Thesis : The Prophylaxis of Mastitis, with special reference to the Puerperium.

By

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Paradoxical though it may seem, the most satisfactory method of treating disease is by taking means to prevent it. In this is not implied any disparagement of the treatment of diseases when established : being mortal, the attainment of an immunity from all disease would be an impossible ideal, and hence it behoves us, as physicians, to acquire a knowledge of the various diseases to which man is heir, and all that pertains to their treatment. But it is equally incumbent on us to recognise the agencies which, if allowed to operate, bring disease in their wake ; it is just as necessary, and even more so, to instruct our patients in the means to be taken to counteract these morbid influences, as it is for us to treat their effects.

That Mastitis is in great measure a preventible disease, it will be the object of the present Thesis to demonstrate, and that for its frequent occurrence in the past the Medical profession by its apathy has been much to blame. The gravity of the condition is not fully realised by the young Graduate, and the older practitioner is too often content to wait for manifest lesions ; but let the former have a mammary Abscess to treat, and let the latter but reflect on the suffering, the lingering course of those whom he has attended, and each will admit that it would have been better for both patient and Doctor if prophylactic measures had been taken.

Consider for a little, what Mastitis going on to supparation means to the woman. She has but lately undergone Labour, and for months previously has been a patient sufferer, from the manifold ailments and discomforts incident to the pregnant state. To this natural state of/

of enfeeblement, let there be added the further drain that weeks, it may be months, of Sickness would entail ; and can it be wondered at, that many a feeble constitution breaks down under the strain - that disease formerly latent, or inert, blazes into fresh activity - that tuberculosis seizes the opportunity of claiming an old, or of making a new victim. The breast itself may be partly, or completely, destroyed by the inflammatory process and the woman is thereby handicapped in future lactations. In any case the cicatrisial tissue that remains, is apt to interfere with the proper emptying of the breast, and so predispose to fresh Mastitis and all its dangers. From implication of the lactiferous ducts fistulae may remain, or the gland become the seat of cystic changes. More remotely still is the liability of the damaged breast to become carcinomatous, but here we enter debatable ground. In this connection Billroth remarks (1) " I must therefore leave the question undecided whether the nursing or non-nursing of the children, or whether a long continued or brief lactation, predisposes to Cancer formation ; nor am I able to make any positive statement on the frequency with which Mastitis has previously occurred in breasts that later become the seat of Cancer."

Erichsen, in discussing the Aetiology of Cancer of the Breast, says (2) " Lacteal inflammations are likewise frequently supposed to tend to the production of Cancer of the Breast. Of this doctrine, I think, we do not at present possess sufficient proof, though it appears highly probable that disturbance of the functions of the organ during lactation may predispose to the occurrence of this disease/

disease " and yet a few lines previously he writes " It is a common belief founded, I think, in some degree on truth, that the disease (Cancer) is most common in women who have not borne children", a pronouncement which tends to invalidate the other. Our views of Cancer are still largely speculative, but the current feeling is that it is primarily a local affection, but whether in essence it is due to some specific organism, it is not necessary for the present purpose to argue. Long continued irritation and anything tending to lower the vitality of the tissues, we accept as factors in the Causation of Cancer at other sites e.g. in cancers of the lip and scrotum. Next to the Uterus, the Mamma is the organ most frequently the seat of Cancer, and no two organs in the body are more liable to depreciating influences and irritations in themselves, and by reason of their sympathetic relationship. In the light of these facts it behoves us, even although the evidence in favour of Carcinoma being a sequela of Mastitis were inconclusive, to prevent as far as possible the occurrence of Inflammations of the mammary Gland.

Important as is the prevention of Mastitis to the Mother, it is equally so to the Child. About a fifth of the children born, die during the first year, and it is estimated that 35 o/o of these die from disease of the digestive tract (3) These figures might with advantage, at least to the public, appropriately end the various advertisements of Artificial Foods. Strange that Nature should have provided the mother with the means of rearing her offspring, when it can be done so much more satisfactorily with this or that patent food ! In the interest of the child born, as well as of the generation yet/

yet unborn, it is our manifest duty to prepare the woman to fulfil her natural office as nurse, to encourage her to persist in the attempt, when we see her troubled with difficulties we know in time will be overcome, and to reduce to a minimum the risk of mammary complications during her lactation.

