on their report, the degree of M.D. was conferred on

Centenary of the foundation of Medical Faculty, Madras University 61

Mr. Flynn in March last 1859: The convocation was held on 21st March, 1859 in the Banqueting Hall, when the degrees were conferred on Mr. Flynn and other candidates.

* * *

There are no records relating to the next 3 or 4 years

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According to the *Annual Report* for 1864, for the first time, an Examination for L.M.S. was held in 1864. There was a single candidate, John Gorman and the Examiners were :

1. H. D. Patterson, Esq., F.R.C.S.E.
2. S. J. Windowe, Esq., M.D.

Next year (1865) one candidate, William Gregory, appeared for the preliminary Scientific examination for M.B. & C.M. Degree. The Examiners were :—

1. J. E. Mayer, Esq., M.D.
2. H. B. Montgomery, Esq., M.D.
3. Rev. A. R. Symonds, M.A.

The following year, 1866 two undergraduates (i) W. E. Dhanakoti Raju, (ii) J. Tyrrell, appeared for the preliminary Scientific examination. On this occasion, the Examiners were, S. J. Windowe, M.D., G. Bidie, Esq., M.D. H. D. Patterson, F.R.C.S.E., and the Rev. A. R. Symonds, M.A. The same year, two undergraduates, appeared for the first examination for M.B. & C.M. and their names are W. E. Dhanakoti Raju and William Gregory. The names of Examiners for this I.M.B. are not known. One candidate, Gorman, appeared for the Final L.M.S. Examination. The Examiner for final were J. L. Paul, H. D. Patterson and W. N. Chipperfield.

John Gorman obtained L.M.S. Degree in 1867. By 1867-68, new rules were introduced prescribing first Examination in Arts, as a preliminary entrance qualifications for admission to M.B. & C.M. course and also permitting, those who pass M.B.C.M., to appear for M.D. Degree, 2 years after passing M.B.C.M.

In 1868-69, four under-graduates sat for the preliminary Scientific examination, the names of these four are (1) Phillip Mahony, (2) Mathew John, (3) Henry Alfred Chatham Grey, (4) Jeremiah Martin. The examiners were H. King Esq., A.B., M.B., W. H. Harris, Esq., M.D., Rev. A.R. Symonds, M.A. All the candidates passed. There was also first M.B. examination. A single candidate, J. H. Tyrrell, presented himself for the examination. W. H. Harris, Esq., M.D. and J. Urquhart, Esq., M.D. were examination. This candidate was also successful. But the special event of the year, was the second examination (the final examination) for M.B & C.M. Two candidates were registered for this Examination. They were W. E. Dhanakoti Raju and W. Gregory. They were examined by four

Professors, W. J. Van Someran, Esq., M.D. J. L. Paul, Esq., M.D., A.B., J. Urquhart, M.D., H. King, Esq., A.B., M.B., Both candidates were successful. Mr. Gregory immediately embarked for England and was not able to be present at the next convocation. But Mr. Dhanakoti Raju was admitted to the Degree of Bachelor of Medicine and Master of Surgery in 1869.

In 1870-71, for the second time, M.D. Examination was held, Mr. Dhanakoti Raju, presented himself for the Examination and passed M.D. Dr. Raju was the first Indian to take M.B. and M.D.

In 1871-72, byelaws and rules were altered, bringing into force, certain changes, in the courses and number of lectures for the M.B. Degree and introducing additional requirements for graduates, proceeding to the M.D. Degree examination.

In 1872, there was held for the third time, Examination for M.D., G. Rockwood, registered for the Examination. The Examiners were R. W. Cockerill, W. J. Van Someran, W. Macrae. In 1872-73, one candidate, Mathew John, registered for second M.B.C.M. and qualified for the degree of M.B. & C.M.

In 1873-74, three candidates appeared for Second (final) examination and all passed. The graduates were (1) J. Lancaster, (2) R. Warden (3) H. A. F. Nailer.

