

In this, the first degree of stomaceae, the mucous membrane of the mouth is but slightly swollen, and its secretion not materially increased.

In the second higher grade, the parts lying in contact with the gums become immediately infected and undergo the same morbid changes as the gums. The mucous membrane of the cheeks swells up intensely, so that the impression of the individual teeth is very distinctly seen upon it; so also the mucous membrane of the tongue, which upon its upper surface is covered with a white fur, and its borders exhibit the dental impressions. Pl. III., Fig. 1, represents the contour of such a tongue. Also its whole periphery, in consequence of the swelling and compression by the upper and lower rows of teeth, becomes sharply angular. The same kind of yellow ulcerations now form on the cheeks, lips, and tongue, as were originally only present upon the gums. The swelling rapidly increases. As a result of this the patients are no longer able to shut the mouth, they keep not only the lips open but also the jaws, in order to prevent the touching and friction of the extremely painful ulcers, and a brownish-red, foul-smelling saliva flows down in large quantities over the swollen lower lip. Here, too, the cervical glands become painful and swollen almost as regularly as in diphtheritic oris. I have never yet observed membranes to form upon the ulcers. This disease has but a slight tendency to heal spontaneously; the œdema, the ulceration, and the fetor, may remain untreated for months, the teeth then become loose and fall out, and the children seriously emaciated. Finally, after a long time, spontaneous healing seems to ensue.

Mastication, deglutition, and speaking, in the more serious form, become almost altogether impossible; the patients will not drink for a long time, till the thirst becomes insupportable, and then they will consume large quantities of cold water or cold milk at a draught, under evident pains. In older children fever does not usually come on; the pain, however, at every movement of the mouth, and particularly on swallowing, makes them ill-humored in the highest degree.

The etiology is a manifold one. The contagiousness of the disease may be very clearly and explicitly demonstrated. Some of the children of a family or neighbors upon the school-benches very readily impart it to the rest. A stage of incubation, as in the exanthemata, does not seem to exist, if at all, but for a very short time; at any rate, I have always noticed it to appear tolerably simultaneously in many families. Moreover, it may also originate *spontaneously* in children as in adults, for which carious teeth are the predisposing agents; and, finally, there is a disease of the mouth in small children, produced

by *calomel*, which can in no way be distinguished from the stomaceae just described; it is then that the absence of the properties of infection of the so-called stomatitis mercurialis becomes valuable as a differential sign.

Diseases of the mucous membrane of the mouth, caused by mercury, occur in children less frequently and much later than in adults. I have never yet seen stomaceae to supervene as a result of the external application of mercury in the form of blue ointment, although I have used it for the last three years in all syphilitic children, whenever the state of the skin allowed. In small children, salivation is an extremely rare phenomenon.

Treatment.—We are so fortunate as to possess but *one* remedy for stomaceae, and that is *chlorate of potassa, kali chloricum*. To children under one year of age, I give ℥j daily; under two years, ʒss; under three, ℥ij; children who have attained the fourth year tolerate very well ʒj *pro die*. The various quantities are always dissolved in four ounces of water, sweetened with a little syrup, and administered in from twelve to eighteen hours. After the end of this time, the smell, in all cases and in every degree of stomaceae, is *completely abolished*. In cases of less extensive ulceration, a recovery instantly takes place, the gums become firm, the yellow border is cast off, touching with the finger no longer causes bleeding, and the patients are again able to masticate and speak without pain. Even in the more severe form, the use of chlorate of potassa for one day will suffice to annihilate the odor completely, but, if the remedy is not continued for three or four days, it will return, and the disease progress anew. I have never yet employed this remedy longer than four days in any one case, and have never been able to perceive from it any bad effects, such as diarrhoea, loss of appetite, abdominal pains, renal troubles, etc., notwithstanding the hundreds of times that I have employed it, and therefore have not prevailed upon myself to use it as gargle, instead of administering it internally, especially since small children are such poor adepts at gargling, and even the larger ones can only with difficulty be induced to do it. It is entirely unnecessary to cauterize the ulcers on the cheeks and gums which are devoid of smell, and are no longer painful, for the cure progresses extremely rapidly without it. Formerly it was supposed to be necessary to extract all the carious teeth, of which a number are often found in children, before the commencement of the second dentition, in order that a cure might take place. It is, however, entirely unnecessary, and even directly-injurious, for the lacerated borders of the gums in the vicinity of the extracted teeth immediately become affected by the stomaceae, and the pain and sup-

purating surfaces are thereby only increased. Alocal treatment, besides the internal administration of chlorate of potassa, is altogether superfluous.

