The Disorders of Dentition

The period of dentition is one full of anxiety to the mother and of misery to the child. It is ardently prayed for until it arrives, but then it is not welcomed and the fond mother sighs with relief when it is over. It is a period of very great importance, because while it lasts the system is abnormally liable to disturbance.

There are practitioners who deny that the process of teething has an important influence on the health of the individual. Others again, probably from a want of accurate knowledge on their own part or too great anxiety to agree with the parent of the child, or from a careless haphazard method of diagnosis which often ignores etiology—put down every disturbance of the young child's system to this cause.

It has been a common practice amongst mothers to attribute every
illness occurring in early life from the irritation of eczema to the disturbances of nerves, to the same baneful influence (Gustave Smith in Disorders of Dentition in Quain's Dictionary of Medicine).

There can be little doubt but that both views are extreme. The process of teething has been closely observed for many centuries and this much is certain, that—during the process the child is very liable to affections of the digestive, pulmonary, cutaneous and nervous systems.

Some of these affections may follow directly the exciting cause—the eruption of teeth. Post hoc ergo propter hoc: to others there is some predisposition—some natural tendency of constitution—and the teething is indirectly the exciting cause—Post hoc sed non propter hoc. So this we shall refer again.

Let us consider briefly the process of teething—that is the cutting of the milk teeth. During the 5th month I pregnancy the dental sacs of the
Milk teeth occupy and on the posterior walls of these are developed the paces of the permanent teeth. After birth, the milk teeth gradually advance against the alveolar bones of the jaw as their roots become more developed.

At the same time, the cartilage of the gums is absorbed and also the upper wall of the paces, until finally the tooth appears as a white mark in the constricted gum. Occasionally, owing to the premature absorption of the cartilage, the tooth can be felt with a probe several days before its appearance.

The teeth appear in groups and although the order and time of appearance is inconstant, yet we may give the following as that which occurs in a majority of cases.

With this the view of Trousseau who has little faith in the doctrine of averages coincides.

1st Group: 2 hours dental incisors between 4th and 7th month. Take from 1 to 10 days. Pause: 1 - 3 months.
2nd Group: 4 upper incisors - the central first
Between the 8th and 10th months,
Lak 
1 to 6 weeks.
Paused 2 to 3 months.

3rd Group: 1st molars and 2 lower incisors
(Molars of upper jaw - then the lower lateral incisors - then the lower molars.)
Between 12th and 15th months,
Lak 4 to 6 weeks.
Paused 4 to 5 months, or until 18th month of child's age.

4th Group: Canines
Between 18th and 24th months.
Lak 2 - 3 months.
Paused 3 - 5 months.

5th Group: 4 second molars
Between 26th and 30th months
Lak 2 to 3 months.

The following table is simple and refreshes the memory at a glance.
<table>
<thead>
<tr>
<th>Group</th>
<th>Teeth Involved</th>
<th>Time of Eruption</th>
<th>Duration of Eruption</th>
<th>Pause</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2 lower incisors</td>
<td>4th-7th month</td>
<td>1-10 days</td>
<td>1-3 months</td>
</tr>
<tr>
<td>2.</td>
<td>4 upper incisors</td>
<td>8th-10th month</td>
<td>4-6 weeks</td>
<td>2-3 months</td>
</tr>
<tr>
<td>3.</td>
<td>1st molars and upper 5th-7th lower incisors</td>
<td>12th-15th month</td>
<td>4-5 weeks</td>
<td>4-5 months</td>
</tr>
<tr>
<td>4.</td>
<td>Canines</td>
<td>18-24th month</td>
<td>2-3 mos.</td>
<td>3-5 months</td>
</tr>
<tr>
<td>5.</td>
<td>Posterior molars</td>
<td>26-30th month</td>
<td>2-3 mos</td>
<td></td>
</tr>
</tbody>
</table>

or the order may be roughly indicated thus:

![Diagram of teeth](image)

(compiled from Trouseau clin. med. Vol IV-150 Kieser's Vol VI - (Vogel) 770)
With the eruption of these twenty teeth the period of first denition is completed, and the period of second denition does not begin until the 5th or 6th year.

"We therefore can never attribute to difficult denition any pathological process which occurs in a child under five years of age with twenty milk teeth." (Vogel op. cit.)

A common example blinded.

We have said that the above order is constantly being departed from. For example the first group may not appear until the 18th month, or it may be present at birth. At any time between these extremes the first group may appear. One variation is somewhat rare viz the appearance of the canines before the first molars. We shall record a case in which they did.

These irregularities in order and time can hardly be included among disorders of denition since they seem to have no injurious influence on health. Nevertheless it is certain that the less the deviation from the above groups as to time and
Succession the less trouble and serious disturbance will be encountered. During the eruption some infants suffer much more than others, and while one tooth may be cut without any appreciable suffering yet another may cause serious disturbance. The incisors usually come through with great ease and also the last molars. In the latter case the child is strong and the jaw well developed. The period most to be dreaded is that which covers the eruption of the 4th group—viz. the lower canines and "eye teeth." These "eye teeth" are the terror of all food mothers, and not without good reason. Many causes have been assigned why these teeth should disturb the system more than any others—some of them most fantastic and improbable. Possibly the long roots of the canines explain the difficulty or the sockets may be badly developed. Rousseau draws attention to a very important circumstance—viz. that the canines are the
only teeth which have during their eruption a room on each side of them— they have to grow in fact in a confined space. This is an excellent observation and probably comes very close to the real explanation.