In 1874-75, the resolution of the senate, that the degree of Licentiate of Medicine be resuscitated or some equivalent one, such as Bachelor of Surgery, be established, also received the sanction of His Excellency the Governor in Council.

The Report for 1877-78, becomes a little more interesting. That year, the 12th preliminary Scientific examination was held. Seven registered and seven were examined and six passed. The 8th First examination (for M.B.) was held and one candidate appeared and passed. For the second time, the first L.M.S. examination was held and one candidate registered and passed.

In 1879, both M.B. and L.M.S. examinations were held. In subsequent years, the L.M.S. course seems to have been more popular as can be seen from the statements showing the number of candidates for each examination, during the next four years (1881, 1882, 1883, 1884).

In 1882, the fourth M.D. examination was held. One candidate was registered. He appeared for the Examination but failed to pass. The 5th M.D. Examination was held in 1883. One candidate registered and appeared for the examination and failed to pass. The sixth M.D. Examination was held in July 1884. One candidate registered and passed.

In 1885, the Institution celebrated the golden jubilee of the foundation of the Madras Medical School.

Reminiscences of the first Woman Student of Madras Medical College

[History was made when Madras Government sanctioned the admission of women students into the Madras Medical College in 1875. Mrs. Mary Scharleib, the wife of an English Barrister, was one of the first batch of four women pioneers. After taking her diploma from Madras Medical College, she proceeded to England and took M.B. degree of London University. On her return, to India, she set up practice in Madras and was appointed as Lecturer in the Medical College and Examiner for the Madras University. Extracts from her "Reminiscences" throw interesting sidelights on the hospitals, doctors and life in Madras, in the second quarter of XIX century.—Editor].

How Mrs. Mary Scharleib became interested in Midwifery

"In 1871, I began the study of Midwifery. I also frequently heard through my husband's native clients, from his Brahmin Clerk, and from our servants, of the great and unnecessary suffering of the women of the country, Hindu as well as Mahommedan, in sickness and in childbirth. Among these stories was one that could not fail to make a strong appeal to anyone's pity and charity. A very young Mahommedan lady, a child herself, had a difficult and extremely painful labour. Her husband, although a strict Mahommedan and jealously observant of *purdah* rules, was finally so affected that he sent for a European surgeon to come to try to save her life. The poor girl dragged herself to the door of her room and lay down against it, so that it could not be opened from without except by brutally crushing her body. Her women probably approved of her action and certainly did not dare to touch her, and there she lay until death ended her sufferings. It seemed to me that some European women ought to qualify themselves to render help in such cases. My doctor lent me a copy of Churchill's "Midwifery" to study, and later on, the still more interesting volume of Ramsbotham, on the same subject. This latter book was adorned with beautiful steel engravings which not only conveyed scientific truths, but also made a powerful appeal to the imagination and to the aesthetic sense. Finally, the conviction was forced on me that a theoretical knowledge of midwifery would never help anyone, and through my friend, Dr. John Shortt, I got an introduction to Surgeon-General Balfour, the supreme head of the Medical Service in Madras. (Pages 29-30).

Insanitary and Depressing Conditions in Hospitals

I explained my views and desires as to the medical education of women to Dr. Balfour. He most kindly offered to take me to the Lying-in Hospital and to commend me to the practical teaching of its Superintendent, Surgeon-Major Cockerill who was a tall, thin man, with Dundreary whiskers, and a general air of finding the climate and the work too much

for him. He listened to the Surgeon-General and to me, but was not in the least convinced that my prayer should be granted. He told me that I did not know what I was asking for, that the work was not suitable for an English lady, that it involved much unpleasantness and dirt, and that it was such as he would not permit his wife to undertake. I replied that whether I should like it or not, was for me to judge, that my clothes would wash, and that soap and water plus carbolic acid would secure cleanliness. His next objection was that my husband could not possibly approve of my training as a midwife, to which I replied that if he had not approved, I could not have been there. Finally he asked whether if he accepted me as a pupil I would be ready to attend *any* case assigned to me, and to keep the rules of the institution. To this of course I gladly assented. Then he invited me to accompany him to a thatched shed in the hospital compound. At the other end of this shed lay a woman quite unconscious and swollen beyond all recognition. I did not know what was the matter with her, and in my ignorance thought it might be a very terrible case of leprosy, but Dr. Cockerill asked me whether I would attend her, and when, I, of course, said that I was willing to do so, he explained that it was the worst case of confluent smallpox he had ever seen, and asked whether I would attend her in the face of that assertion. What could I do but still consent? (Pages 31 to 32).

