

an ounce; put these into one and one-half pints of warm water, simmer to one pint, when cold strain and add one pint of Lisbon wine. The dose for a child is a tablespoonful three times a day; for an adult double this quantity. As a local remedy reliance is to be placed on the aromatic sulphuric acid diluted and used as a general mouth-wash, or applied, by means of a brush, full strength, to the ulcers.

Tincture of calendula, made stimulating by the addition of compound tincture of capsicum, furnishes an admirable wash when diluted one-half with water. Tar water, to which has been added indicated proportion of carbolic acid, is a trustworthy agent.*

Oidium Albicans.—Upon most sores in the mouths of ill-nourished subjects are to be found cryptogamic spores shooting out thread-like plants. These spores are not the disease, but parasites finding habitation among the sores. To destroy them creasote or chloride of zinc, diluted, or in full strength, as indicated, may be employed. Cleanliness is a necessity. Phénol sodiqué mixed with the water used to wash the parts is found of profit. (See *Oidium, Aphthæ.*)

Calcified Dentinal Tubules.—A cause of chronic ulitis not yet mentioned lies in that calcification of the tubular material of one or more teeth by which equipoise of vital relation is interfered with. In this condition the tooth structure is found so solidified as to have its circulation disturbed to an extent which makes of it a foreign body. The receding and atrophied gum is expressive of nature's attempt at elimination. There is no cure outside of extraction. The common practice is to let such teeth alone until they drop out of themselves or become a source of discomfort.

* Tar water, one pint; fluid carbolic acid, one drachm.

CHAPTER XXXIII.

THE APHTHÆ.

APHTHÆ is a term which every reader must have remarked to be associated (like the word *epulis*) with some degree of confusion.

In the Greek, from which the name is derived, there are two verbs with the same spelling,—*ἄπτω*. The meaning of the one is "to set on fire;" that of the other, to "bind to" or to "fasten upon."

The mouth presents ulcers, or sores, of various signification,—some are characterized by pain of a burning, inflammatory character; others, chronic, or cold in nature, furnish an inviting soil to a very persistent and almost omnipresent parasite,—the oidium,—this fungus fastening upon and binding such sores in its necklace-like embrace. It has thus very naturally occurred that pathologists, seeking an expressive term by which to designate these varying conditions, differently employed the common name as it happened to them to observe or adopt the one or the other of the roots from which the nomenclature is derived. That such uses of the dissimilar verbs on the part of various authors must have been made, is necessary to be inferred to explain the differences which distinguish descriptions.

With such examples of liberty, intentional or unintentional, the author is to be excused in presenting to his readers the subject after his own manner and views.

For the reasons of the double derivation, and for others which will be presented, the term *aphthæ* cannot, in justice and pathological signification, be applied to a particular species of sore, but must, as a noun of multitude, apply to a class,—which class has many species. Thus we accept, as explained and dismissed, the various questions of ulceration and non-ulceration, exudation or non-exudation, the oidium or no fungi.

The type of the *aphthæ* is as follows: An *aphtha* or *aphthous* patch is a degenerate sore, to be seen, under varying circumstances, upon the mucous surface of the mouth, the fauces, the œsophagus, and, quite likely, upon any part of the alimentary canal, and perhaps also upon the respiratory tract. The most common seat of this patch is the uvula; next to this the lower lip; next the tongue. The sore varies in size, from the smallest point to a confluent mass which may cover a large surface; looks pasty or exudative, is generally oblong in shape, and varies in color from the misty white of hoar-frost to the dirty yellow of serofulous pus. As most frequently seen, such a patch is one of several similar sores.

This, as described, is a typical case. From it we are prepared to pass to the general view of the subject.

An aphtha is a canker; nothing more, nothing less. Thrush, follicular inflammation, cancrum oris, gangræna oris, are all species of a cancrum class, of the class aphthæ.

