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Contributors

Curran, William.
Royal College of Surgeons of England

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"EATEN OF W"

BY

BRIGADE-SURGEON W
Army Medical Department

"My child," said the Chancellor D'Agnesse
shall have read what I have read, seen what
what I have heard, you will feel that if on an
sures may be such that you do not know, as
what you have may not, at the moment, be
Complete's Lines of the Lord Chancellors,

AUTHOR
OF THE
PRESENTED

LONDON:
T. W. DANES & CO.,
71, FINSBURY STREET, BORO'
1886.

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“EATEN OF WORMS.”

BY

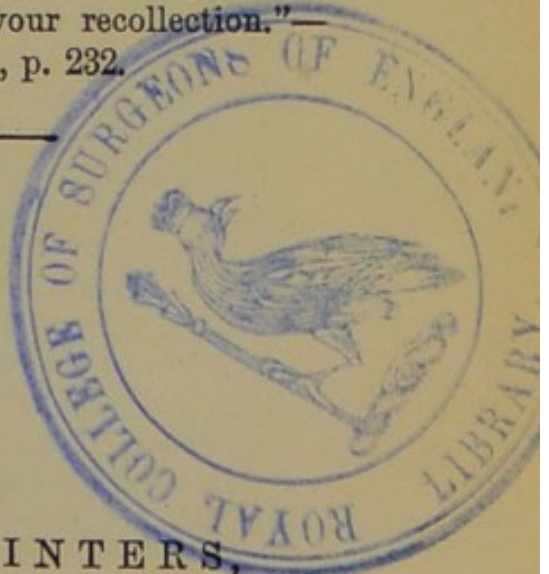
BRIGADE-SURGEON W. CURRAN,

Army Medical Department (Retired).

“My child,” said the Chancellor D’Aguesseau to his son, “when you shall have read what I have read, seen what I have seen, and heard what I have heard, you will feel that if on any subject you know much, there may be much that you do not know, and that something even of what you know may not, at the moment, be in your recollection.”

Campbell's Lives of the Lord Chancellors, vol. x, p. 232.

PRESENTED
by the
AUTHOR.



LONDON:

T. W. DANKS & CO., PRINTERS,

71 DEAN STREET, SOHO SQUARE.

1886.

. . . . the cankerworm
Will feed upon the fairest freshest cheek,
As well as drain the wither'd form.

SHAKESPEAR.

“EATEN OF WORMS.”

DISCUSSING some time ago, with a friend, the chief points of a paper of mine on sudden death, that had appeared a year or two previously in an Indian periodical, he suddenly asked me, in allusion to some remarks I had made therein on the liability of certain reigning families, our own included, to this contingency, why I had not included the House of Herod amongst them. I answered, after looking over the account that is given of the death of Herod Agrippa in the twelfth chapter of the Acts, that the circumstance had, in the first place, escaped my notice, and secondly, that even if it had not, that the occurrence was of too sacred or miraculous a complexion for inclusion by me in a collection of such a purely personal nay so profane or common place a character as I had made. He acknowledged the justice of this explanation, but seemed to think that the event was not so exclusively sacred or solitary as I had supposed, and I lost sight of the matter for the time.

Having lately, however, come across passages in certain ecclesiastical or historical writers, which will be named hereafter, that led me to believe that he was right, or rather that this event was not so entirely unparalleled as I had supposed, I looked further into the literature of the subject, and now subjoin the results of my inquiries. Though these led me somewhat into the dangerous regions of theology and hermeneutics, they also involved a good deal of recondite medical speculation and research, and this is, of course, the feature of the case with which I am most con-

cerned here. My readers need not, therefore, be alarmed. I have no wish to take them over the troubled waters of religious controversy, or into the controverted fields of polemical exegesis. Polemics of all kinds will, indeed, be eschewed, except in so far as they bear on pathology or diagnosis, and the obscurity of the subject will, I trust, be my excuse for any or such weakness or inaccuracy as my treatment of it may betray.

Furthermore, and without committing myself in any way to the theory of "judgments" as that is set forth by religious sects or writers, I will not altogether ignore it. To do so would be to ignore a deeply-rooted prepossession as well as to set aside the religious teaching or tradition of all the churches, and though my faith is not alas now as firm as it used to be, I am not yet prepared to discard altogether the notion of a providential interference in sublunary affairs. Neither will it be necessary for our purpose to assume, with certain advanced Darwinists, that man originated from a shapeless mass of animated jelly, or will end in a foggy whiff of the azure expanse, and speaking for myself alone in this place, I can neither allow with Haeckel that "our earliest ancestors originated by *arche-biosis* from compounds of carbon, hydrogen, and nitrogen," or acknowledge with a medical man who is quoted by De Morgan, to the effect that our "vital principle is highly rarefied oxygen."

I know, however, that these terms convey very different meanings to different persons, and that what one sect or church cherishes with an ardour that spurns compromise or restraint, another brands as the necessary outcome of an incurable ignorance or a grovelling superstition. But we need not concern ourselves with these differences here, and the zeal or tenacity with which opposing religionists adhere to their respective theories is no test at all of their validity or truth. The best course then to follow under these circumstances, will probably be the historical one, to accept the statements of the writers who discuss this topic, as we find them, for what they may be worth to us physiologists or physicians, as the case may be, and leave the interpretation of them to time, or better still, to the teaching of experience and common (professional) sense. Anyhow, this is the course I mean to follow. I will deal as well as I can with such examples of this disorder—if such it can be fairly called—as my reading has familiarised me with, and I will begin the investigation accordingly with a quotation in point.

Alluding to the part played by the Emperor Galerius in

the persecution of Domitian, Dean Milman (*a*) says that "in the eighteenth year of his reign, the great persecutor lay expiring of a most loathsome malady. A deep and foetid ulcer preyed on the lower regions of his body, and ate them away into a mass of living corruption. It is certainly singular, he continues, that the disease vulgarly called being 'eaten of worms' should have been the destiny of Herod the Great, of Galerius, and of Philip II. of Spain," and it is equally singular that this form of death has not yet, so far as I know, received any special handling or treatment from members of our calling.

Describing the same event from a possibly different standpoint, or it may be with a different purpose, Gibbon (*b*) says that "his (Galerius's) death was caused by a very painful and lingering disorder. His body swelled by an intemperate course of life to an unwieldy corpulence, was covered with ulcers and devoured by innumerable swarms of those insects who have given their name to a most loathsome disease," and as both these accounts are confessedly based on the words of Lactantius, I will give such portions of these as have a special bearing on the feature he specially referred to, and then add a loose translation or paraphrase of the same in parallel columns, for the benefit of such of my readers as do not care to wade through this kind of ecclesiastical Latin. I will afterwards take up the cases of Herod and Philip, and finally deal with such other examples or phases of the same or kindred conditions as I am now acquainted with.

LACTANTIUS *loquitur.* (*c*)

PARAPHRASE.

<p>" Jam decimus et octavus annus agebatur cum percussit eum Deus insanabili plaga. Nascitur ei ulcus malum in inferiori parte genitalium, serpitque latius. Medici secant curant sed inductam jam cicatricem scindit vulnus, et rupta vena, fluit sanguis usque ad periculum mortis. Vix tamen cruor sistitur. . . . Rursus levi corporis motione vulneratur,</p>	<p>He was now in the eighteenth year of his reign, when the Almighty struck him with an incurable malady. A foul ulcer appeared on the lower part of his genitals and spread extensively. Physicians endeavoured to cure it by operation and otherwise, but the already formed cicatrix gave way, and the ruptured vessel led to a bleeding which threatened</p>
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(*a*) "The History of Latin Christianity," vol. i., p. 227.

(*b*) "The Decline and Fall," (Smith's Ed.), vol. ii., p. 122.

(*c*) "De Mortibus Persecutorum," pp. 66-71.

plus sanguinis quam ante decurrit. Albescit ipse atque absumptis viribus tenuatur et tunc quidem rivus cruoris inhibetur. Incipit vulnus non sentire medicinam, proxima quæque cancer invadit. . . . et inferiora omnia corripuerat. Computrescunt forinsecus viscera, et in tabem sedes tota dilabatur vermes intus creantur. Odor teter non modo per palatium, sed totam civitatem pervadit. Nec mirum, cum jam confusi essent exitus stercoreis et urinæ. Comestur a vermibus, et in putredinem corpus cum intolerandis doloribus solvitur (Denique) post dies paucos, cum jam totius corporis membra defluerent horrenda tabe consumptus est."

his life. The hæmorrhage was arrested with difficulty. It recurred again through a slight movement of his body, and more blood is lost on this occasion than on the former. He grows pale and loses flesh, and then only is the bleeding restrained. The wound became insensible to the effects of remedies, the cancer invaded all the neighbouring tissues and finally involved all the nether parts. His internal organs putrefy, and the fundament itself is reduced to a slough. . . . Worms are generated within the body, and the foul odour that emanates from these pervades not alone the palace but the whole city. No wonder, when we consider that the two openings through which the urine and fæces escape, are converted into one. He is, in short, eaten up by worms, and his body is racked by intolerable pains or turned into a hideous mass of festering corruption. . . . Finally, all the members of his body having by this time become tainted, he succumbed to the consuming decay under which he had so long laboured.

If, now stopping for a moment to analyse these symptoms we ask ourselves what was their import, we will, I venture to think, not be far wrong if we associate them with the presence of an invading epitheliomatous cancer of the scrotum (a) and adjoining parts. We know that the

(a) See a "Lecture on the Lymphatic System and its Diseases." By John Curnow, M.D., that appeared in the *Lancet*, of April 19th, 1879

tendency of this is to spread and involve neighbouring structures, and it accords with my own limited experience that "malignancy" of all kinds runs a shorter course in warm climates than it does in northern latitudes. However, that may be the progress of the disease was probably stimulated by the interference of the sufferer as well as by the meddling or irritating treatment to which his wound was subjected, and I have a very distinct recollection of a somewhat similar case that occurred under my own care at Kussowlee in 1869. I removed this man's testicle for a medullary cancer of the testicle a day or two before I started on a visit of three days' duration to Simla, I saw him again as soon as I returned, and a more painful sight I never witnessed. The lips of the wound were open and gaping, the subjacent parts exhibited a fungoid sprouting appearance, and a rough, ragged, and withal very vascular aspect, and the granulations they had thrown out bled freely on the slightest touch.

