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Class Arrangements

~~Slips~~ Syllabus, Lantern Slides -
Specimen Extracts,
Names in book,
Essay prose;

List of Names
Essay Prose
Slips + Lantern Slides.

Specimen for study
Essay.

Show Diagrams
Papyrus Ebers
Book of Dead
Hanc. of Ref. Ebers
Hour.

Inaugural Lecture
History of Medicine lectures
October 1908.

... Hector
... in the first
... tions for your
... ver Wendell
... Macaulay.

Dr. Oliver Wendell Holmes says :—

"The debris of broken systems and exploded dog form a great mound, a Monte Testaccio of the shards and remnants of old vessels which once held human beliefs. If you take the trouble to climb to the top of it, you will widen your horizon, and in these days of specialised knowledge, your horizon is not likely to be any too wide".

Reprints Tickets — Diagrams
Cards; Slips; Wellcome Medals; Books.

1.

71384
3116

Class Arrangements

~~Slips~~ Syllabus, Lantern Slides -
Specimen Extracts,
Names in book,
Essay prose;

List of Names
Essay Prose
Slips or Lantern Slides.

Essays for study
Essay.

Show Diagrams
Papyrus Ebers
Book of Dead
Transl. of Pap. Ebers
Hunt.

With regard to the study of the History of Medicine I should like in the first place to submit two quotations for your consideration; one is from Oliver Wendell Holmes, the other is Lord Macaulay.

Dr. Oliver Wendell Holmes says :—

"The debris of broken systems and exploded dogmas form a great mound, a Monte Testaccio of the shards and remnants of old vessels which once held human beliefs. If you take the trouble to climb to the top of it, you will widen your horizon, and in these days of specialised knowledge, your horizon is not likely to be any too wide".

Reprints: Tickets — Diagrams
Cards; Slips; Wellcome Medals; Books.

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Lord Macaulay says :-

"The debt which the man of liberal education owes to the great minds of former ages is incalculable; they have guided him to truth, they have filled his mind with noble and graceful images, they have stood by him in all vicissitudes; comforters in sorrow, nurses in sickness; companions in solitude. These friendships are exposed to no danger from the occurrences by which other attachments are weakened or dissolved; time glides by, fortune is inconstant, tempers are soured, bonds which seemed indissoluble are daily sundered by interest, by malice or by caprice.

[illegible] cause can affect the silent converse which we hold with the highest of human intellects. That placid intercourse is disturbed by no jealousies or resentments. These are the old friends who are the same in wealth and poverty, in glory and in ~~adversity~~ obscurity".

Another reason for study of H. of M. is that we are begin to feel that old doctrines & remedies have been too ruthlessly discarded e.g. skin of toad & digitalis alkaloid

I take it however that every one here is convinced of the great value that medical history possesses — not only is it a matter of ~~gre~~ surpassing interest to know how the great masters of ~~the past~~ bygone days have regarded and treated disease; but if ~~the~~ we ~~to~~ are in a position to appreciate their ideas

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and to recognize their errors, it helps us to a clearer judgement ~~of~~ between the fact and fancy of our own time; and it ~~enables~~ assists us to discriminate ~~between~~ what is likely to be a permanent ~~addition to~~ augmentation of our science, from those recurring fatuities by which the medical profession in its eagerness for new discoveries, is, ~~and too~~ unfortunately, too liable to be misled.

No matter how primitive a race of men may be, how low in the scale of civilization, it still possesses certain men who either have, or are credited with having special powers in removing the effects of those evil chances ~~by~~ which ~~certain~~ some people are afflicted in their bodies more than others.

By the most primitive men, diseases of the body, like other evils, are attributed

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~~to~~ supernatural agency; and the offended spirits are ~~to~~ be placated by gifts, or ~~to~~ be expelled by powerful magic. The ministers of religion are therefore identical with ~~the~~ healers of disease.

As we proceed somewhat higher in the scale we find ~~that~~ natural means are ~~[illegible]~~ more and more relied upon ~~efficacious~~ in counteracting ~~the~~ evils of the body. Even long after the idea ~~that~~ has been forgotten that diseases are the infliction of malevolent or offended deities, the use of charms and invocations and even single words of power persists. These we find continue on ~~the~~ supposition that ~~they~~ have some influence over the disease itself.

I shall leave the consideration of purely theurgic medicine in the earliest men to the psychologist; and shall ~~take up~~ begin with medicine ~~the~~ at a time when it was pursued by distinct practitioners whose operations

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were carried out partly by natural and partly by magical means.

If one asks where the beginnings of the healing art may be sought, one must look, so far as Western Medicine is concerned, to those nations that inhabited the valleys of the Euphrates and of the Nile, long before the people of Britain had reached even that state of gentle savagery in which the Romans found them, and which Macaulay describes as akin to the modern condition of the Sandwich Islanders.

When we turn to the fertile plains north of the Persian Gulf, we find that the origin of Assyrian medicine is lost in a remote antiquity, and when we first become acquainted with it, we discover it mixed to a great extent with magic. I use the term Assyria here in a generic sense, to indicate these lands inhabited by peoples of Semitic race who contested for many centuries with one another for the plains of the Euphrates and the Tigris, and who strove for mutual annihilation with a determined ferocity before which to-day we stand appalled. Long before the twentieth century B.C., a Tartar or Sythian people with dolicho-cephalic skulls, who had previously inhabited the country from the Caucasus to the Indian Ocean, and from the Mediterranean to the mouth of the Ganges, were retreating before the waves of a Semitic race whose various tribes spread northwards from Chaldea. This Sythian people is still preserved throughout the central part of Asia and in corners of Europe, among the Lapps, Finns and Hungarians. Their Semitic supplanters founded the kingdoms of Babylon under Sargon I. about 3800 B.C., that of Assyria, about 2000 years later, spread with Abraham and his followers to Palestine, and migrated to colonies in Phœnicia, Carthage, Sicily, Spain and Western Africa.

Look back to 2000 BC

There are many evidences that the healing art among these peoples was one of usefulness, honour and profit. One of the most important results of explorations in Assyria has been the discovery in the Palace of Assur-bani-pal (669-640 B.C.) at Nineveh, of a large library, consisting of many thousand tablets of baked clay, inscribed with cuneiform characters and now preserved in the British Museum. This Library probably owes its origin to the keen political insight of Esar-haddon (681-671 B.C.), father of Assur-bani-pal and conqueror of Egypt, who desired to prevent the youth of Assyria from going to be taught at Babylon or Borsippa, where they would be subjected to dangerous political influences. Careful study has made it evident that many of the tablets in this library are copied from ancient originals in the Temple libraries of Chaldea, each being stated to be "like its old copy" or "like the ancient tablets of Sumir and Akkad." Many of these tablets have been found duplicated in the libraries of other Babylonian cities, and thus the original composition must be referred to a much earlier date.

Nineveh, after maintaining an independent existence as the capital of Assyria from about 2000 years B.C. was totally destroyed when Assyria became a Median province in 606 B.C., and has remained a ruin from then till the present day. Xenophon, passing it in the Retreat of the 10,000, mentions the desolate vastness of the ruined city with walls 150 feet in height.[1]

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At the period with which I intend principally to deal so far as Egypt is concerned (1500 B.C.), and all through the subsequent history of Assyria there was much intercourse between these countries and a regular trade route with letter-posts ran from Memphis ~~by way of~~ Damascus and Carchemish to Nineveh. The diplomatic language in which the letters were inscribed was that expressed by cuneiform characters inscribed with a three-cornered stylus upon clay tablets as in these tablets found at Tel-el-Amarna.