In the past these complications have been unduly frequent-: "it has been estimated that about one fourth of all fertile married women have suffered from Inflammation of the Breast at some period of their reproductive activity and in 1000 consecutive deliveries Winckel observed Mastitis in 6 per cent of the patients" (4) , a condition of affairs which surely merits serious reflection.

Before dwelling on the preventive measures to be taken, it will be necessary to discuss the Aetiology and Pathology of Mastitis. Inflammation going on to suppuration, is now invariably regarded as due to the action of micro-organisms, and Mastitis is no exception to this general acceptation. Those most commonly met with are the Staphylococcus Aureus and Albus, Streptococci being also occasionally present. The body is not a normal habitat of these germs, and we may exclude for present purposes the rare occasions when the mother's blood is the vehicle of infection. The micro-organisms must therefore enter the mammary Gland from an outside source. This they may do, either by a fissured or abraded surface, gaining entrance by the lymphatics, or in other cases they may pass along the intact lactiferous ducts to the Glandular acini. The importance of giving cracked or abraded nipples and areolae the utmost attention is at once established, and the necessity for scrupulous cleanliness of the/

the mammae during lactation, as well as the ensuring that all articles used e.g. shields, pumps, sponges etc are sterile, is at the same time self-evident.

The logical sequel of the above statements is, that there can be no Mastitis if the causative micro-organisms are barred an entrance ; but Bacteriology is a young Science and our knowledge of the ways of microbes is by no means final - some slip may have occurred in our precautions - some path may have been traversed of whose existence even, we were in ignorance. It is now that the importance of the predisposing agencies, is realised in the development of Mastitis. If these had not been in operation, it is probable that the phagocytic action of the mammary tissue would have overcome the invasion. Prominent among the category of predisposing factors is Milk Stasis, and this is probably the explanation of the parts played by Cold, by retracted and by malformed nipples. Conquest (5) seventy years ago, recognised the importance of Milk Stasis when he wrote :- "Taking cold is generally believed to be the cause of what are called ' Milk Abscesses' or 'broken breasts', but that which most commonly produces Inflammation of these delicate and irritable organs, is over-distension of the lactiferous tubes" Later we find Spiegelberg (6) controverting Milk Stasis, and advocating the primary place for sore nipples thus : - " Bearing in mind how common during the early portion of lactation sore nipples are, we shall not go far wrong in regarding the latter condition as the principal source of Mastitis .....there is no proof whatever, indeed it is exceedingly improbable that obstruction/

obstruction to the exit of the normal secretions (i.e. retention of milk in one or several lobes of the Gland) will lead to Inflammation : the same is true of chills. The probable reason why these factors are still so frequently regarded as causal, is the fact that the original injury of the nipple was so trivial as to be over-looked"

We have on this eminent authority a strong plea in favour of injury of the nipples being the factor, above all others, in the causation of Mastitis. Bacteriology has shewn us their true significance by a light that has dawned since Spiegelberg's day, and while granting the prime role sore nipples play by admitting the active agents, we claim that the concomitant Milk Stasis, consequent on the imperfect emptying of the breast, plays a by no means unimportant part in the role of Mastitis.

As exciting causes, mention must also be made of continued suckling when there is a deficiency of milk from any cause, of blows or bruises, and of emotional disturbances. In these instances, possibly a passive hyperaemia is induced, and more especially if the patient is unduly weak from any cause, so that we must see to it, that the general health of the woman is not disregarded in our anxiety about local conditions.

The inflammatory process being established, we have the usual Pathological phenomena occurring - stasis, passive hyperaemia, exudation and infiltration, followed later by disintegration and Pus formation. According as the Pus is located chiefly superficial to, in the substance of, or behind the mammary gland, we have three varieties of Abscess, differentiated as Subcutaneous or Supra-mammary, Parenchymatous or Intra-mammary and Sub- or retro-mammary/

retro-mammary ; but the parenchymatous which is the most common, may by extension give rise to the other varieties and often does so more or less, while the sub-cutaneous and retro-mammary forms generally remain so.

The condition is accompanied by pain, often of a severe character, in the breast, a rise in temperature to, it may be, 103°F or more, Rigor, Sickness and Vomiting, and by recession of the Milk. The breast is tender on handling, but isolated lumps or nodules, due to different parts of the gland being involved, may be detected on manipulation. The persistence of these symptoms for any length of time with, it may be, further Rigors, further rise of temperature and increase in the rapidity of the pulse, with or without bogginess or redness of the skin, indicate Pus and demand an early incision.