What, then, is the class aphthæ?*

The modern microscopist exhibits and describes aphthæ as patches of a fungoid excrescence,—the *oidium albicans*. A pot of paste, a papered wall, a section of apple or other fruit, the leather back of a book or chair, exposed to a confined atmosphere, hot and moist, quickly produces, or rather gives attachment to, the *oidium*.

Oidium albicans is not a disease, is not aphthæ; neither is it the expression of disease. It is a fungous growth, accidentally associated with a soil and circumstances favorable to it as a habitat.†

Aphthæ is, without doubt, the expression of a cachexia, and is not likely to be merely a local disease. Neither is it possible for the fungus to be peculiar to a sore, as a something specific, any more than it is peculiar to the paste, the fruit, or the book. It must depend in the one instance, as in the other, on an accidental association. This accident, in the case of the sore, would seem to be the absence of a sufficient vitality to enable a part to resist the "fastening upon itself" of ever-present germs. The microscopist has, in his examinations and conclusions, accepted the accident and overlooked the disease.

Thrush.—Thrush, or muguet, one of the species, is an erythematous inflammation, degenerating after a few days into a condition of curdy exudation. The inflamed surface, after a longer or shorter time, presents small whitish points; these coalesce, forming exudate patches. These patches vary in color. As they remain moist and clear, they are considered with least apprehension; as they grow dry and brown, they are found possessed of dangerous import.

Dissections of the cadaver have exhibited aphthæ not only upon the œso-

* The term is here employed as a noun of multitude.

† Parasite fungi (Hogg on the Microscope)—vegetable blights, as they are commonly called—have of late years become objects of earnest attention on account of the enormous damage done to our growing crops, and also of the many curious facts in their history which have been brought to light. *Oidium* is a common mildew.

It appears that at particular periods of the year the atmosphere is, so to speak, more fully charged with the various spores of fungi than it is at others. In 1854, the Rev. Lord Godolphin Osborne, during the cholera visitation, exposed prepared slips of glass over cesspools, gully-holes, etc., near the dwellings where the disease appeared, and caught what he termed *aërozoa*,—chiefly minute spores and germs of fungi.

From this same year (1854) to the present time, we have amused ourselves by catching these floating atoms, and, so far as we can judge, they are found everywhere, and in and on every conceivable thing, if we only look closely enough for them. Even the open mouth is an excellent trap. Of this there is ample evidence, since we find on the delicate membrane lining the mouth of the sucking, crying infant, and on the diphtheritic sore-throat of the adult, the destructive plant *oidium albicans*.

phageal mucous membrane, but also on other parts of the alimentary canal. They have not as yet been met with upon the respiratory tract; but there is no good reason why they should not have here a like existence.

In an acute attack of thrush, the mouth is hot and the general condition feverish. Milder cases, or those of easy progress, may, and do, seem—so far as observable constitutional sympathy is concerned—to have only a local signification.

But, if thrush be a distinct disease, could it be possessed of a double signification? Could it at one time be strictly local, at another, systemic? Thrush is common to children prematurely born or to those nursed by unhealthy women. It is a disease which belongs to hot, moist climates and to the situations of uncleanly hospitals; in fact, to any condition recognized to be depressive of the life-force; it is, in short, a systemic adynamic expression, seated on a mucous surface. That it differs from carbuncle or cancrum oris would not seem to be the case in fact, but only in degree. Thrush is, in other words, one expression of a common condition,—a species, not a class.

Follicular Inflammation.—Follicular inflammation—another form of stomatitis very likely to be asthenic—is a term used to signify that the abnormal vascular change is seated in the mucous crypts, or follicles. In passing the finger over a surface so inflamed, the studded irregularity produced by the engorgement of the glands is plainly evident. As such inflammation progresses, the bodies become recognized by the eye as papular eminences standing out from a common erythematous surface. In color they are of a varying red, such variations in shade expressing the constitutional conditions.

Follicular inflammation terminates either by resolution or ulceration: when in the latter way, the follicles soften in the centre, suppurate, and show a bottom filled with a whitish, pasty mass. When in this condition, they are the aphthæ of M. Billard.