The library of Assur-bani-pal found at Nineveh contained text-books on geography, mathematics and natural history, together with poems and records of Kings; and we may judge of the important position occupied by the healing art from the fact that out of the total 20,000 tablets between 500 and 1000 are stated by Oefele to consist of medical works.[2]

The following are a few prescriptions taken from the German translation by Küchler of these tablets.[3] They are merely fragments left by the Babylonian Sackers of Nineveh and there is the same difficulty in translating technical words that is found with regard to papyri recording the medicine of Egypt. Between the two there is a strong family resemblance.

I. 11-16, page 3:—

"If a man is ill with colic, thou shalt have him placed upon his feet; pour upon him decoction of hypericum; so will he recover.

"Or in the same case, let him kneel down and crouch upon his heels, and thou shalt let cold water run upon his head.

"Or in the same case if there be faintness, thou shalt lay his head below and raise his feet. Beat upon his buttocks, and say, 'May it be well.' With thy thumb strike fourteen times upon his head, and upon the ground."

Many of the prescriptions are intended for the relief of what must have been a common complaint at Nineveh, the results of over-indulgence in food and drink.

I. 14, page 43:—

"When a man is bilious, thou shalt rub down onion; he shall drink it in water without eating."

The following is a prognostic point in jaundice:—

III. 4-5, page 55:—

"If a man is sick with jaundiced eye, and the disease mounts to the interior of the eye so that the water from his eyes is green like copper, his inner parts rise up and he brings back meat and wine, the disease drys up his whole body, so will he die."

Among the easily identified substances prescribed in these cuneiform tablets are sesame, olive and castor oils, syrup of dates, honey and salt; fasting was very commonly ordered; while the use of massage and of enemata appears to have been known.

over

An indication of the superstition which attended the administration of remedies is given by the use of the sacred number 14, the number of times that the physician was to stroke the ground and the patient's head.

It is difficult for us to day to realize that

Borsippa, a suburb of Babylon, where another library had been established in the temple of Nebo, was, ~~as we learn from Strabo,~~ the seat of a university which had attained great celebrity. From a fragment of a Babylonian medical work, now in the British Museum, Professor Sayce states: "We may perhaps infer that it was chiefly celebrated as a school of medicine."[1]

In Babylon the physician is mentioned at a very early date. Thus we hear of Ilu-bani, the physician of Gudea and High Priest of Lagas, at a period about 2700 B.C.[2]

In the Code of Laws promulgated by Hammurabi, a King of the First Dynasty of Babylon, dating from 2000 B.C., we find that not only is the doctor mentioned, but his remuneration is fixed by law. I shall read a few clauses bearing on this profession from the translation by the Rev. C. H. W. Johns:—[3]

"215. If a doctor has treated a gentleman for a severe wound with a bronze lancet, and has cured the man, or has opened an abscess of the eye for a gentleman with the bronze lancet, and has cured the eye of the gentleman, he shall take ten shekels of silver.

Cataract £1-5/-

"216. If he (the patient) be the son of a poor man he shall take five shekels of silver.

12/6

"217. If he be a gentleman's servant the master of the servant shall give two shekels of silver to the doctor.

5/-

"218. If the doctor has treated a gentleman for a severe wound with a lancet of bronze, and has caused the gentleman to die, or has opened an abscess of the eye for a gentleman with the bronze lancet, and has caused the loss of the gentleman's eye, one shall cut off his hands.

"219. If a doctor has treated the severe wound of a slave of a poor man with a bronze lancet, and has caused his death, he shall render slave for slave.

"220. If he has opened his abscess with a bronze lancet, and has made him lose his eye, he shall pay money, half his price.

"221. If a doctor has cured the shattered limb of a gentleman, or has cured the diseased bowel, the patient shall give five shekels of silver to the doctor.

Note Surgery.

"222. If it is the son of a poor man, he shall give three shekels of silver.

"223. If a gentleman's servant, the master of the slave shall give two shekels of silver to the doctor."

These laws are interesting as indicating the definite social position enjoyed by the medical profession at this early period. The remuneration is good, the shekel being practically equivalent to half a crown. We may note, in passing, that the physician was a man of substance, and the possessor of slaves. The reference to treating the abscesses with a bronze lancet is of extreme interest. I have corresponded with the Rev. C. H. W. Johns, of Queen's College, Cambridge, the translator of this Code, regarding the significance of this word abscess. He tells me that the word "nagabtu," meaning "hollow" or "well," connected etymologically with "nagabu," had been taken by him to be metaphorically applied to a "running sore." Now it is unlikely that any abscess of the eyeball would be treated by a practitioner with a lancet, or that the destruction of the eye would be punished, under a reasonable Code of Laws, in so severe a manner; for an abscess in the eyeball destroys the sight and appearance of the eye before any treatment

well of the Eye.

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is called for. An abscess in the orbit, on the other hand, such as might be caused by an arrow or other missile, would of itself be a trivial matter, not requiring operative treatment, and not liable to cause destruction of the ball. Therefore the rarity of treatment required by either of these conditions would render it unlikely that they should be mentioned in a concise Code. I have suggested to Mr. Johns that this may possibly be a reference to a primitive operation for cataract.[1] It is well known that in India, not many years ago, the criminal authorities experienced much difficulty in dealing with the native operators for this condition. These men would arrive at a village, operate upon the persons there afflicted with cataract, and, by couching or depressing the lens, restore the lost vision in some degree, to the delight of the patients and of their friends. Then, collecting the fees, they would move off. while the eyes in a few days suppurated and were totally destroyed, It is likely that the penalties of Hammurabi are directed against unscrupulous practice of this sort. We know that the operation of "couching" a cataractous lens is a common one among primitive peoples, the lens being simply depressed to the lower part of the vitreous humour by means of a needle pushed in outside the margin of the cornea. The Assyrian, also, as we know, could have fitted patients thus operated upon with the necessary spectacles, for they were acquainted with the principles of optics, and Layard discovered a lens among the ruins of Nineveh.

At the head of the profession in Babylon stood the Rab-mag or Court physician, and under him numerous other doctors are mentioned in the records of Babylon, Nineveh and Tel-el-Amarna. The following translation of a letter from a certain Arad-nana, who seems to have been a consulting physician to Esar-haddon (700 B.C.), is interesting:—[2]

"As regards the patient who had bled through the nose, the Rab-mag reports:—'Yesterday, toward evening, there was a good deal of hæmorrhage; the dressings have not been properly applied. They have been placed outside the nostrils, oppressing the breathing and coming off when there is hæmorrhage. Let them be put inside the nostrils, and then the air will be excluded and the hæmorrhage stopped. If it is agreeable to my lord the King, I will come to-morrow and give instructions; meantime let me know how the patient is.'" So much for medical etiquette in Assyria! Three other letters from Arad-nana are also extant.

