

gods of which, though very humble, had special powers (Assuán, Gurneh, etc.).

Survivals of these innumerable places of miraculous cures in ancient Egypt are seen in the topographical coincidences with various saints' graves of the Coptic Church—having the same privilege—and, after Muhammad, with all the tombs of Musalmān *shaiḥs* which have succeeded to the veneration of ancient days for these places.

Towards the latter days of history, political events tended to group the most important of these centres of medicine round the capitals of Upper and Lower Egypt, and the infiltration of Persian and Hellenistic ideas added new elements to the rôle of the gods against disease.

6. The means used by the gods in such cases to instruct or heal patients are not well known in general. Several texts say that, under the influence of Greek ideas, the custom spread in Egypt of going to sleep inside the precincts of the temples of the gods of healing, or near the supposed tombs of those celebrated historical personages whom legend gradually confused with mythical kings and the gods of healing (see DIVINATION [Egyp.]). This is the case for Imhotep (cf. Psherenptah stela). Invalids were informed of their remedies oftenest in dreams, as is proved by a certain number of allusions in the epigraphical monuments, by the accounts in popular tales, and by the witness of Diod. i. 25. Direct cure, following upon a prayer, and without divinatory revelation, is not formally entertained except in Herod. ii. 65, according to whom sums of money equal in weight to a half or a third of the sick child's hair (?) were vowed to the gods in case of recovery, or a promise was made to buy a beast for the temple herds. The sudden inspiration of the doctor enlightened by Divine grace and working *διὰ τῆς ἰδίας δεισιδαιμονίας* is not a very Egyptian trait, and may be due to foreign influences (cf. Berthelot, *Alchimistes grecs*, 1890, p. 226). The essentially native form of miraculous cure by the intercession of the god appears to have been worked chiefly by the direct application of the healing fluid, either by the priest who carried the Divine relics, the *nibsau*, or, in important cases (demoniac possession, epilepsy, and the like), the god himself. The famous Stela of Bakhtan is a familiar example of this type of curing by exorcism worked by a Divine statue. The adjuration of the demon of disease, his overthrow, and his departure from the body of the princess, are merely an instance of a practice current in all the religions or 'semi-religions' in which there is a 'dispelling of demons.' It is more interesting to note the manner in which the statue of a god was supposed by the Egyptians to be capable of possessing the necessary power. The Egyptian text proves that this power was possible only to a 'secondary' statue of the god—one of those animated, for a special series of activities, by an 'energy-soul' of distinct name. It derived its chief power from the 'essential' statue of Khonsu, the statue which contained the magic soul of the god and made his will known by movements of its head (see DIVINATION [Egyp.]). This famous statue never left Thebes; it kept the best of the Divine substance there, and consented to detach and lend its healing forces only to such and such a one of its doubles, 'by bestowing upon it (by the nape of the neck) its protective fluid at four intervals' (which is a very valuable indication of the antiquity of the magical conception). Apparently, then, the power against disease did not belong to all the 'doubles' of a god. It was the privilege of the one image in which dwelt the 'true name,' and this assumes that power against demons was a part of the ultimate reserve of the personality of a being.

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Finally—the primitiveness of the practice of exorcism by statues being a traditional survival—we may hold that, at the end of a long period of evolution, the views of the Egyptian upper classes on disease often came near to really lofty conceptions. Though, as everywhere, sorcery, the bastard child of primitive religion, preserved the rudeness of the 'dispelling of spirits' of primitive days, still the fight for healing, while maintaining its character of Divine teaching, became more and more natural and scientific. If, indeed, it attributed a large share to the supernatural intervention of the gods, it also gave an important place to Divine *inspiration*, guiding the man of science. Thoth-Hermes, in his various names and multiple capacities, inspires sacred medicine with a higher knowledge of human infirmities, without, however, assuming the absence of resources founded on therapeutics. The priest-doctor of the later ages of Egypt is a noble figure, resembling that of the magnificent portrait left by Cheremon (*FHG* iii. 497). And between the magic idol (or fetish) of the first healers of Egypt and the Thoth-Hermes of the end there is the same distance (and the same long way laboriously traversed) as between the anthropophagous Osiris of the Pyramid Texts and the Græco-Egyptian Osiris, who gives a seat at his table of honour in Paradise to the poor beggar 'who had not had his share of happy days on this earth.'

