



ILL record updated to IN PROCESS
Record 20 of 20

10/4

Old Test - Plagues
1893 Storage

OCT 06 1999

ILL pe

Record 20 of 20

CAN YOU SUPPLY ? YES NO COND FUTUREDATE

:ILL: 3884537 :Borrower: ORZ :ReqDate: 19990929 :NeedBefore: 19991029
:Status: IN PROCESS 19990929 :RecDate: :RenewalReq:
:OCLC: 1389445 :Source: OCLCILL :DueDate: :NewDueDate:
:Lender: *OHS,NTE,VWM,AKM,AZA

:CALLNO:

:TITLE: Bulletin of the Johns Hopkins Hospital.

:IMPRINT: Baltimore : The Hospital, 1891-

:ARTICLE: Bombaugh,-The plagues and pestilences...

:VOL: 4 :NO: :DATE: 1893 :PAGES: 64-67

:VERIFIED: OCLC ISSN: 0097-1383

:PATRON: Altonen, Brian

:SHIP TO: INTERLIBRARY LOAN SERVICE/PORTLAND STATE UNIVERSITY LIBRARY/P O

BOX 1151/ PORTLAND, OREGON 97207/ARIEL 131.252.35.66

:BILL TO: Same

:SHIP VIA: Ariel,Pony,Fax,Library Rate :MAXCOST: \$15.00 IFM

:COPYRT COMPLIANCE: CCL

:FAX: (503)-725-4527

:E-MAIL: ILL@lib.pdx.edu

:BORROWING NOTES: FEIN #93-6001786

:LENDING CHARGES: :SHIPPED: :SHIP INSURANCE:

:LENDING RESTRICTIONS:

:LENDING NOTES:

:RETURN TO:

A

reports a case where sight was restored by the hypodermatic injection of nitrate of strychnia and the employment of the constant current.

It would seem, then, that all epidemics of cerebro-spinal meningitis have one or more eye symptoms in common, and probably those most often met with are the changes in the pupils and conjunctivitis. But every extensive epidemic is apt to be associated with a special type of eye affection. Thus Knapp, Kreitmair, Oeller and Jacobi observed most often suppurative inflammation of the uveal tract, and make no particular mention of any other ocular complication. Wilson, Niemeyer, Ziemssen and Hess met with keratitis, while Hirsch, in his wide experience, saw nothing more serious than conjunctivitis, which was an invariable condition. The type of eye symptoms peculiar to the epidemic which I have just described seems to have been a remarkable tortuosity and distension of the retinal veins and more or less congestion of the optic disk. The degree of venous engorgement in some of the cases was, in my experience, a unique condition, the blood appearing almost black and as though actually stagnant. The tortuosity of the veins, too, was striking. The turning points of the veins were so abrupt that they resembled small hemorrhages, and as such I regarded them in one case till I was enabled later to make a more thorough examination, when I found that what I took to be hemorrhages were very abrupt turns in the veins where the circulation must have been almost at a standstill. These conditions are quite analogous to what was discovered in the brain in every case where a post-mortem was made. I was not present at any of the autopsies, but Dr. Porter told me that the tortuosity and distension of the veins on the surface of the brain reminded him forcibly of my description of the retinal

veins, and the changes in these vessels I think can readily be understood from the condition of the brain revealed at the autopsy.

It is clear, then, that in all epidemics of cerebro-spinal meningitis a systematic examination of the eyes should be made with the ophthalmoscope, and that frequently when other eye symptoms are absent and the general symptoms are misleading, changes in the fundus of the eye will be discovered which will throw light upon the case. And again, the existence of good vision does not mean a sound optic nerve or retina, for not unfrequently do we meet, in every-day work, with a choked disk where the visual disturbances are insignificant. Of the thirty-six cases which I examined, not counting those which were affected with diplopia, only three complained of their inability to see distinctly. I regard the existence of eye symptoms, especially those where the fundus is involved, as indicating a particularly grave case. Wherever I found the condition which I have described very pronounced, I felt justified in speaking positively as regards the prognosis. I think that this type of eye symptoms is of more value as indicating the condition of the brain than the symptoms described by other writers, such as panophthalmitis, suppurative choroiditis and keratitis, affections which, in my opinion, would be likely to have their origin in a general infection and not likely to be the direct result of the purely cerebral changes.

I take this opportunity of expressing my sense of obligation to my friends, Drs. M. G. Porter and W. Q. Skilling, of Lonaconing, Md., and to Dr. Marshall Price, of Frostburg, for so kindly aiding me in my investigations. Through the co-operation of these gentlemen I have been enabled to carry out this work.