Staff and routine of Lying-in Hospital

The old Lying-in Hospital in Madras was a low rambling, a part of which was reserved for European and East Indian women, but much the larger part of which was for the service of low caste women and such Mahommedans as did not object to being attended by men. The Superintendent, Dr. Cockerill, visited it every morning from 6-30 to 9-30 or 10-30 a.m. He went round the wards, saw the gynaecological patients, visited the various sheds in which were special cases, and occasionally lectured to the midwifery students. Under him were two "Apothecaries"—officers whose duties corresponded with those of house-surgeons or obstetric assistants at an English hospital. They both went round with the Superintendent in the morning, and each had stated hours of duty during the day and night. I soon came to the conclusion that the most important person with whom I should have to do was Mrs. Secluna, the matron. In spite of her Spanish name, she was English by birth, a big, fair woman, who had had fifteen children herself, and was one of the most skilful midwives and most kindly people that I ever had the good luck to meet. She, at any rate, approved of my desire to learn practical midwifery; she kept me by her all the day, made me share in the instructions she gave to her nurses and pupils, and supervised my first attempts at acquiring the art as well as the science of obstetrics.

In spite of his official disapprobation of my action Surgeon-Major Cockerill had a little leaf pavilion built for me in the compound. This

I furnished with a folding chair and small table; there I wrote my notes of cases, and there I had the milk and roll provided for me by Mrs. Secluna. (P. 33-35).

Madras Medical College—Pioneer in Medical Education of Women in 1875

"The arrangements for the medical education of women students were therefore conceived in a generous spirit. We were to pay no fees, our text-books were given to us, and a comfortable room at the Medical College was assigned to our use. So far as lectures went we shared in the instruction given to the large body of young men who were attested students to be Assistant Surgeons and Sub-assistant Surgeons in military and in civil employ under Government. Practical midwifery we were to learn at the Lying-in Hospital, and other clinical work was to be done by us at the Women's Hospital under the medical superintendence of Surgeon A. M. Branfoot, M.D., (LOND.), whereas the young men took their clinical surgery and medicine at the great General Hospital at Madras, which was close to the Medical College".

"The first morning that we joined the Women's Hospital, Dr. Branfoot expressed himself with the utmost clearness as to the undesirability and folly of educating women to be doctors. He told us that as a Government servant he could not prevent us from walking round the wards, but that he was firmly determined that he would not teach us: I very respectfully suggested that he could not help himself, and that if we were willing pupils and carefully observant of his methods of examination and of treatment we should do very well. My prophecy was justified by the result". (Pages 40-41).

"My three women colleagues remained at the Women's Hospital and I went alone to share in the clinical work of my male fellow-students. I ought to say at once that none of us ever met with slightest discourtesy or difficulty either at college or at hospital; and that when our curriculum was finished and we had obtained the diploma of the college, the Principal (Dr. M. C. Furnell) told me that the coming of the women had been a great advantage to the men, for our companionship had sweetened their manners, and our eagerness to learn had been a useful stimulus". (Page 41.)

"On the surgical side the presiding genius was my old friend, Surgeon-Major Cockerill; under whose very able and sympathetic guidance I developed a real love for surgery and much admiration for the results of the combined courage and knowledge, of which I saw so much. On the medical side, we were under the tuition of Surgeon-Major Furnell, a most charming and delightful physician. He was full of experience and knowledge, very kind to his patients, considerate to his subordinates, and always

ready to teach and to help his students. No words could possibly express the debt that I owe to these two good men, who have long ago gone to their reward". (Page 41-42.)