LITERATURE.—There is no monograph treating the subject synthetically. A great number of details and partial theories are found scattered throughout the bibliography of Egyptian medicine. Mention may be made, amongst the works and articles treating more specially the ideas discussed above, of: H. Brugsch, *Über die medicinische Kenntniss der alt. Ägypter*, Brunswick, 1853; F. J. Chabas, *Œuvres*, 1903, vol. ii., *Bibl. égyptol.* ii. 173, and *La Médecine des anciens Égyptiens*, Châlon-sur-Saône, 1861; G. Maspero, *Revue Critique*, 1893, ii. 69, *Histoire*, ii. (Paris, 1895) 214-220, 238, 281, *PSBA* xiii. 501-503, xiv. 312-314, *Études mythol. archéol.* iii. (1901) 289, 301, *Journal des Savants*, Apr. 1897 and Feb. 1898, *Journal des Débats*, 28 Feb. 1906; Mallet, *Kasr el Agouz*, Cairo, 1900; E. Naville, *Sphinx*, xiv. (1910) 137; F. Oefele, *Archiv f. Parasitologie*, iv. (1901) 481, v. (1902) 461, *OLZ* ii. 26, v. 157, vi. 375, *AZ* xxxvii. (1899), 55, 140, *Wiener Klinische Wochenschrift*, 1899, no. 47, *Prager Mediz. Wochenschrift*, 1899, nos. 24-29, and especially 'Geschichte der vorhippocratischen Medizin, in the *Handbuch der Geschichte der Medizin*, i., Jena, 1901; W. Wreszinski, *Der grosse medicinische Papyrus des Berliner Museums*, Leipzig, 1909; and J. G. Wilkinson, *Manners and Customs*, ed. London, 1878, ii. 354-358.

GEORGE FOUCART.

DISEASE AND MEDICINE (Greek and Roman).—Disease and its treatment by rational medical means belong to the domain of scientific medicine. The help of the gods was sought in illness and accidents by purely religious means—by prayer, sacrifice, and, above all, the institution of incubation. The gods granted their assistance either directly, by a miracle of healing, or indirectly, through the medium of an oracle of healing. The subject will be fully treated in the artt. HEALTH AND GODS OF HEALING, INCUBATION.

ED. THRAEMER.

DISEASE AND MEDICINE (Hindu).—1. Disease.—The earliest view of disease in India was that all morbid and abnormal states of body and mind for which no special reason was assignable were due to the attacks of demons. In the medical charms of the *Atharvaveda*, the earliest medical book of India, the diseases are constantly addressed as demoniacal beings. Thus Fever, a demon who makes men sallow and inflames them like fire, is implored to leave the body, and is threatened with annihilation if he should not choose to do so. 'O Fever,' says another charm, 'thy missiles are terrible; from these surely exempt us.' Itch (*pāman*) is called Fever's brother's son. The malevolent spirits of disease were regarded as specially dangerous to children. Thus infants were liable to be attacked by Naigameṣa, a demon