How is the process of dentition influenced by disease?

This is scarcely within our subject and we refer to it merely to dismiss it in a few words. Syphilis and tuberculosis seem to have little or no effect on teething. If any at all they seem to favour early eruption. Tics is the only disease which retards dentition but does not make it more difficult, for delayed dentition does not mean difficult dentition. If a child without a tooth is attacked by tics, teething is quite arrested until the 12th or 15th month. If the child have a few teeth when attacked, the eruption of the next group is delayed for months instead of weeks, and until the disease has run its course the proper course of dentition is not resumed.
Again, rickets causes a bad development of the jaw and the teeth tend to get loose and to come out. There is also a tendency to caries especially of the incisors. Therefore, when one sees this bad condition of things and delayed and irregular appearance of the teeth, he may be sure that the child is rachitic. For as we have said, this is one of the early and constant indications of rickets.
There are certain complications of teething which are pathological but which may reasonably be considered physiological.

1. Increased saliva and secretion of mucus
2. Swelling, and painful condition of the gums
3. Slight general dyspepsia
4. Moderate diaphoresis
5. Restlessness and fretfulness.

Almost every teething child presents these phenomena and as they usually pass away without having had any injurious effect on the child's health they may be considered physiological. Some authorities assert that they are not only not harmful but even beneficial and that while salivation continues free, or while there is a lax condition of the bowels, there is no risk whatever of any serious affection of the brain or stomach. This is quite probable but only the observation and record of an multitude
of cases would prove it, let us consider these various conditions briefly.

1. Reduced secretion of saliva and mucus begins with the swelling of the glands some weeks or it maybe months before the appearance of a tooth. It is due to irritation and of the salivary and mucous glands of the mouth. It is a troublesome condition — not in itself injurious but it may indirectly bring about mischief as we shall show later.

2. Swelling of the gums is not merely a process of development. There is a condition decided pathological and also a physiological condition. The latter comes under our notice here and must not be confounded with the other. Nevertheless they may coexist.

3. The periodic evidence of local disturbance, and of the extreme sensitiveness of the nervous system of the child, and of the sympathy that...
Excita between its several parts.

The moderate amount of diarrhoea may be called physiological when the child has not more than four motions daily. It runs its course in a few days without influencing seriously the nutrition of the child or leaving any bad result.

Restlessness and fretfulness.

These are two conditions which not only cause the mother much anxiety, but greatly try her patience and powers of endurance. Restlessness at night, and a constant fretfulness by day. Do we sufficiently consider what the women of the poor have to endure? The daily round of toil, the fight for home and sustenance, endless anxiety, and then the crying baby. This fretfulness is directly due to the physical condition of the child, and it passes away with the eruption of
a tooth or group of teeth.

Now all these conditions pass away when a tooth or group of teeth has forced its way through the gum. This surely is an answer to those who hold that none of these things are traceable to teething.

It will be apparent that if the eruption of a tooth gives relief, anything that will simulate the eruption of a tooth will give relief. Hence the use of remedies in the form of "oils of the gums" to relieve the symptoms of teething. (O'Keeffe—Practising Physician for Infants and Children, p. 267.)

Now (Dr. Dunn) sums up the matter well, when he writes that the invariable result of the gum, if

the gum is open, increases in mobility, sleeplessness, vomiting or diarrhea during the progress of and dependent upon teething—provided the position of the tooth can be established by its touch, making the incision superficial or deep according to the distance of the
tooth from the surface.

(D.Moore, op. cit.)

We have

Considered which we have
called physiological complications
of teething, but it will be
evident that these may be so
accelerated as to become
pathological. E.g. The increased
secretion of leucos and saliva
may become excessive.
The mouth may become inflamed
and ulcerated — the pyrexia
may become intense and
dangerous — and finally the
diarrhoea may not only be
long continued, but may
become chronic and cause
death.

The difference
therefore between these physiological
and pathological complications
is one in degree.

We shall now direct our
attention to the pathological
conditions.
The pathological complications of teething may be innumerable. Thus:

A. Those affecting the alimentary system:
   1. Excessive secretion of mucus and saliva
   2. Follicular stomatitis
   3. Ulcerative stomatitis
   4. Acute catarrh (conjunctiva)
   5. Subacute catarrh (diarrhea)
   6. Follicular enteritis
   7. Infantile cholera

B. Respiratory system:
   1. Bronchial catarrh (cough)
   2. Bronchitis

C. Integumentary system:
   1. General catarrh with enlarged lymph nodes
   2. Impetigo
   3. Erythema
   4. Poplar eruptions
   5. Chicken pox of mouth

D. Nervous system:
   1. Pyrexia
Motor Phenomena / Eclampsia } from ulcers
frenemy. Poliomyelitis, acute
acute (infantile Paraly.
Meningitis, labored
Spinal Menigitis, etc.

