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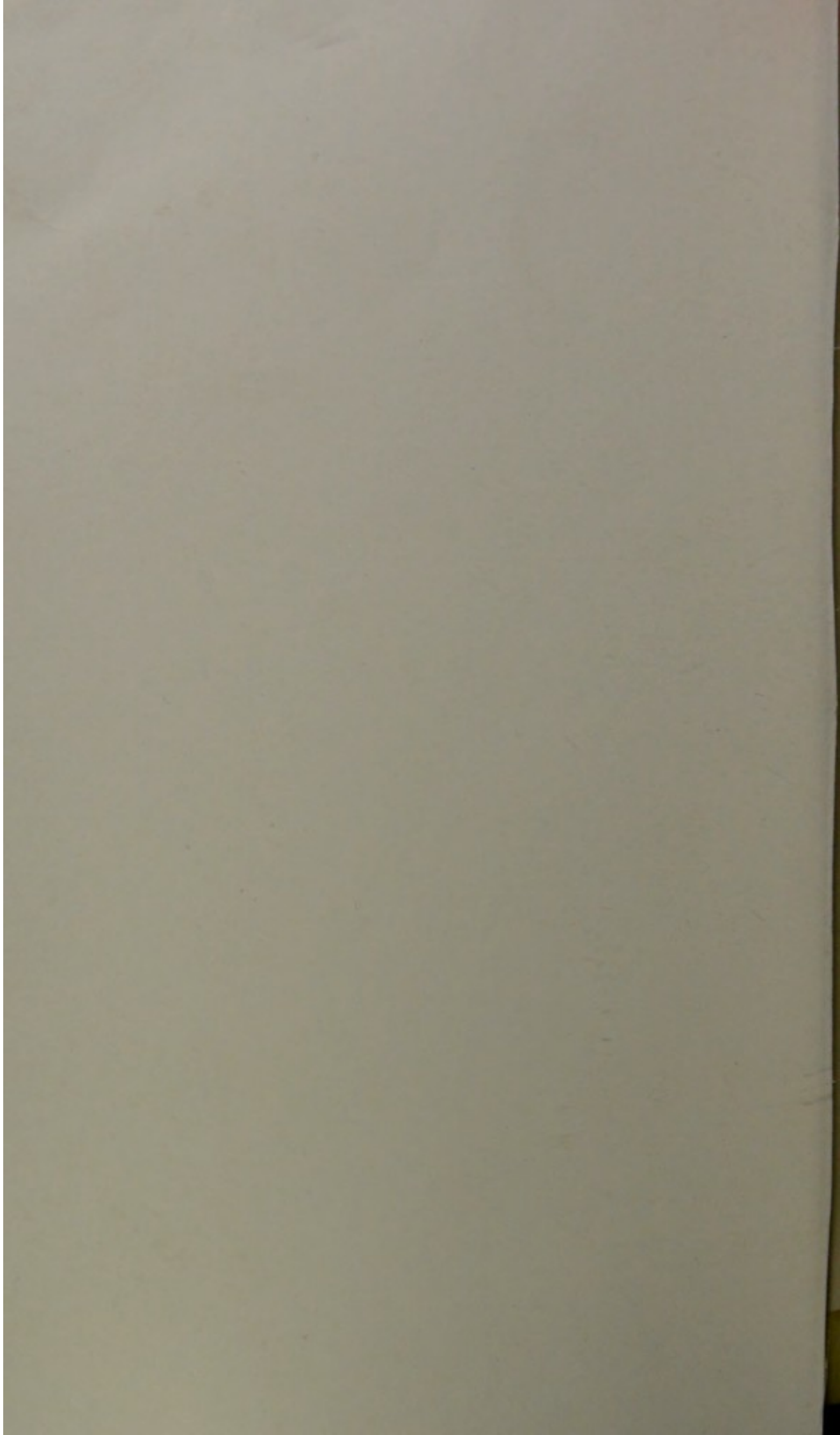
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With the author's comments

ON THE

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MANAGEMENT OF THE NIPPLES,

BY SAMUEL SLOAN, M.D.

FELLOW OF THE OBSTETRICAL SOCIETY OF LONDON;
FELLOW OF THE FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW;
ASSISTANT PHYSICIAN-ACCOCHEUR GLASGOW LYING-IN HOSPITAL.

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REPORT OF THE

ON THE
MANAGEMENT OF THE NIPPLES.

THE management of the nipples, though not a subject which has in view directly the preservation of human life, is yet one demanding the attention of every thoughtful and judicious practitioner ; for, does it not involve the health and comfort of the gentler, and, in the present state of society, the more sensitive to pain of the human race ; the careful thought for and kindly treatment of whom by their sterner brothers may make the latter less amenable to the accusation, so often made in our day, that they are incapable of ministering to the wants of the other sex ? And how often is the practitioner's anxiety aroused by this, as some would think, small matter ; for it not only involves the safe recovery of his patient, but also, it may be, his own reputation ; since few of us engaged in midwifery practice can fail to have observed that it is frequently not our skill, in difficult obstetric operations, that secures for us the confidence of our patients, but rather the success with which we manage to guide our case on to complete convalescence without a single hitch.

In considering the anatomical structure of the nipples, it will be necessary to study also the structure of the glands to which they may be said to act as excretory ducts. "The position of the mammary glands is interesting ; though uterine appendages, they are not, as in some mammalia, in close proximity to the ovarian apparatus ; but, as if showing that the instincts should be subjugated to the control of the reason, and the helplessness of the infant made the means of moral training to the mother, they are, in the human species, brought towards the anterior, the nobler portion of the body."