with a goat's head, who is mentioned in early Sanskrit literature, and represented in an old sculpture found at Mathurā. Jambha, another Vedic godling of disease, was supposed to cause the trismus of infants. A 'dog-demon' attacking boys is said to mean epilepsy, or perhaps whooping-cough. Another ancient superstition attributed the origin of dropsy to Varuṇa, the god of the waters, who binds the guilty, *e.g.* liars and false witnesses, with his terrible snake-bonds, *i.e.* dropsy. Elves and nightmares, called *Apsaras* and *Gandharvas*, were believed to pay nocturnal visits to men and women. Disorders of the mind were also very generally ascribed to possession by a demon (*bhūta*), even in scientific works on medicine such as the manuals of Charaka and Suśruta. When the belief in transmigration took hold of the Hindu mind, it furnished a new explanation of the origin of disease. Diseases and infirmities were traced to sins and offences committed in a previous birth. According to this doctrine of the 'ripening of deeds' (*karmavipāka*), a mortal sinner will have leprosy in a future birth; a Brāhman-killer, pulmonary consumption; a drinker of spirits, black teeth; a calumniator, a stinking nose; a malignant informer, stinking breath; a thief of food, dyspepsia; a thief of horses, lameness; a poisoner, a stammering tongue; a usurer, epilepsy; an incendiary will be born a madman; one who kills a cow or steals a lamp will be blind, etc. (see *Viṣṇusūtra*, ch. xlv.). Most of these punishments in a future life are symbolical. As a consequence of these beliefs, religious penances were performed, for instance, by lepers in order to atone for the heinous sins in a former existence to which their illness was attributed. A more rational theory of disease was found in the idea that worms gave rise to morbid conditions—a universal belief which may perhaps be viewed as the first germ of the modern bacillus theory. Headache and ear and eye diseases, as well as intestinal diseases, were attributed to worms; worms in children and in cattle also find special mention in the hymns of the *Atharvaveda*. The ancient physician Jivaka (see below) is alleged in the Buddhist scriptures to have cured a patient by making an incision in his head and pulling two worms out of the wound. The medical Sanskrit works derive the origin of internal diseases principally from a wrong mixture of the three humours (*tridoṣa*) of the human body—wind, bile, and phlegm; and thus distinguish between wind, bile, and phlegm diseases.

Of particular diseases, *fever* is perhaps the most important. It is called in the medical works the 'king of diseases,' and appears to have been already the most dreaded ailment at the time of the composition of the *Atharvaveda*, the symptoms mentioned suggesting true malarial fever. This corresponds with modern statistics, according to which nearly two-thirds of the deaths in India are due to fever. *Leprosy* is said to consist of eighteen varieties, seven heavy, and the remaining ones light. It is evident, however, that true leprosy became confused with various skin diseases. *Small-pox* (*masūrikā*) is first mentioned in mediæval medical works. The *plague* is not mentioned in Sanskrit medical works, and seems to be of recent importation in India.

**2. Medicine.**—Folk-medicine in India is closely connected with sorcery. 'The most primitive witchcraft looks very like medicine in an embryonic state' (Sir Alfred Lyall, *Asiatic Studies*, 1st ser., 1907, p. 118). The earliest collection of charms found in the *Atharvaveda*, which is reckoned as one of the four Vedas, though it never attained the same degree of sanctity as the other three, probably because it contains incantations for destroying an enemy, the idea of injuring another,

be he even an enemy, being opposed to the spirit of Hinduism. In the medical charms of the *Atharvaveda* and of the *Kausikasūtra*, the diseases, and frequently the curative agencies as well, are addressed as supernatural beings (see above). The remedies applied are based, in many cases, on a rude kind of homœopathic or allopathic principle. Thus the yellow colour of a patient affected with jaundice is sent where it naturally belongs—to the yellow sun and yellow birds—the patient being seated on a couch beneath which yellow birds are tied. The hot fever is sent to the cool frog, who may be supposed to find it enjoyable. Dropsy, the disease sent by Varuṇa, the god of the waters, is cured by sprinkling water over the patient's head by means of twenty-one (three times seven) tufts of sacred grass, the water sprinkled on the body being supposed to cure the water in the body. A coral spear-amulet is used to counteract pains that seem as if from a spear—either rheumatism or colic. White leprosy is cured by applying black plants. Red, the colour of life and blood, is the natural colour of many amulets employed to secure long life and health. Amulets, mostly derived from the vegetable kingdom, are used a great deal, the idea being that the supposed curative substance has to be brought into contact with the body. The sores, tumours, and pustules apparent in scrofulous diseases are conjured to fall off, or fly away, because they were supposed to have settled like birds on the afflicted person. The cure of wounds and fractures is effected by incantations which have been compared by A. Kuhn with the Merseburg charm of German antiquity. Flow of blood is charmed to cease by a hymn which seems to indicate the use of a bandage or compress filled with sand. There are many charms for the cure of the poisonous bites of snakes, also charms directed against poison not derived from serpents. Water and fire are viewed as excellent remedies for many diseases; thus a Vedic charm declares: 'The waters verily are healing, the waters cure all diseases.' Fire is especially invoked in charms against mania, and sacrifices to the god of fire, burning of fragrant substances, and fumigation are amongst the principal rites against possession by demons. Some of the herbs used in medicine seem to owe their employment as remedies to their names only, not to any real curative properties possessed by them. The charms of the *Atharvaveda* have been fitly compared with the sacred formulæ of the Cherokees, and other spells current among the Indians of North America. On the other hand, they must be acknowledged to contain a fairly searching diagnosis of some diseases, as, *e.g.*, of malarial fever with its accompanying symptoms, such as jaundice, headache, cough, and itch.