It is not intended to pursue the further treatment of the case ; enough has been said to shew the gravity of the condition, to diminish the possibility of which occurrence the preventive measures, now to be taken, are designed.

Prophylactic treatment should begin in the latter months of Pregnancy. It is not always our privilege to have an interview with the patient before her confinement, but in the large majority of cases the medical man is engaged for some months beforehand, and it is no exaggeration to say that not one in ten makes any enquiry even, far less gives instructions, about the breasts. When a woman engages us to attend her in her Accouchement, we surely put a very narrow constriction on our duty, if we think it ends with the delivery of the child. It

cannot/

cannot be that a sense of delicacy has prevented medical men in the past, from giving preliminary treatment to the breasts - it would be nearer the truth to say, that they did not realise the importance of preventive measures.

(a) We should insist in all cases, multiparae equally with primiparae, that the breasts and nipples during the last three months of Pregnancy be exposed daily, washed with Soap and Water and thoroughly dried. At the same time the nipple should be gently elongated with the thumb and finger, especially if it be depressed or retracted - anything like dragging on the nipple when depressed, is to be depreciated at this stage, in that unnecessary pain is inflicted for a questionable improvement, and the danger of Abortion is not to be ignored. If the nipple and Areola be unduly sensitive, they should, after washing, be sponged with Alcohol and Water, or Eau-de-Cologne and Water. In other cases where the nipple is inclined to crack, from the dryness of the parts, emollients e.g. Cold cream or Vaseline should be applied, after the usual washing and drying.

Tight fitting clothing and corsets should not be allowed at this period, as they interfere with the physiological development of the glands, and the latter (Corsets have a detrimental effect on the nipple, which tends to counteract the other beneficial agencies employed.

These are measures that can be undertaken by all and sundry by reason of their simplicity. If they were faithfully carried out, sore nipples would be much less frequent at the puerperium, and a medical man with any tact can give instructions for their fulfillment, without in any way embarassing the patient or himself.

(b)/

(b) If the breasts have been prepared in the manner indicated, much anxiety will be spared during the puerperium ; but it may be the case, and it often is so in Country practice, that we see the patient now for the first time. It is a fortunate circumstance that the predisposing factors to Mastitis, are most potent during the first two or three weeks of the puerperium, when the medical man in the majority of cases is in attendance. We should not wait, as is so often done, until the woman complains of her nipples or breasts being sore - we should anticipate the conditions as far as possible, and with an intelligent co-operation on the part of the patient, it is astonishing how smooth the course of Lactation can be.

The breasts should be examined shortly after delivery and note taken of the fulness, or otherwise, of the glands and also of the condition of the nipples. If a multipara, enquiry should be made as to previous lactations, whether the milk was abundant or scarce, whether the nipples were tender or cracked, whether she nursed the whole, or part only, of the usual period, and if the latter what reasons induced her to give up nursing : in the light of this knowledge, we may be able to avert a recurrence of the former troubles and so enable her to nurse with comfort to the period of weaning, or the information may be such, as make us disallow nursing at all. The conditions that contra-indicate nursing will be dwelt on later, and the steps to be taken after delivery and now to be indicated, are to be held as applying when contra-indications do not exist.

The mother should be instructed to put the child to the breast, in 6 to 8 hours after delivery ; apart from the/

the beneficial effect in inducing uterine contractions, this early procedure is indicated for its stimulating effect on the mammary secretion. On the other hand there are practitioners, who hold that it is bad practice to put the child to the breast, till 48 hours at least have elapsed, as the milk is not secreted in any quantity till then ; consequently the child, wearied with its early ineffectual efforts, refuses the breast altogether. The mother is also put to unnecessary fatigue, and the constant dragging at the nipple, at a time when the gland is only partly replete, is detrimental to the breast and nipple. If the child were put to the breast constantly after the lapse of 6 or 8 hours, there would be some validity in the latter objection ; but for the stimulating effect on the uterus and mamma that is desired, long and frequent applications are not required. It is only necessary to suckle the child for a few minutes, to repeat the process once the same day and 4 or 5 times the following day. Great variations occur in the amount of milk secreted by different women in the first 2 days of the puerperium, and while it is the rule that it is scanty in the majority of women, and especially in primiparae, it is an undoubted fact that in some cases, if the child were not applied until the end of 48 hours, the distension of the breasts would cause much suffering to the woman, and in many cases lead to retracted nipples becoming more depressed.