"At the Lying-in Hospital Surgeon-Major Harris had taken Dr. Cockerill's place. He was a scientific obstetrician and an excellent teacher. The affairs of the hospital went very well, but Dr. Harris always felt that the buildings and equipment were inadequate and he was very keen to move the hospital to a new site and to more modern buildings better furnished in all respects. For some time, this scheme made little apparent advance, but the occurrence of several deaths from puerperal septicaemia probably induced the Government of Madras to accede to his desires, and after a time, in a very up-to-date Lying-in Hospital it was possible to set apart a ward for Caste and Gosha women, and another for an isolation ward to which cases could be moved, should symptoms of sepsis arise. This arrangement went far to relieve the authorities of the constant and unnecessary anxieties they had to bear in the old hospital, which must have been thoroughly insanitary". (Page 42-43).

Dr. Mary Scharlieb—the first woman on the Staff—1885

"I had a letter one day about eleven o'clock from the Superintendent-General of the College, asking me whether I would accept appointment to the Lectureship on Midwifery, Gynaecology and Diseases of Children to the women students, and if so, when could I take up my duties. This should, he said, be done with the least delay possible, as the winter session was then beginning; the hour of lecture was from twelve to one daily. I wrote a note signifying my acceptance of the honour, and saying that I would be at the College at twelve o'clock. I went to the College, was very kindly received by the Principal, and lectured to the women on the anatomy of the female pelvis. This appointment as Lecturer was very gratifying to me. I loved teaching, and I was glad to be of some service to the young women students.

Thus began my work as Lecturer, which lasted more than twenty-five years, that is, including my Lectureships at the Madras Medical College, and at the London School of Medicine for women. In Madras I conformed to the rule of the College, which demanded that there should be examinations every third day. My students worked well and were able to take a satisfactory position in the Final examination.

Shortly after my appointment as Lecturer to the Medical College, I was honoured by being appointed Examiner in Obstetrics and in Gynaecology in the University of Madras". (Page 109-110).



From the Archives of the Association

NOTICE

An Informal discussion on the question of establishing a Society for study of History of Medicine will be held on the 28th November, 1952 at 6 p.m. in Lecture Theatre Hall No. III, Sawai Man Singh Medical College, Jaipur. All are cordially invited to attend and participate in the discussion.

C. G. PANDIT,

Secretary, Indian Council of Medical Research.

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Proceedings of the meeting held on 28th November, 1952 at 6 p.m. in Sawai Man Singh Medical College, Jaipur to discuss the question of establishing a Society for study of History of Medicine.

The meeting was attended by about 50 representatives of the medical profession attending the I.C.M.R. meetings. At the outset Dr. Pandit explained the back-ground and circumstances that necessitated this informal discussion. He referred to the letter dated the 5th March, 1952, received from Colonel B. L. Raina of the Ministry of Defence suggesting the formation of an association and to another letter dated the 14th July, 1952 from Colonel Dutta also suggesting the formation of a society and enclosing a draft constitution. He said that as Secretary of the I.C.M.R. he sent out a circular, dated the 16th October, 1952 to all the members attending the I.C.M.R. meetings at Jaipur, and invited their suggestions and views on Dr. Dutta's proposals. At that stage, Dr. Pandit observed, Dr. Kutumbiah wrote a letter to him expressing surprise about the proposal to start a society and pointed out that a Society of History of Medicine had been formed as early as 1947 and was functioning and that an attempt should have been made to consult the existing society before attempting to start a new one. Dr. Pandit confessed that he was not aware of the existence of a society in Madras and invited Dr. Kutumbiah and Dr. Subba Reddy to attend the meeting, when the whole question could be discussed informally. He also added that the headquarters of the society had to be somewhere in India and there was no objection to its being in Madras and to the upgrading of the present local society into an all India society. Dr. Kutumbiah was requested to take the Chair and to inaugurate the discussion on this occasion.