THE PLAGUES AND PESTILENCES OF THE OLD TESTAMENT.

BY DR. C. C. BOMBAUGH, OF BALTIMORE.

[Read before the Johns Hopkins Hospital Historical Club, January 19, 1893.]

That grand old physician and scholarly writer, Sir Thomas Browne, says in his *Urn-Burial*: "What song the syrens sang, or what name Achilles assumed when he hid himself among women, though puzzling questions, are not beyond all conjecture." In matters of merely curious interest, this sort of approximate surmise or guesswork may answer well enough, but when it comes to questions of graver import it will hardly satisfy those of us who prefer exactitude in marshaling and arraying premises, and logical deduction in reaching conclusions. And the more—especially in antiquarian research—we are forced into acceptance of that which is conjectural in place of that which is fairly deducible or verifiable, the more sharply are we confronted with certain disconcerting reminders, or, as the weather people say, "cautionary signals."

In the first place, in days of yore when time was young, reporters in general, and medical reporters in particular, had not yet made their appearance. Up to the period of the slender primitive clinical records inscribed on the votive tablets in the temples consecrated to Esculapius, we have no

tangible evidence of the existence of any rudimentary treatises on the nature of diseases or their treatment. True, there is no finer compliment to the ministers of the healing art than that in the xi Book of Homer's *Iliad*, no portraiture of the true physician more graphic than that of Hippocrates, no characterization more glowing than that in the xxxviii chapter of the uncanonical Book of Ecclesiasticus. But so long as medicine among the Egyptians, the Assyrians, and the Hebrews was monopolized by the priesthood, or among the Greeks controlled by the half-priestly, half-philosophic caste of the Asclepiadæ; so long as Romans in later days saluted an illustrious surgeon like Archagathus with the opprobrious epithet *Carnifex* (executioner), or an early Christian writer like Tertullian, in his philippic against Herophilus (whose name is still embalmed in the confluence of the sinuses, the torcular Herophili), classified anatomists and butchers in the same category, there was little to expect in the way of substantial contribution to diagnosis, to therapeutics, or to pathology.

In the second place, in oriental literature, even the simplest and most ancient, we encounter an oppressive superabundance of metaphorical writing. In many cases where fancy should have been regulated and exuberance restrained, figurative language was allowed unlimited scope. Hence, philological or linguistic difficulties constantly block the way to correct interpretation. We are also perplexed by the confusing admixture of medicine and theology, by the interlinking of remedial measures with superstitious and ceremonial observances, and by the interjection of the supernatural element, with continual reference to evil spirits and demoniac possession. And not the least of our difficulties is that of identifying ancient diseases with diseases with which we are familiar, in view of the fact that in the lapse of centuries, in the cycles of disappearance and reappearance, under ever-changing conditions of climate and food and habit and environment, some have been greatly modified, and others are no longer existent.

In the third place, under the present reign of the spirit of iconoclasm, no matter how patiently we delve for foundations upon which to rear a presumably secure superstructure, some relentless image-breaker is sure to come with his sledgehammer and lay our fabric in ruins at our feet. Those of you who have gazed with interest upon the statue of Pompey, preserved in the Court of Cassation, in Rome, will remember that its authenticity as the original marble effigy in the Senate, at the base of which Julius Cæsar was assassinated, was accepted on what was considered irrefutable evidence by the most exacting and least credulous archæologists. Two or three years ago, Helbig, a German antiquarian, detected an error in the pedigree that was fatal to its long-standing claim. We have had to give up Penn's Treaty, and Pocahontas, and William Tell, and now we must surrender Pompey.

The application of the hit-or-miss ventures of assumption or speculation to the Sacred Scriptures, and particularly to the Old Testament, leads to strange as well as very divergent conclusions. Dr. Baron, the biographer of Jenner, for example, expresses the view that the boils and blains of the sixth Egyptian plague, as described in the ix chapter of the Book of Exodus, are convertible terms for small-pox. He bases this view upon a description of the plague by a Jewish rabbi of the first century, who closes a remarkable passage with a sentence which may well serve as a brief summary of the confluent form of small-pox. "For," says he, "to one regarding those cases in which the pustules were scattered over the body and limbs, and run together in one mass, it appeared as if they were a continual ulcer from head to foot." This is considerably weakened by the fact that it was written 1500 years after the Mosaic era, that there is neither record nor tradition of the existence of variola at that early period, and that if such an epidemic had occurred, the consequent ratio of mortality would have been chronicled in the Mosaic books.