The nipples should be washed and dried before, and after, each application of the child to the breasts - the procedure becomes a habit by the time the woman is able to get up and attend to her household duties. The

mouth/

mouth of the child should be cleansed after each nursing, and the formation of aphthae thus averted. After the first few days, regularity in the feeds is essential, as it conduces to a more harmonious secretion of the milk by the breast being emptied at each nursing, as does occur when a healthy child is applied at regular intervals.

The breasts must be kept warm and dry.

(c) For efficient suckling a well-developed nipple is almost a Sine qua non, but unfortunately owing to our customs, and notably that of dress, the nipple often is unable to be grasped by the infant. It is no use trying to suckle the child at the breast, if there be congenital malformation of the nipple - persistence in the attempt only exposes the woman to grave risk of Mastitis, and discourages the child to take the other, which may be quite fit for nursing. This applies also to inverted nipples on which traction has no effect, and to those cases where the nipple is so flat, as to be almost indistinguishable from the adjacent areola. In comparison with multiparae, the nipples of primiparae are as a rule small, but if they have been prepared in the manner indicated during the latter months of Pregnancy, the establishment of the mammary secretion leads to their further development, and the child soon grasps them without difficulty. If there has been no preliminary treatment and the nipple is somewhat small and flattened, it should now be gently ~~dr~~ drawn out with the fingers before each application of the child. Assuming that even with this the child cannot retain it, it is quite legitimate to try other means, and in our opinion buccal suction answers best. There are occasions when this cannot be done, and then resort may be had/

had to an exhausted medium e.g. breast pump, or a narrow bottle in which a vacuum of a kind may be produced, by filling it with boiling water and applying it over the nipple, immediately after pouring out the water.
Nipple shields for this condition are often employed, but are to be discouraged for different reasons:
(1) You are sanctioning a process that will require to be continued during the whole of lactation, because the child refuses to take the nipple, when it can grasp the artificial teat so much more readily (2) You are bringing into very frequent contact with the breast an exterraneous body, the cleanliness of which cannot always be vouchsafed, so that the exciting cause of Mastitis is daily waiting its opportunity (3) You are using an agent which has absolutely no power to draw out the nipple - when it seems to be of service, it simply means that the child could quite well have suckled without artificial means.

(d) Sore nipples. In discussing the Aetiology of Mastitis we saw the important part played by sore nipples, and the necessity of immediate treatment of the condition will at once be admitted. Various remedies have been lauded by different authorities, and probably in their respective hands their efficacy was unquestionable. The secret of their success no doubt lay in the faith of the Doctor in his particular remedy, so that the treatment would be carried out continuously and thoroughly ; similarly it is our belief that sore nipples would be rarities, if the prophylactic measures already indicated were universally followed. Still when we meet them we must be prepared to combat them, and so it will be advantageous to review what/

what different men advocate.

" When the nipples are merely excoriated " says Rigby (7) "or there are fissures in them, they should be bathed with tepid Lotio Plumbi, or a solution of Zinc. Sulph. in rose water, which must be carefully washed off before applying the child to them."

Astringent lotions also found favour with Conquest (8) as he writes- " These objects (i.e. diminishing the sensibility of the nipples) may also be secured and superficial ulcerations healed, by a solution in distilled water of the Sulphates of Zinc, or Copper, or Alum, or Nitrate of Silver, of such strength as will , upon application, produce a slight degree of pain."

Spiegelberg (9), who, it should be stated, fully recognised the importance of preventive treatment, favours excoriated and fissured nipples being "kept constantly covered with rags dipped in tepid 5 per cent. Carbolic Water. This heals them very rapidly, of course before every application of the child, the nipple and its areola must be carefully cleansed and washed. This is the best plan that I know of and does away with the necessity for a nipple shield ; or the latter might be worn temporarily between the nursing periods, merely to prevent the nipple from being pressed and rubbed by the clothes."

For sore nipples Playfair (10) " found nothing answer so well, as a lotion composed of half an ounce of Sulphurous Acid, half an ounce of the Glycerine of (~~Tannin~~) Tannin, and an ounce of Water, the beneficial effects of which are sometimes quite remarkable."