Having been obliged to return on the following day to the Plains, and thence proceed to England, I lost sight of this case, but I have no doubt at all of its issue, and the readiness with which worms—or as they are, perhaps, more appropriately called, maggots—form on sores or wounds of every kind in the East is well known. Flies, their progenitors, are the veriest pest in the tropics, and the rapidity with which they propagate their species is altogether unparalleled in the higher divisions of the animal economy. Neither are their ravages confined to these latitudes, they breed with equal frequency or force nearer home, and, commenting on the annoyance or injury they occasioned in the camp-hospitals in the Crimea, Mr. Longmore says that "they abounded for a certain season in such numbers there as to constitute a terrible plague. Though the wooden huts and tents were on a bare elevated plateau, surrounded on two sides by open sea, . . . yet the flies were everywhere in myriads during the hot weather, and no plan seemed to succeed in reducing their numbers. They literally swarmed about the beds, if they were driven from one patient they simply settled on another," and the Crimea was no worse off in this respect than was Nicomedia where (?) Galerius died.

So far there is nothing very unusual in the case. If, however, we study it a little closer we will find that this judgment admits, at least, of some qualification. We have in the first place a distinct profession of the writer's belief in its supernatural origin, *percussit eum Deus insanabili plaga*, and there is no doubt but that this is the view that

is taken of it by the majority of ecclesiastical writers. Further on he says *computrescunt forinsecus viscera et in tabem sedes tota dilabitur*, and though this may be susceptible of an entirely natural interpretation, yet would it be irreconcilable, from his point of view, with the phrases *vermes intus creantur*, and the other more expressive one, *comestur a vermibus*. Moreover, he represents his sufferings as proportionately severe, nay almost unendurable, he applies to his screams, the words of Virgil slightly altered,

Clamores simul horrendos ad sidera tollit

Quales mugitus fingit saucius taurus,

and we will find as we advance, that inward pains of the same or, at least, a very similar character, are described by other writers, in connection with the other and more indubitable cases of this condition, that are on record.

However that may be, the development of worms, within or without the body, in the quantities here contemplated is out of keeping with our experience of the progress of a case of cancer, and the cases of Peenash or Vermes Nasi—to be dealt with hereafter—that I have seen in the East, were almost unattended with pain. Neither did they extend beyond the nostrils or their continuations, or always return after removal, while the more they were interfered with in the case of Galerius, the more did they abound, and we must, I think, conclude on this evidence that though cancer may have been the primary disease in his person, still that it was marked by peculiar features and that worms were generated in or through it in such abundance or after such a fashion as is incompatible with ordinary experience. Whether such an extraordinary experience as is attainable in the tropics alone, is capable of accounting for the phenomenon is another question with which I must deal further on, and meanwhile we had better dispose of the other cases on the record.

Of these the more prominent or better authenticated are the cases of Antiochus Epiphanes, Herod commonly called the Great, and the Arian or African vandal king Huneric, of each of whom it will be necessary to say something. After this we will be better able to take into account the equally remarkable, or even more striking cases of Herod Agrippa, and Philip II, of Spain, for the several descriptions will be then before us, and we can compare these with the disclosures of modern science, or the results of clinical experience.

And first, as regards Antiochus, in the circumstance of whose sudden death, if it be the same, Milman sees nothing remarkable, the best, if indeed, it be not the only contem-

porary account of the occurrence we have, is to be found in the second book of Maccabees, ch. ix., v. 1-5-9 and 10. (Douay version), whereat, after alluding to his failure in Persia, and return with dishonour towards his own country, the sacred writer says, "and swelling with anger he thought to revenge upon the Jews the injury done by them that had put them to flight. . . . But the Lord God of Israel, that seeth all things struck him with an incurable and invisible plague. For as soon as he had ended these words, a dreadful pain in his bowels came upon him, and bitter torments of the inner parts. . . . So that worms swarmed out of the body of this man, and whilst he lived in sorrow and pain his flesh fell off, and the filthiness of his smell was noisome to the army. And the man that thought a little before he could reach to the stars of Heaven, no man could endure to carry, for the intolerable stench." We further learn from the same source that his pains increased every moment, as did also the evil odour from his festering body. The writer calls his disease "a grievous one," and adds that he died a miserable death, and all the commentators I have been able to consult agree in ascribing his sufferings to a divine judgment.

As all the accounts we have of Herod the Great's death are confessedly based on that of Josephus, I will simply condense the latter, and add such a commentary later on, as this may appear to suggest. Dwelling on the trial and imprisonment of his son, Antipater, as well as on the other troubles of Herod's house Josephus says, "Yet when he was eagerly pursuing Antipater he was restrained by a severe distemper he fell into. . . . Now Herod's distemper became more and more severe to him, and this because these disorders fell upon him in his old age; for he was already almost seventy years of age, and he had no pleasure in life, even when he was in health. . . . After this the distemper seized his whole body, and greatly disordered all its parts with various symptoms, for there was a gentle fever upon him, and an intolerable itching over all the surface of his body, and continual pains in his colon, and dropsical tumours about his feet, and an inflammation of the abdomen—and a putrefaction of his privy member that produced worms. Besides which he had a difficulty of breathing. . . . and could not breathe but when he sat upright, and had a convulsion of all his members. . . . yet did he struggle with his numerous disorders, and still had a desire to live. . . . Accordingly, he went over Jordan and made use of hot baths of Calirrhœa. He then returned and came to Jericho in such a melancholy state of body, as

almost threatened him with present death. He, however, for a little while revived. . . . but presently, and after he was over-borne by his pains, and was disordered by want of food, and by a convulsive cough, and endeavoured to prevent a natural death—by suicide. . . . so Herod having survived the slaughter of his son, five days, died.”

Milman's (a) account of the event is, as we might expect, more graphic and sensational. The “severe distemper” of Josephus is turned into a “most painful and loathsome malady” by Milman, the “gentle fever” of the former becomes a “slow fire” in the hands of the latter, and the “intolerable itching” is replaced by a “rabid” appetite, which he dare not gratify on account of internal ulcers. The more expressive adjective “dreadful” is substituted for “continual,” in respect of the abdominal pain, and the sounding phrase “ulcers which bred worms preyed on the lower region of his belly and the adjacent parts,” is preferred to “a putrefaction of his privy member, that produced worms.” In like manner, is the simple “convulsion of all his members” obliged to give way to violent spasms which seemed to give him unnatural strength, while the “frenzy of his malady,” does duty for the “state of melancholy” described by the Jewish historian.

Finally, and as if to enhance the tragic element of the scene, “So great was his torment,” that “he attempted to lay violent hands on himself,” and though Josephus expressly says that he survived the slaughter of his son five days, Milman implies that this brought matters to a crisis with him. “He—Herod—just raised himself up in bed to give the mandate for his (Antipater's) execution, and then fell back. Thus dispensing death on the one hand, and kingdoms on the other, he expired,” and though St. Matthew is discreetly silent on the point, the Rev. Joseph Benson boldly asserts that “he died eaten with worms at the age of seventy-one after a reign of forty years, having endured such excruciating, lingering, and loathsome diseases, as rendered him intolerable to himself and others also,” and this too is the opinion of almost all the other commentators I have consulted.

(a) “The History of the Jews,” vol. ii., pp. 87-8. The writer of Herod's life in Dr. Smith's Dictionary of Greek and Roman Biography is equally vague, and I quote it to show the difficulty of discovering the truth in the midst of such a wild declamatory description. Describing this event, he says that Herod the Great “was attacked by a painful disease, which slowly consumed his stomach and intestines, and the paroxysms of pain that he suffered from this disorder served to exasperate the natural ferocity of his temper.”

Victor Vitensis (*a*) is our principal authority for the death of Huneric, and no one can read his bitter invectives, or more barbarous latin, without coming to the conclusion, that he was not an unprejudiced witness in the case. His prejudice is, indeed, so apparent, as to place him out of court in the matter, and we know on the best authority that whenever prejudice predominates, good faith can never be complete. Without exactly seeking to deceive others, we commence by deceiving ourselves, and it is the unhappy property of theological disputation, as a recent writer truly observes, "to make men forgetful of the conditions which in other relations of life Christian gentlemen are wont to observe. Motives are recklessly imputed, hard names are freely employed, and the importance of the subject matter is thought to dispense men from the necessity of conforming their arguments to logic, or of producing evidence for their facts."

Whether our author may justly incur this imputation, or not, I am unable to say, but he gives no authority for what he alleges, and so far the statement must stand or fall on his responsibility. The writer of Huneric's life in Dr. Smith's Biographical Dictionary merely says, that he "died of a loathsome disease," and I have been unable to find any further or more authentic particulars of it. I must, therefore, fall back upon Victor, as above, and leave him to describe the event, as follows: "Tenuit sceleratissimus Hunericus dominationem regni annis septem, mensibus decem, meritorum suorum mortem consummans. *Nam putrefactus et ebulliens vermibus, non corpus sed partes corporis ejus videntur sepultæ.* Sicut ille legis datæ transgressor rex quondam, ut asinus sepultus est, ita iste in brevi simili morte perit." The allusion here is to that passage in Jeremiah xxii—19, which relates to the burial of one of the kings of Judah, and it is curious to note, in this connection, that the writers who dwell with so much complacency on these terrible episodes draw their illustrations, almost exclusively, from the Old Testament.

As regards the case of Herod Agrippa, from which the disease would appear to have derived its name, for the word *σκωληκόβρωτος*, used in reference to it in Acts xii-23 occurs nowhere else in the New Testament, and the context scarcely admits of any other construction. This has accordingly been made the peg on which ecclesiastical writers of all grades of belief have been hanging their literary hats for the last eighteen hundred years, and

(*a*) "Historia Persecutionis Africae Provinciae Tempore Geiseriei et Hunerici Regum Auctore S. Victore Vitensi," p. 252.

it has also furnished commentators with the means of pointing morals "for the love of God," and often, it is to be feared, at the expense of charity and truth. These latter have, with their usual tendency to differ, variously ascribed it to a divine judgment, to the effects of the so-called morbus pedicularis—of which more anon—or to the influence of syphilis, but the generally received opinions of Protestant writers is, as a friend informs me, that it was syphilis, or worms bred by the putrefaction of syphilitic sores, and this description of sore is, I think, far more liable to this kind of visitation in the East than it is in the West.

Be that as it may, the case has been made a *cheval de bataille*, for ages between opposing religionists, and commentators have still further complicated it by coupling with it the names of persons who have no claim to such an unenviable association, or whose deaths do not at all come under the same condition or category. For these and other reasons that will transpire as we advance, this case deserves a special consideration to itself, and this had better be preceded by extracts from the leading commentators on both sides. We are not concerned with the physiology of these writers, but with their facts, and I will only add in this connection, that I here employ the terms Catholic and Protestant in their usual historical acceptation, without any prejudice or partiality, and solely for purposes of reference or illustration.

CATHOLIC.

I. Commenting on this passage or incident Tirinus (*a*) says:—"Nec dat divinum honorem Deo, sed sibi sacrilege adscribit insanæ populi assentationi et acclamationi, forsân et nutu consentiens. Confestim syrus eadem hora percutitur ab Angelo Domini, divini honoris zelote et vindice, percutitur inquam, plaga lethali. Ex viscerum dolore et torminibus inquit Josephus item corporis putré-

PROTESTANT.