(10.) SCORBUTIC INFLAMMATION OF THE MUCOUS MEMBRANE OF THE MOUTH.—By scorbutus we understand a diffused disease of the capillaries, which burst at various places, and, according to the extent of the solutions of continuity, allow larger or smaller quantities of blood to be extravasated into the surrounding textures. Whether the chemical quality of the blood is at fault here is not ascertainable; this much, however, is known, the fibrine of the scorbutic blood coagulates slower than that of the normal.

Now, these hæmorrhages in the mouth take place in such a characteristic manner, that the existence and degree of the scorbutus may be inferred from them alone.

I can only make some allusions to the land-scurvy from my own experience; how children are affected by the sea-scurvy is beyond my means of determining. A healthy, well-nourished child, in a good dwelling, never becomes scorbutic. Among the more affluent classes it is only seen as a sequela of severe, protracted diseases, especially typhus abdominalis; among the poorer classes, whole families become scorbutic from living in damp houses and existing upon poor and insufficient food.

Symptoms.—Paleness, loss of flesh, sadness, or a protracted typhus fever, usually precedes, for a long time, the breaking out of the scorbutus. Then the gums begin to be painful on mastication, and are greatly inclined to bleed. The external border of the gums lies no longer in close contact with the teeth; it is somewhat swollen and of a bluish-red color, and at some places abrasions of the mucous membrane are seen.

The rest of the mucous membrane on the hard palate and cheeks is *not* affected by catarrhal stomatitis—it is only pale and anæmic. Here also the fetor of the mouth is tolerably intense, nevertheless it can be distinctly distinguished from that of stomachace.

When the process lasts for a long period, the entire border of the gum will present the appearance of a single, bluish-red extuberation, covered with small excrescences, and bleed at the slightest touch. The teeth are coated with a yellow mucus; a brownish, fetid saliva flows from the mouth; large and small ecchymoses now appear upon the mucous membrane of the tongue, cheeks, and lips; at some places they are absorbed, at others however, they become ruptured, and then display fungous ulcers with readily-bleeding bases. Under favorable circumstances all these morbid lesions pass through a retrograde metamorphosis, though only very slowly, it is

true, and the gums retain their disposition to bleed for a long time. But if the unfavorable causes continue, then all the scorbutic symptoms become aggravated, the teeth fall out, whole pieces of the gums are cast off, the ecchymotic lower extremities become œdematous, general dropsy supervenes, and the children perish with anæmia.

Therapeutics.—The treatment of idiopathic scurvy, that has originated through impoverished circumstances only, is very simple, if it is possible to improve these conditions; that is, to put these children in a dry, well-ventilated room, and to procure for them cleanliness, care, and good attention, and in part animal food. In the contrary case, all the highly-eulogized remedies will fail us. True, recoveries also occur here, especially in the warm seasons of the year, when the patients are at least able to enjoy the fresh air on the streets. Lemon-juice, or some kind of vegetable acid, is everywhere recommended as the most useful remedy. The affection of the mouth is readily subjugated by astringent gargles, composed of alum, tannin, rhatania, catechu, etc., to which a few drops of the tincture of myrrh may be added with advantage. Profuse hæmorrhage must be arrested by liq. ferri sesquichlor., or by cauterization with lunar caustic or concentrated muriatic acid. When gangrenous destruction sets in, the powers of the system should be supported by wine, quinine, tonics, and good diet. Scorbutus, after typhus fever, is one of the most disagreeable complications of that disease. Owing to the great prostration of the functions of absorption, all methods of nourishment, as a rule, prove futile.

(11.) NOMA (from *νομή*, corroding ulcer).—By noma, cancer aquaticus (Wasserkrebs), gangræna oris, stomato-necrosis, a gangrene of the cheeks is understood, which makes its appearance under such constant and peculiar phenomena that it demands a separate description and classification as a special kind of gangrene. The older writers on medicine do not seem to have been acquainted with it; the first work upon this subject is by *Battus*, a Dutch physician, at the commencement of the seventeenth century.

Noma occurs almost invariably in children between the ages of two and twelve years. Nurslings seem to be entirely exempt from it. Adults, too, are but extremely rarely attacked by it; many physicians have never seen it in the latter. A protracted febrile disease, scarlatina, measles, or typhus fever, always precedes the noma, and no instance is known of a previously perfectly healthy child becoming affected by it. It does not occur in an epidemic form; it is asserted that it never appears in the southern countries; it seems most frequently to prevail in Holland; girls are oftener attacked by it than boys, and almost always only one-half of the face is implicated.