In one letter he reports to the King upon the state of a patient, perhaps a young prince, with some suppuration of the eyes. The gods who were special patrons of healing were Ninip and Gula whom he accordingly invokes:—

"To the King, my lord, thy servant Arad-Nana. May it be peace in the highest

'degree to the King, my lord; may Ninip and Gula
'give cheer of heart and health of body to
'the King, my lord. It is extremely well
'with that poor man whose eyes are diseased.
'I had applied a dressing to him, it
'covered his face. Yesterday, at evening, I undid
'the bandage which held it, I removed the
'dressing which was upon him. There was
'pus upon the dressing, as much as
'the tip of the little finger. Thy gods, if anyone
'of them has put his hand to the matter,
'he has indeed given his order. It is
'extremely well. Let the heart of the King,
'my lord, be cheered. In seven or eight days,
'he will be well".

In another letter he gives King Esarhaddon directions for the preservation of his health, soundly advising him "to anoint himself as a protection against draughts, to drink pure water, and to wash his hands frequently in a bowl."

The letter of a grateful official, Kudur,

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to King Assur-bani-pal (668 B.C) is preserved and contains the following passage:-"
"Ikisha-apla the doctor, whom the king, my
' lord, sent to heal me, has restored me to
' life. The great gods of heaven and earth
' make themselves gracious to the King, my lord,
' and establish the throne of the King, my lord,
' in heaven forever." ~~and ever~~

From an inscription we learn that even the temples had their own doctors.

In early times the doctor and the magician were probably united in one. There is preserved in the British Museum a clay model of a liver, probably from a sheep and dating from the time of Hammurabi's Code, upon its under surface are carefully mapped out squares each inscribed with the meaning which the soothsayer may infer from changes at this point. ~~should indicate to the soothsayer.~~ The same method of forecasting events by the appearance of spots or flecks upon the liver was found later in Greece and Etruria, and persisted to a late date among the Romans. Plato even professes

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in his Timaeus to explain why the liver should be a mirror of passing events and apparently believes in this method of divination.

Shall give his reasons later
(See Lecture III)

There was another method of treatment followed in ancient Babylon as we learn from Herodotus. This cannot have pleased the regular doctors for it consisted in laying the sick in the public square, so that passers-by who had suffered from similar complaints might give them advice as to remedies that had proved beneficial in their own case.

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Magic and Medicine

As regards Magic in Assyria, although as I have said, magic and medicine are one and the same thing among primitive peoples, we must remember that in Assyria from a very early time the two professions of magician and physician had become quite separate. They were as distinct by 700 B.C. as the pursuits of medicine and astronomy are with us, though no doubt in the one case as in the other the same individual might follow both.

The forecasting of future events had been reduced to the level almost of an exact science in ancient Babylon and Nineveh. For ages men had been chronicling events and searching for their causes, and everything from the success of a military expedition down to the occurrence of a rainy day or the birth of a child was supposed to be capable of prediction by persons of sufficient knowledge.

The Court magicians of Babylon were supposed not only to chronicle all striking things as they happened; but they had to submit to the King a monthly report of all events

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both ~~past~~ of the immediate past and of the near future.

Usually the predictions and omens were drawn ~~and~~ from astrological sources but the inspection of the entrails of sacrifices was also important and any striking event ~~must called for~~ possessed indications of the future. Very often the reports of the magicians contained alternative prognostics, e.g. one of great political importance such as the triumph ~~of~~ over a foe in battle, and another of trivial moment such as the occurrence of heavy showers. Thus the magician's reputation as a true prophet would be protected.

For example No 94 ---- [Campbell Thompson Reports of Magicians and Astrologers Vol II] "When a halo surrounds the moon and Scorpio stands in it, it will cause men to marry princesses (or) lions will die and the traffic of the land will be hindered."

The magicians was often able of his predictions to give information which might be utilised to prevent disaster. e.g.

No. 195 .... When Mars and Jupiter approach there will be a slaughter of cattle. Mars has approached Jupiter. When Mars approaches Jupiter, in that year the King of Akkad will die and the crops of that land will be prosperous. This omen is evil for the lands; let the king my lord make a Namburbi ceremony to avert the evil. From Nabu-ikisa of Borsippa

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Naturally the advice of the magician was often required as well as ~~that~~ the help of the doctor in cases of sickness. The following is from a report to the king and evidently concerns an epidemic:-

No. 254 When it thunders in AB, the day is dark, heaven rains, lightning lightens, waters will be poured forth in the channels. When it thunders on a cloudless day, there will be darkness or famine in the land. Concerning this sickness the king has not spoken from his heart. The sickness lasts a year: people that are ill recover. Do thou grant, O king my lord that they pursue the worship of the gods and pray the gods day and night. Does truth ever reach the king and his family? A man should kill a calf (?) without blemish, he should cut it in pieces; ~~he himself should cut it in pieces~~; he himself should say as follows "A man that is in full health, his days are short; he is sick, his days are long". From Istar-suma-iris.

~~No. 277~~. Such an out of the way occurrence as the birth of a double-pig required special comment and demanded a grave interpretation. Thus:-

No. 277. When a foetus has 8 legs and 2 tails, the prince of the kingdom will seize power. [along with this is given the ~~statement that~~] A certain butcher whose name is Uddanu has said 'When my sow littered, (a foetus) had 8 legs and two tails, so I preserved it in brine, and put it in the house'. From Nirgal-iter.

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The Magician like other people required medical attention when he fell sick. This we may judge from the request we find added to one of the monthly astrological reports forwarded to the King, to the effect that:- 'Bil-ipus, the Babylonian magician, is very ill: let the King command that a physician come and see him'.

The relation of the magician to the inspection of entrails concerns medicine more nearly than does astrology, and I shall deal more fully with this when I come to speak of Plato.

A special application of magic is found in a Leyden (Egyptian) papyrus, (see Budge's Egyptian Magic), which gives the so-called 'table' of Democritus as a means of making predictions as to life or death in cases of sickness. We are told to "ascertain 'in what month the sick man took to bed, and the name 'he received at his birth. Calculate the [course of] the 'moon, and see how many periods of 30 days have 'elapsed; then note in the table the number of days 'left over and if the number comes in the upper part 'of the table' he will live, but if in the lower part he 'will die." ~~Probably~~ Such tables were much used by the Greeks and it is probable that Hippocrates was seeking to give a rational explanation of them in his theory of the solution of decisions on critical days.

Spare to 19

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The Egyptians apparently set great store by the medical profession. The practitioners of this art belonged to the priestly class, though they were not priests, and they seem to have been not only men of high social standing, but men of wealth and substance, who were regarded as devotees of Thoth, the scribe of the gods and prototype of Hermes. This is indicated both by the monuments that have been erected to some of them, and by the elegant papyri they possessed. That they occupied a position of great respect and influence is proved by numerous references.

I-em-hotep was probably a distinguished physician who flourished before the end of the third dynasty (3500 B.C.); his name signifies "he who cometh in peace," and as the Egyptian tended to deify any historic character of a beneficent nature and to convert to a demon any unpopular personality, so at the period with which I propose chiefly to deal (1500 B.C.) his worship had become popular and fashionable at Memphis; and under the Ptolemies a small temple was built in his honour upon the island of Philae. He was the god who sent sleep to those in pain; those afflicted with disease formed his special charge; he was the good physician both of gods and men; and he healed their bodies during life and superintended the arrangements for their preservation after death. The Greeks, who called him Ἰμοῦθης, identified him to some extent with Asklepios and gave his temple at Memphis the name τὸ Ἀσκληπιειον.[1]

Sekhetenanch was chief physician to one of the kings of the fifth dynasty (B.C. 3000). His tomb at Sakkarah bears an inscription recording the favour shown by Pharaoh to him for his services, and a portrait, from the robes and adornments of which his high social standing may be gathered.[2]

We may, therefore, conclude that in the early days of Egypt, the medical practitioners belonged to a learned class, enjoyed a high social position, and were in many cases the friends and councillors of kings. More than this, we may, I think, assume that they laboured and laboured successfully to alleviate human misery and to soothe human suffering.