Dwelling on the same verse, and after observing that diseases and death are in the Scriptures often attributed to an angel, Barnes, a Presbyterian, says that "it is not intended that there was a *miracle* in this case, but it certainly is intended by the sacred writer that his death was a divine judgment on him for his receiving homage as a god." After quoting Josephus to the

(*a*) Jacobi Tirini S. J., Commentarius in loco. See also in the same connection, his equally pronounced, or even more emphatic description of the death of Antiochus, as that is described in the 2nd of Maccabees, ch. 9. v. 9, &c.

factione e qua vermium id est pediculorum agmina enata, miserum homuncionem quinto post die, incredibili tormento absumserunt ut absumserunt etiam avum ejus Herodem Ascalonitam infanticidem. Et solet saepe tali supplicio Deus punire blasphemos, ecclesiae persecutores sed maxime divinitatis appetitores, ut patuit in Antiocho Epiphaneo, in Pherocyde, Pythagoræ, magistro atheo, in Maximiano imperatore, in Nestorio heresiarcha, in Johanne Calvino, et tot aliis Theomachis."

II. After some critical remarks on the Angelic office which we need not reproduce, Cornelius à Lapide says, see his ponderous work in loco:—"Et consumptus a vermibus (factus esca vermium) expiravit . . . Per vermes accipe pediculos quæ corpore foetido per singula membra ebulliunt, de quo morbo vide Galenum lib de Compos Medica secundum loca C 7. Addit Chrysostomus quod *Crepuit et effusa sunt viscera ejus*. Hac phtheireasi, id est, morbo pediculari et vermium morte punire solet Deus blasphemos hagiomachos, fidelium persecutores, sed maxime divini-

effect that "a severe pain arose in his belly, and began in a most violent manner. And when he was quite worn out by the pain in his belly for five days, he departed this life in the fifty-fourth year of his age, and the seventh of his reign," he adds in connection with the phrase "And he was eaten of worms," that, "probably this is the disease known as *morbis pedicularis*. It is loathsome, offensive, and most painful. . . . With this disease also Herod the Great died, and such a death, so painful, so sudden, and so loathsome, was an appropriate judgment on the pride of Herod. We may here learn that sudden and violent deaths are often acts of direct divine judgment on wicked men."

II. *Apropos* of the same occurrence the Rev. Joseph Benson, a Methodist, says:—"And he was eaten of worms or vermin, which bred in his bowels, and rendered him a most loathsome and horrible spectacle to all about him, and he gave up the ghost—expired in agony and infamy (as his grandfather had done before him) and sunk as much below the common state of human nature as his flatterers endeavoured to raise him above it. . . . "Josephus tells us that "as he did not rebuke the impious flattery addressed to him he was

tatis appetitores, uti Antiochum Epiphaneum, Herodem infanticidem. . . . Hunnericum regem Arianum persequentem orthodoxos Eodem modo Pherecydes Pythagoræ, Præceptor, atheus, et omnis numinis contemptor . . . et Maximianus imperio et persecutione Socius Diocletiani . . . et Julianus Apostata . . . et blasphemus Nestorius, teste Nicephoro . . . et impius Calvinus, teste Bolseco, in ejus vita."

immediately seized with exquisite and racking tortures in his bowels. So that he was compelled . . . to own his folly in admitting such acclamations, and upbraided those about him with the wretched condition in which they then saw their god, and being carried out of the assembly to his palace, he expired in violent agonies, &c." Dr. E. De Pressensé, of the French Evangelical Church, sees in this event with his church, "a direct intervention of God for its protection and the chastisement of its enemies," and Dr. Gothard Victor Lechler, who is probably a Lutheran, acknowledges it "as a divine punishment, but also as one inflicted by an invisible messenger of God, an angel of the Lord. In consequence of this sudden attack of sickness, he adds, Agrippa was consumed by worms, and thus he died."

III. Criticising the same passage, the great, perhaps I ought rather to say the greatest of Catholic Commentators, Dom Calmet, (a) says:—"Dicit hic Lucas. Percussit eum Angelus, et . . . expiravit. Quibus verbis indicat, morbum ejus ab ipso Deo inflictum fuisse, ac viscerum tormina parta esse a vermibus, qui late totum ejus corpus depascentes, vivum abro-

III. The Rev. Thomas Scott, Rector of Aston-Sandford, Bucks, delivers his testimony in the same direction as follows:—"Many heathen princes had received, nay, arrogated to themselves divine honours; but it was far more horrible impiety in Herod, who was acquainted with the word and worship of God, to accept and be pleased with such

(a) R. P. D. Augustini Calmet, Latinis Literis traditus a Joann Dominico Mansi, Wirceburgi, Franc Xavier Riener 1788 in loco.

serunt id quod a Josepho omissum est. Docet idem Josephus, Herodem Magnum, Agrippæ avum, per simili morbo absumptum obiisse. Interpretes quidem censent, Agrippam pediculari morbo interiisse; sed Scriptura conceptis verbis, a vermibus erosum affirmat idque morbi genus medicos non latet."

idolatrous and sacrilegious adorations without rebuking the blasphemy and giving God the glory. Immediately therefore an angel smote him with an incurable disease, so that his bowels bred worms which consumed them, and after lying for some time a most abject and loathsome spectacle, in excruciating pain, he died in the most degraded and wretched manner that can be conceived." And after explaining the silence of Josephus about the worms, "probably from regard to his family," he adds that "many persecutors have ended their days by a similar disease, which has rendered them more loathsome while alive than a putrid corpse can be, as well as filled them with the most intolerable pain."

So much for the case of Herod, which I have condensed as much as possible, to save space, let us now turn to that of Philip, and then discuss the subject generally from the stand-point already indicated.

Describing the last illness and death of that Monarch, to whom, as every reader of his well knows, he was no friend, Mr. Motley (*a*) says that when he (Philip) who had been all his life a valetudinarian, "had reached the palace of the Escorial, he was unable to stand. The gout, his life-long companion, had of late, so tortured him in the hands and feet, that the mere touch of a linen sheet was painful to him. By the middle of July a low fever had attacked him, which rapidly reduced his strength. Moreover, a new and terrible symptom of the utter disintegration of his physical constitution had presented itself. Imposthumes from which he had suffered on the breast and at the joints, had been opened after the usual ripening applications, and the result was not

(a) The History of the United Netherlands, vol. ii pp. 503-4.

the hoped-for relief, but swarms of vermin, innumerable in quantities, and impossible to extirpate, which were thus generated and reproduced in the monarch's blood and flesh."

He elsewhere calls them "grave worms," and after glancing at the agonies he was now called upon to endure, and which he did endure, I may add with a fortitude and a resignation that have rarely, if ever, been excelled, the historian continues: "already he had been lying for ten days on his back, a mass of sores and corruption, and we may also say a mass of filth and foetor, scarcely able to move, and requiring four men to turn him in his bed." He contemplated without repining, nay, with eagerness, his approaching dissolution. He conducted his usual business, indulged in frequent acts of devotion, and in short, to resume the thread of our account, lapsing into insensibility, the usual termination, I believe, of such complications, he lay unconsciously dying for some hours," and finally passed away at the age of 72 in such a state of decomposition as rendered embalming impossible.

This account of Motley's is based on Bor, Herrera, and Soranzo, and agrees generally with the statements that are found in the other more accessible records of the occurrence. It also agrees with these in describing the insects wherewith his abscesses abounded, as vermin, that is lice, and not worms, and so far the case may be said not to come within the category contemplated by Milman. Dumesnil, (a) and Leti (b) on the part of foreign writers agree in calling them lice, while Bolléfant (c) and Watson (d) are equally explicit in the same direction on the side of English writers, and there the matter rests at present. Louis Cabrera de Cordova, whose great history of Filipe Segundo Ruy de España is dedicated to the (then) reigning King Alfonso XII, has not yet come down to his death, and Gayarré, one of his latest, and perhaps least friendly critics, does not enter into any particulars of the event. Prescott did not live to complete his work, so that I am perforce obliged to fall back upon the authorities quoted above, and these merely copy one another.

(a) *Histoire de Philippe II, Roi d'Espagne*. Par Alexis Dumesnil, pp. 391-2, &c.

(b) *Vita Del Catolico Filippo II., Monarca Delle Spagne Scritta Da Gregorio Leti*, vol. ii, p. 603, &c.

(c) "A brief and true Declaration of the Sickness, last Words, and Death of the King of Spain, Philip the Second of that Name." *Harlean Miscellany*, vol. ii, p. 395.

(d) "The History of the Reign of Philip the Second, King of Spain." By Robert Watson, LL.D. Vol. ii, p. 407.

There is, however, a consensus of argument in the several accounts which one does not usually find in such company, so also is there considerable accord about the gouty and febrile symptoms from which he suffered, but some further details are required to complete the case, and for these a few words must here suffice.

As the attendants or the contemporaries of the King would naturally be our best guides to these, I turned for information about them to a very rare and curious tract that was written by one of his chaplains, and which has not, so far as I know, been quoted by any of his biographers. This was written by one Cerverra de la Torre, (a) who describes minutely the fever from which Philip suffered, and from him we learn that it was first a tertian, and subsequently a double tertian. Its course was complicated with, or rather aggravated by, the supervention of several superficial, (pyæmic?) abscesses as well as by the supervention of a very severe, if it was not indeed an uncontrollable, diarrhœa. So frequent or copious were these intestinal discharges, or so enfeebled was the King, that they could not be removed from his side, and there were no invalid couches or absorbent mattresses in those days. As a consequence, he who had been nurtured in the lap of luxury from his cradle, and over whose wide realms it was proudly boasted the sun had never set, lay wallowing like a pig for days together in his own mire, and if worms or other foul abominations of that kind appeared in these, or in the other foetid discharges that came out of the abscesses above referred to, where is the wonder? Where, indeed! and meanwhile the arthritic pains he had suffered from so long persisted. The fever became a hectic, while his thirst was insatiable, dropsical swellings invaded his legs and abdomen, and, reduced to skin and bone, he fell into a stupor from which he was only released by death.

A very similar explanation will dispose of the case of Calvin. All the accounts that I have seen of his death represent him as being through life delicate and feeble; subject to frequent attacks of headache, gout, and fever, as eating little and sleeping less, and as devoting all his spare time to religious study, meditation, and preaching. He was, like Pascal, a confirmed sufferer from what the French call *migraine*, and he probably died, like Bossuet, with a calculus in his bladder. Beza, his life-long friend and colleague, ascribes it to chronic phthisis, and adds that he suffered severely towards the close of his life from arthritic

(a) De Felici Excessu Philippi : Austriaci Hispanorum Regis, &c., p 8.

and other urinary troubles. But the end was peaceable and sudden, and there is no justification at all for the spiteful, not to say, shameful, inclusion here contemplated. Bolsec, the author or inventor of it, had been not only worsted in controversy by Calvin, but he had been also imprisoned as well as banished by him from Geneva, *et hinc illæ lachrymæ*. Hence probably his ire as well as his imputation, and simply adding that such diverse writers as Chalmers, Knight, Middleton, Wordsworth, and others either entirely ignore or altogether deny it, I leave the further consideration of the matter in the hands of my readers.