Dr. Kutumbiah briefly described how he became interested in History of Medicine in 1935 and how, due to the enthusiasm and interest of a few medical men in Madras, an association was organised in 1947. The Surgeon-General of the province, Colonel Huban, he said, presided over the annual meeting and gave strong support. Since then the society was conducting meetings, discussions and arranging exhibitions in Madras. Dr. Kutumbiah observed that the society had also stimulated a good deal of interest in medical history and the Secretary, Dr. Subba Reddy, who is also a corresponding member of the American Association of History of Medicine had been in touch with similar organizations abroad. He then called upon Dr. Subba Reddy to express his views on the proposal.

Dr. Subba Reddy gave an account of the various institutions and associations in Europe and America which had devoted themselves to the study of History of Medicine. He referred to the help and inspiration he derived from Professor Sudhoff of Leipzig, Professor Singer of London and Professor Sigerist of Baltimore. Dr. Reddy said he had seen the replies received from various members to the circular letter of Dr. Pandit

and noted that the majority of the members were in favour of joining an Association for the History of Medicine, though there were slight difference of opinion on certain minor matters. He assured the meeting that there was plenty of material in the form of old books and objects in the museums to undertake historical research and that there need not be any apprehension that it will be converted into a forum for propaganda or quarrels.

Dr. S. R. Mehta, Assistant Director of Health Services, Himachal Pradesh, Simla, strongly supported the proposal for the formation of Association for the History of Medicine. Dr. K. V. Krishnan of the All India Institute of Hygiene and Public Health mentioned that he was at the Johns Hopkins University Medical School and heard Dr. Welch speaking on History of Medicine and also felt keenly interested in the subject. He, therefore urged the need for forming a Society of History of Medicine.

Dr. Kalra of the Armed forces Medical College, Poona, referred to his studies in History of Epidemiology and also wanted a society.

Dr. H. L. Chopra, Deputy Director of Medical Services, Rajasthan, while supporting the proposal for a society, desired that Indian medicine should be studied in its historical aspects.

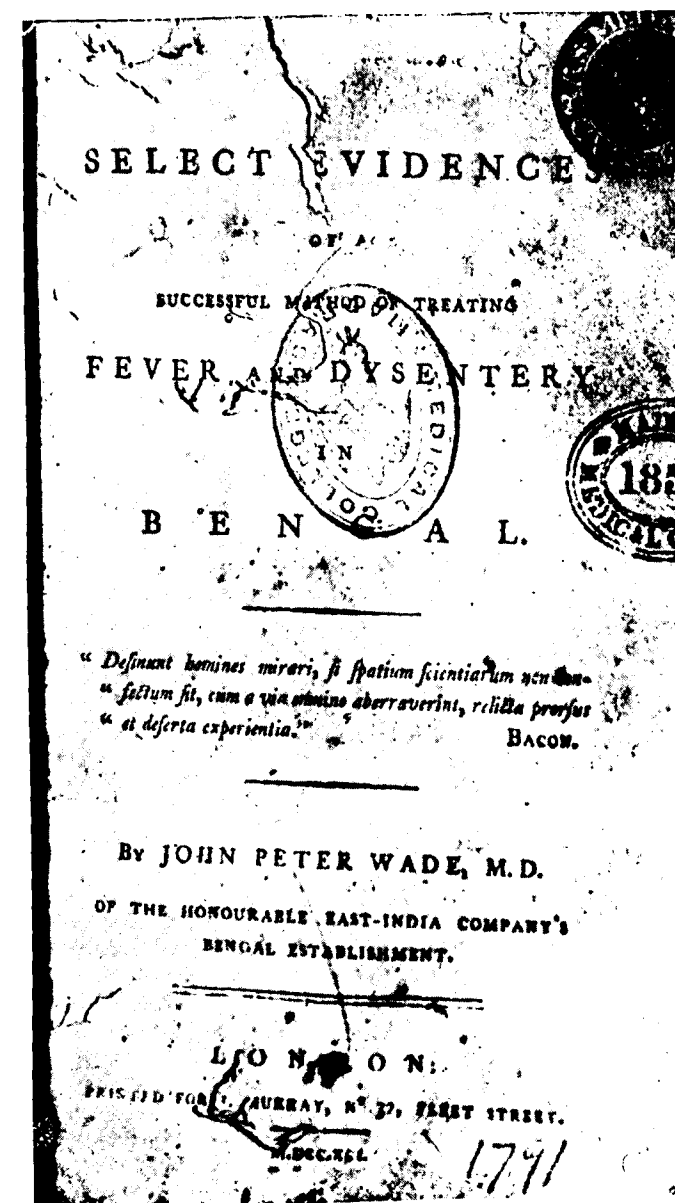
Dr. B. B. Yodh, Honorary Physician, Sir J. J. Hospital, Bombay was against multiplying associations of the specialist type and suggested that the objects, namely study and research in History of Medicine should be undertaken by individuals and that they might meet along with the Annual Conferences of Physicians.