We must remember that, though their knowledge of the healing art was a purely empiric one, and though they were entirely ignorant of the principles of physiology and even of the simplest systematic anatomy, yet their experience in the use of remedies was the fruit of many centuries; and their knowledge of pathology, derived from the constant examination of the bodies of those who died, must have conferred upon them great skill in diagnosis. Upon this point all the testimony of antiquity accords.

The record of this knowledge has come down to us in part through various papyri. We know from the statement of Clement of Alexandria[5] that the sacred books of Thoth, preserved in the temples and known as the Hermetic books, were forty-two in number, of which thirty-six dealt with philosopy and six with medicine. The names of the latter were:—

(1) On the constitution of the body.
(2) On disease.
(3) On instruments.
(4) On drugs.
(5) On the eye.
(6) On (diseases of) women.

These Hermetic Books, which were carried by pastophori, or priest physicians, in the sacred processions, have unfortunately all been lost: but we know a great deal regarding the actual methods

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of the physician from some medical papyri which have come down to us.

Of these the chief are:—

1. The Papyrus Ebers, preserved at Leipzig, discovered by Professor Ebers in Egypt in 1872. It dates from about 1500 B.C., and consists of 110 pages.

2. The Berlin Medical Papyrus, published by Dr. Brugsch. It dates from about 1400 B.C., and contains 21 pages. There is also a smaller one in the Berlin Museum, of 15 pages.

3. The Kahun Papyrus, published by F. L. Griffith. It dates from about 2500 B.C., but is a short papyrus, consisting of only 3 pages.

4. The Hearst Medical Papyrus, preserved in the University of California, and published by Dr. George A. Reisner. It consists of 17 pages.

5. The British Museum Medical Papyrus. It has not yet been published, but Dr. Wallis Budge, keeper of the Egyptian and Assyrian antiquities in the British Museum, tells me he hopes it will shortly be issued by the trustees of this Institution. It dates, probably, from about 1000 B.C.

6. There are also papyri of medico-magical contents in the museums at Leyden, Turin, Boulak and Paris, but these are said to be of little value as regards our knowledge of Egyptian medicine.[1]

But the great Egyptian museum is now removed to Cairo itself U/

My remarks regarding medical practice in Egypt, except when otherwise mentioned, refer to the period of the 18th dynasty, that is the 16th century B.C. At this time, known as the beginning of the new Empire, Egypt stood at the zenith of her glory. Her Pharaohs exacted tribute, and her armies marched unhindered from the Libyan desert to the Euphrates, and in this state of external peace and domestic felicity there was opportunity for intercourse with outside nations, like the Greeks, for great advance in the technical arts, and for sending forth exploring expeditions which brought back treasure and strange animals from the sacred land of Punt at the sources of the Nile. ? ?

~~Books not~~ Delta! For even legendary Greek history does not go back beyond the Dorian invasion c. 1000 B.C. It would be safer to say "the representatives of the recently discovered Aegean civilisation."

This period is to be placed about a century and a half before that epoch familiar to us for the Exodus of Israel from Egypt. To it belong some of the chief literary and monumental remains of this country, and during it the Egyptians attained to a level of thought and of executive skill which they did not at any time surpass, save under Greek influence in the Ptolemaic period, a a thousand years later. ~~I show you here some small fragments from the wreck of this great civilisation.~~

~~An alabaster mortar for bruising drugs, and a bronze basin which may have been used for storing roots or herbs were shown here as examples of the vessels of the period.~~

?? Not if ~~Exodus took place off~~ Ramses II who died c. 1225 is "the Pharaoh of the oppression" for this means the Exodus c. 1200

Surgical Knives and Spatula.

These knives were purchased by Mr. D. C. Robertson near Thebes in 1890, and were by him presented to Dr. Affleck, who has kindly lent them to me. Professor Sayce, who was present when they were bought, unhesitatingly pronounced them to belong to this period. They were found in a tomb of the 18th dynasty (*circa* 1500 B.C.). I have submitted them also to Dr. Wallis Budge, and he, while admitting that they possibly belong to this period, is inclined to think that the shape indicates a later date. One finds in the papyrus of Ani[2] (1500-1400 B.C.) a picture of Ra, incarnated as a cat, amputating the head of the serpent of darkness with a knife, in shape very closely resembling the largest of these three. Probably, therefore, the difficulty with regard to shape need not weigh too much in the estimation of their date. As to their use, the Arab from whom Mr. Robertson purchased them stated that they were found in an amphora along with other instruments, which he showed to Mr. Robertson. That gentleman tells me these resembled surgical or obstetric forceps, although, unfortunately, he did not purchase them. The knives are well adapted for the performance of those operations which were carried out by the Egyptian physicians of this period, and to which I shall refer later. They could not have been concerned with the process of embalming or with that of sacrifice, for which flint knives were always used, in accordance with ancient custom.[3] I think for these various reasons we may safely conclude that they were intended for surgical use.

The Egyptians, who held the sacredness of the human body an essential part of their religion, were a most cleanly people. Their dress, at this period, consisted of a simple white linen stole or stole and kilt, the head and legs were bare, and the feet shod simply with light sandals. Their ablutions were frequent, and Herodotus,[2] describing the customs of a somewhat later date, states that "for three successive days in each month, they purge the body by means of emetics and clysters, which is done out of a regard for their health, since they have a persuasion that every disease to which men are liable is occasioned by the substances whereon they feed." According to Pliny[3] the habit of taking enemata was a sacred rite which the Egyptians had learned from their sacred bird the Ibis. In this, however, he had probably confused the Ibis with the god Thoth, whose symbol the bird was, and who was the supposed writer of the sacred Hermetic books. In these rules of health we have an explanation of many prescriptious which I shall touch upon in describing the Ebers Papyrus, and which appear to have been directions for the dietary in different diseases. I may mention here, that their ordinary diet, as quoted by Herodotus, consisted of bread, wine, many kinds of fish, either raw, salted, or boiled; ducks, quails, and other small birds uncooked but salted, and various larger birds and fish, except those set apart as sacred, either roast or boiled. Herodotus, in another place, refers to the dietary of the labourers engaged upon the pyramids, as consisting of radishes, onions and garlic, which cost, he says, in the case of the Great Pyramid, 1600 talents of silver.

25 MANOR PLACE,
EDINBURGH.

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When the Egyptains became sick they called in a physician. At the time of which Herodotus writes, ~~perhaps~~ some 500 years B.C., he says:—[4] 450

Herodotus was born 484 B.C.