Passing over the case of Antiochus as being outside the bounds of provable history, or as being based on evidence whose authenticity is questioned, and purposely avoiding comparisons of a purely philological or grammatical character, I would simply direct attention to the many striking resemblances it bears to some of the other or more reliable cases. We have in it, as in these, a sudden accession of dreadful pain in the bowels, and "bitter torments of the inner parts." Worms swarm out of or over his body, which itself emits a horrible odour that even his own attendants cannot abide; and he dies at last, "grievously struck," a "miserable death." We have, in other words, some evidence of a strangulation followed by a mortification of the intestines, the generation of maggots in these or outside of them, in other putrid or gangrenous sores on the surface, and finally, such a fœtor as was noticed in connection with the accounts of Galerius and Philip, or such as invariably attends unprotected cases of sloughing phagedæna or pyæmic suppuration in hot countries. So far, the case, though rare, is yet within the pale of analogy and experience, but no reliable deduction can be drawn from it in the absence of details, and carbolic acid had not been discovered in those days. Maximian, if it be the same, was allowed, after repeated warnings and revolutions, a choice of deaths by his son-in-law Constantine, and chose that by strangulation, and it is not easy to see the object with which his name is used here.

So little is known of Pherecydes that we might be justified in passing him by without further notice had not his name occurred so frequently in this connection as to render silence impossible. I will therefore merely append what I have been able to gather about him from the books at my command, and leave it to others to put such construction on these as they like. Enumerating the several conditions under which he is said to have come by his death, among which are, I think, included poison and suicide, Lemprière

says, *in loco*, that "he fell a sacrifice to the lousy disease," and the writer of his life in Dr. Smith's Biographical Dictionary adds that he "died, according to a favourite tradition in antiquity, of the lousy disease, or *Morbus pedicularis*, though others tell us that he put an end to his life by throwing himself from a rock at Delphi, and others, again, give other accounts of his death." But the fullest description of him and his end that I have seen is to be found in a book that was published, by a member of our own cloth, (a) in London in 1814, and, content with copying that as far as I can here, I will leave it to speak for itself:—"It is recorded," says our author, "by authors both ancient and modern that diverse persons have come to their ends being devoured of lice, among whom the poet Alcmanes (as he is written by Sennertus) and *Pherecydes Syrus*, mentioned by *Aristotle*, are accounted."

A similar measure of treatment must suffice for the cases of Nestorius and Julian, and the great Jesuit commentator, Cornelius à Lapide, evidently confounds the Emperor Julian with his uncle, the Governor of Antioch, who died, according to Sozomen and Theodoret, of this (vermicular) disease. Describing his sacriligious destruction of the sacred vessels of the Church of Antioch, Sozomen says that "his (Julian's) impious course was suddenly arrested, for certain parts of his body were turned into corruption, and generated enormous quantities of worms. . . . The physicians procured the most costly and the fattest birds, and applied them to the corrupted parts, in the hope that the worms might be thereby attracted to the surface, but this was of no effect, for in proportion as some of the worms were thus drawn out, others were generated in the flesh, by which he was ceaselessly devoured, till they put an end to his life. Many believed that this disease was an infliction of Divine wrath visited upon him in consequence of his impiety."

Philostorgius, who wrote about the same time, gives a somewhat different account of the event, while Theodoret, who ascribes his seizure, not to a demolition of the sacred vessels, but to an attack on one of the custodians of the altar, calls it "a loathsome disease," and further adds that "putrefaction arose in his intestines, and his excrements, instead of being conveyed through the ordinary channel, were propelled upwards into the wretched mouth, which had been used as an instrument of blasphemy." This would seem to imply that he was the victim of an intussusception, and in either case those who confound him with his greater

(a) Turner, *De Morbis Cutaneis*, pp. 161-2.

nephew are inexcusable. The latter, it need scarcely be said, was killed by an arrow that wounded him in the side, and possibly penetrated his liver, in Persia, and the fable of his being the subject of a Phtheiriasis arose from the studied neglect with which he treated those *populous* and

. . . matted locks which never yet

Had yielded to the comb's unkind divorce.

If now turning, for a moment, from these unpleasant personal details to the grave question of the character of these disorders, we ask ourselves for some account of their precise causation and pathology, we will not, I fear, have much that is certain to advance in respect of either. For the facts required for a diagnosis, especially to those that relate to the appearances presented by the viscera after death, are entirely wanting, and no sound deduction can be drawn from the loose or scattered accounts that are now available. From this category, we must, however, exclude the words of St. Luke, which are precise enough as far as they go, but they do not go far enough for our purposes, and they are, moreover, scarcely amenable to the kind of criticism that is called for in a medical inquiry.

I, at least, have no wish to deal with them irreverently, and I will only further observe in this connection, that for those who regard the occurrences noted within as divinely sent afflictions, there is, of course, no room for hesitation or doubt. The interposition of an angel, as in the case of Herod Agrippa, clears the way at once, and relegates the matter to the region of the supernatural. But for others, and they are decidedly the majority, the question will scarcely admit of being disposed of in this way, and we must accordingly look for more palpable or sub-lunary causes than those that are given by the sacred writer.

Among these, may be mentioned those forms of mortification or ergotism, that are fortunately commoner on the Continent than among ourselves, and to the former of which the words of Sigebert quoted by Pereira, (a) are supposed to refer. These are as follows:—In "1809, a pestilent year, especially in the western parts of Lorraine, where many persons became putrid, in consequence of their inward parts being consumed by St. Anthony's fire. Their limbs were rotten and became black coal. They either perished miserably or deprived of their hands and feet, will be saved for a more miserable life," and we learn from the same source that "ergotism, as the disease produced by the

(a) "Chelius' System of Surgery." Translated by South. vol. I, p. 61.

cockspurred wheat or rye is called by the French, is of two kinds, the *convulsive* and the *gangrenous*," and that the latter "sets in with formication, of the feeling of insects creeping over the skin, voracious appetite, coldness and insensibility of the extremities, followed by gangrene." The experience of the East will supply even stronger analogies in the same direction, and the association or comparison of both will enable us to follow up the inquiry, and finally arrive at the conclusion, that in these as in other instances employed by pious or enthusiastic persons (whose piety or enthusiasm is not tempered by wisdom or research)—"to point a moral or adorn a tale," there is nothing so new or startling as to require us to place them beyond the cognizance of our ordinary working reason or causes.

Looking then to the "plain unvarnished tale" of Josephus, for St. Matthew merely records the event, and says nothing about worms or vermin, what do we find that is either peculiar or unnatural in the case of Herod the Great? We find as I venture to think, two things, first the absence of all supernatural element or interposition, and secondly such a combination of disorders as old age is prone to, or as the other surroundings of this broken-down and much exercised man may explain. We find in other words, that he laboured under some of the usual consequences of advanced years and domestic afflictions such as debility, the result, doubtless of sleeplessness, anxiety, and want of food, a settled melancholy that amounted to a weariness of or a distaste for life, passive dropsy of the lower extremities, and considerable pulmonary embarrassment.

The continual pains in his colon may be explained by the supervention of an abscess in that region, or of a simple colitis, as well as by the presence of a tape-worm or even of impacted fæces. Why even lumbrici have been known to cause death, (a) and as to trichinosis the torture it sometimes causes, has often driven its unhappy victims to desperation. (b) I do not mean to intimate by this, that Herod suffered from either of these conditions, but only to point out that any one of them might produce the symptoms mentioned by the great Jewish historian, and we may reasonably conclude that a man who was the husband of ten wives, and who married the beautiful Mariamne late in life, did not exercise

(a) "Worms: a Series of lectures on Practical Helminthology." By T. Spencer Godbold, M.D., p. 114.

(b) Ibid, p. 123. See also in the same direction the "Science and Practice of Medicine." By William Aitken, M.D., vol. I, p. 858, and German Home Life, a reprint from *Fraser's Magazine*, p. 57.

such a discretion in respect of his sexual functions as would conduce towards longevity.

However, that may be, mortification of so dependant and devitalized a part as the *membrum virile* (*του αιδοιου σηψις σκωληκας εμποιουσα* is the description in the original) is no very unusual event or accessory in the cooler West, and the readiness with which maggots accumulate in this kind of sore in the East, will appear as we advance. I have seen examples of it myself in much younger men in the tropics, and Dr. Chevers has lately called my attention to the frequency with which gangrene or sloughing of the scrotum causes death, among elderly natives, in India. Dr. Barnes states, I think in one of his works on the Diseases of Women, that gangrene of the uterus occasionally follows on cancer of that organ, and the analogy is sufficiently close to justify me in referring to the fact here in support of my general contention that there is nothing very extraordinary in the account given by Josephus of the death of Herod the Great. So far there is nothing very extraordinary or even unusual in the case, and this is, I think, as much as I am called upon to show, in connection with it, in this place.

A very similar estimate will apply to the case of Herod Agrippa, for the symptoms were very much alike in both, and though Josephus says nothing of the worms, out of a sneaking regard for him, there is little doubt that he died of the same disease as his grandfather. St. Luke, indeed, says emphatically, that he was destroyed by worms, but his description admits, as I think, of no other than a supernatural interpretation, and it is for this, if for no other reason, beyond the profane cognisance of a somewhat sceptical, or at least, questioning outsider, like myself. Neither is it, I think, necessary for us to resort in connection with it, to the assumption of poison, as conjectured by Renan, who bases his opinion on "what is said in the Acts of the equivocal conduct of the Phœnicians, and of the care they took to gain over Blastus, the valet of the king," for the symptoms are scarcely reconcilable with any poison now known to us, and valets do not, even in the East, usually resort to such heroic means of gaining their ends. More akin are they to strangulated hernia, ilius, or intussusception, and we have already seen that "death by enteritis or perforation of the intestine has been known to occur," from the presence or migrations of *lumbrici* within the bowel.

Even an impacted gall-stone or renal calculus may "produce violent pains in the bowels," nay,

indeed, "unutterable anguish," and no inference at all can be based on the phrases "loathsome disease." I have lately heard it myself applied in a court of law to a gonorrhœa, with which a young man infected a still younger girl. Again, the rapidity with which trichini (*a*) are generated and developed is without parallel in the parasitic world, and life may reasonably be expected to last five days in a previously healthy man of 54, in either of these conditions. But it is quite impossible to gauge the precise nature of Agrippa's last illness from the information respecting it now at our command, and the effect produced on his superstitious mind by the sudden appearance on the scene of an owl, which bird he always regarded as "a messenger of evil," should not be lost sight of in this connection. Emotional revulsions of even graver import are not unknown to physiologists from similar, or equally trivial coincidences, and I have myself collected elsewhere several examples of sudden death from the effects of presentiment, fright, or other depressing mental impressions.