Follicular inflammation appears most frequently in the infant during the dentitional period,—an explanation existing in a quickly and easily recognized combination of a predisposition and an excitant. In its most simple form,—that is, where there is no marked dyscrasia, or where the excitant is not of sufficient intensity to irritate to any extent,—the lancing of the gums, or the application of cooling local remedies, may be sufficient to combat or control the manifestations. Where, on the other hand, the conditions predisposing to the disease exist in a state of balance, as it were, with the natural resistive forces, the addition of a second depressant influence, as that resulting from the irritation of dental development, may very well be understood as giving the mastery to an agent or condition otherwise controlled or held fully in check. Thus we explain to ourselves both the real and apparent connection of dental irritation with the aphthæ.

From a simple form, or the inflammation of isolated follicles, the condition, in some ill states of the general system, becomes confluent, such extreme form being most frequently noticed in connection with the typhoid exanthems, or

in company with destructive organic diseases. In confluent follicular inflammation, a prognosis can only be justly made when every associate and collateral influence has been appreciated. The condition will nearly always be found an occasion for anxiety.

Cancrum Oris.—Cancrum oris, a species of stomatitis, generally accorded a special classification, differs in no wise from that just considered, except in being more localized; as if the force of an influence had concentrated rather than diffused itself.

The complaint known as cancrum oris is an asthenic degenerating ulcer. In appearance this sore differs from what has been given the special definition of aphthæ by most writers, only in being more depraved and threatening. It has the same pasty bottom of varying shades of white, the same association of pain, the same variation in persistence. Like other aphthæ, cancrum oris seems to be, and is, associated with dyscrasia, appearing most commonly in the infants of ill-conditioned charities, in the ill housed and poorly fed,—having, in all systemic associations, the precise history of the conditions alluded to as thrush and glandular inflammation. This form of stomatitis, although confined to no exact locality, is yet most commonly met with on the cheeks or gums. It may commence with a phagedenic expression, and very quickly destroy the patient; or a slight vesicle or pustule may first appear, to be followed by varying inflammatory associations, precisely as if some local poison was the source of the trouble.

The history of cancrum oris differs from that of other cancriform affections only in degree. This is fully proven in the facts that it is associated with the same causes; that any ordinary canker sore is capable of taking on an ulcerative action; that the fungus *oidium* is quite as common to the seat of this as the other affections. In fact, every analogy will demonstrate that the relation is like that which associates the phagedenic with the simple venereal sore, being a difference of degree and not of cause, or character.

Gangræna Oris.—Gangræna oris, sloughing phagedæna, is another expression, or species, of the common class. It may commence as an acute inflammation, quickly deteriorating; as a species of fatty degeneration of the epithelial tissue; as a submucous effusion; or as an eschar which falls from its relations with a rapidity that leaves us at a loss for an explanation, except on the inference that the *materies morbi* have had the most special concentration. The eschar, formed sooner or later, is ashy in color, or a deadish brown, while the still living parts, particularly the external cheek, if this location should be the seat of the ulcer, has an erysipelatous blush,—semi-livid and threatening in appearance.

Gangræna oris is markedly a disease of the dentitional period, occurring in ill-fed, ill-clothed, or ill-housed children. The constitutional nature of this affection is conspicuous. It is a general febrile or inflammatory disturbance, concentrating its intensity upon some part of the oral cavity, invited or directed, not unlikely, by an irritability existing thereabout. Foundation for this in-

ference lies in the fact that in nearly every case are to be found inflammatory complications; such associated inflammations being most frequently met with in the lung-tissue. It is to be taken for granted that the oral concentration modifies the impression showing in the other part.

Gangræna oris, where it does not quickly separate its eschar, affords support to parasitic fungi—the *oidium albicans*.

Oral gangrene varies, as will be inferred, in degree. When commencing as a single canker sore, or epithelial degeneration, and showing no complications, it is to be treated as the follicular, or other of the simple species. Concentrated, or in its malignant form, it destroys life without affording the physician any extended chance to combat it. In reasonably healthy children gangrene is very uncommon, the ordinary canker being generally the worst manifestation. In children exhausted under the exanthems, in a class maltreated with mercury, or those laboring under a syphilitic degeneration, the marked, or destructive, type exhibits itself.