E. Special Senses
Conjunctival Blenching.

Let us consider these and
note the relation of each to
the process of tasting.

A. Alimentary System

1. Exercise Secr. from Pinnules
   and of Saliva.

Each part of the alimentary tract
is in such sympathy with every
other part, and the nervous system
which connects them is so impervious
that any irritation at one part
is apt to cause irritation all along
the tract; thus it is that when
a tooth is irritate the gums not
only there will we disturbance in the
mouth but also all along the
alimentary tract.

The excessive secretion of mucus
and saliva is due as we have already seen to stimulation of the salivary and mucous glands. It is a source of constant annoyance to the mother who finds it almost impossible to keep her child dry owing to the overflow from the corners of the mouth. The result is that too often the child is neglected and a consequence the chin and neck become reddened and even oozings from the constant application of mineral and consequence salt. A more serious result is that the dress of the child is soon soaked with slobbery and not being changed the child catches a "cold", get bronchial catarrh, and cough. We have observed this frequently and on several occasions have traced an attack of bronchitis to this same simple cause.

The condition itself is not injurious but indirectly it may do harm. This can be prevented by providing the infant with a waterproof bib which protects its clothing and chest.
2. **Follicular Stomatitis.**

Inflammation of the follicles in the mucous membrane of the mouth. The whole inside of the mouth is red, and the temperature is raised. There are acetate inflamed spots with white discharge on the surface, but with no breach of the surface. This may advance and become

3. **Ulcerative Stomatitis.**

This ulceration may attack the gums and cause a loss of much tissue. More frequently, small whitish flakes of exudation lie over the inflamed mucous and these on removal leave small round or oval flat greyish or yellowish inflamed ulcers with no raised margins. These sometimes coalesce.

Still more frequently, the ulceration is at the tip of the tongue, a single round flattened ulcer forms very painful with raised edges. The pain prevents free motion of the tongue. The tip of the tongue may be most frequently affected because exposed to most friction. Follicular and ulcerative stomatitis are simply
different stages of Stomatitis and to both the term though has been applied. One must be careful not to apply the term "aphthae" or "aphthous patches" to this condition. The latter is smaller in many ways but is characterized by the presence of a parasitic fungus, *Orumum albicans*. Whereas in Stomatitis, "thrush" a mouth similar to the mouth of wine is present (*D'Emestott Op. cit.*) Stomatitis is always accompanied by more or less constitutional disturbances, paresis and diathesis. Although we have found as a matter of experience that Thrusk is usually associated with some improper feeding—want of cleanliness and the like—but we have also observed the frequent association of the attacks with the process of teething. No doubt the mere storm set up by an advancing tooth predisposes the stomach etc. to rebel.

**Treatment.** When left to nature these ulcers may heal in a few weeks or days. Attend carefully to cleanliness and diet.
Restore the stomach to its proper condition with Rye bread and soda. Wash the mouth carefully after each meal with warm water. Then apply an aqueous solution of Chlorate of Potash or of Leovar in glycerine. If necessary, touch the ulcer with nitrate of silver. Usually this treatment is rapid. Successful but while teething, pay on it may require to be repeated.

4. **Juvenile Catarrh.**

We have already drawn attention to the fact that any source of irritation in the young child is apt to be followed by general disturbance. Hence we see that the irritation from cutting teeth can set up a juvenile disturbance and that both together can cause Stomatitis. This juvenile disturbance takes the form of Catarrh and its prominent symptoms from our point of view in somewhat.

We do not wish to minimize that difficult period in the child's life during the period of dentition, but we...
hold that it is one cause and an important cause. It may act directly through the nervous system or indirectly. In the latter case it produces pregnancy which predisposes to catarrh of the stomach.

Treatment.

Relieve the symptoms if necessary. Give a few doses of plumb and magnesia.

Alleviate the excitement of the nervous system by dancing or otherwise treating the swollen joints, give a hot bath and a few grains of bromide of potassium.

Minute doses of arsenic have been found useful.

Attend carefully to the diet for a few days. It is often best to limit it to barley water or a little white bread when not too tired.

5th Intestinal Catarrh (Diarhoea)
6th Follicular Enteritis
7th Infantile cholera

We have now to consider a very serious complication.
moderate diarrhoea is as common during teething as to be considered physiological — that it is not incompatible with perfect health, and may even be beneficial if moderate it continues for more than three or four days, or if the motions exceed 3 or 4 in a day it becomes a source of danger, and must be controlled, especially if it be the only complication again it may become chronic and cause (sympathetically) inflammation and ulceration of the intestinal follicles. The mesenteric glands may also be affected. Death may result again, especially in the summer months, the type may be changed and infantile cholera may carry off the child. We see then how important it is that there should be a clear understanding on this subject. Who does not recollect a case in which a neglected diarrhoea has caused the death of a teething child! and hardly reflect either for these are many practitioners, especially
among those holding parochial appointments who are of opinion that so long as a tooth is being cut diarrhoea is a sort of safety value that protects the infant from brain and other complications. One can easily understand that this opinion might commend itself to a medical man who besides other hard work had charges of half a hundred puerperal children. Vogel says "let the diarrhoea go on for a while while it lasts other complications are usually absent especially brain symptoms" (op cit).