"Medicine is practised among the Egyptians on a plan of separation; each physician treats a single disorder and no more. Thus the country swarms with medical practitioners, some undertaking to cure diseases of the eye, others of the head, others again of the teeth, others of the intestines, and some those which are not local." These physicians received their preliminary training in the temples no doubt, and Josephus[5] quote the statement of Manetho, that Moses was a priest at Heliopolis, a great medical centre of his time. The physicians received salaries from the treasury, paid, doubtless, from the temple funds, and supplemented by their private fees. According to the statements of several ancient writers, they were obliged to conform their treatment to that prescribed by the Hermetic Books, the patient's death being a capital crime, if he was found to have been treated in any other way. Aristotle says:—[6]

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"The Egyptian physicians who were allowed after the third day to alter the treatment prescribed by authority and even before, taking upon themselves the responsibility." These regulations, however, were almost certainly intended merely as a safeguard against gross quackery and imposition, not to be applied with absolute rigidity.

The physicians were, as I have stated, not simply priests, and, on the other hand, they are not to be confused with the embalmers, who at Thebes were a low class of men, dwelling in a poor quarter of the city. Some confusion has arisen on this point, because of the statement in Genesis l. 2: "And Joseph commanded his servants the physicians to embalm his father, and the physicians embalmed Israel."

3. "And forty days were fulfilled for him, for so are fulfilled the days of those which are embalmed: and the Egyptians mourned for him threescore and ten days."*

Referring to the Septuagint version of the Old Testament made at Alexandria under the direction of the Pharaoh Ptolemy Philadelphus about 250 B.C., I find that the Alexandrian translators have rendered the Hebrew word by ἐνταφιαστᾶις or "entombers," instead of employing some such word as ἰατροῖς. Thus they evidently recognised the distinction of the two classes as essential.

I consulted Professor Kennedy on this point, and he has very kindly written to me in support of my supposition.

Diodorus Siculus[2] states that so unpopular were the embalmers that when the incision had been made in the side preparatory to removing the organs, the man who made the cut was driven from the house with curses, pelted with stones and otherwise maltreated. This was the parachistes who made the cut. On the other hand, he says that the tarichentes, who removed the organs and prepared the body, was reverenced as being of the priestly class. It is

Italics as below

*End of L. I.

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Embalming

The organs were removed from the body through an opening in the side, and no doubt the physicians who had attended the case during life were often, if not always, present. It is quite a simple matter to remove the abdominal organs intact through a small opening in the side, while the thoracic organs can be reached with but little more difficulty. Thus the Egyptian physician had probably unrivalled opportunity for increasing his knowledge of morbid anatomy, upon which skill in diagnosis is undoubtedly most surely founded. Pliny, referring most likely to Ptolemaic times, states that post-mortem examinations were carried out in Egypt for the very purpose of investigating diseases.[3]

As the process of embalming is an interesting one connected with medicine indirectly, I may make brief mention of it here. The account of Herodotus has been proved by recent researches to be so substantially correct that I shall quote it. His knowledge of the matter was obtained from the priests of Egypt, during a visit to that country in the fifth century B.C.; but as the ceremonies varied little from century to century in Egypt, we may assume that the account presented would give a fair picture of the process at the period of which I am treating.[4]

"II. 86. There are a set of men in Egypt who practise the art of embalming and make it their proper business. These persons, when a body is brought to them, show the bearers various models of corpses made in wood and painted so as to resemble nature. The most perfect is said to be after the manner of him[5] whom I do not think it religious to name in connection with such a matter; the second sort is inferior to the first and less costly; the third is the cheapest of all. All this the embalmers explain, and then ask in which way it is wished that the corpse should be prepared. The bearers tell them, and, having concluded their bargain, take their departure, while the embalmers left to themselves proceed to their task. The mode of embalming according to the most perfect process is the following:—They take first a crooked piece of iron and with it draw out the brain through the nostrils, thus getting rid of a portion, while the skull is cleared of the rest by rinsing with drugs; next they make a cut along the flank with a sharp Ethiopian stone and take out the whole contents of the abdomen, which they then cleanse, washing it thoroughly with palm wine and again frequently with an infusion of pounded aromatics. After this they fill the cavity with the purest bruised myrrh, with cassia, and every sort of spicery except frankincense, and sew up the opening. Then the body is placed in natrum for seventy days and covered entirely over. After the expiration of that space of time, which must not be exceeded, the body is washed and wrapped round from head to foot with bandages of fine linen cloth smeared over with gum, which is used generally by the Egyptians in the place of glue. And in this state it is given back to the relations, who enclose it in a wooden case which they have had made for the purpose, shaped into the figure of a man. Then fastening the case, they place it in the sepulchral chamber upright against the wall. Such is the most costly way of embalming the dead.

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"87. If the persons wish to avoid expense and choose the second process, the following is the method pursued:—Syringes are filled with oil made from the cedar tree, which is then without any incision or disembowelling injected into the abdomen. The passage by which it might be likely to return is stopped and the body laid in natrum the prescribed number of days. At the end of the time the cedar oil is allowed to make its escape, and such is its power that it brings with it the whole stomach and intestines in a liquid state. The natrum meanwhile has dissolved the flesh and so nothing is left of the dead body but the skin and the bones. It is returned in this condition to the relatives without any further trouble being bestowed upon it.

"88. The third method of embalming, which is practised in the case of the poorer classes, is to clear out the intestines with a clyster and let the body lie in natrum the seventy days, after which it is at once given to those who come to fetch it away."

Examples of the first method of embalming are afforded by the mummies of the Egyptian Pharaohs, Rameses II. and Rameses III., which being now unwrapped, present the features so clearly as to give a good idea of the king's appearance during life.[1]

The second method was used in the case of Heni, an Egyptian official of ~~2600~~ B.C., in the 11th Dynasty, preserved in the British Museum, catalogue No. 23425. The bones are well articulated with the ligaments undestroyed, and the mummy has been further treated with bitumen.

The 11th Dynasty is now placed circ 2160 - 2000 B.C.

to/

On the nature of the substance described as natrum there is considerable difference of opinion. The word used by Herodotus (ταριχεύω = pickle fish) suggests the employment of brine made from chloride of sodium, and the recent analysis of some mummy wrappings supports this view. Other bodies appear to have been steeped in bicarbonate of soda, and by this process a kind of adipocere was no doubt formed by the soda and the flesh. During this rough method of steeping in alkaline solution for seventy days the bodies must often have decayed considerably, and parts of the body may have required to be replaced. Dr. Wood Jones showed me a forearm and hand that had been nicely manufactured from linen wads supported by a fibula in the centre! No doubt the priests or physicians, in the case of important mummies of kings or grandees, injected some strong and aromatic antiseptic, upon the nature of which they did not choose to enlighten Herodotus, and which has completely evaporated in the course of ages. In the case of finer mummies, too, the skin appears often to have been treated with wax. The statement of Herodotus, that in some cases the bodies were not handed over to the embalmers for some days after death, is substantiated by a piece of bitumen, which Dr. Wood Jones showed me, taken from the pleural cavity of a girl's mummied body. In this mass were embedded numerous

the south, took charge of the stomach and intestines; while Qebhsennuf, who stood for the west, was responsible for liver and gall bladder.[1]

After an elaborate funeral ceremony, in which the Book of the Dead, containing the ritual appropriate to each action, was recited, these Canopic Jars were placed in the tomb, together with the finished mummy in its case, and such food, drink and furniture as might be requisite to cheer the shade of the departed person.