The decomposition of mucus, or the *débris* remaining from food, when lodged upon an aphthous sore, forms the best nidus for the development of fungi; it is, as it were, a soil; and it is undeniable that epithelial scales in varying states of abnormal degeneration, inspissated mucus, and particles of decomposed food are general to all such sores. Thus, in sickly children, the fungoid association is most common from the fact of the weakened energy of the parts afflicted; this, favoring decomposition and the retention of the *débris* in the cavity of the mouth, and consequently producing the required soil or habitat of the *oidium*.

In foundling-hospitals, where the sucking-bottle is used, the spores of fungus find, through such vehicle, an easy passage to the mouth, being, indeed, incontestably in this way located and developed. In the nursing infant of an uncleanly mother, the accumulation and retention of the milk will, with favoring atmospheric influences, quickly develop fungi. It is the fungus and not aphthæ that is contagious, as must be plainly seen; hence one can but wonder at the disputes of Guersant, Billard, Valleix, Duges, and others.

REVIEW.—Having thus expressed his own views of aphthæ, committing himself to the admission that he fails to distinguish it as any special disease, the author may, with greater justice to so important a subject, present the opinions of others whose extended observations and judgment have long held them in the light and position of authority. Trousseau and Delpech both describe the aphthæ as being sores with the *materies morbi* deposited beneath the epithelium. Bamberger (*Krankheiten der Mund und Mundhöhle*) controverts these views, and explains the presence of the soormasse by the fact that it has insinuated itself between, among, and below the epithelial particles.

If we take, says Professor Bamberger, the soormasse, and place it under the microscope, we find it made up almost exclusively of epithelial scales, old and young, the *débris* of the food, and of inspissated mucus, which last is probably only a condition of epithelial formation. The color of the mass is

not to be hastily judged, as this might have been influenced by the debris of the mouth.

Upon these sores, however, very quickly appears a peculiar organization, which consists of round and oval spores which stick to one another, and in this way form a more or less ramifying series of threads. The longer the sore continues, the more marked is its penetration by these threads or spores. This new organization, or fungus, can never, however, originate or be generated by the organism itself, but is always the result of germs coming from outside sources. It is not peculiar to a particular sore, though it occurs most frequently on those of a certain order. Besides the two constituent parts, epithelial scales and fungus, there appears sometimes a third constituent, in the form of granules or granulated matter.

From this, continues Professor Bamberger, we see that aphthæ cannot be counted among the products of inflammational and exudational processes, as so frequently considered; the microscope has failed to discover an exudational appearance: also there are wanting the anatomical and clinical appearances of inflammation. True, it may be that it is found in association with a catarrh, but this is an accident, just as one may not say that the diarrhœa so frequently found in connection with the sore in the infant is the cause of the sore, as he might not say that the sore is the cause of the diarrhœa. There is, in aphthæ, no ulceration, the soormasse being capable of being peeled from the surface.

Professor Dewees thus refers to the aphthæ as exhibited in the infant:

This complaint is generally called the baby's sore-mouth: it consists of a greater or less number of white vesicles on the inside of the mouth. It very generally begins on the inner part of the lower lip or corners of the mouth, and much resembles a small coagulum of milk. From this point it sometimes spreads itself very rapidly over the inside of the cheeks, tongue, and gums; and, at others, it will appear in the same form, and at the same time, on several portions of the mouth; as inner portions of the cheeks, etc. The French, especially M. Billard, make it a different disease from what they term "muguet," but, from a careful examination of the two diseases, I believe them to be the same, differing only in intensity. I think we have not the disease which he terms "muguet," or I do not understand his description: so far as I have been able to compare them, they are identical. The difference may consist in the modification which a hospital gives it; if there be a difference, I think it must be owing to this cause. When this efflorescence is extensive, the child slavers very much, and is frequently embarrassed in its sucking; it cries, and evidently betrays that it is in pain; it is very restless and very thirsty, as it evinces by its frequent stirrings, and its disposition to be continued at the breast. The eruption in its mildest form is very white, and looks as if a stratum of milky coagulum were spread over the mouth. It sometimes confines itself to the centre of the cheeks, at others to the lower lip, or one side of the tongue. In its severe forms the appearance of the

eruption is of a dark-brownish color or extremely red, owing, most probably, to minute portions of blood; but both are evidently grades of the same affection, changed either by mismanagement, constitution, or the force of the remote cause.