BIBLIOTECA
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Symptoms.—Noma is always situated in the cheek, and most frequently on that part thereof lying adjacent to the angle of the mouth. I have only once seen an acute gangrene originate in the deeper structures beneath the lobe of the ear, which, like the ordinary noma, quickly spread through the deeper structures of the parotid, and laterally over the cheek, neck, and lobe of the ear, and in a few days brought about a lethal end. Usually, a child convalescing in the very best manner presents a tolerably distinct, circumscribed, indurated spot on the cheek near the angle of the mouth, which causes no very great amount of pain. On inspecting the mouth, a serous vesicle is seen only exceptionally opposite the induration; usually it is ruptured, and the mucous membrane has undergone a brownish-black, shreddy decomposition.

The cheek swells up, and the adjacent glands of the neck become infiltrated. The integument of the cheek is pale, waxy, and glistening, and the portion covering the place of the first induration, opposite to the internal disorganization, turns blue, the epidermis becomes flaccid, is detached with the utmost ease, or falls off of its own accord, and now it is seen that the gangrene, progressing from within outward, has reached the skin. At first, the gangrenous part of the cheek is barely of the size of a nickel penny, and contracts by desiccation, then a brownish-red furrow forms between the living and mortified skin, and this furrow extends peripherally more and more, so that the gangrenous part may be seen to increase in circumference from hour to hour. The gangrene extends further and further, till in some cases the entire cheek up to the eye, to the ear, and to the cervical region, has become involved, and the patient presents a disgusting picture of horribly-destructive disease. The noma does not merely extend externally, but it also attacks the bones of the jaws; the upper (sometimes also the lower) maxilla rapidly becomes necrotic, the teeth fall out, and after a few days the necrosis is so complete that large pieces of bone may be removed with the dressing-forceps. A fetid sero-sanguinolent ichor flows from the irregular, ulcerated, sloughing surface, which is but little sensitive. The borders of the sound parts are reddened, several serous vesicles sometimes form upon the apparently still healthy cheek, at a distance of a few lines from the gangrenous spot, the subjacent tissues rapidly mortify, and the borders of the new and of the old ulcers approximate each other closer and closer, till they finally form one large gangrenous, phagedenic surface. On examining this mortified part, a large quantity of free fat will be found mixed with traces of muscle, the nerves are yellowish white, and the blood-vessels are filled with thrombi. The thrombi seem to have formed very early in the disease, and in a very severe degree; for hæmor-

rhages are extraordinarily rare occurrences here. This intensely destructive process runs its course in from three to six days.

The general phenomena and fever are, at first, insignificant, and appear only as consequences of the local destruction and purulent absorption; soon, however, diarrhoea of a colliquative nature comes on, syncope, sopor, or delirium, becomes superadded, and the feet, as a finale, become œdematous. At the autopsy, we generally find, in addition, lobular pneumonia, which, during life, on account of the extreme prostration of the whole organism, manifested but few objective and subjective symptoms. Noma is easily diagnosticated. It is differentiated from all other kinds of stomatitis by the rapidity with which the external structures become involved, and the rapid spreading of the gangrene. The prognosis is very bad. Out of five cases that came under my observation, one only recovered, and that, too, with a frightfully-disfigured nose and cheek, which were only partly remedied by several plastic operations, but not without great distortion of the adjacent parts. According to a compilation by *Tourdes*, sixty-three out of two hundred and thirty-eight cases recovered.

Treatment.—Chlorate of potassa may also be given in this disease, with the object of ameliorating the fetor, in the same manner as recommended in stomacace. Here, however, the effects of this remedy are not so brilliant; the gangrene keeps on progressing, and the odor is but slightly diminished. In order to abate it as much as possible, it is necessary to bathe the children daily, and to change their garments often, because they constantly wipe their ichorous, soiled hands upon them. An attempt must be made to arrest the progress of the gangrene by cauterizing the healthy parts contiguous to it. Concentrated muriatic acid, with which the whole border of the noma, internally and externally, should be pencilled over two or three times daily, seems to be the most appropriate escharotic. The child should be firmly held by an assistant, for the pain is very severe, and all the superfluous acid on the surface of the mucous membrane of the noma should be wiped away with a small sponge. In this manner it is possible, in some cases, to keep the evil within bounds. In most cases, however, the gangrene progresses unrestrained, and the patients perish in from two to fourteen days with the above-described symptoms. Not much can be accomplished with a stimulating treatment of wine, decoct. cinchonæ, eggs, etc., for usually it is impossible to induce them to partake of such nutriments; milk or coffee is about the only article of diet for which they have any relish, of which as much as possible should be administered to them.