Though the circumstances under which Philip succumbed are better known to us than are those of either of the above, yet is the nature of his illness not very apparent, and I have already mentioned that those who were in immediate attendance on him say nothing of the lice or maggots of which we have heard so much since. For this silence the ignorance or superstition of the age, which ascribed events of this kind to the anger of the Deity, will readily supply an explanation, and I have failed to secure any professional or skilled account of the occurrence.

I must, therefore, fall back on my own painful experience, and say at once that the cause of his life-long sufferings and terrible death was, in my opinion, atonic hereditary gout. All the accounts we have of him represent him as through life delicate or dyspeptic, as leading a very secluded or solitary life, and as yielding but little to amusement or relaxation of any kind. He used to boast that he never rode on a mule, or danced except under the pressure of a state-necessity, and he spent years, like a poor clerk, over a desk, or in the recesses of his gloomy closet. His

(*a*) Dr. Cobbold says expressly, "Entozoa, an Introduction to the Study of Helminthology," p. 348, that "the genesis and migrations of trichini are astonishingly rapid, and so far as my knowledge extends, without parallel in this or any other class of parasites," and Aitken adds that "the genesis, development and migrations of these flesh-worms are proved to be astonishingly rapid."

manners were cold and repelling, his disposition was morose and saturnine, and he dwelt with complacency over images or objects that caused disgust or horror to others. He was, in a word, a victim to that thrice accursed gouty diathesis, or rather to that gouty melancholia that made his grandmother sit for years by the side of her dead husband, that drove his father in early middle life to the solitude of San Juste, and that is so little understood even now by "men of light and leading" amongst us as to be variously confounded by them in their ignorance or self-confidence with the hysteria, the hypochondriasis, the neurasthænia, or the other *anae* or *ises* of a learned but very elastic terminology,

Philip's malady had an older origin and a deeper seat than either of these fashionable phrases would imply. It was sown in his blood, and it bred in his bones, and this kind of hereditary gout is, *crede experto*, the almost invariable precursor of that arterio-capillary fibrosis, *alias* that inelasticity or ossification of arteries, which leads to embolism, mortification, and sudden death. Should neither of these supervene, or should either of them be so modified by the surroundings of the sufferer as not to precipitate matters or cut short life, then will embolic or other abscesses form in various parts of the body, and then also will we have in elderly people in the tropics such conditions as I am here endeavouring to portray. This state is further characterised, especially so in its earlier phases, by much vacillation and infirmity of purpose, by dislike of change or exertion of all kinds, and by great mental depression and bodily weakness, and the man who is the subject of these conditions is no more master of his own actions than is he who has been locked up within the four walls of a dungeon, or who is held fast between the jaws of a vice. He is, in either case, a machine and nothing more, and those writers, therefore, who ascribe Philip's morbid melancholy or brooding, morose manners to his baffled ambition or religious bigotry, utterly misunderstand the situation. They ignore the fact that this disease was "the heritage of all his race," and they pile upon this ignorance, or rather upon this misconception, an amount of exaggerated invective and lying misrepresentation such as I do not find in the records of any other equally eminent or public man.

He was poisoned, in short, in his own palace and his own bed by the foul discharges that issued from his own person, and which either were not or could not be removed. "Decubuit totum id tempus," says his chaplain, "resupinus et in dorsum atque ita, egressit quæ naturæ necessitas postu-

lavit," and a more painful position was, we may add, never conceived by Hogarth or Michael Angelo, by Dante or by Defoe. It was, indeed, such a position as would, let us hope, be now impossible in the cottage of the humblest peasant, but it was also the position that conduced best to putrefaction and septicæmia, and this is the feature of it with which we are here chiefly concerned. No wonder, then, that the maggot, the forerunner of the grave worm "Revelled o'er his rotting sleep," or that the embalmers had nothing left to work upon. There was, in a word, nothing left for them to act upon, for "when the actions produced by the introduction of putrid fluids into the body are fully developed all the indications of the putrefaction may take place, even in the living body. Not only the fluids, but the so-called solids pass rapidly into decomposition, and the former would appear, in addition to being extremely liable to decompose themselves, to bear the property of infecting other parts, and even other healthy bodies." Thus we read that during the plague at Marseilles, the bile that was taken from those who had died of the disease, uniformly produced death when injected into the veins of dogs, (*a*) and it requires only a glance at the literature of this subject to satisfy ourselves that similar effects will follow "as true as dial to the sun," from similar causes in these our own days. They are at work reader, unfortunately, as I write this little essay, and they will be at work whenever you will read it. They "live, move, and have their being" in the same media as ourselves, they are as active now as they were in the days of Antiochus and Philip, and they serve to show, were any such proof necessary, that Nature's operations never vary, and that the results obtained under somewhat similar circumstances by Weber, Polli, Gaspard, and Burdon Sanderson have been anticipated in these cases by centuries.

Touching the other or equally rare condition, that is called by the older dermatologists the Lousy Evil, but which passes before ears polite for phtheiriasis, little need be said, for little that is certain is known about it, and brevity is, under these circumstances, the obvious indication. Those who have followed me up to this need not be reminded of the confusion that reigns in theological circles

(*a*) Taken, as well as other hints from the article "Pyæmia," in Lane's Edition of Cooper's Dictionary, vol. ii. p. 501. I notice the phrase "arthritic pyæmia" in a late number of the *Lancet*. It seems to me to be a well-chosen and appropriate designation for this disease.

on this point. Ecclesiastical writers and commentators describe both these conditions, viz., the vermicular and the pedicular, as if they were synonymous, thus Tirinus says, "Vermium id est pediculorum;" while Cornelius à Lape adds, "Per vermes accipe pediculos," and even Motley employs the words worms and vermin indiscriminately in the same paragraph. This may arise from the fact, if such it be, that one rarely happens without the other, or it may be due to the uncanny appearance of the fly-maggot, (a) which is, at first, nothing more to most eyes than a shapeless grub, and the case of Pherecydes, already disposed of, is probably the first of the kind of which we have any record.

Next to this in point of time, if not of authenticity, are the examples of Eunus, Sylla or Sulla, the Dictator, and Art McMorrogh, King of Leinster. Of these I will treat further on, and meantime I may be permitted to observe that the most authentic case I can find within historic times, or rather, the case to which most interest attaches in this connection, is that of Pym, the impeacher of Strafford in the Long Parliament, and the virtual leader of the opposition that cost Charles his head. He was said, by his enemies and others, to have succumbed to this horrible malady, but the accounts we have of his end are almost as various as those of Herod, Galerius, and Calvin, and this only tends to show that an otherwise easily ascertainable fact may be so tortured or twisted by calumny, prejudice, and religious or political dislike as often to pass current for the very opposite of what it originally meant. Nowhere indeed, do these operate so effectually as in the realms below. Here there is ample room for pious horror or fanatical exaggeration, "dead men tell no tales," and the old motto, "Nil de mortuis nisi bonum," is it is to be feared, often more honoured in the breach than the observance, by so-called religious writers.

But whatever doubt there may be as to the influence of this condition in causing death, or as to the existence of the disease that bears its name, viz., the morbus pedicularis, or pediculosus, as it is variously called, there can be no doubt at all as to the facility with which these filthy parasites increase and multiply under the stimulus of privation, neglect, disease, or dirt. This has been

(a) "The maggots of flies, in which the appendages of the head are rudimentary, belong," says Sir John Lubbock on "The Origin and Metamorphosis of Insects," Nature Series, pp. 41-3, "to a lower grade than the grubs of bees, which have . . . all the mouth parts of a perfect insect."

proved under so many different circumstances, and in so many different places as to admit of no doubt. It was so during the old Irish, as well as during the late Indian, famine; it was so in the time of the beleaguered Crusaders as well as during our own operations in the Crimea, and I can testify from some observations or inquiry near the spot, that the country in which our troops were lately engaged in Afghanistan, though

“ . . . declared to be so charmin’
Throughout is swarmin’ with the most alarmin’ kind o’
varmin.”

Nor is this to be wondered at when we consider the habits of its people, or the extraordinary fecundity of these creatures. Clad in a coat, called a postheen, which he never changes, and which bears a strong resemblance to the garment that is traditionally associated with the house of Bryan O’Lynn, the Khyberee or Wuzéree of the period, presents a field or bed for their “cultivation,” which is not often met with elsewhere, and as to their prolificness, Leeuwenhoeck estimated, from experiments on his own person, that “two females conjointly might have produced eighteen thousand eggs in two months,” while “a single ascaris produces,” according to Darwin, (a) “64,000,000 eggs” in, it is to be presumed, its single lifetime. We find, accordingly, that many savage peoples have, with their proverbial animalism, turned this abundance to account, and that travellers do not exaggerate when they ascribe to some of them a usage which is erroneously supposed to be peculiar to the monkey.

Mountaineers are, however, more liable, probably through their isolation or from cold, to this kind of visitor, than their congeners in the plains, and dwelling on the revolting filth of the Highlanders in the time of the Stuarts, Mr. Lecky (b) says that “one of the consequences of the invasion of England in 1745 that was most dreaded was the spread of the cutaneous disease that accompanied them wherever they went.” He is equally explicit in his account of the Irish chartered schools of 1788, “the children in which were half fed, almost naked and covered with vermin,” and he adds, further on, that “the rooms, the bed covering, and the scanty clothes of these children were alive with infirmity.” But I must turn to his classic pages for further particulars, and I thus enlarge upon the subject at all in this place to show that these filthy insects are, for some un-

(a) “Animals and Plants Under Domestication,” vol. ii, p. 379.

(b) “A History of England in the Eighteenth Century,” vol. ii., p. 27 and 204.

known reason or purpose, endowed with marvellous powers of increase and reproduction, and that, as a consequence, contingencies of the kind here contemplated are not so *outré* or infrequent as might, at first sight, be supposed.

For all that is known of Eunus, "the leader of the Sicilian slaves in the war which broke out in 130 B.C.," I am indebted to Dr. Smith, who says of him, on the authority of Florus, Orosius, Diodorus, and others, that he "died in prison at Morgantia of the disease called *morbus pedicularis*," and as to Sylla, or Sulla, the same great authority describes his end as follows:—"He died in 78 B.C., in the sixtieth year of his age. The immediate cause of his death was the rupture of a blood-vessel, but some time before he had been suffering from the disgusting disease which is known in modern times by the name of *morbus pedicularis* or phtheiriasis." Appian simply relates that he died of fever. Zacchariæ, considers the story of his suffering from phtheiriasis as a fabrication of his enemies . . . but Appian's statement does not contradict the common account which is attested by too many writers to be rejected on the slender reason that Zacchariæ alleges," and he quotes Plutarch, Pliny, Pausanias and others in favour of the former view.