This affection is thought to be altogether of a symptomatic kind, or very rarely idiopathic. It is almost uniformly preceded by a deranged condition of the stomach and alimentary canal, and always, we believe, by some disturbances of the stomach itself. The brain always shows signs of participating in this complaint, as there is almost always an unusual inclination to sleep, though the child is frequently disturbed in its nap by some internal irritation, perhaps of the bowels themselves. This disposition to sleep is so well known to nurses that they will frequently tell you "the child is sleeping for a sore-mouth." The bowels are often teased by watery, acrid stools, of a greenish color; their discharge is frequently attended with the eruption of much wind, and, to judge from the noise, it would be supposed there was a very large discharge of fæces, though, upon examination, it is found to be very sparing.

The alvine discharges are frequently very acrid, so much so, sometimes, as to excoriate the verge of the anus and nates very severely, especially when due attention is not paid to cleanliness or to the frequent changing of the diapers. But this never takes place until the disease is pretty well advanced, and has made some progress. It is generally fairly spread over the mouth, and always shows a violent disease. The stomach is also sometimes much deranged; vomiting the milk very soon after it is received into the stomach, in the form of a dense curd, mixed with a porraceous mucous substance. If the milk be not voided by vomiting, the stomach constantly discharges, by eructations, a gas with a very sour smell. The child, when the disease is severe, soon becomes debilitated, and rapidly emaciates; it is almost constantly harassed by severe colics and profuse diarrhœa; its stomach will scarcely retain the little it can swallow; the œsophagus sometimes becomes so loaded with aphthæ that it can no longer transmit the small quantity which is reluctantly admitted into the mouth; and the child dies, either from the exhaustion consequent upon the profuseness of the discharges from its bowels, or from inanition.

It is a popular belief that this apthous efflorescence passes from the mouth through the whole tract of the alimentary canal to the very termination of the rectum; and the excoriation at this part is offered as evidence of the fact. Whether this be true or not we do not know, for we are not in possession of any facts from dissection which decide the point. We once examined a body which certainly died from aphthæ, the examination of which would by no means tend to confirm this common belief. A child, on the tenth day after birth, was observed to have a number of white spots upon several different portions of its mouth, which rapidly spread over its whole surface. It had the usual premonitory and accompanying symptoms, which increased daily in severity, in spite of every effort to oppose them. It was a feeble, weakly

child, of a consumptive, feeble mother. Its sufferings were very great, though under some control from laudanum, so long as this could be taken by the mouth, or retained by injections. Coat after coat of aphthæ was thrown off, and each new crop appeared to be more abundant, and less amenable to remedies, until at last, at the end of two weeks of severe suffering, the poor infant could not swallow a drop of the thinnest fluid. Injections of bark and mutton-tea, in conformity with popular opinion, were resorted to, but all in vain; the child, in a few days more, died from absolute starvation, or, at least, the catastrophe was certainly hurried by the impossibility of receiving nourishment.

We examined the body after death: we found the whole tract of the œsophagus literally blocked up with an aphthous incrustation, to the cardia, and there it suddenly stopped. The inner coat of the stomach bore some marks of inflammation, as did several portions of the intestines; but not a trace of aphthæ could be discovered below the place just mentioned. This case would, therefore, create a doubt whether this affection besieges any other parts of the body than those just stated, namely, the mouth, posterior fauces, and the œsophagus to the cardia, since, perhaps, none could have been of greater severity; but it is with us a solitary case, and should not be received for too much. Dr. Heberden says, The aphthæ are supposed not only to infest the mouth and fauces, but to be continued down through the whole intestinal canal. In two who died of lingering fever, and whose mouths were covered with aphthæ, which hung in rags all over it, there was not the least trace of them that could be found in dissection beyond the fauces.* The excoriations about the anus can certainly be accounted for, without the presence of aphthæ to produce them; in bad cases, the stools are always extremely acrid, and the parts over which they constantly pass and spread are, at such a tender age, very delicate, and very readily excited to inflammation.