Eustace Smith (Quain's Dict. Med. p. 342) says "hoelessness of the bowels during delirium has been looked upon by some writers as a natural method of relief to the system and fears have been held out of grave troubles which might ensue if the looseness were too suddenly arrested. Such fears are groundless. A catarrhal condition of the bowels should be cured as quickly as possible especially during delirium."

Crousean (Clin. Med. IV. p. 283)
recommends that the intestinal disturbance should not be suddenly put an end to. Elsewhere (Vol. IV. p. 285.) he says "the belief prevalent that diarrhoea has a beneficial effect in depletion is a mistake - in infants it is always serious - a moderate amount may relieve the inflammatory state but if continued for a few days it is dangerous." Again he says "Children at the breast with diarrhoea are more liable to cholera poisoning than when there is no diarrhoea (Obst. Med. Vol. I. p. 399.) so these eminent authorities do not entirely agree.

We have carefully observed a series of cases in the Hackney Union Workhouse and our experience is that in strong healthy children a moderate amount of diarrhoea may be allowed to go on for 4 or 5 or even 7 days with apparent benefit; but that in sickly, badly nourished children, especially those from a strenuous paint the earlier you stop the intestinal attacks the better it is, exhausting and may cause
inflammation and superficial ulceration of the large intestine - it may become chronic and cause death.

Causes of Diarrhoea.

Vogel (op cit.) attributes it "to the quantities of mucus and secretion swallowed of saline of which acts as a laxative" with this we cannot entirely agree. In the first place the quantity swallowed is comparatively small; by far the larger part being allowed to dribble from the mouth. Secondly, the amount of saline in the relatively small quantity of secretion swallowed is too little to act as a laxative. According to Dob's there is only 0.2 per cent (including potassium sulphocyanate) in normal Saline (Physiology p 215).

Again we have observed cases in which dialloring has continued for a few months and in which there have been repeated attacks of diarrhoea which have in a few days been recovered from without other treatment than an abdominal flannel roller. Vogel probably implies that the mucus and saline act mechanically.
Let it be remembered that at this time the intestinal follicles are undergoing development and are easily irritated by foreign substances and by cold to which owing to the condition of pueria the child is peculiarly liable. It may be observed that in summer when the extremes of temperature are greater and the child less protected it more often suffers from diarrhea.

But we come to another cause. None can be less doubt that the irritation caused by the eruption of a tooth, and acting through the nervous system is a powerful factor in the etiology of the disease. One tooth after another is cut, and thus one irritation is added to, or succeeds another and the result may be chronic diarrhea and marasmus.

These conditions however may exist at this period and may be quite unafflicted by the eruption of teeth. Let me quote from Babcock Smith's admirable book on the wasting diseases of children p. 71. "Although the nutrition of the body is so much interfered with..."
in this disease (chronic diarrhoea) and the child daily increaseth more and more, yet if the patient be not the subject of sickness, the growth and development of the teeth may continue in spite of the general condition. In the case of infants who are cutting their vicisors, these teeth usually appear without difficulty or apparent aggravation of the other symptoms. Nor does the eruption of each tooth appear to be accompanied by any special improvement which can be attributed to that as its cause. Dejection goes on rapidly and easily while the diarrhoea remains stationary or slowly improves.

These cases generally recover in an infant of eight months, when the author attended in this complaint five vicisor teeth appeared in the course of 2 months. The child got well.

If the patient have arrived at a later period of infancy, the cutting of the canines and back molars often produces a distressing injuries effect upon the intestinal derangement. Indeed cases are sometimes met with which obstinate resist all
treatment until the teething process has come to an end. Still although the presence of an inflamed and swollen gum may appear to increase the irritation of the bowel, chronic diarrhoea is not necessarily associated with diarrhoea as its cause. As Dr. John Bell has long ago pointed out the disease is often seen in cases where there is no swelling or inflammation of the gums, no salivation, nor any appearance of pain or tenderness about the mouth. In cases where the child is cutting his teeth easily, and even in children of three months old who have no teeth at all. We shall see that it may begin almost at birth. The above refers to the first diarrhoea.

During summer months there is always a tendency to infantile diarrhoea. If the child be cutting teeth or if there be intestinal catarrh the tendency is greatly increased. This should be kept in mind and while the predisposing cause cannot be removed all exciting causes should be carefully avoided.
Progress. This depends on many points. Is the child strong and of good constitution or a chronic invalid? Is the disease acute or chronic? Is there simple catarrh or has the process reached ulceration? Is the mother a sensible woman? Are the hygienic conditions favorable? What is the season of the year? Can the exciting cause be removed? Has treatment had any effect? Has the child been weaned? If the child is generally well, the condition (remission) favorable. No serious complication - the exciting cause removable - and especially if the child has not been weaned the prognosis is very favorable. In any case not an extreme one if proper treatment can be carried out the prognosis will be favorable.