Dr. S. C. Seal of the All-India Institute of Hygiene and Public Health, Calcutta, described his interest and his studies in History of Medicine and expressed his opinion in favour of setting up such an organization.

Dr. R. V. Rajam, Director of the Upgraded Department of Venereal Diseases in Madras, was in favour of smaller state associations. He also suggested that all those interested in the History of Medicine belonging to various associations might meet annually along with the Conference of Association of Physicians or along with the conference of the Indian Medical Association.

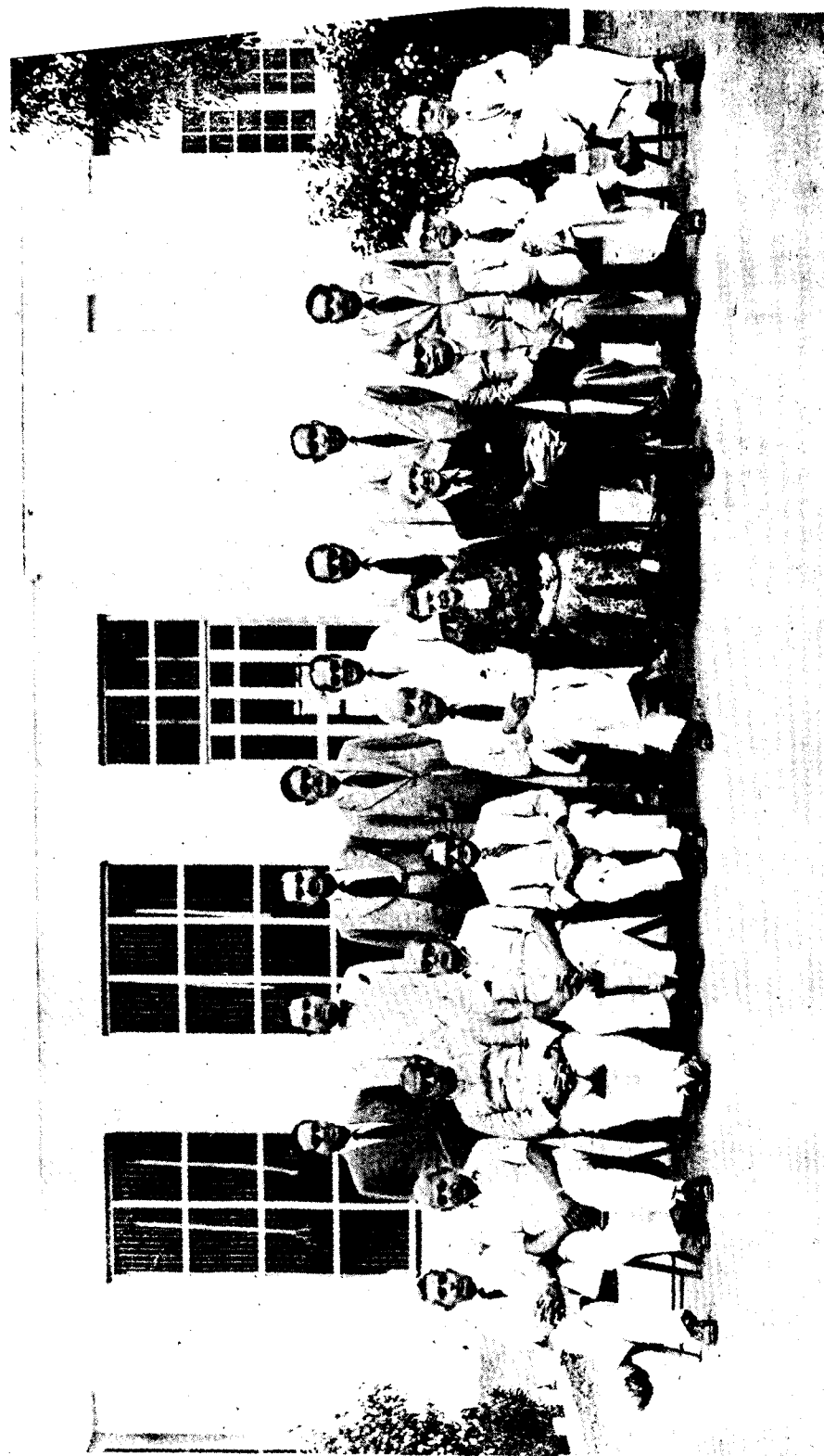
After the discussion, Dr. Pandit moved that an "ad hoc" committee consisting of the following might be appointed to go into the question, and send up proposals to him.