Dr. Good seems to admit, without hesitation, the transmission of aphthæ through the intestinal canal; for he says, without reserve, the fauces become next affected, and it descends thence through the œsophagus into the stomach, and travels in a continuous line through the entire course of the intestines to the rectum, the fæces being often loaded with aphthous sloughs.†

We are afraid there is too much taken for granted in this account; we know of no decided evidence of the fact, nor does Dr. Good name any authority for the statement. The case alluded to was certainly one of death from aphthæ; but in it the aphthous efflorescence stopped at the cardia. Is it probable that any child could survive this affection did it travel the whole course of the intestinal canal? We think not: yet aphthæ is rarely a dangerous disease in infancy. Dr. Good's description of this affection would certainly lead to the conclusion that it is the ordinary march of the disease

* Commentaries, p. 31. "It is well known, too, that in *smallpox* no pustules are traced beyond the pharynx and larynx, even in the most severe cases, when the mouth and tongue are thickly covered with the eruption."—*Tweedie's Illustrations*, p. 65.

† Study of Medicine, vol. ii. p. 391.

to pass through the bowels and manifest itself at the verge of the anus. This point is far from being settled in the minds of pathologists: even the French are far from having ascertained it with certainty: it is true M. Billard says he has seen evidences of it in the large and small intestines, as well as the stomach; but there is no mention of it lower than the ileum.

Now, this cannot be so; since it is in violent and long protracted cases alone that the anus discovers any signs of irritation from this cause, which would not be the case were Dr. Good's account correct.

Dr. Good and others suppose that aphthæ communicates itself by a specific contagion,* and give as evidence the excoriations of the nurse's nipples. We do not hesitate to believe there is a discharge from these little pustules which may be highly acrimonious to the denuded skin; but we think this is perfectly innoxious to a sound one. We have never seen sore nipples produced by aphthæ, where the skin of these organs was perfectly sound. That they aggravate the tenderness and inflammation, when these parts are tender and abraded, we admit, and so would any other acrid substance, without having recourse to the belief of a specific contagion. If this were the case, why do not the lips of children laboring under this affection betray its influence?

That this complaint is occasionally epidemic there is every reason to believe; and this circumstance, among some others to be mentioned, renders the opinion so commonly credited (of its being a sympathetic affection) very questionable. We have always considered aphthæ as arising from some peculiar condition of the stomach; but, from some late cases and more mature reflection, we think it may be otherwise. Our reasons for *doubt* are,—

1. We have recently seen this affection in two cases where the stomach and bowels were in the most perfect order before the eruption, but became disturbed a little during the progress of the disease.

2. That this complaint has been very often removed by topical applications alone, where the efflorescence has been very considerable, and where there was no remedy of any kind addressed to the stomach and bowels.†

3. That we do not uniformly see this complaint where there has existed great disorder of both stomach and bowels, these being of a permanent kind.

4. That, however the stomach and bowels may be disturbed by acidity or other inconvenience, or however long these may continue, if the child has had this complaint, it is not renewed, though the individual is not exempt from a second attack, like measles or smallpox; for, in certain chronic affections, they may be again visited by aphthæ.

5. That this affection is sometimes epidemic, as stated above; for Dr. Good informs us that not only all the children of the same family, however cautiously separated from one another, but many of those of the same neighbor-

* M. Billard declares it not to be contagious.

† QUERY.—Is, then, the unconquerable diarrhoea, sometimes present, a mere accident, or would it not be more easy to account for it by the presence of aphthæ?