Treatment. Remove the cause - by attention to the condition of the gums and by proper feeding. Milk is the best food at this time and not only are children who are not weaned early less frequent the subjects of intestinal and other catarrhs during the early...
but the attacks are less serious and
successfully treated and less frequent
fatal than in the case of children
early deprived of their natural
nutriment. "Never leave an infant
unless some special circumstances make
it imperative until after the period
during which the serious complications
of teething usually occur. The French
have a proverb "bien enfant jusqu'à
aux dents."" (Housman, clinched Vol W. 150)
As a matter of fact the mother or
wet nurse should provide breast-milk
for the child until it has cut
from twelve to sixteen teeth. We
seem however to be living in the
decade of " Patent foods for infants"
and the mother becomes less
and less necessary. In some
matters our civilization seems a
failure. It is good practice to
commence treatment with a dose of
castor oil to remove irritating substances.
For two or three nights after this a
powder containing sodium bicarbonate
with Ma. Carb. and A.T. may be
given. Raisin juice then may be
given in doses of 1/2 for seven hours but in
practice this is not always
Satisfying as your direction are frequently not carried out. Black mixture: 3 dr. with 1/2 tablespoonful of wine or twice. 1/4 dr. for every 4 to 5 hours is a very good mixture to give after the cattle oil has operated. Sometimes it is advisable to add 1/2 dr. 1/4 (for a child of a year old) to this to diminish peristalsis of the usefulness of balsam water. The various infusions for infants: Salub and a host of other drugs here is no space left to even mention. I must the complication in general principles and with the exercise of common sense. Above all in every case do your best. An indifferent practitioner who does his best will always command respect and have a fair measure of success.

B. Respiratory System

(1) Cough
(2) Bronchitis

The tendency of all young children to affection of the respiratory system is great and is increased when the system is disturbed. In teaching
the system is often much disturbed. Therefore a greater tendency to pulmonary affection. Now this effect is only secondary. It is a mediastinal cause. It may act in this way. There is a condition of hyperoxia: while this exists a slight fall of temperature will readily cause a chill, a cold, a cough, bronchitis etc.

We have already p. 17 considered the effect produced by an overflow of saliva and seen how this may cause bronchitis. There is an intimate relationship between the bronchial and subcutaneous mucous membrane, not anatomical. Thus we find that if bronchial catarrh and diathesis coexist, and if the latter be arrested the former is approved. The same thing may be observed in pleurisy, in which hyperaemia cough and diaphoresis coexist. If the diaphoresis be arrested the cough is approved and the temperature rises a return of the diaphoresis relieves both. Encke states that as any irritation
of the lumps is in his experience apt rather to increase than to diminish but pulmonary mischief a dose of castor oil may right the pain early. The disturbance if present must be tolerated if not worse, until the chest trouble has abated. The course of treatment need not be described here but it will often be found that permanent improvement will not be obtained until local irritation has been removed.

C. Integumentary System.

It is certain that teething in some way or other—probably through the nervous system—Which undoubtedly has great influence on the condition of the skin—is the cause of certain cutaneous eruptions. Heredity has something to do with it and Vesel says that blondes are more often affected than Brunettes. During all five periods of dentition the form of eruption is unchanged and during the paroxysm
is either recovery or improvement. Among the numerous affections of the integumentary system which have been attributed to difficult dentition none is so common as that eczema of the scalp which gives origin to the term "crusta lactea". We however have some difficulty in choosing a name for this condition. It is eczema infantile and as such in M. Norris's words it is eczema capillitii (Manual, p. 133) it is also called an impetiginous eczema and eczema crustaceum. It must not however be confounded with what is now called impetigo contagiosa. It is to name impies is a contagious affection.

Helping terminology along the condition is this - in weak or sternum child usually fair on the head a mass of crusty crusts extending from ear to ear and from the neck to the brow - this crust thick, yellowish, dry, shrill and formed of pus, Seraceous matter, epithelial tissue, hair etc. Below this an inflamed, irritable, itching
Moist surface. Such a condition, although extreme may be seen daily. It must be almost intolerable to a young child owing to the filth that accumulates and the presence of pediculi. In addition there is frequent seama of the face in a dry scaly condition or behind the ears. nodose crustled and pinnatta.

I sometimes; it not far wrong when he says that these seame or eruptive eruptions are often very persistent and not only torment the child but also dismay the mother and the doctor.

There are two things to consider:
- The constitutional tendency and the local condition.

Attend most carefully to the functions of the stomach and bowels. See that the liver and kidneys are acting well, and that the nervous system is not over excited. Constitutionally it appears that we get the best results from small doses of arsenic. In reality, remove the crust: cut oil practices and treat with unf

When these in seama behind the ears a certain and prompt
remedy is Ry., sup. @, Z.; Bis., Subnit 3; Vaseline 3. 