"For a distinct and deep fissure, whether situated at the apex or the base of the nipple, the solid stick of Nitrate of/

of Silver, applied carefully and only to the fissure is perhaps the most efficient treatment. This application may often with advantage be followed a day later, by careful coaptation of the surfaces of the fissure by pressure with the fingers, the coaptation being thus maintained until the fissure is permanently held together, by a few drops of Collodion and a thin film of absorbent cotton." (11)

The term 'sore nipples' embraces a variety of conditions, hypersensitive, eroded, fissured and Eczematous all being included, so that the treatment necessarily varies.

If the nipple is unduly sensitive or angry looking, a spiritous solution, or weak astringent lotion (e.g. Zn SO4 gr ii ad ℥i of water) should be applied with camel hair brush, or soft pieces of linen soaked in the solutions may be left in contact with the nipple and areola in the intervals of suckling, care being taken to wash the nipple before each nursing, if an astringent be used. If the surface of the nipple be eroded, of if a fissure be present, nothing has seemed to me so beneficial as a Lead nipple shield, worn continuously in the intervals of suckling. Immediately the child has ceased suckling, and without drying the nipple, the shield should be applied - Before the child takes the breast again the nipple should be wiped with a damp sponge, but anything like thorough washing of the nipple is to be avoided at this stage. The relief that follows in a few hours is quite unmistakeable, due in part to the nipple being protected from the friction of the clothing, but probably most of all to the soothing and salvative influence of Lactate of Lead, which is formed by the action of/

of the milk on the leaden shield.

In the intervals of nursing the affected breast should be supported by a sling.

Sometimes the pain of a fissured nipple is so severe, that the mother shrinks from the application of the child to the breast. In such a case, glass nipple shields with attached rubber teats have a legitimate field of utility, as they may prevent the necessity of weaning. It is important that the shield be fitted accurately and it should be filled by expressing milk from the breast before applying the child, so that it is better in every case for the medical man to supervise the first application. The shields (it is wise to have more than one) in the intervals of non-use, should be steeped in a saturated solution of Boracic Acid and used alternately, after rinsing in plain water. Strict antisepsis is here clearly indicated, but I am not at all in favour, as advocated by some, of using antiseptics, however mild, for the breasts of the mother and the mouth of the child after each nursing. There are occasions when such steps may be indicated, but as a routine practice I hold more harm than good results, just as I am convinced that routine douching in every case of Labour, is responsible for many a complication that would otherwise never have arisen.

When the fissure is deep and at the base of the nipple, you have a serious condition to treat, and grave is your responsibility both to the mother and the child. Two courses are open either (1) to continue suckling and apply your remedies meanwhile to the nipple or (2) to discontinue suckling at least for a time, so that your local remedies may have a better chance. The former

Course/

course must always be attended by grave risks, in as much as the fissure may be kept open indefinitely by the act of suckling, and the pain is so acute, that the breast is only imperfectly emptied by each nursing ; so that the two most potent factors in Mastitis i.e. sore nipple and lacteal engorgement are constantly present. On the other hand, lacteal engorgement can quite well be prevented by the means to be enumerated in the next Section, without the fissure being constantly dragged upon, as is done by suckling. As regards local treatment our object is to get quick union, and one thorough application of the solid stick of Nitrate of Silver to the base and edges of the fissure, seems to effect this more certainly than other remedies. The coaptation of the edges of the fissure in a day or so, as advocated by Norris and Dickinson (11), with a film of Cotton Wool and Collodion, aids the process of repair. In the course of three or four days in the majority of cases the child can be again put to the breast, but it is better to use a glass nipple shield for a few days after recommencing suckling.

Eczema of the nipple during lactation is a stubborn affection to treat, and often necessitates weaning of the child. If the process is acute with exudation, crusts should be removed by a starch poultice, and then some sedative ointment applied e.g.Ung. Bism. Oleatis. Before the child takes the breast, the nipple should be wiped with a damp cloth or sponge - thorough washing is not advisable, as the constant irritation delays the process indefinitely and there is no danger to the child from the ointment indicated. It is in the chronic form, characterised by infiltration and cracking, that we experience/

experience most difficulty, Here stimulating treatment is demanded and remedies such as Resorcin and Liq. Carb. Detergens must be thoroughly removed by washing, before each application of the child. In no case can we say beforehand how much success is likely to reward our treatment, but in most cases we should give our remedies a fair trial, before advising the discontinuation of suckling.