End of Embalming

The ceremonial that accompanied an Egyptian funeral was of a most elaborate type, and was set forth in a complicated ritual, of which the origin is lost in remote antiquity. The details of this ritual we know from various versions of the Book of the Dead, of which different chapters were derived from various ages. Some refer back as far as 4300 B.C. Portions of this ritual were entombed with the mummy, either written on papyrus, or painted on the coffin, to be a guide and protection to him in the nether world. The most complete version or recension of this book was that used at Thebes, and of this version the finest copy was found in the coffin of Ani, a scribe of 1500 B.C., and is now preserved in the British museum.

The Utchat

The Egyptians regarded man's nature as formed of three components. There was the body, with its conscience, intelligence, and other attributes. Secondly, the soul, which was freed by death and dwelt in heaven, and thirdly, the Ka, which can best be translated as shade or ghost. It lived either in the tomb or haunted the abodes of the body during life, was apparently of a benevolent disposition, but possessed sufficient corporeal existence to play a game of draughts with visitors to its tomb.

The god of health was Horus, god of the forenoon and noonday sun, identified in later times with the son of Isis and Osiris. He was acknowledged by the Greeks as the prototype of their Apollo.

The religion of the Egyptians was a curious mixture of sublime spiritual truths and childish superstitions. This is reflected, to a great extent, in their medical beliefs and practices, to an understanding of which we are helped by an appreciation of their religion. I have seen nowhere a better statement of this matter than that given by Dr. Budge,[2] which I may quote:—"When we consider the lofty spiritual character of the greater part of the Egyptian religion, and remember its great antiquity, it is hard to understand why the Egyptians carefully preserved in their writings and ceremonies so much which savoured of gross and childish superstition, and which must have been the product of their predynastic or prehistoric ancestors, even during the period of their greatest intellectual enlightenment. But the fact remains that they did believe in one God who was almighty and eternal and invisible, who created the heavens, and the earth and all the beings and things therein; and in the resurrection of the body in a changed and glorified form, which would live to all eternity in the company of the spirits and souls of the righteous in a kingdom ruled by a being who was of divine origin, but who had lived upon the earth and had suffered a cruel death at the hands of His enemies, and had risen from the dead, and had become the God and King of the world which is beyond the grave; and that although they believed all these things and proclaimed their belief with almost passionate earnestness, they seem never to have freed themselves from a hankering after amulets and talismans, and magical names and words of power, and seem to have trusted in these to save their souls and bodies, both living and dead, with something of the same confidence which they placed in the death and resurrection of Osiris."

One of the commonest amulets used, and its employment seems to have been universal from the earliest to the latest period of Egyptian history, was the Utchat or Eye of Horus. It was made of various materials and was supposed when worn to confer upon its wearer the strength of the noonday sun, and to secure him in his health. It was also placed upon writings and objects of various sorts, to secure success. When alchemy or chemistry, which had its cradle in Egypt, and derived its name from Khami, an old title for this country, passed to the hands of the Greeks, and later of the Arabs, this sign passed with it. It was also adopted to some extent by the Gnostics of the early Christian church in Egypt. In a cursive form it is found in mediæval translations of the works of Ptolemy the astrologer,[3] as the sign of the planet Jupiter. As such it was placed upon horoscopes and upon formulæ containing drugs made for administration to the body, so that the harmful properties of these drugs might be removed under the influence of the lucky planet. At present in a slightly modified form, it still figures at the top of prescriptions written daily in this country.

23.

25 Manor Place,
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Papyrus Ebers.

The most important extant medical papyrus is that discovered by Ebers during a stay in Egypt in 1872. It is dated by him from a period 1553-1550 B.C., and was supposed by him to represent one of the lost Hermetic Books. This is not now believed to be the case; but it is regarded as a compilation made at the date mentioned of remedies which had been in use from a much earlier period.

"The question here at once arises[1] as to whether our papyrus be an original production. Lepsius, and with him, indeed, most of the Egyptologists, declare it to be merely a copy. We shall not now inquire further into the reasons that the learned investigator has alleged for his opinion. That we have, in fact, however, before us, in this manuscript, only a copy, the papyrus itself gives positive proofs. In some places, namely, page 18, line 1; page 89, line 1; and page 90, line 3, we find written in with red ink in the middle of the text the words qem-sen = 'found destroyed.' What would this phrase do in an original work? Further, we find a few passages repeated with only slight variations; compare the following:—Page 37, line 10, to page 38, line 3, and page 38, line 10, to page 39, line 2; page 25, lines 3 to 8, and page 52, lines 1 to 7. There are, besides, to be found not infrequently the same prescriptions repeated in different places and for different illnesses.

"The manner and way in which this manuscript has originated can be best explained, as by Ebers, 'that the sacred scribe had in copying to combine different smaller writings into one, and, without thinking of the sense, had copied several pieces of the same meaning,' and, we may add, drew attention to occasional gaps in these writings by the above-mentioned 'qem-sen.'

"The papyrus has undoubtedly been used; slight inaccuracies in the text have been corrected, consequent, I believe, on its use—sometimes, indeed, with paler ink than that in which the papyrus is written, as one can clearly make out. On the margin of the pages there are now and then short remarks; for instance—probably by a later user—on the margin of page 40 the word nefr = 'good' has been added three times in pale ink, different from the original; on page 41 there are on the margin the words nefr ar = 'good to prepare.'"

. . . . . .

The account of the purchase and discovery of this MS. is given by Ebers in the introduction to the facsimile of the papyrus.[2] He says that in the winter of 1872-73, while in Thebes, he was offered this papyrus by a resident there. He was informed that it had been obtained fourteen years before from a grave at El Assassif, near Thebes, and had been found between the legs of a mummy. The original finder of the papyrus was dead, so that the exact grave could not be ascertained. The calendar written on the back of the papyrus impressed Ebers with its chronological importance, which, together with the beauty of the writing, led him to purchase it.

25 Manor Place,
Edinburgh.

As the Egyptians supposed that some diseases were curable by medicines, while others were amenable only to incantations and prayers, the remedies form a curious medley of active drugs, amulets, and invocations. Many of the prescriptions commend themselves quite well to modern practice, others comprise a mixture of heterogeneous and irrelevant substances, some are disgusting. Still, at their crudest, these prescriptions are no worse than those contained in the pharmacopœias of the Colleges of Physicians of Edinburgh and London as late as the end of the seventeenth century A.D. The papyrus also gives some insight into the physiology of the day, surgical practice, and even tells what the doctors were to say to their patients.

As an example of an incantation, we may take the words to be spoken when remedies were being prepared.

I. "May Isis heal me as she healed her son Horus of all the pains which his brother Set brought on him when he slew his father Osiris. Oh Isis! Thou great enchantress heal me, save me from all evil things of darkness, from the epidemic and deadly diseases and infections of all sorts that spring upon me, as thou hast saved and freed thy son Horus, for I have passed through fire and am come out of the water. May I not light upon that day when I shall say 'I am of no account and pitiable.' Oh Ra, who hast spoken for thy body. Oh Osiris, who prayest for thy manifestation. Ra speaks for the body, Osiris prays for the manifestation. Free me from all possible evil, hurtful things of darkness, from epidemic and deadly fevers of every kind."

Or, take again the words to be said for a burn—

LXIX. "Oh Horus! thou son of God. There is fire in the land. Whether there be water or not there is water in thy mouth, he Nile is in thy feet if thou come to quench the fire." This invocation was to accompany a local application of milk and wool to the burnt part.