Unfortunately the tendency to recur is great, so great that some practitioners who dismiss the patient with the more or less flattering information that the child will probably be quite well in three years, or by the time it is three years old. On the other hand the mother becomes discouraged and fails to carry out the treatment. This is unfortunate because if constitutional treatment is persisted in at this early age the benefit - after years will be most marked: and if the local treatment is carefully carried out the child will at least have comfort instead of discomfort. As we have said the completion of denudation is the best remedy the practitioners' ideas.

In connection will lessen capitis that may be inadequate and suppuration of glands from the absorption of irritant matter. One is often consulted on this account.
Many other abnormal conditions of the skin are said to be caused or at all all events aggravated by the process of decubitus. Herpetic and impetiginous eruptions, which may be very persistent.

Syphilem and especially affecting the face and ear transient.

Urticaria more frequent and also transient.

Papular eruptions, as lichen and prunigo, which may be irritating and persistent.

It is always well to treat these complications and not to trust to much to the period when teething is at an end. Such a method might lead to disappointment and loss of credit.
Nervous System

Pyrexia

A slight rise of temperature during dentition is such a common thing that we have already noted it as almost physiological. It is only when this pyrexia becomes intense or long-continued that it is pathological. It is due to the irritation caused by the advancing teeth and may be considered analogous to traumatic fever. It may be due to the complication of catarrh. It is peculiar in this that it is constant, varying and may be at its height during the night or even in the early morning. Enamel Enamel Sore Racha temp of 104°F at 8 a.m. is not uncommon. We have not seen this in a teething child without other complication. Such a condition of pyrexia is dangerous in itself. The child is restless and does not sleep. It is worried loses flesh, color and strength, and its condition renders it liable to acute cerebral attacks. This pyrexia must be removed.
as soon as possible with the symptom of a tooth is disappears promptly. This then shows its origin and indicates the line of treatment. Treat complications; beware the gum if indicated. In uncomplicated cases, when there is no tendency of the gum we have found the administration of Baryta of Potassium to soothe the nervous system, and great benefit accrue from the use of the "dead teeth".

2. 3. Convulsions. Children especially infants are more liable to convulsive phenomena than adults. The convulsive attack on child is analogous to the rigor of the adult. Peripheral irritation of almost any kind will move or less rapidly cause twitching which may be local or confined to groups of muscles; or general; and may be sufficient cause to cause unconsciousness. The sources of peripheral irritation are many. Francisco
relates a case in which convulsions were explained by the presence of a needle and thread in the substance of the brain - a case in which a pin penetrated the action lamella, and a case in which a pin entered the brain.

These same convulsive phenomena are frequently caused by things especially where the imitation is considerable. If plural imitation it is certain but why does it cause convulsions?

Some hold that this action is pure reflex, and in support of this it is noted that with the removal of the imitation the tongue stops.

Has heredity anything to do with this tendency to convulsions which some children have? Possibly. (Northrop,전형, XIV - 302) because one child after another in the same family frequently exhibits the same tendency to eclampsia. The children of weak parents - if parents with weak advancement - are more likely to weak nervous constitution and said to be more liable to eclampsia.
The physical condition of the child seems to count for little—weak, strong, robust, thin, active, and the reverse—all may be attacked in the same way. Richet's seems to increase that tendency to convulsions. Héring said, "from all observation we should rather come to the conclusion that it is not due to definite pathological states, but that the physiological condition of the central nervous system of children is so modified as to cause them upon very slight irritation to respond with spasms which have advanced even to eclampsia seizures." Hufeland Jackson calls attention to the fact that the nervous system of children is still undeveloped, and undergoing development, and this suggests to us the possibility that the inhibitory apparatus in the central hemispheres not being fully developed, reflex acts are under less control than they are later in life. "Ironnieum Vol. 1, 339" says something to this effect—a child dies in convulsions, autopsy—meninges and brain congested, effusion into ventricles, and arachnoid
Sac—sometimes haemorrhagic centres. Did these cause the
conclusions? No: no more than the
pulmonary engorgement and severe
oedema into the pleura consequential
to paroxysms of asthma caused
the asthma. These conditions星际
during life however might cause
serious mischief. Rousseau
agrees with Mephit who writes in
his 8th letter "The Causes of
Sedibus morborum". "The Cause
of Convulsions which consists in an
irreversible change that has occurred
in the brain and nerves cannot be
detected by our senses; after death
its effects alone are seen and these
vary according to the violence
and duration of the Convulsions."
The proximate causes therefore have
so far not been ascertained.
The predisposing causes may thus
be summarized.

An unduly excitable nervous system
a nervous habit
underdeveloped inhibitory apparatus
Parents married late or not strong
or with a nervous constitution.
Exhausting diseases—e.g. chronic diarrhea
Among the exciting causes.

The irritation of the brain and its consequences. Of pain, pyrexia, gastric disturbance, catarrh, etc.

Symptoms

These vary considerably. There may be slight spasm of special groups of muscles. For example, the mother may be greatly alarmed at seeing her infant sleeping with its eyes half open owing to contraction of the lev. palpe. superioris - the eyeballs being directed upwards and only the white visible. There may be strabismus - twitching of certain facial groups may cause facial convulsions - there may be flexion of the limbs or fingers or turning in and out of the feet; or one arm or leg may make erratic movements.