The second period of Indian medicine is the Buddhist period, ushered in by Jivaka Komārabhaccha, the contemporary of Buddha himself, of whom the most wonderful cures are reported, and whose name indicates that he was particularly famous for the treatment of children's diseases. The canonical books of the Buddhists contain a number of medical statements. The famous Bower MS, written in the 5th cent. A.D., and called after an English traveller who discovered it at Mingai in Central Asia in 1890, contains three medical treatises, one of them being a spell against snake poison, said to have been applied with success by Buddha himself when a young pupil of his had been bitten on the foot by a cobra. Buddhist kings founded hospitals for men and beasts, and appointed regular physicians. The famous Buddhist convent at Nālanda in Bihār, of which some ruins remain, had ample accommodation, in the 7th cent. A.D., for 10,000 students of philosophy and medicine.

The third period produced the now current Sanskrit treatises of Charaka, Suśruta, Vāgbhata, Mādhavakara, Vaṅgasena, Hārīta, Bheda, Vṛnda, and others on medicine in general or on particular subjects, such as pathology, fever, infantile diseases, *materia medica*, etc. Charaka is said to have lived at the court of the Buddhist king Kanīṣka (c. A.D. 120); the great work of Suśruta is said to have been re-cast by the celebrated Buddhist sage Nāgārjuna; Vāgbhata was himself a Buddhist. The connexion of the modern period of medical science in India with the Buddhist epoch is thus established, and the high stage of development reached by it seems to date, in the main, from the Buddhist time. The *materia medica* in these works embraces an immense number of drugs belonging to the mineral, vegetable, and animal kingdoms. There are special works on pharmacy and chemistry, containing ingenious processes of preparation, especially of quicksilver and other metallic medicines, which were prescribed internally as well as externally. Indian surgery, as represented in Suśruta and Vāgbhata, can boast of the practice of lithotomy and laparotomy, and of operations performed in cases of cataract, piles, disease in the uterus, for forming new ears and noses (rhinoplasty, which seems to have been borrowed by European surgeons from India), etc., with more than a hundred different surgical instruments. Indian medical works and doctors were exported into Arabia, and Charaka and Suśruta may be found quoted in the writings of Rāzī (c. A.D. 900) and other eminent Arabian doctors. Many medical Sanskrit texts were translated into Tibetan, and again from Tibetan into Mongolian and other languages of Central and Northern Asia. On the other hand, it appears probable that the physicians of India at an earlier period learnt a great deal from the Greeks, especially in the field of surgery, their own knowledge of anatomy being too limited to admit of the performance of difficult surgical operations. Moreover, the ancient superstitious notions were retained by them. Thus a certain form of smallpox, which is treated with cold applications, is personified as Śitalā, 'the cold deity,' and is to be worshipped with a prayer in which it is declared that, whenever a person afflicted with smallpox addresses the deity as 'Śitalā, Śitalā,' the eruptions will at once disappear from his skin, and that this goddess possesses a rain of ambrosia for those tormented by pustules. Seven forms of this disease are described, which survive in the seven smallpox sisters, including Śitalā, whose worship is very common in N. India. The more aggravated forms of mental diseases are attributed to possession by a demon, and the cure is to be effected by propitiating the devil with oblations in a fire lighted in a temple, and with gifts consisting of eatables, an umbrella, etc. Infants are particularly liable to be attacked by a demon, the symptoms described pointing to lock-jaw. The treatment of snake-bites includes the recitation of charms. When a child is born, various religious ceremonies take place, such as the offering of oblations in a fire kindled for the purpose, with a view to protecting mother and child against the attacks of demons. The prognostics of disease depend in the first place on various omens, such as the appearance and dress of the messenger come to summon the physician, and the objects or persons seen by the latter on his way to the patient. The Indian physicians (*kaivirājas*) of the present day, who belong to the Vaidya caste in Bengal, and to Brāhman castes in most other parts of India, have naturally been losing ground owing to the introduction of European scientific medicine into India; nevertheless they continue to be consulted by the common people, who also still adhere to the popular superstitions