There was another learned rabbi who undertook to prove that the tenth plague of Egypt (occasioning the death of the first-born) was due to cholera. This final infliction, which broke the yoke of Israel, was visited, as we are told in the xi chapter of Exodus, upon all the first-born throughout the

land, "from the first-born of Pharaoh that sat on the throne, unto the first-born of the maidservant, and all the first-born of beasts." Those who are not slaves to the *ipse dixit* will naturally ask this rabbi to explain, independently of divine purpose and supernatural agency, how and why such elective affinity on the part of the cholera, confining its ravages to the primogeniture of Egypt, and leaving the children of Israel severely alone.

Still another example is furnished in Job's affliction. The old theologians, with Origen at their head, regarded Job's disease as a true leprosy, and several medical writers adopted the same view, although the description is just as applicable to other malignant diseases, more or less analogous in character. They also seem to have overlooked the fact that if the leprosy in Job's time was not the simple *lepra leuke*, or *lepra alba*, of the Books of Moses, but the tuberculated form, with its characteristic lesions and neoplasms, it was, of course, incurable, yet Job not only recovered, but lived, we are told, 140 years after recovery. Sir Risdon Bennett, in his interesting contribution to the series "By-Paths of Bible Knowledge," says that "the antiquity and the purport of the Book of Job, on which there is so much difference of opinion, and the metaphorical character of much of the writing, render it extremely difficult to speak with confidence on the precise nature of the disease which constituted so much of the patriarch's suffering and trial."

Reference to leprosy reminds us that no other disease is so frequently mentioned in the Bible. It is named between sixty and seventy times, and though the general term plague occurs twice as many times, at least one-half of the citations refer to leprosy, the expression "plague of leprosy" being especially frequent in the Book of Leviticus. Aside from such individual cases as those of Moses, Miriam, Naaman, and Uzziah, two long chapters of Leviticus (13, 14) are devoted to a minute description of the differential phases of the infliction, to the length of the quarantine to be prescribed by the priests, and to the regulations for the conduct and purification of the lepers. In dealing with these unfortunates, the uppermost idea was the promotion of cleanliness and the prevention of infection in conformity with the stringent exactions of the Levitical sanitary code. But it should be noted that however multiform the lepra of the Mosaic record, it was a cutaneous disease broadly contradistinguished from the constitutional malady which, in its progress, implicates the whole organism, and is sure, sooner or later, to terminate fatally. At one time, as we infer from the Levitical text, it is a leucoderma or vitiligo; at another it closely resembles psoriasis; here are squamous patches, there rough incrustations; here is diffused inflammation, there excoriation of the surface with exudation of serum and blood. But let it take what shape it might, it was evidently non-contagious, and even with the slender armamentaria of that early day, it was curable. It must have had little in common with that formidable, transmissible, bacillary disease which we call leprosy; it was unlike the elephantiasis of the Greeks or the Arabs, running more in the direction of atrophy than hypertrophy of the lower extremities; it exhibited no such extent of degenerative change, of destruction of substance, of disorganization

and disfigurement as those of the lepra mutilans. As Hamlet says, "no more like my father than I to Hercules."

Now if we take the term plague in the Bible aside from its direct application to leprosy—the plague of leprosy—we shall find it in large measure correspondent or interchangeable with the term pestilence. This word pestilence occurs in the Old Testament between forty and fifty times, and it is especially noteworthy that it is frequently conjoined with famine. Of course, these terms have a wide significance, and are sometimes applied to moral as well as physical evils. What we are more particularly concerned with has reference to those malignant epidemics which were so terribly destructive.

We can understand how Korah and his immediate followers, as related in Numbers, chap. xvi, were swallowed up by an earthquake, but when we are told that 14,700 of those engaged in the rebellion against Moses and Aaron were destroyed by a plague, whatever the specific communicable disease may have been, we are puzzled by the rapidity of its propagation. To use the scriptural expression, the offenders were "consumed as in a moment." Some writers incline to the opinion that it was cholera, others regard it as the septic infection to which the term plague is now commonly restricted, and which, to distinguish it from other malignant epidemics of the middle ages, has been called the Bubonic, Oriental, Levantine, or glandular plague. This "pestis inguinalis" with its characteristic buboes of the cervical, axillary, inguinal, and mesenteric glands, its pustules, petechiæ, and carbuncles, although its history cannot be traced farther back than the second century of our era, might satisfactorily account for and explain several of the pestilences of the Old Testament. For while in its diversified forms death may not ensue until the fifth or sixth day, we are told on good authority that in many cases it followed within twenty-four hours, that is to say, in advance of the usual swelling and inflammation of the lymphatic glands. Whether, therefore, the fate of the rebels referred to be accepted as a case of divine interposition and divine punishment of treason, or whether the adaptation of means to ends be not regarded as phenomenal or miraculous, there was allowance of time for incubation through the operation of the usual antecedents—accumulation of sewage and filth, contamination of air and water, effluvia from putrefactive matter, noxious gases, soil exhalations, and excessive crowding, with swift prostration and collapse through the intensity of the virulence.