Again there may be general convulsions exhibiting tonic and clonic spasm unconsciousness and a resulting state of exhaustion all simulating epilepsy.

Diagnosis. In searching for a cause (which may not be discovered) always examine the condition of the gums.
Prognosis. Generally favourable, but not always to be arrived at at once. One attack may follow another. The attacks may disappear at the completion of the first denudation, and reappear with the second denudation or at puberty. Partial paralysis, spasm, or idiocy may result and death may ensue from spasm of the glottis or from spasm of the hyperaemia of the brain.

Treatment.

Remove the cause — give a warm bath — apply cold to the head and administer a mild opium, if necessary. For general use, we have found nothing better than the Brandy of Potassum. For a child under 12 months old we have found 2 per cent. every 2 hours sufficient to control twitching and restlessness. Should the spasms be louder or refuse to be controlled, the Brandy of Potassum alone will be necessary.

The opponents of this procedure are of a misleading nature. They are decided in favour of having the spasms when there is tension and therefore pain. Does not the
Tension cause the pain. Would not this triply operation be justified if the only result was to relieve pain and permit of rest? We are surprised to find Horwitz (Vol IV - 156) claimed saying on this subject "I doubt very much whether it even relieves pain by dissipating the tense or fixed pulse." This is contrary to teaching and experience. When tension causes pain, relieve that tension alleviates the pain. Some practitioners believe (as did not long ago) that scarification of the skin promotes the development of a cold. Hence it follows that the little sufferer is often put to unnecessary pain by having the skin lan- ced when there was nothing to justify it. We advise a method of treatment in however no argument against this ability.

In a certain number of cases we find that the relief of tension is the pain is lost followed by any improvement in the symptoms. None may in fact be serious central disease advancing.
side by side with the eruption of a tooth. It is necessary therefore to carefully study all cerebral symptoms which appear during dentition in the words of Brustee Smith (Quain's Dict. Med. p. 342) "Headache, vertigo, staring, twitches, and convulsive attacks may merely indicate functional disturbance of the brain such as is common to many disorders, and these phenomena are not necessarily symptomatic of cerebral disease. But if the complaints become distinctly confined, the pulse slow and irregular, the respiration unequal and sighing and if in addition there be photophobia with suffusions and tendency to drowsiness we may conclude that something more than functional derangement is present and that there is every reason to suspect tubercular meningitis."

We shall illustrate the connection between teething and such a case by recording a case of which we took notes at
the time now some years ago
The case also illustrates many
points referred to in this thesis.

Case of
Mary Ellen Drummond McNeil
Residing at Cockermouth.
Age 19 months.

Aug. 14, 1886
Sent for. Mother said child
had been "ill and heavy" for a week.
Sleeping almost constantly, but getting
a little, when awake, was losing flesh,
occasional vomiting for some days.
Bowels normal but were constipated
a week ago. Previous illness—meals,
On examination. Child was
apparently asleep. Nose was sligt
swelling of the right arm and the hand
was occasionally carried to the mouth.
Times poorly nourished—Some distension
abdomen poor platea. Temp. normal.
The incisor teeth alone were visible.
The canine teeth were approaching
the surface and the gums were
inflamed over these teeth.
Ordered milk and water diet with
some magnessia.
So far we recognised gastric
catarrh and therefore vomiting.
and existing lesions. Neutrophils would account for hiccoughs and post-gulping. There was an abnormal condition: the advance of the caruncle before the 1st month. The drowsy state was not referred to suspicion.

Four days later (Aug. 18) saw the child T. 107°F. no vomiting - slight cough - hiccough - left arm and hand frequent - hand often carried to the mouth. Skin dry - mouth hot - tongue white, gums inflamed but not tense over the caruncle. Some dulness and harsh breathing at base of left lung.

A. 2 Ammonia 4/5
bic. am. acet 2
Sp. Bell. Nits 3 in Q4 to
Sp. Arum 1 @ 3 1/2

2 1/2 4 times a day

Remarks: Recent symptoms had been replaced by lung symptoms. The left arm was affected instead of the right. The pneumonia was thought to be caused by the lung complication but it may have been also increased by the state of the gums. There was another...
November 19th:

My little patient during night child awake and looking better

but it does not cry and does not pay attention to anyone. No

lung sounds quite cleared up - temp normal

vague little cough. Constant movement

of left arm and hand - gums much

chapped. The left pupil was

more dilated than the right but

reacted to light.

Although there was room for congrat-

ulation yet the appearance of a

cnew and formidable symptom

was alarming.

At 6 pm child was dephlegmated

hips and eyebrows blanched.

The back was ordered to be

rubbed with camphorated oil and

ammonia with splat of chlor. was

given.

December 20th at 9.30 am.