(12.) **THRUSH.**—By thrush, sprue, soor (*Mehlmund*, *Mundsöhr*), *muguet*, *blanchet*, of the French, *aphthæ*, *stomatitis cremosa*, *aph-*

thophyta, by all these different designations only one process is understood, namely, the formation of white membranes in the mouth, which, microscopically, consist (1.) Of a granular mass, (2.) Of basement epithelium, and (3.) Of fungi in their various stages of development. (Pl. III, Fig. 2.) Robin has called this fungus *oidium albicans*. The views of the different authors on the nature of this disease vary in many respects, at the present day, although it occurs extremely often, and almost daily presents itself for examination to every physician, and although the mouth is accessible to all the senses.

Thrush attacks, by preference, infants in the first months of life, but in some instances it has also been observed in children one or more years old; in addition, also, in cachectic adult individuals, and especially tuberculous and carcinomatous patients.

Symptoms.—At first the natural bright-red color of the mouth becomes altered, a livid, dark-red color takes its place; the entire mucous membrane appears as if a thick layer of raspberry syrup had been smeared upon it. *This change of color never occurs in the form of spots or islands*, but is uniformly diffused over the entire cavity of the mouth. Only on the hard palate, where the mucous membrane is firmly adherent to the bone, and on the border of the lower jaw, where the teeth which are near breaking through cause a marked tension and attenuation of the super-lying mucous membrane, no such decided dilatation of the capillaries can take place, and it is on that account that the redness is less developed there; sometimes there is a marked contrast between the entire yellowish-red hard palate and the rest of the livid-red mucous membrane. The tongue is darkest in color, and its papillæ, particularly those at its margins, are a little more prominent than usual. The temperature of the mouth, according to the sense of touch, is slightly increased; no exact thermometric measurements can be obtained in children. The mouth, at the same time, becomes painful to the touch, as is apparent from the efforts of the infants to expel every foreign body introduced into it. In the normal state, for example, when a finger is introduced into the mouth, they instantly begin to suck at it; but, when affected with this disease, they will try to remove it by rolling the head from side to side, and will also begin to cry. For the same reason they often stop during nursing, and rest for a while, from the pain to the inflamed mucous membrane, caused by swallowing.

Further on in the disease an anomaly in the secretion of the mouth takes place. The mucous membrane loses its lubricity, feels tenacious, and a piece of filtering paper laid upon it sticks to it; in the normal condition, the filtering-paper does not readily adhere to it. The distinctly acid reaction of the secretion of the mouth, at a time

when as yet none but these changes of the mucous membrane can be perceived, is of the highest importance, and supplies an index in judging of the entire morbid process.

In the mouth we have a mixture of two glandular secretions, namely, the secretion of the salivary glands and of the mucous follicles. Pure salivary glandular secretion always reacts alkaline, and, indeed, most distinctly so, immediately after a meal. The secretion of the mucous follicles very soon becomes sour, and this acid reaction is always more distinct when the fresh mucus is allowed to stand, for, owing to the fermentation that takes place, free acid is rapidly generated. We have, then, two diametrically opposite reacting fluids in the mouth, and it will depend upon their quantitative relation to each other, and their degrees of concentration, whether the mixture should possess more of the properties of saliva or of mucus. If a sufficient quantity of alkaline saliva is present, the free acid developing in the mucus is thereby neutralized; if not, a distinctly acid-reacting secretion of the mouth originates.

The tenacious, highly-red mucous membrane, at the commencement of thrush, always reacts acid, even if it has been cleansed in water and not been in contact with any food for a whole hour. If any mucous membrane so constituted is scraped off, and the raspings examined by the microscope, *there is found, conjointly with the epithelium, a considerable quantity of oval, sharply-defined bodies, sometimes connected together in twos or threes, which are easily recognized as fungous spores.* True, a highly-red, acid-reacting mucous membrane is also met with, where it is not possible to detect upon it any of these spores; I have, however, never succeeded in discovering them upon a normal, pale-red mucous membrane that had been well cleansed in water, and had not been in contact with any food afterward. From this it follows that the disease of the mucous membrane primarily originates without the formation of fungi, and that no fungi ever form upon normal mucous membrane. These fungi *do not* produce the acid reaction and redness, but the chemically-altered glandular secretions accumulate in the mouth, irritate the mucous membrane, redden it, make it hot and painful, and transform it into a soil favorable for the extuberations of the fungi. The cryptogamous growth makes as rapid progress in the mouth as upon any foul, vegetating surface, only with this difference, that here the soil does not become altered again, whereas, there it belongs to a living organism, and therefore never stops for a moment to regenerate itself from below, and from becoming cast off on the upper surface.

On inspecting the mouth, small white points will be seen, if the