(e) Mammary Engorgement is a condition, that by reason of its frequency and gravity, demands careful attention. It may arise at any period of lactation, but is most common at its establishment and at the period of weaning, being however fraught with more danger at the former. Cold, secretion in excess of the needs of the infant, imperfect emptying of the gland from irregularity in the nursing, from weakness on the part of the child or from the pain e.g. of a sore nipple, preventing the mother giving the breast due time, may likewise give rise to it. Swelling of the breast results, with distension of the superficial vessels : pain and a feeling of malaise are the symptoms with, it may be, a pyrexia of a few degrees. The indications for treatment are (1) to relieve the engorgement and (2) to avert excessive re-accumulation. The former may be met by emptying the Gland with the breast pump - the latter by administering a saline purge for 2 or 3 successive mornings, by a dry diet, by massage, by support and by keeping the breasts and shoulders lightly clad. There will be no need probably for using the breast pump more than once or twice, if the latter means are adopted to prevent re-accumulation.

Massage of the breast, if judiciously employed, is an excellent/

excellent means of preventing engorgement, and relieving the discomfort or pain of increased tension. The term massage embraces many manipulations which have been divided by Schreiber into 2 classes 'Stabile' and 'Labile', the latter embracing stroking, rubbing and kneading, the two former being most applicable to the breast.

The stroking movements with the separated fingers should at first be very gentle and directed from the periphery towards the nipple ; deeper pressure should gradually be made, and any segment of the gland that is unduly knotty should have more continuous treatment. We must be guided to a certain extent as to the degree of pressure and duration of treatment, by the feelings of the patient, but as a rule 8 to 10 minutes suffice. For a further space of 5 minutes or so, the breast should be rubbed in a systematic manner. The hand should be placed somewhat firmly on the periphery of the Gland, and worked in a sort of rotatory fashion towards the nipple, deeper pressure being exercised over any lump or knot that may be present. At the end of these manipulations, the breast should be suspended by a sling from the opposite shoulder. If the breasts are very pendulous or heavy, a double spica bandage seems to give more support. It is not advisable to repeat the process more than twice in the day if it has been done thoroughly in the manner indicated, and it has seemed to me to be of more utility after the use of the breast pump, or after the child has suckled. To massage a breast that is intensely gorged with milk, seems to me bad practice - you give the woman very severe pain, and indeed may induce sickness, without attaining your object i.e. the emptying of the breast, besides indirectly/

indirectly doing damage by losing the confidence of the woman, and consequently also what is necessary for the success of your treatment i.e. her efficient co-operation.

The measures above enumerated, needless to say, are only of a temporary nature with a view to the continuance of suckling - when however the engorgement is due to Galactorrhoea it is essential that suckling be discontinued entirely, as the drain on the mother, generally weak to begin with, is excessive and the milk is of an unsuitable quality for the infant. In this condition besides discontinuing suckling, the remedies already indicated for mammary engorgement must be employed, and the patient put on tonics.

(f) Deficiency in the amount of milk secreted and a weak general state of health were, as we saw, predisposing factors to Mastitis. As the former has an intimate relationship with the latter, the two may be conveniently discussed together. The milk of a delicate woman besides being deficient in quantity, is also of a poor quality. Provided there is no organic disease, a somewhat frail constitution and deficient milk supply need not necessarily imply weaning of the child. The quantity and quality of the milk are influenced in a marked degree by the diet of the mother, the introgenuous elements being most productive. "Stewed eels, oysters, and other kinds of shell fish are recommended by Dr Routh as particularly appropriate" (12). This necessitates good digestive powers, and in the cases under discussion indigestion is a frequent complication. Stomachic Sedatives may occasionally be required, but it is more important to see that the patient leads a well regulated life in good/

good hygienic surroundings, and takes a moderate amount of exercise in the open air daily. The appetite can be advantageously stimulated with a bitter tonic taken before food e.g. one or other of the preparations of the barks with some Nux Vomica. Under such regimen, in the majority of cases, the patient will be able to take two meat meals in the day with relish, and without discomfort. Milk should be taken freely as the usual beverage, and the taking of any stimulant whatever is to be discouraged. Of so called galactogogues I have had no experience, being satisfied that efficient lactation must depend on other more natural means. Here the advisability of rearing the child partly at the breast and partly by alien means must be considered. Only in so far as the double process has a bearing on the possibility of Mastitis need we touch the matter, as the question of what artificial food the child should get does not concern our present purpose. In some cases by supplementing with artificial food, we are enabled to give the mammary glands longer time to secrete and the child, on being put to the breast after the prolonged interval, finding its wants capable of being gratified, takes it the more greedily. It may be that it will be necessary to continue the double process all during lactation, the mother never having sufficient milk to meet the needs of the infant, but to my mind it is an advantage to the child to have even this partial natural sustenance, and the mother runs no additional risk.