Child revived after second dose

of medicine - was restless and

helpless until early morning when it

calmed down a little. Bowels

had acted a little - blueness

was gone - face flushed - skin
most fontanelle depressed.
The left hand was still wasting away and also the left leg.
Pupil unchanged - No chest trouble.
100°F. hips dry with crusts on them - tongue furred - much flatus and distension.
as to the teeth. The 1st left molar was irritating. The gum but there was no recession, gums tense over the canines.
handful from over eye teeth and left lower canines and encouraged a little bleeding. Ordered KBr 3 gns every four hours.
although the symptoms indicated meningitis and from the family history, etc - tubercular meningitis yet it was thought wise to remove every source of irritation possible.
the child had a quiet afternoon - slept comfortably - gums less angry - less itching of left arm.
T 100°F. Applied cold to the head.
To discontinue KBr unless child becomes restless during the night.
It must be obvious that
The improvement here was due to the removal of the peripheral irritation in the mouth.

Aug 21

Child restless until 11 a.m., when a motion was passed and it became calmer. T. normal. Heart and pulse less dilated—otherwise no change. To continue KBr if restless.

1 p.m.

Child semi-conscious—hitching and violent. 1st molar causing irritation. gave 10 c.c. of KBr

milk and wine 3/4—applied glycerine and made to the mouth and directed that a hot bath be given at 7 p.m.

Six teeth were now irritated the gums but the real trouble was not with the teeth.

6 p.m.

Child pale, T. 101° F. Pulse and respiration very rapid—all symptoms aggravated—pus in the soro—hands breathing all over the back. Poultices and diaphoretic mixture given originally were ordered.
The rapid pulse was probably due to the lung complication.

Aug 22

6 am. Child: Cauterius - no
hatching. T. 98.4. Throat cold
pale. Slight irregular respiration.

Mucous membrane of bronchial tubes loaded with
secretion. A bronchitis is suspected.

The child's face was flushed and warm. Whisky
was given freely and there was
transient improvement but the
child died at 5 am.

The case was one of tubercular
meningitis, and illustrates the fact
that in tubercular subjects, death
is sometimes accelerated.

The case ran a rapid course of
three weeks from the initial
drowsiness and the final stages
were not reached owing to the
intervening complication - bronchitis.

It was a fairly typical case.

The father and mother were
apparently healthy, but the
mother suffered from bronchitic
asthma and some of her relatives
were phthisical. A cousin of the child in the house on a visit was found to have some consolidation of one of the apices. What had to do with the case?

The incisors were cut without any trouble then the teeth came irregularly and in a crowd and as they advanced the disease showed itself and advanced with them. The family constitution was tubercular; did this cause difficult dentition or did the difficult dentition cause the tubercular disease to manifest itself? We consider that the difficult dentition proved the existing cause and set up in some obscure way meningitis which owing to the constitutional defect took a tubercular form. I think we cannot say more. The temperature was symptomatic of tubercular meningitis - moderate and fluctuating. Treatment - other hands would probably have been
work or less vigorous but the result would have been the same.

**Temperature Chart**

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1. Fever mixture
2. Lanced gums and gave KAR
3. KAR p0.5.

Many other diseases of the nervous system have been attributed to difficult dentition as an exciting cause among them.

**Infantile Paralysis**

Braunwell in Diseases of the Spinal Cord p. 150 says "in some cases it seems to result from a chill during dentition".

Erb (Ziemssen Vol XIII - 668) says "Jacob von Heine in speaking of causes especially connected with dentition, it is doubtful..."
of the disturbances which are so often associated with dentition do exactly determine the predisposition to diseases of the cord. It is quite as reasonable to suppose that the predisposition being already present dentition merely serves as the exciting cause and thus calls forth the disease. At all events, it seems that if dentition really played a causal relation to the spinal paralytic of the cord the disease would necessarily be far more frequent than it is. Another affection attributed to the same cause is

**Acute Spinal Meningitis**

Erb says "among the somewhat doubtful causes of acute spinal meningitis may be mentioned dentition. Instances are given in the older literature."
Special Senses.

Does difficult delivery in any way affect the organs of special sense? We have never known it to do so directly, but it may do so through its complications.

Vogel however (Zeit. f. So. Vol. V, pp. 770-777) states that during feeding and because of it one eye is occasionally affected with.

Conjunctival Blephoritis.

He says that during the eruption of the upper molars and canines this rare complication occurs.

It may be explained by a simple extension of the irritation to the anterior pharynx and the nasal passages. This theory has given rise to the term "eye-teeth" the cutting of which causes the brother's so much anxiety. It is probable that there is some connection between the teeth and the eye for the affection is unlike other forms of the same disease in being non-contagious. The other eye is in no danger.
The eyelids swell rapidly and considerably and hide the eye. There is much pain. The secretion is copious and a bright yellow. This is the Common form of Blepharitis. This was translucent and Stringy. Prognosis - favorable.

Treatment - Keep the eye clean, warm and dry.

We have now completed our brief consideration of the ills caused directly and indirectly and aggravated by difficult dentition.

We do not desire to lay too much stress on them or to consider them all-important but the careful practitioner will have them ever in his mind's eye and will treat them "with brains, Sir!"