Describing the same event, Lemprière adds that "his (Sylla's) intemperance hastened his end, his blood was corrupted, and an imposthume was bred in his bowels. He at last died in the greatest torments of the lousy disease," and "The Annals of the Four Masters" are our best, if, indeed, they are not our only, authority, for the death of MacMorrogh. Enumerating the occurrences of the year 1171, they say that, being attacked by "an intolerable and uncommon disease, he became putrid while living, by the miracles of God, through the intervention of Columkille . . . and died at Ferns . . . as his evil deeds deserved," and the editors add in a note that "this disease is supposed to have been the *morbus pedicularis* of medical writers." Fox, the Martyrologist, may be here added to the list of those who look upon these conditions as supernatural inflictions, and the Thugs of India, who were, we may add, the votaries of the vilest superstition that ever disgraced human nature, ascribe similar visitations among the lapsing members of their fraternity to a divine vengeance.

"About this time," (a) says Clarendon, "the Councils at Westminster lost a principal supporter by the death of Jo

(a) "The History of the Rebellion," vol. iii., p. 330.

Pym, who died with great torment and agony, of a disease unusual, and therefore the more spoken of, *morbus pediculosus*, which rendered him an object very loathsome to those who had been most delighted with him. No man had," he adds, "more to answer for the miseries of the kingdom, or had his hand and head deeper in their contrivance," and whoever will turn to an article headed "Pym and Shaftesbury" that appeared some years ago in the *Quarterly*, will easily satisfy himself as to the general accuracy of this description. Clarendon adds, further on, that "during his sickness he was a very sad spectacle . . . he died towards the end of December . . . and was buried with wonderful pomp and magnificence, in that place where the bones of our English kings and princes are committed to their rest," and he is, as far as I can make out, the only great writer of the period who thus minutely records the incidents of Pym's death.

Whitelocke, a contemporary and friend, merely says, that "in the end of the month of May died Mr. John Pym . . . and it was believed that the multitude of his business and cares did so break his spirits and health that it brought his death," but Whitelocke misstates the date of this occurrence, as Godwin has sharply pointed out, and it is consequently open to us to believe, that he may have been equally careless or criminal in respect of its cause. However that may be he (Pym) "was considered at London as the victim to national liberty . . . at Oxford he was believed to have been struck with an uncommon disease, and to have been consumed with vermin, as a mark of divine vengeance for his multiplied crimes and treasons;" and such is the vitality of a popular delusion or prejudice that this belief or suspicion has survived to the present day, aye, and that too, in spite of the fact that "there exists a document attested by seven physicians, two surgeons, and one apothecary, which states that the disease of which he died was an imposthume in the bowels." Grainger, who ought to be impartial in the matter, confirms this part of the certificate, and I am indebted to Dr. Chevers for the view of a very scarce and curious old print, in which the great lawyer is represented as covered with vermin. The likeness or caricature in question bears the punning inscription, "Maistre Pin L'Archicagot Politique, Parlementaire, Huenot Heretique, les Pouls ont Mangé Maistre Pin, qui fut aux Anglois Maistre fin: aux Ecossais Maistre Faquin, aux Hirlandois Maistre Coquin, delineavit J. Hhong et excudit," and that is all of authentic that I know about him or his ending.

To these cases, if such they can be called, I may be here permitted to add two others of like import, that occurred within the cognisance of a departmental colleague, who kindly gave me some particulars of them a few years ago in India. One occurred among the retainers of his family, in a remote part of Ireland, in the person of a very aged woman, and the other also a female, he saw in a dissecting room in Dublin. In the latter the tissues appeared to be permeated with lice, which formed a layer under the skin, and emerged through such rents or fissures in it as existed from the beginning or were subsequently made, but examples of this kind are, I should fancy, not uncommon in mortuaries, as the result of long confinement to bed, as from abscesses, &c., privation and protracted or debilitating disease, and the phrase, "an imposthume in the bowels," meaning, as it usually does, I believe, a psoas or cæcal abscess would come under either of these categories.

The ascription of Pym's death to a morbus pedicularis, was probably an after thought, suggested it may be by the appearance of some vermin on his clothes or bedding, and sustained afterwards by prejudice and passion. Pym or "King Pym," as he was spitefully or jealously called, had made many enemies in high quarters. He had incurred the deadly hatred of the Queen and the loyalists, who lost no opportunity of questioning his motives or traducing his memory, and who threw dirt on both accordingly in the hope that some of it would surely stick. Hence, probably, the imputations, and we know that the best way to discredit a man during life, or render him odious after death, is to make him ridiculous in the former, or show that he was under a curse in the latter.

Discit enim Citius Meminitque libentius illud
Quod quis deridet, quam quod probat et veneratur.

Pym was probably, no more "eaten of vermin" in the genuine historical acceptation of that term, than was Julian or others of those named above, and many are now regarded as saints by their churches, who were far more troubled with insects of this kind during their lives than he was. At no time, indeed, is the odour of sanctity so pronounced, in the estimation of some, as when it is associated with, or confirmed, by evidence of this kind, and had we more particulars of the deaths of those ascetics of the desert, who fed like Mary of Egypt, on grass, or of those pillar-hermits, who lived, like Simon Stylites, in mid air, than are now available, we would probably find that they were better cultivators of the pedicu-

lus hominis than was either Julian the Apostate or King Pym. But the subject is a delicate one, and I began with the undertaking that I would avoid controversy. Moreover, I have no sufficient materials for such an inquiry by me, and I must, accordingly, content myself with two illustrative examples, and these are only introduced, need I add, for the purpose of showing how little these creatures are thought of when there is no political or other capital to be made out of them.

The examples, I refer to, are those of Thomas à Beckett, commonly called St. Thomas, of Canterbury, and the Blessed Benedict Joseph Labre, and purposely passing over the vexed history of the former with a quotation to the effect here indicated, from one of his numerous critics, "Après qu'il eut subi la mort du martyre, on trouva son cilice tellement plein d'insectes pediculaires, que l'on jugea ce martyre anterieur beaucoup plus insupportable," I will describe the latter as far as possible, in the words of his admiring biographer. Of this poor peasant, who spent the greater part of his uneventful life in pilgrimages from one shrine or church to another, we are told, that he travelled always on foot, and often without shoes, covered rather than clothed in rags, which he never changed, either by day or night, in winter or summer, and which were only replaced by others of the same description, when these latter were called for by necessity or decency. He did not even indulge in the luxury of a pack, but carried his beads and breviary in a satchel that depended from his neck, and as to a bath, such a thing was not ever dreamt of. He selected by preference the least frequented paths, in order to avoid all intercourse with other travellers, and he slept in deserted huts, or, at times, *sub jove frigido*.

As to his food it consisted of such scraps as were grudgingly thrown to him, in charity, and his hair and beard were habitually matted and uncared for. Is it then to be wondered at, that he was during life "devoré dans ses dernieres années par une fourmilierie d'insectes pediculaires. La souillure de son vêtement interieur, rarement changi ou blanchi, operait la mulliplication de cette vermine, dont la morsure est si insupportable," or that, refusing to wash, lest he may be thereby deprived of this "instrument naturel de maceration," his body should present the following appearances after death:—When "la famille de Zaccharelli voulut procéder au mettoiment de sa dépouille, six personnes s'employèrent à la purger de cette vermine et constatèrent qu'il n'yavait aucune partie, quelque petite qu'elle fût, qui n'en contint des nids. Il 'ny avait pas jusqu'aux grains du

chapelet suspendu de son con qui ne leur servissent de retraite d'ou un lessivage pût seul les expulser." (a) But this poor simple man made no enemies in high quarters, he was unknown to or ignored by the great, and we find, accordingly, that, though furnishing far more reason for this charge than others did, he escaped it, and the parallel or comparison need not be followed further, in this place.

Akin to these, though the kinship is, it must be confessed, rather strained, is that form of nasal disorder, which goes by the Sanscrit name of Peenash, or the Latin one of Vermes Nasi, in India, and which is, comparatively speaking, pretty common in that country. At least, I have seen examples of it at Cawnpore and Futteghur, as well as at Rawul Pindee, and Peshawur, and friends assure me that it is well known at Bijnour, Bareilly, and Lahore. But, notwithstanding this, and though it is, I understand, occasionally mentioned in the older Hindu works on medicine, the literature of it is, as far as I have been able to ascertain, very scanty.

Except two articles on the subject in the now defunct Indian *Annals of Medical Science*, and some scattered notices in the Indian *Medical Gazette*, it is not, so far as I may judge from the evidence at my command, even alluded to in the works that treat ex professo, on Indian ailments. This being so, I had at first, intended reproducing the substance of the articles just referred to in parallel columns, in these pages, the more so as the useful periodical first named, is now out of print, but this paper has already attained dimensions which I never contemplated, and I must, therefore, content myself with a mere summary of both, by way of introduction to what I have to say on the matter myself further on. Meanwhile, and as the eye is a better conductor than the ear, I subjoin a photographic view of the mutilation this disease sometimes causes—the only one of its kind I have been ever able to procure—and I will subsequently add such further illustration in point, as my own inquiry may supply, or as the courtesy of friends has provided.

Writing about this condition as it occurred at Allyghur in 1855, Mr. Lahory (b) a native surgeon, who regards it as

(a) "Le Bienheureux Benoit Joseph Labre." Par F.M. J. Desnoyers. Tome Premier, p. 155; and Aitken, I find, records a somewhat similar case.

(b) The *Indian Annals of Medical Science* for October, 1855, pp. 96-101. Dr. Chevers has lately described this disease in the *Medical Times and Gazette*, but I have not seen this description. The condition is, I understand, also alluded to in the Sanscrit medical work the "Charaka Sanhita," whose antiquity and authority are both very great.

"nothing more than a chronic and malignant ulceration of the mucous membrane of the nose, occurring in persons of a debilitated or scrofulous constitution," says that "the worms lodge themselves in the cribriform plate of the ethmoid bone and feed upon the soft parts in its neighbourhood." They then extend their ravages, on the one hand,



towards the olfactory nerve, whose destruction entails the loss of smell, or, on the other, towards the front, and there eat away the parts that support the bridge of the nose, and in either case the sensations they cause are very distressing. Among these he enumerates "a deep-seated and indescribable pain in the head, chiefly along the frontal sinus; there is also pain in the orbits and ear, and a discharge of ichorous and offensive matter from the nostrils. The head droops or stoops, and the patient complains of 'a sensation of crawling of worms in the interior of the nose.' The eye-

lids are swollen and puffy, so that the sufferer is sometimes unable to see, and the deformity that is caused by the unchecked advance of the mischief, often exceeds that produced by syphilis.