Dr. P. Kutumbiah (*Chairman*)
 Dr. B. B. Yodh
 Dr. K. V. Krishnan
 Dr. R. V. Rajam
 Dr. S. C. Seal
 Colonel P. C. Dutta
 Dr. D. V. Subba Reddy (*Secretary*).



Title Page of Wade's Monograph (article on page 39)

Photograph taken at the Annual Meeting of the Indian Association of the History of Medicine held in Madras in February 1957



Association Notes.

REPORT OF A SPECIAL MEETING UNDER THE AUSPICES OF THE INDIAN ASSOCIATION OF THE HISTORY OF MEDICINE HELD ON 21-2-1957, 6 P.M. AT MADRAS MEDICAL COLLEGE.

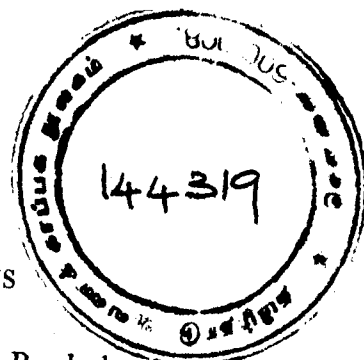
Dr. W. Penfield, the famous Canadian neuro-surgeon who was on a visit to Madras addressed the members of the Indian Association of the History of Medicine on 21st February 1957, evening, at the Madras Medical College Common Hall on "Hippocrates and the Dawn of Modern Medicine". Dr. A. A. Ayer, Vice-President of the Association welcomed him and Dr. M. R. Guruswamy Mudaliar, Emeritus Professor of Medicine, Madras Medical College, presided over the function.

Dr. Penfield proved himself a master story teller and spoke of the life of Hippocrates including in his talk the result of the researches while he visited Greece recently. The language was superb and telling with poetic flights in an invocation to the great legendary physician. He displayed his versatility of knowledge in associated fields of literature, music and archaeology, in addition to history of medicine. The lecture was followed by the projection of lantern slides taken by him and his wife during a recent visit to Turkey and Greece to gather authentic details about Hippocrates. He had visited towns, villages and the countryside seeking with a keen eye for any little detail which might throw new light on Hippocrates or serve in anyway to dispel the false legends that had grown around him. His beautiful slides and the commentary thereon proved that he must have obtained valuable material for further work.