With regard to drugs, the Ebers Papyrus and other medical papyri mention the following well-known substances:—Sulphate, oxide, and other salts of lead used as astringents and demulcents; pomegranate and acanthus pith as vermifuges; sulphate and acetate of copper; magnesia, lime, soda, iron and nitre; oxide of antimony, sulphide of mercury; peppermint, fennel, absinth, thyme, cassia, coriander, carraway, juniper, cedar wood oil, turpentine and many other essential oils; gentian and other bitters; mandrake, hyoscyamus, opium with other hypnotics and anodynes; linseed, castor oil, squills, colchicum, mustard, onion, nasturtium, tamarisk, frankincense, myrrh, yeast. Besides these are many drugs, especially essential oils, which probably were valuable remedies, but of which the names, being highly technical, are impossible, so far, to translate.

Among external applications were—the knife, the actual cautery, massage, ointments, plasters, poultices, suppositories, enemata, inhalations, and the vaginal douche and fumigation.

The active means to be used against the results of a burn were as follows:—

LXVII. *First Day.*—Place upon it black āmāt juice.

Second Day.—Place upon it burnt and powdered goat's excrement mixed with active yeast.

Third Day.—Place upon it a plaster made of acanthus thorns dried, ground and mixed in oil, with boiled durra and onion.

Fourth Day.—Place upon it a plaster made of wax, roasted tallow, palm fibre and uāh grains.

Fifth Day.—Place upon it a plaster made of onions, red oxide of lead, and fruit of the am-tree, ground and mixed with copper dust. After this it was to be bandaged up with a poultice made of boiled uāh grains.

The following is a remedy to cause the hair to grow, prepared for Ses the mother of the late Pharaoh of Upper and Lower Egypt:—

Toes of a dog . . .	1 part.
Ripe dates . . .	"
Asses hoof . . .	"

Boil carefully in a pan of oil and use to rub in.

Of another prescription for baldness appearing in patches it must have been somewhat difficult and dangerous to obtain the ingredients, though the pomade is certainly impressive.

LXVI.	Lion's fat . . .	1 part
	Hippopotamus fat . .	"
	Crocodile fat . .	"
	Goose fat . . .	"
	Snake's fat . . .	"
	Nubian ibex fat . .	"

to be mixed and rubbed into the scalp of the bald one.

Still another prescription for baldness which savours of homeopathy is:—

Writing ink
Cerebro-spinal fluid

to be mixed in equal parts and applied to the head.

The following gives the method for making an inhalation:—

LV.	Animi solatium grains .	1 part
	Meni-resin " .	"
	Aām plant " .	"

Rub down together; take seven stones, heat them in the fire, place upon one of them some of the above. Cover it over with a new vessel in which a hole is bored. Place a reed in the hole and set the mouth to the reed so as to inhale the vapour. Similarly with the remaining sixstones; afterwards eat something fat, either of fat, flesh, or oil.

To remove granules from the eye.

LVII.	Collyrium . . .	1 part
	Subacetate of copper .	"
	Onion . . .	"
	Wood dust . . .	"
	Sulphate of copper . .	"

Stir up in water and apply to the eyes at the back.

Note.—I may further say here, that in addition to using the modern bluestone treatment for trachoma or Egyptian ophthalmia, the Egyptians of 1500 B.C. possessed forceps with flat, broad blades, which were used apparently for removing an inward growing eyelash, and were admirably adapted for crushing the

25.

25 MANOR PLACE,
EDINBURGH.

Flinders Petrie.

granules. Professor Sayce has shown me an excellently preserved pair of copper forceps of this period in his collection.

One eyewash or salve is given on the authority of a Semite from Biblos (Gebal, a town of Syria) who was probably a great authority upon eye diseases in his time. His eyewash is mentioned in much the same way that one might recommend to-day some prescription of a noted specialist in Wiesbaden or Vienna.

To prevent trichiasis from doing harm to the ball of the eye, the following characteristic directions are given:—

LXIII. Pull out the hair and apply—

Myrrh . . .	1 part
Lizard's blood . .	"
Bat's blood . . .	"

For dacryo-cytitis,s the writer of the Ebers Papyrus gives the following, with the remark, "Note well, for this is the real thing."

Collyrium . . .	1 part
Wood dust . . .	"
Dry myrrh . . .	"
Honey . . .	"

Anoint the eye four days with this.

For a suppurating wound, the following early example of antiseptic treatment is recommended:—

LXVIII.

Qebu oil . . .	1 part
Crocus . . .	"
Expressed cedar oil . .	"
Sefet oil . . .	"

Grind together and apply as a plaster.

To draw out pus the following is recommended:—

LXXVI.

Date meal roasted . .	1 part
Meal of wheaten chaff .	"
Bicarbonate of soda . .	"
Endivia seeds . .	"

Warm, and apply as a plaster.

One notes many curious and sometimes repulsive substances in these prescriptions, but it would be unjust to conclude that they were indifferently used for the diseases in connection with which we find them named. In the first place, there are various recipes quoted for each disease, and the compiler of the papyrus apparently included everything of which he had heard as likely to benefit each disease. Again, if we consider a time not far removed from our own we find that the Pharmacopœia of the Royal College of Physicians of London for 1651 A.D. prescribes—to select a few examples:—Hare's brain; swallow's nest; horn of the stag, the rhinoceros, and the unicorn; powder of Egyptian mummy; blood of the cat, pig, bull and tortoise; excrement of doves, goats, stallions, cows and men; bile of pigs, hawks, bulls and bears; urine of goats, boars and boys; stone from the human bladder; and dead man's fat and skull. He, therefore, who insists that experienced and liberal-minded men of this profession in ancient Egypt were entirely bound to foolish spells and fanciful conglomerations may be compared to someone of a future race digging three thousand years hence among the ruins of London, and who, finding a copy of this Pharmacopœia, should forthwith contemptuously dismiss from mind the possible existence of Sydenham or Harvey.

We gain from the Ebers Papyrus some interesting sidelights upon the views regarding the physiology of the blood-vessels, and in this we see at once a marked contrast between the elementary scientific knowledge of the Egyptians and the highly developed and useful empiric practice that I have tried to indicate.

One passage in the papyrus purporting to be written for the Pharaoh Usaphäis of the 1st Dynasty (3700 B.C.) gives some account of the heart and vessels, and makes a vague suggestion of the passage of the blood through them.

Another section of the same papyrus gives a description of the action and importance of the heart itself.

XCIX. "From the heart come the vessels to the whole of the body. Any physician . . . may feel these if he puts his finger upon the head, or the back of the head, or the nose, or the region of the stomach, or either arm or the legs. Everywhere the action of the heart meets him, for its vessels run to all the limbs. Therefore is it named the centre, over the vessels of all the limbs. Four vessels run in the nasal cavities, of which two bring mucus and two blood. There are four vessels in the interior of the temples from which the eyes obtain their blood. . . . There are four vessels which distribute themselves in the head. . . . There are four vessels to the ears, two on the right side and two on the left side. The vital spirit goes in at the right ear, and the breath of death into the left ear. . . . Three vessels (*i.e.* artery and two veins) lead to each arm and to the fingers, and three vessels lead to each leg which reach down to the soles of the feet. . . . Two vessels lead to the kidneys, one to each, four vessels lead to the liver which bring it moisture and air. Here originate all sorts of diseases, for they are mixed with the blood. Four vessels go to the intestines and the spleen, which also bring them moisture and air. Two vessels go to the bladder, which produce the urine. Four vessels proceed to the great intestine, and conduct moisture and air."