"In no case," he continues, "have I ever observed symptoms indicative of inflammation of the brain or of its membranes," and he ascribes "the generation of these insects to the decomposition of the mucus or pus that is accumulated in the nasal passages." The disease prevails, according to him, more during the hot months of July, August, and September than at other times, it is equally common to both sexes, and attacks its victims indiscriminately from adolescence to old age. "I have seen it," he adds, "in persons as old as eighty, as well as in boys of eleven and girls of nine," and "bad food, insufficient clothing, and uncleanness predispose," in his opinion, "to this horrible complaint."

Describing from, of course, a higher standpoint, "a severe inflammation of the mucous membrane of the nose and the neighbouring sinuses attended with the presence of swarms of maggots" which prevailed in 1862 in Rohtuck, Punjab, Dr. Lyons, (a) who characterises the disease as "one of the most loathsome that comes under the observation of the medical man," says that it is attended with an exceedingly foetid, but not very profuse discharge, racking pain in the forehead, temples, and cheeks, which extends sometimes to the occiput and vertex, and swelling and suffusions of the eyes and their lids. The colony of worms that is concealed in nooks and corners in the nasal sinuses often give rise to diarrhoea and severe fever, but the disease itself has rarely proved fatal in his hands, and this, too, though the subjects of it were mostly "ill-fed, emaciated, and of a scrofulous constitution." It rarely occurs, according to him, among the better classes of natives, and never among the "few Europeans of the district," and an individual may be subject to it for years and live, notwithstanding, to some age. Reserving the question of its primarily parasitic origin for future determination, he inclines to the belief that "the disease is essentially a scrofulous inflammation of the Schneiderian membrane of an aggravated character which spreads under circumstances of uncleanness or neglect, along the continuous membrane of the cranial sinuses," and finally attacks the bones.

Given, in short, the foetid nasal discharge you may, he thinks, soon have the maggot and the

(a) See No. 15 of the *Indian Annals of Medical Science*, pp. 55-9.

worms for the Indian fly, and, for the matter of that, the English fly, too, is apt to "swarm in uncleanly places, to be attracted by foul odours, and to deposit its larvæ in putrid animal matter," and these abound, as I and others of my calling know but too well, more in the glowing East than they do in the cooler West. In other words, the frequency or prevalence of the maggot will be regulated in great part by the activity of the fly, and as this feature is better developed in the Oriental than in the Occidental diphtheræ, so also is the maggot more frequent in sores in the East than it is in the West.

Answering some questions that I addressed to him on the subject, and after stating that "we have many worse cases than that shown in the photograph" reproduced above, Dr. Neil, (*a*) one of the teachers at the Lahore Medical School, informed me in '76 that, according to the experience then available at that place "the disease was commoner in women than in men, and that though rare in children, it might occur at any age. No one caste or occupation was more liable to it than another, neither does it exhibit any specificity, and cases occasionally occur in which the eyeball, and nearly the whole of the face have been eaten away, leaving a large chasm behind them." He was good enough to send me an extract from the Principal, Dr. Brown's Annual Report for the Year 1872, which bears on the point, and which, owing, to the scantiness or obscurity of the materials available for its elucidation, I am induced to submit here.

Officers of the Indian services necessarily see much more of this condition than those of the Queen's army do, and hence my reasons for giving here such details connected with it as I have been able to collect during my protracted residence in the tropics. Enlarging then on the peculiarities of the season, Dr. Brown says that "a singular affection which occurs every autumn at Lahore, and which is scarcely named in any nosology, is the development of the maggots of flies in the various parts of the body. It generally takes place in debilitated persons who are suffering from wounds or ulcers, or sometimes the maggots develop themselves in the nose without any solution of continuity having been previously visible. There can be no doubt that these animals are produced from eggs deposited by flies in the injured flesh. The young animals are, at first, nourished by the liquids of the parts, and often cause

(*a*) This officer died somewhat suddenly soon after this note was written, to the regret of all who knew him.

no pain for a time, but as they become larger they attack the solid tissues, and move about freely, causing great agony. They burrow under the skin in various directions, and often destroy important structures; in some cases they have been known to penetrate from the nose through the orbit into the brain, and thus to cause death."

Dr. Brown relies upon oil of turpentine or upon carbolic acid dissolved in oil for the destruction of these parasites, after which they can, he says, be easily removed by the forceps. But careful watching for many days is necessary to prevent a further deposit of ova, and with this view he protects the parts with a muslin screen, and continues the treatment. The sore generally cicatrises well as soon as the irritating material is removed. "And there were," he adds, "no fewer than eighty-one cases of this kind among the out-patients for the year, while there were fifteen among the in-patients for the same period." A native surgeon at Rawul Pindiee assured me that chloroform proved in his hands a specific for these nasty parasites, and Mason Good says that they were successfully expelled with tobacco injections in the West Indies.

Conversing subsequently with another and more distinguished member of the same Subordinate Department, on whom the Viceroy has lately conferred an honorary distinction for his services in Cabul, he endorsed to some extent the views propounded by his native colleague as above, but added that "in many instances epistaxis is not the cause of this complication. Ozæna, syphilitic or otherwise, has chiefly caused the mischief in my hands, in other words I have been able to trace most of my cases of vermes nasi to that process. And touching this same troublesome ozæna, it accords with my experience that, when fully established, it is locally more destructive of tissue, and generally more fatal to life, in the East than it is in the West. It is rarely, if ever, attended with the generation of maggots in this country, at least there is no mention made of their presence in any of the works on syphilis or surgery that I have had access to, and I have dipped into a large number of them. The contrary occurs not infrequently in India, and I have myself published several instances (a) in which death resulted from the ravages caused by these insects, or from the ulcerative implication of neighbouring structures, that took place during the progress of this disease.

In one of these in which, "in spite of all we could do for him,

(a) In the *Indian Annals of Medical Science* for January, 1875, pp. 92-107.

the whole of the nasal covering sloughed away, and disclosed extensive caries of all the soft bones, and large accumulations of foul-smelling pus in their spongy cavities. Maggots were found issuing from these in large quantities, and . . . on section of the remains five hours after death, the muscular tissues of the head and face were in many parts in an advanced stage of decomposition, and the integuments of the nose and left superior maxilla were gangrenous and sloughy. A deep excavation consequent on crumbling and disintegration of the ethmoid and the several turbinated bones, had quite removed the nasal protuberance; caries had eaten its way into either antrum and destroyed all the soft bones that constitute the floor of the nares." In one or more of the post-mortem examinations that were made by Mr. Lahory, as above, "worms were found in the cribriform plate of the ethmoid bone, there was ulceration of the body of the sphenoid and ethmoid, and slight congestion of the vessels of the brain," and the particulars supplied by Dr. Lyons in connection with a case of the kind, in the person of an aged female pauper that occurred under his care, are so suggestive in way of contrast as to render their introduction here, for purposes of illustration, a necessity.

After observing that "a drop of pus was found on removing the brain at the situation of the foramen cæcum, through which it had escaped from the nose," he continues, "on dividing the anterior half of the skull longitudinally, very extensive disease became apparent, involving not merely the nasal fossæ, but the ethmoidal, frontal, sphenoidal, and occipital cells, both antra, the anterior palatine canal, and also the nasal ducts and the conjunctivæ." The mucous membrane was dark and sloughy in patches, pus was found in the nasal fossæ with bony *dèbris*, and the left antrum was the seat of an abscess. There was caries of the inner surface of the nasal bones, as well as of the middle turbinated bones, one of which had almost disappeared, and the central lamella of the ethmoid was perforated. Nothing is said of the maggots or the worms, which doubtless existed, but they are much more frequently associated with conditions of this kind in India than they are in England, and that is the substance of my contention throughout this paper.

Nor are the nasal cavities the sole receptacles of these offensive insects. They affect other structures or openings as well, as the following instances, for which I am indebted to private conversation or inquiry, will tend to show. Answering some inquiries of mine on the point, and after giving it as his opinion that worms form in the nose and elsewhere in the tropics, in consequence of neglect and

heat, and possibly also by virtue of the more enterprising character of the tropical blue-bottle, Dr. Chevers gives it as his opinion—an opinion which he would now, I fancy, hesitate to endorse—that flies would, with equal neglect, scarcely fail to do the same in England! He gave me some very interesting illustrative examples in point, for which I am just now, I regret to say, unable to find room, and they will, moreover, be found in the contribution already referred to above.

If now looking down, for a moment ere we part, the Scale of Creation, we ask if any similar condition ever obtains among the lower animals, we will, I think, readily find that such is the case. "For that which befalleth the sons of men befalleth beasts," the liability, though modified by art, is still the same, and the closeness of the relationship between them has been acknowledged from the days of Ecclesiastes and Aristotle down to those of Condillac and Darwin. Recent research, however, would rather tend to reduce than to raise the intimacy of the tie between the lord of creation and the beast that perisheth, for however admirable in form and action (he) *man* now is, he will soon as a *vertebrate* be ready to call the worm his sister and his mother, for his group is being set side by side with the worm-group—with the living forms, in short from which sprang the "poor beetle and the labouring ant."

Which of his noisiest claimants, the worm or the ascidian—that poor relation of the oyster as Mr. Parker calls it—will ultimately succeed in carrying the day, is not for me to decide, but this strange kinship may serve in the hands of a better helminthologist than I can pretend to be, in unravelling any or such mystery as may still surround the question discussed within, and I may be permitted to observe, in this connection, that Manu, whose "Institutes" are, according to Sir Wm. Jones, older than those of Solon or Lycurgus, held that "from moisture are born biting knats, live fleas, and common flies, these and whatever is of the same class is produced by heat." Certain is it that the more we develop the resources of art, the more are those of nature brought to light, and organisms are now known to abound in the blood and its great centre, the heart, whose very existence was unknown or undreamt of a few years ago.

Nor is this rule or gradation peculiar to man and other animals, it obtains equally in the vegetable world, and "each tree, each plant has its own especial plague. The *doryphora decemlineata* or potato bug of our American cousins, will look at nothing

but the potato, while the *phylloxera vastatrix* is peculiar to vintage vines." (a) Nay, such is the voracity or abundance of these microscopic creatures that they prey, for lack of other provender, on one another, if they do not sometimes devour their own offspring, and experience shows that the humorous, though bitter conception of Swift, often falls far short of the actual reality.

The more also are the resources of comparative pathology developed, the more striking becomes the analogy between man and the beast in respect of their liability to disease and death, and diseases such as those with which the grouse of our heaths, the salmon of our rivers, and the lambs of our pastures, are occasionally decimated, are now known to be produced by a similarly minute agency. So also are the "gapes" in fowls, the "hoose" in calves, the "rot" in sheep, and the "sturdy," "turnsick," or "gid" in stock generally, and Captain Hayes (b) ascribes the "bursatee, a species of unhealthy chancre-like sore that appears on the fetlock joints, pasterns, yard, &c., of horses, during the rains in India, to the presence of a vegetable parasite." He truly observes that throughout this time "vegetable life bursts forth in uncontrollable luxuriance in the hot and moisture-laden atmosphere," and he infers the influence of the fungus in the sore from the fact, that "if the animal be removed to the hills or to a dry locality the sores will heal as if by magic."