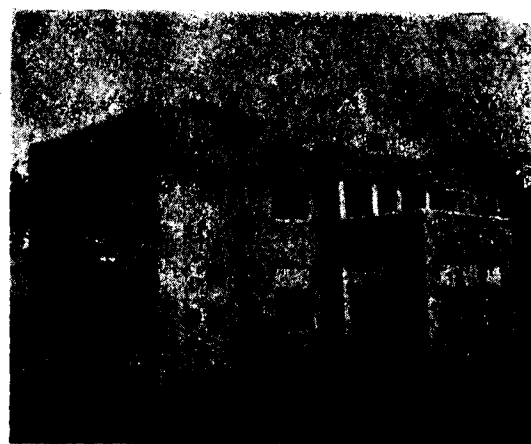
Dr. M. R. Guruswamy Mudaliar emphasised the need for a historical perspective in medical studies and Dr. A. A. Ayer, drew attention to the close resemblance of some of the Greek representations of the Caduceus and the South Indian icons of the coiled twin-snakes below tree shrines and in temples, and other relevant topics, and suggested that the understanding of ancient Indian and Greek symbology in Iconography would lend light to the understanding of both. Dr. A. A. Ayer proposed a hearty vote of thanks to the learned lecturer which was carried with tremendous acclamation, and the meeting terminated.

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Medico-Historical News



Consequent on the formation of the Andhra Pradesh, according to the States Reorganisation Committee report, with the city of Hyderabad, as the capital of new and enlarged State, The Department of History of Medicine, opened in Andhra Medical College, Visakapatnam in September 1956 (as reported in Vol. I, Number II, December 1956)—has been shifted to the historic city of Hyderabad, with its large public and private Libraries, famous museums and art collections and traditions for scholarship and harmonious fusion of Hindu, Islamic and European cultures. The Government of India have agreed, in principle, to upgrade the Department of History of Medicine at Hyderabad, into an All India Institute of History of Medicine, as a centre for study and research in History of Medicine and for the training of post-graduates from various Medical Colleges in India, to foster the spirit of Historical and humanistic approach to Medicine.



Institute of History of Medicine, located in Gandhi Medical College Buildings, Bashir Bagh, Hyderabad.



D. V. Subba Reddy
Professor of History of Medicine and Director
of the Institute of History of Medicine,
Hyderabad.

INDIAN JOURNAL OF THE HISTORY OF MEDICINE

AIM AND SCOPE:

The Journal will be devoted primarily to the promotion of the study and research in the History of Medicine, including philosophical, sociological, cultural and humanistic background, as well as the changing influences and new trends. It will endeavour to bring to the notice of the cultured public and the profession, various Archaeological, Epigraphical evidences, traditional lore, extracts from ancient literature, religious or secular or scientific, list of manuscripts, records of documents, old books and works of art, useful for the study of history of Medicine in India. It will collect and publish clues and traces of the influence of ancient Indian Medicine on other lands and people of ancient and mediaeval times. It will attempt to critically examine the influence of European Renaissance and European Medicine on the advent and growth of modern medicine in India, with far-reaching repercussions on the Indigenous systems and on the health of India. It also aims to bring Medical Science into closer relation with Humanism.

TO THE CONTRIBUTORS:

Contributions, review copies of books, and correspondence relating to the publication of papers should be addressed to the Editor, D. V. Subba Reddy, Professor of History of Medicine and Principal, Gandhi Medical College, Hyderabad (India). Manuscripts for publication should be typewritten in double space and should not exceed 10-12 pages of typescript (i.e. 2500-3000, words). References should be arranged alphabetically and typewritten in double space. Each reference should contain name(s) and initial(s) of author(s) and full title of the paper. Journal articles should also include name of journal, year, volume number and complete pagination in that order; with books, the city of origin, publisher, date and full pagination should be given.

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The Editor, Publisher and other Office-bearers of Indian Association of History of Medicine regret that, due to various causes, the publication of the second volume was unexpectedly delayed. They offer their apology for any inconvenience to the subscribers and request sympathetic understanding and encouragement from Institutions and individuals interested in the promotion of studies and publications on History of Medicine.

—EDITOR.