It is perhaps easier, and quite as reasonable, to find in cholera the exciting cause in the well-known case of the quails. The Israelites, tired of their monotonous diet of manna, became mutinous, and demanded of their leader a flesh diet. We are told in the xi chap. of Numbers that a wind brought quails from the sea and let them fall by the camp, that all that day, all that night, and all the next day, the people gathered the quails, and spread them abroad for themselves round about the camp. "And while the flesh was yet between their teeth, ere it was chewed, the wrath of the Lord was kindled against the people, and the Lord smote the people with a very great plague." It is well known that quails in Oriental lands frequently feed on the seeds of hellebore and other poisonous plants; it will also be observed that

immense numbers of them were lying around the camp for days exposed to a tropical heat, with resultant decomposition. In either of these facts may be found a key to the heavy mortality which followed such inordinate appetite for game.

With regard to the ever-memorable destruction of the Assyrian army in one night, Josephus says that "when Sennacherib was returning from his Egyptian war to Jerusalem, he found his army under Rabshakeh, his general, in danger of a plague, for God had sent a pestilential distemper upon his army; and on the very first night of the siege, 185,000 men, with their captains and generals, were destroyed." Commentators on Josephus have attempted various explanations, some venturing the notion that the destructive agency was lightning; others, a sirocco; others, by their "falling foul upon one another in the obscurity of the night," but all evade the question how a plague, as such, could cut so broad a swath in a single night. In a foot-note to the account of the disaster in Herodotus, it is asserted that the army was destroyed by a judicial pestilence, by which is presumably meant a pestilence in the nature of a judgment or punishment. But as to the character of the pestilence, the reviewer is discreetly silent, and so we are left to fall back upon the scriptural statement, and to let it rest there. "And it came to pass that night that the angel of the Lord went out and smote in the camp of the Assyrians a hundred four score and five thousand." This, by the way, reminds us of an expression of the late John Bright, in a speech in the House of Commons during the Crimean War: "The Angel of Death is hovering over us; we can almost hear the beating of his wings."

We have another instance of rapid execution of the death-warrant in the punishment of David for improperly taking the census of his kingdom. When David, as we are told in 2 Samuel xxiv, and also 1 Chronicles xxi, was forced into acceptance of one of three offers,—seven years of famine; three months' flight before the sword of the enemy; or three days of pestilence, he chose the third and last. "So," to quote the 23 verse, "the Lord sent a pestilence upon Israel from the morning even to the time appointed [72 hours]; and there died of the people from Dan even to Beer-sheba 70,000 men." This was a sweep, from the northern to the southern boundary of Palestine, of 160 miles, and a mortality ratio of one in twenty of the population.

It may be noted, in passing, that these cases of rapid depopulation in which the termination was as short, sharp, and decisive as the onset, find parallels in later profane history. For example, Hutchins, in his History of Dorset, in speaking of the plague which swept over northern Europe, and ravaged England, in 1348, says: "Few survived the seizure more than two or three days, some not half a day." In 1503, 20,000 men of the army of Zamoryn, sovereign of Calicut, India, died of a disease, believed to be cholera, which, according to Gaspar Correa, proved fatal in less than eight hours. Tyenius, in speaking of the "sweating sickness" which devastated England in 1517, says: "So pestiferous, malignant, and contagious was the pain and inflammation of the throat that whoever, within six or eight hours' seizure, had not proper remedies applied, died in sixteen or twenty hours." So with regard to the enormously disproportionate rate of mortality to popula-

tion, we find in the 1500 pestilences recorded during the 19 centuries of the Christian era, some very remarkable parallels. For instance, during the reign of Titus (A. D. 80) a plague carried off the people of Rome at the rate of 10,000 a day, a diurnal ratio of one in 200. A century later, in the time of Antoninus, the oriental plague was introduced by the Roman army returning from the Parthian War with such overwhelming results that it paved the way for the decline and fall of the Empire. In the reign of Justinian, the plague which Gibbon so graphically describes was so violent in Constantinople (A. D. 558) that only a fraction of its population was left. Gibbon, on the authority of Procopius, says that during three months, five thousand and at length ten thousand persons died each day. In 1579 Cairo was visited with a pestilence which, in the course of eight months, according to Alpinus, destroyed 500,000 inhabitants, a daily average of 2000.