Next follows a great deal of theory as to the manner in which diseases originate from the action of the heart, and the advice, which really sums up the whole of cardiac therapeutics, that when the heart is diseased one must obtain for it rest as much as possible.

The reference to the vital spirit and the spirit or breath of death is interesting, and suggests the superstition regarding the luckiness of the right side of the body, and the sinister attributes of the left.

As to pathology, the difficulty of translating technical names, together with the totally different outlook upon disease taken by the Egyptian physicians and ourselves, render it extremely hard or impossible for us to grasp more than a vague idea of the diseases which these old physicians mean to indicate.

Several forms of intestinal parasite with their appropriate vermifuges are clearly indicated; a pernicious type of bloodlessness seems to have greatly exercised their curative endeavours, and an infective disease called "uchedu," which is difficult to identify, is very frequently mentioned. At a later date, the discoveries of Professor Elliot Smith and Dr. Wood Jones have shown that malignant disease, leprosy, infantile paralysis, inflammatory diseases of bone, gout, and, above all, rheumatoid arthritis, were common maladies as they are now. The question of syphilis has been raised in connection with the advanced atheroma that has been found in the large arteries, the diffuse signs of periostitis, and particularly in regard to a case of ulceration of the skull described recently by Professor Lortet.[1] No absolutely conclusive evidence as to the existence of this disease in early Egypt has, however, yet been found; and Professor Elliot Smith has demonstrated that the supposed ulceration is probably due to the attack of insects ages after the bones were buried.[2]

With regard to surgery, the statement has been made in almost every text-book on the history of medicine that the Egyptians practised the amputation of limbs. I have not been able to find any basis for this statement, and Professor Sayce tells me that the very idea of the mutilation of the body was so foreign to their religious ideas, that this practice would have been impossible. The original of the statement regarding amputations appears to have been made by Larrey, when he accompanied Napoleon's army of invasion into Egypt, and visited the Pyramids and Temples of this country. He described pictures on the walls showing these surgical procedures, of which apparently he had mistaken the meaning.[3]

Another statement which is commonly made is, that the Egyptians were the first to stop decayed teeth with gold. This may be the case; but after considerable search and enquiry, I have been unable to obtain any confirmation of the statement.

Obstetric practice, as we learn from Exodus I., was in the hands of midwives. Four of these, a chief midwife with three assistants, were generally present at the delivery of the patient, who sat upon a special stool.

Caton[1] quotes Dr. Grant Bey as asserting that the operation for cataract was practised in ancient Egypt. This is interesting in support of the contention that cataract was operated upon in Babylonia 2200 years B.C.

Although the Egyptians would not, in all probability, amputate limbs, except in so far as the mere severing of a hopelessly shattered member might be concerned, we know from the Ebers papyrus that they both possessed great skill in the diagnosis of tumours, and removed them by knife and cautery.

The following is the treatment of what seems to be either a collection of tuberculous glands in the neck, or an abscess there:—

CVI. "When thou meetest a fat swelling (that is tumour scrofulosus?) in the neck, and findest it like an abscess of the flesh, then say, 'I will treat the disease with the knife, while I carefully avoid the vessels.' Make them a plaster as a means of healing from the swelling.

"When thou meetest a tumour which has attacked a muscle . . . when thy finger examines it and it is like a hard stone under thy fingers (carcinoma?) . . . say, "I will treat the tumour with the knife.' Cover it with fat and treat it as one treats a suppurating wound in any part of the body."

The following is a clear description of the diagnosis of a fatty tumour which any one may recognise, and of its treatment. CVII. "When thou meetest a fat tumour in any part of a person, and findest that it goes and comes under thy fingers, and also quivers when thy hand is still, say then of it, 'It is a fatty tumour, I will treat the disease.' Treat thou it with the knife and heal it as one heals an open wound."

The following is the method of treating a vascular tumour that bleeds. "If thou meetest a tumour of the muscles in any part of a person's body and findest it of rounded shape grown up under thy fingers and spread out upon his flesh; if it is not large and does not project greatly, say thou of it, 'It is a tumour of the muscle, I will heal the disease. The muscles produce it. . . .' Treat thou it with the knife and burn it out with fire, that it may not bleed. Heal thou it with the glowing metal."

These are sufficient extracts to show that the physicians of this time possessed considerable power in differentiating tumours, and did not fear boldly to remove them.

In the treatment of fractures the medical practitioners of the New Empire seem to have possessed a considerable degree of skill.[1] They did not indeed rise to the level of Hippocrates who, in Greece 400 years B.C.,[2] states that a mended fracture of the thigh in which shortening has taken place is a great disgrace and an injury. But they were able by means of palm fibre splints and linen bands even so early as the time of the Fifth Dynasty, to unite broken femora and tibiæ so that no rotation and no tilting of the lower fragment resulted. Fractures of the forearm they seem also to have mended skilfully, but fractures of the clavicle appear to have been left to the *vis medicatrix naturæ* with sad results on the shapeliness of the shoulder.

Other Papyri.

Of the other papyri I need not say much. The Berlin Medical Papyrus is supposed to have been part of a large library at Memphis, which is mentioned by Galen as having contained medical books. He speaks of a panacea used by the Egyptians of which the formula is to be found in one of these. This library was probably kept by the priests of Im-hotep. The papyrus belonged to the nineteenth or Twentieth Dynasty. It is not apparently of so much real value, nor is it so large as the Papyrus of Ebers.

Kahun Medical Papyrus, found at Kahun in April 1899 dates, from before the reign of Amenemhat III. It is 39½ inches in length and consists of three pages which had been mended and strengthened by its ancient possessor with strips torn from other papyri and pasted on the back. Its text consists entirely of gynecological instructions and prescriptions without title or introduction. In the first two pages were 17 prescriptions all of one form. "Treatment for a woman suffering from," etc. (symptoms); "Say thou with regard to it—'It is,'" etc. (diagnosis); "Make thou for, it (prescription).

The substances prescribed are generally reasonable and obvious, such as beer, cow's milk, oil, dates and other fruits, herbs, incense, etc. Sometimes they are of an offensive character. The quantities are large. the henu ($\frac{6}{7}$ths pint) for liquids, and the cubic quarter ($\frac{1}{64}$) hekt, or 4½ cubic inches for solids.

In the first two pages some of the diseases, as hysteria and influenzal seizure, are easily recognisable, and the treatment seems appropriate enough. The third page, which seems to belong to another period or to be derived from some different source, contains mostly quack prescriptions, such as directions for deciding whether an unborn child is male or female.

What I have said will suffice to show that the assistance of a class trained in the art of healing was eagerly sought in the lands where the dawn of our civilisation began. If we remember that the time of which I have spoken was a period of slow transition from an age of bronze to one of iron, we see that this art occupied a position of high efficiency as compared with other crafts, and of great advancement in the general scheme of human knowledge. Those who devoted their energies to medicine exercised the art with a fair measure of success, and in proportion to their labours, were held in honour by those whom they had served.

Ret to Ptolemaic Times

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