He seems to think that the *filaria papillosa* and the *spiroptera lacrymosa* or eye worm are peculiar to India, and Mr. Collins, the then principal veterinary surgeon of that Command, assured me in October, 1871, that "maggots are frequently found burrowing deeply into the tissues of horses with diseased frogs or thrush," in that country. He added that "sores of every description will soon become filled with them, if neglected. I had," he continues, "a nasty case of this nature last summer in a horse's ear," and as regards the cysts for which the commissariat cattle became so noted some years ago in the Punjab, I have myself seen as many as twenty or even thirty animals "rejected" in one day in Peshawur as unfit for issue to the troops, while upwards of 150 carcasses were destroyed in one month by the quartermaster of the regiment to which I then belonged. I have also seen dead jackals, hares, and foxes in the jungle, which I now believe were destroyed in this way, and a friend has lately given me some particulars of a dog of his that was found after death to be "drilled through and through with worms."

(a) "Animals and Plants," vol. i, p. 5

(b) "Veterinary Notes" p. 51.

The same, or a very similar condition obtains, though to a lesser degree, it may be in our menageries and gardens nearer home, and Mr. Sclater, the Secretary of the Zoological Society of London, has informed me that "many of the animals in the society's collection are infested by parasites of various kinds, and that many continually arrive with us so infected." Answering some inquiries I addressed to him as to whether the foreign or imported animals were more liable to parasitism than his indigenous brother or the son-of-the-soil, as well as to the other general relations existing, in this respect, between the wild and tame animal, the carnivore and the herbivore, &c., Dr. Macalister, of Dublin, courteously replies, to the effect that "the wild forms are, as a rule, more infested than the domestic one, and those that have lived long in menageries than those born in gardens." Animals that are caught wild in their adult state are more affected, as might be expected, than their congeners that are taken young, and carnivores are more infested than herbivores. Rodents and edentates take the lead, in this line, among mammals, as do predacious birds, like waders and waterfowl among birds, but reptiles and fishes are much more frequently infested than otherwise, and it not unfrequently happens that single specimens of each are possessed with two, three, or even six separate species, and with many hundreds of individuals.

"Our native British birds are," he continues, "often grievously afflicted with parasites, so also are field and house mice and rats, but tropical animals are," he thinks, "more parasite-bearing than those of temperate climates, and confinement has a tendency to diminish the evil in both. Hoofed animals, like the hippopotamus and pig, and ungulates generally, evince a greater liability to this kind of pest than do ruminants, and as to the 'worms' themselves, they are as various as the creatures on which they prey. Horridly-hooked and be-suckered tape-worms are," he says, "very common among fishes, while flukes prefer the livers of herbivores to those of carnivores, and thorn-headed worms (*acanthocephala*) are commoner in snakes than mammals." Though he has seen several severe cases of verminous cachexia in lionesses, pumas, dogs, and a few other animals, he has never come across examples of the condition contemplated within, and the impunity with which "enormous quantities" of worms live, move, and have their being in the interior of swine, rhinoceroses, and many other animals is," he says, "marvellous." They wanted the heat of their native tropics to stimulate them into activity, and the lack of this, in all

probability, accounts better for the absence of the other climatic complications than anything I might adduce to the contrary in this place. (a)

The nearest approach to it that I have seen or heard of in this country occurred not many years ago in four elephants, valued at £200 each, belonging to Mr. Sanger, of circus renown, which were imported from India, and whose early deaths from a parasitic disease of the intestines led to a trial in a court of law. Several notices of this untoward event appeared in the papers of the day, under the headings of a "Fatal Epidemic amongst Elephants," "The Epidemic Amongst Elephants," &c., &c., and it was said in one of these that "some of the parasites were found between the coats of the intestines, others on the free surface of them, and others were found blocking up the excretory ducts of two of the largest glands in the abdomen." The best account of the disease and its consequences, however, that I have seen, appeared in the *Medical Examiner* of January 17th, 1878, from the pen of Mr. J. H. Steel, Demonstrator of Anatomy at the Royal Veterinary College, and the particulars summarised below are, in the main, taken from this.

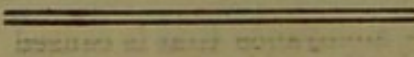
From this it would appear that two of the batch, all of which were under five years of age, exhibited for some time back a capricious appetite, that required to be tempted with sweets, &c., and that a third one was found resting on its right side, and breathing laboriously and stertorously, when visited by this gentleman. Its previous symptoms were diarrhoea, accompanied by emaciation, subcutaneous collections of serum, and other general marks of debility. The animal died the same evening, and on section the lining membrane of the large intestine was studded with very numerous small vesicular blood-coloured parasites about the size of grains of wheat, which Dr. Cobbold considered to be "specimens of a blood-sucking trematode, *Amphistoma Hawkesii*."

A third animal, a male, that had been removed for the benefit of change, to a large and well-ventilated stable at Totten-

(a) Alluding to the annoyance that is caused by flies to travellers in the interior of Australia and to the astonishing rapidity with which they breed, the editor of "Colonel Warburton's Journey Across the Western Interior of Australia," says, p. 240, that "owing to the flies and the impoverished state of the blood, the slightest abrasion of the skin led to its festering and becoming a troublesome ulcerous sore. . . . The maggots breed (he continues) in these sores with such wonderful rapidity, and in such prodigious numbers that they ate one camel up in a short time and *had to be scooped with a pint pot out of a hole in another's back about the same time*"

ham, succumbed suddenly about the same time, to conditions that were very similar to those that were found in the former cases, but the parasites, the writer adds, both Amphistomata and Ascarides were much more numerous in this patient than in the other, and the Amphistomata existed in it in thousands. In addition to these were found very numerous bots, *Oestrus elephantis*, in the stomach adhering to its lining membrane, and these were, as a rule, larger than the bots of the horse, and they also exhibited a greater degree of ferocity.

Mr. Steel had no difficulty in arriving at the conclusion that the animals here referred to were affected with these parasites at the time of their disembarkation. Nay, for weeks, we may even say months, previously, and the symptoms described above in the beast are very much akin to those that are produced in man by the *Bilharzia* in Egypt, (*a*) or the *Anchylostomum duodenale* in Bahia (*b*) and elsewhere. He is equally certain that they or their hosts came originally from India, and this confirms what I have already said as to the greater frequency or prevalence of these destructive insects in the East than in the West, or, in other words, in tropical than in temperate zones or regions. But the natural history or genesis of these troublesome creatures is quite beyond the scope of this little essay, so also are their geographical distributions, and the length to which it has already run, and which far exceeds, I may say, my original conception, warns me of the necessity of now bringing it, if I would keep within the record, to a somewhat hurried conclusion.



ADDENDUM.

From the MEDICAL PRESS & CIRCULAR, *Sept. 15th, 1886.*

“Eaten of Worms.”

THE papers under this heading, which are concluded in our present number, deserve a passing reference at our hands. Based as they are on the writer's personal observations in the East, and referring as they do to the teachings or traditions of a somewhat narrow exegesis or exclusive theology, they disclose facts or features that can only be satisfactorily explained by the physician or the pathologist. They also show that these features do not require or justify the strained or far-fetched interpretation that has hitherto been so liberally placed upon them, but that “familiar by our pathways” the causes that explain them are still operating daily in our own midst. The range of reading and depth of research they exhibit are rarely found amongst us nowadays, and had we space for the elaborate and exhaustive notes with which their erudite author had so copiously illustrated or established his points, the extent of these would be more manifest than it is at present. But these were beyond our space, and we were reluctantly compelled to compress them according to the exigencies of journalism.

That gout was *per se* capable of producing profound changes in the blood, and of rendering the life of those who were born with it a burthen to themselves and others was well known "of old time" to all of us, but that it was capable of producing some or all the effects ascribed to it in these essays of Brigade-Surgeon Curran was not so clear, and yet is there reason to suspect that some obscure influence or other of that kind was at the bottom of them. We know from one of their latest exponents (Eibstein) that hereditary gout disposes the victim of it towards phlegmonous affections of the kind here contemplated. It further he says—and he quotes Charcot to the same effect—paves the way for an anthrax, erysipelas, and gangrene in the aged or in the infirm, and he truly adds that "the more the individual is exhausted by the gouty or other complicating affection, or unfavourable external conditions, so much the more is he threatened in this respect." If this be so, as it assuredly is, there is no occasion or room for the wild and wrathful denunciations indulged in within; neither is there any seemliness or necessity for dragging the name of the Deity into such connections, and the writings or sufferings of Job and the Psalmist will admit of being classed amongst those which do not need a Divine inspiration or suggest a supernatural chastisement.

A further study of these effects or complications will serve to show that gout is not so rare in the East or in hot climates elsewhere as is generally supposed, and that the lives or actions of many distinguished men will have to be studied anew from this standpoint. That Charles, Philip, Lord Chatham, and several other eminent or historic personages were the subject of this gouty condition admits of no serious doubt, and equally certain is it that they largely influenced the religious and politica

organisations of their times. To ascribe their strange acts or erratic movements to freakishness or waywardness, to religious bigotry or baffled vanity, to the lust of vengeance or the love of power, is to beg the whole question and put the cart before the horse. One of them, at least, may be said to have been *felix in opportunitate mortis*, and as to the others, it is not improbable that the insanity which overcast theirs and other Royal families was entirely of this complexion. Be that, however, as it may, the influence of this condition on the counsels of kings and the founders of religious systems is too great to be altogether ignored, and though books on gout and its complications or consequences have been turned out by the cartload, not one of them, save one (Dr. Hood's), and that very imperfectly, alludes to this phase of the question at all.

Though the tone that characterises these papers is that of a sceptic, our author acknowledges at once and without any demur or question the possibility, nay, the occasional occurrence, of such Divine visitations or inflictions as are here indicated, but then he points out, on the other hand, that many of the facts that are narrated from personal observation by others, or that were observed on the spot by himself, so closely resemble as to be indistinguishable by ordinary mortals from these, and this being so, it is not easy to draw the line or say where miracle began and nature ended. What he and we, and all sensible men with us, both deprecate is that arrogance or assumption of frail and fallible men like ourselves, which enables them to see farther through a milestone than their neighbours, and "talk of hell where devils dwell" as if they were personally acquainted with its recesses, or were enamoured of its charms. Dead men tell no tales, and it is safe for their assailants to heap on them abuse, as there is no fear of reprisals. But that

is just the practice that our author rebukes; to such men or writers he gives no encouragement or support, and we are entirely at one with him when he censures their methods and rejects their claims to an exclusive orthodoxy or infallibility.