Sir Risdon Bennett, in his little book, "The Diseases of the Bible," says: "What interpretation we are to put on the vivid description of Zechariah of the plague with which the Lord threatens to 'smite all the people that fought against Jerusalem,' it is very difficult to say. 'Their flesh shall consume away while they stand upon their feet, and their eyes shall consume away in their holes, and their tongue shall consume away in their mouth.' If the description be not altogether metaphorical, may it not be intended to describe an army dying of famine?" Famine undoubtedly will account for a large ratio of the dreadful mortality so frequently recorded in the Bible. But the very strong language quoted reminds us that as Dr. Bennett's book was written for the Religious Tract Society, and not intended, like the *Medica Sacra* of Dr. Richard Mead, court physician to George II, for scientific readers, he conveniently avoids all reference to syphilitic infection. He makes no mention of the plague of Baal Peor, on which Buret dwells with such significant emphasis in his recently published book on "Syphilis in Ancient and Pre-historic Times." Making all allowance, however, for Buret as a hobby-rider, having good reason to believe that there were outbreaks long anterior to the siege of Naples, and remembering how writers of less exuberance speak of the visitation at Taberah (Numb. xi, 1), of the botch of Egypt

(Deut. xxviii, 27), of the osteoscopic suffering of David as detailed so graphically in Psalm xxxviii, there can be little question as to the nature of the results of the libidinous intercourse of the Israelites with the daughters of Moab. For the Baal Peor of the Moabites was the same as the Priapus of the Romans, and the temple on Mt. Peor was devoted to the Phallic worship. To exterminate the disease in obedience to divine command, the anger of the Lord, as we are told, being kindled against Israel, Moses directed all who were infected, 24,000 in number, to be killed. Later on in the pilgrimage, when Israel was at war with Midian, and captured the Midianites, Moses wrathfully exclaimed to his officers on their return, "Have ye saved all the women alive? Behold, these caused the children of Israel, through the counsel of Balaam, to commit trespass against the Lord in the matter of Peor, and there was a plague among the congregation of the Lord." He then applied as a preventive the treatment which on the former occasion had succeeded as a heroic measure, and ordered the officers to "kill every woman who hath known man by lying with him" (Numb. xxxi). It was a radical remedy, yet not too desperate to find imitators even in modern times. You remember that Napoleon, for instance, at Jaffa, ordered the plague-smitten patients in the military hospital to be put to death by poison.

We learn from the parish records of Ober-Ammergau that when the plague of 1633 was sweeping the byways of the Bavarian Tyrol, eighteen peasants met together and vowed that if the plague were stayed they would, once in ten years, present in living pictures the Passion of Christ. That vow has been faithfully kept. On Fish Street Hill, in London, where the Great Fire of 1666 started, the citizens erected a commemorative monument as an expression of their gratitude that the fire had destroyed the last vestige of the pestilence which, in the course of a few months, had carried off 68,596 of the inhabitants of the metropolis. We who live in an age of broader enlightenment have learned that the line of practical beneficence leads to prophylaxis rather than to religious vows or sacrificial offerings, and points to higher promise and larger performance. We, too, are building a monument, but it will be more enduring than stone or bronze, and will immortalize its trust in one word, SANITATION.

JOURNALS, ETC., ISSUED BY THE JOHNS HOPKINS PRESS OF BALTIMORE.

American Journal of Mathematics. S. NEWCOMB, Editor, and T. CRAIG, Associate Editor. Quarterly. 4to. Vol. XV in progress. \$5 per vol.

American Chemical Journal. I. REMSEN, Editor. 8 Nos. yearly. 8vo. Vol. XV in progress. \$4 per vol.

American Journal of Philology. B. L. GILDERSLEEVE, Editor. Quarterly. 8vo. Vol. XIV in progress. \$3 per vol.

Studies from the Biological Laboratory. H. N. MARTIN, Editor, and W. K. BROOKS, Associate Editor. 8vo. Vol. V in progress. \$5 per vol.

Studies in History and Politics. H. B. ADAMS, Editor. Monthly. 8vo. Vol. XI in progress. \$3 per vol.

Johns Hopkins University Circulars. 4to. Monthly. Vol. XII in progress. \$1 per year.

Johns Hopkins Hospital Bulletin. 4to. Monthly. Vol. IV in progress. \$1 per year.

Johns Hopkins Hospital Reports. 4to. Vol. III in progress. \$5 per vol.

Contributions to Assyriology, etc. Vol. II in progress.

Annual Report of the Johns Hopkins University. Presented by the President to the Board of Trustees.

Annual Register of the Johns Hopkins University. Giving the list of officers and students, and stating the regulations, etc.