(g) On the part of the mother the various factors in the causation of Mastitis have been dwelt upon, and it remains now to notice the danger from the mouth of the child. 'Thrush',/

'Thrush', a common affection of infants, from our present point of view derives its interest from its liability to give rise to irritation, or fissure of the mother's nipples. Due to a fungus (Oidium albicans) its growth is encouraged by the presence of inspissated milk in the mouth, and hence the importance of washing with a damp cloth or sponge, as already advocated, the mouth of the infant after each feed. When the disease is established, the small white patches characteristic of the affection, must be removed by means of the finger and a damp cloth. To the denuded surface, as well as to the general buccal cavity, a solution of Boracic Acid in Glycerine and Water (Ac. Boracic ʒss Glycerini ʒii aq ad ʒi) must be thoroughly applied by means of a brush or rag, the latter having the advantage of being easily replaced by a fresh piece for each application. The same treatment should be continued for 3 or 4 days after all patches have disappeared.

After each nursing the mother should wash the nipples and breasts with a saturated solution of Boracic Acid, then with tepid water and dry them thoroughly. An antiseptic lotion is here necessary, and we should insist in such cases that it be used by the mother as indicated.

Stomatitis, other than the parasitic form above mentioned, is of later occurrence and is frequently present at the dentition period, and when gastro-intestinal disturbance arises from any cause. The cause being different, the treatment necessarily varies and in addition to local remedies, some alterative or stomachic like Grey Powder or Rhubarb must be given internally.

Of local remedies a solution of Chlorate of Potash

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(Potass Chlor gr. V-X Aq ad ℥i)answers very well.
If ulcers form in addition, it will be necessary to touch the obstinate ones with a Caustic e.g. blue stone.

In the foregoing we have assumed that nursing was possible, but there are certain conditions on the part of both mother and child that contra-indicate it. A recognition of these states is necessary - to advise nursing in their presence is to encourage disaster. To attempt nursing when there is congenital malformation of the mammary glands or imperfect development of the nipples, is futile so far as the child is concerned and exposes the mother to the risk of Mastitis. Galactorrhoea we also saw was a contra-indication. Certain constitutional diseases debar suckling, as a rule for reasons other than the likelihood of their predisposing to Mastitis, e.g. Phthisis, Diabetes, Bright's disease, recent Syphilis in the mother, and highly neurotic temperaments. Mere weakness of constitution does not we saw, necessarily contra-indicate nursing, but if Anaemia, either primary or secondary, be pronounced, there should be no attempt made at nursing.

Acute febrile diseases as a general rule, must be held as contra-indications. On the part of the child much prematurity in the birth and deformity of the oral cavity e.g. hare-lip, contra-indicate suckling, because in both cases engorgement of the mammary glands persists from the ineffective applications of the child.

(i) As long as lactation continues there is certainly a possibility of Mastitis supervening and more especially at the periods of dentition and weaning - at the former by reason of injury to the mother's nipples and at the latter because/

because of the stasis that is apt to occur. I maintain that the risk at these periods is greatly minimised by the measures adopted before and during the puerperium, partly by reason of the fact, that the breasts have been put in the best possible condition for continuing their function, and partly because the mother, realising the importance of any departure from ~~the~~ her usual state, will call in her medical man at the onset.

It is the conviction that Mastitis is in great measure preventible, if every medical man would only insist on preliminary treatment of the breasts, and supervise the mammary conditions of each puerpera in the same way as he does the Uterine conditions, that has led me to submit the present Thesis. It claims no Specific, but I venture to hope that it sets forth the gravity of Mastitis to both mother and child, the various factors concerned in its Causation and the means by which the action of these agencies may be nullified, in a manner to justify its production.

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F I N I S.