of old. Various godlings of disease in nearly all parts of India are worshipped with offerings of milk, flowers, fruits, sweets, rice, betel-nuts, and sometimes a goat. When a child becomes dangerously ill with smallpox, it is sometimes carried to an image of Śitalā, and bathed in the water which has been offered to the goddess, some of which it is given to drink. There are also incantations for almost every disease—headache, toothache, fever, dysentery, leprosy, madness, burns, scalds, snake-bites, etc. In S. India devil-dancing is very common. Whenever the 'doctor' attending a sick person finds that the malady will not yield to his remedies, he certifies that it is a case of possession, and the exorcizer is then called in to expel the demon. The malignant spirits, the supposed authors of a plague, are tempted to pass into the wild dancers and so become dissipated, the devil-dancers being also thought to become gifted with clairvoyance and a power of delivering oracular utterances on any subject of common interest. See, further, DISEASE AND MEDICINE (Vedic).

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#### DISEASE AND MEDICINE (Jewish). — I.

**DISEASE.**—**I. Biblical.**—Three initial stages may be traced in the perennial consideration of this subject. Disease—so it was held—is sent from the Deity; it is therefore a punishment for sins committed; that is, every one who suffers from disease has previously done some wrong for which he is atoning by his bodily afflictions. It is obvious that this case is completely covered by the larger and more general question of evil, as dealt with, for example, in Job. Yet, although the Book of Job might be said finally to solve the problem as far as contemporary thought was concerned, inquiry re-asserts itself after a brief interval.

In the investigation of Biblical examples of sickness consequent on sin, care must be taken to exclude those cases where the punishment takes the form of a violent or unnatural death. These are included in the larger category of evil. Thus the case of Korah (Nu 16<sup>29ff.</sup>) and that of the disobedient prophet (1 K 13<sup>11f.</sup>) do not apply, but the death of Bathsheba's first son (2 S 12<sup>14</sup>) or the smiting of the Egyptian firstborn (Ex 12<sup>29</sup>) might certainly be cited. It is also important to differentiate cases where the sinner himself is smitten from those where the punishment falls vicariously on others who may be innocent, but whom the sinner loves more than himself. To the former category belong the punishments of leprosy meted out to Miriam (Nu 12<sup>10</sup>) and Gehazi (2 K 5<sup>27</sup>); to the latter, the death of Abijah, son of Jeroboam (1 K 14<sup>12</sup>), for the death of the child meant the destruction of Jeroboam's fondest hope—the foundation of a dynasty. Further, as a corollary to the latter class may be mentioned those cases in which the community suffers from disease because of (a) general and (b) individual trespass. The community would seem to be punished because it participates actively or even passively by not rejecting the criminal, for in the absence of duly appointed officials it is every one's duty to take the law into his own hands. It is also suggested that the knowledge that the commission of a certain action may involve others in disease and pain may act upon the evil-doer as a deterrent.

An enumeration of all the cases in the Bible