Following the arrangement of Sir Astley Cooper, and adopting his description to some extent, I shall consider the individual parts of the mamma from without inwards. The nipple is not placed in the centre of the breast, but near the abdominal region of the gland. It projects forwards and outwards, with a slight turn upwards, and is thus adapted to the position of the mouth of the infant as it lies in its mother's arms. In the virgin it is a rounded cone, and nearly smooth until puberty; but in the lactating woman its extremity is flat and cribriform, on account of the openings of the lactiferous tubes. At sixteen years this surface is slightly wrinkled; at seventeen it is covered with small papillæ, whilst from twenty till forty these papillæ are large. This alteration of the surface broadens the nipple, and renders the adhesion of the child's mouth firm and more complete. The substance of the nipple consists of the common integuments—fascia, milk-tubes, blood-vessels, nerves, lymphatics, elastic tissue, bundles of muscular fibres, and connecting cellular membrane. The cuticle is here extremely delicate, and enters with the rete mucosum into the lactiferous tubes. The cutis forms a considerable portion of the nipple; it is composed of a great number of papillæ, which produce a vascular and sentient surface. The direction of these papillæ is from the base towards the apex of the nipple, so that they are pushed back as the nipple enters the mouth of the child, the papillæ of which are directed from within outwards, and thus greater excitement is produced. These papillæ form, in their arrangement on the nipple, broken portions of circles, and are numerous and large for the size of the part; they are also very vascular and sensitive. According to Cazeaux, in the bottom of the creases separating them, are the orifices of great numbers of sebaceous glands. Through the substance of the nipple, from base to apex, pass the lactiferous tubes—fifteen to twenty in number—in a straight course, terminating in very minute apertures, considerably narrower than the ducts themselves. The nipple is carefully connected with the gland by means of a firm fascia encircling the lacteal tubes, derived from the general fibrous tissue of the breast. Of the *areola*, it may suffice to say that its whole structure

points to it as a continuation of the nipple; its papillæ are smallest at the circumference, but gradually increase in size as they approach the nipple. It is also provided with muscular fibres, disposed around the nipple in close concentric circles, which become more widely separated towards the edge of the areola, where they finally disappear. The skin-muscle thus formed, compresses the nipple when it contracts; under its action also the skin of the areola contracts and wrinkles when the nipple is tickled. Beneath the skin of the areola the lacteal ducts form dilatations, or reservoirs. These are more abundant at the lower portion of this part of the breast; the importance of which will be obvious when we study the position of the child in its mother's arms and at the breast. Its cheek is then pressing on, and therefore pressing out the milk from this engorged portion of the areola; whilst its nose, through which alone it can then breathe, is free from pressure, on account of the less engorged condition of the upper part of the areola.

We have now only to review briefly the structure of the mamma proper. A racemose gland, like the parotid and the pancreas, it is composed of fifteen to twenty or more lobes, according to the number of the orifices of the lactiferous ducts at the apex of the nipple. Each lobe is composed of a certain number of smaller and smallest lobules; and these, lastly, of gland vesicles. The size of these vesicles in full lactation is, according to Sir Astley Cooper, that of a hole pricked in paper by the point of a very fine pin.

The smallest lobules consist of a cluster of rounded vesicles, which open into the smallest branches of the lacteal ducts; these ducts uniting, form larger ducts, which terminate in a single canal—the lacteal tube of that particular lobe—which, when it reaches the areolar portion of the mamma is dilated, to be again contracted at the base of the nipple, as we saw before. These lobes of the breast are separated from each other by a fibrous envelope, and surrounded by fatty tissue. It may also be remarked that “the margins of the breast do not form a regular disc, but the secreting structure often projects into the surrounding fibrous and adipose tissue,

so as to produce radii from the nipple, of very unequal lengths."

Before leaving the anatomical part of our subject let us consider the abnormal condition in which we sometimes find the nipple. Retracted nipples may be simply normal nipples drawn in afterwards, as by old cicatricial bands, or pressed in, as by a tight dress. But, probably more frequently, retracted nipples are the rudimentary state of the nipple remaining persistent throughout life. An interesting case of perfectly developed breasts with imperfectly developed areolæ and nipples—the latter being retracted and as small as a child's—is related by Dr. Matthews Duncan in the first volume of the *OBSTETRICAL JOURNAL*.

In the virgin state the colour of the nipple and areola differs comparatively little from the surrounding skin. According to Dr. Montgomery, the first alteration perceptible is "a soft and moist state of the integument; this state appears to be caused by infiltration of the subjacent cellular tissue, which, together with its altered colour, gives us the idea of a part in which there is going forward a greater degree of vital action than is in operation around it; and we not unfrequently find that the little glandular follicles, or tubercles, are bedewed with a secretion sufficient to damp and colour the woman's inner dress. This change generally takes place about the ninth week of pregnancy, and the result is a considerable increase in the size of the nipple. During the progress of the next two months the changes in the areola are in general complete or nearly so, and then it presents the following characters:—A circle round the nipple, whose colour varies in intensity according to the complexion of the individual. In the centre of the coloured circle the nipple is observed partaking of the altered colour of the part, and appearing turgid and prominent, while the surface of the areola, especially that part of it which lies more immediately around the base of the nipple, is studded over and rendered unequal by the prominence of the glandular follicles, which, varying in number from twelve to twenty, project from 1-16th to 1-8th of an inch." These follicles are possessed of excretory ducts. With respect to the contents of the lacteal

ducts before parturition I quote from Kölliker as follows:—
“It is remarked that, except at the periods of lactation and pregnancy, the glands contain nothing but a small quantity of yellowish viscid mucus, with a certain number of epithelial cells, and are lined up to their extremities by an epithelium. With conception this state of things is altered. The cells of the gland-vesicles begin to develop, at first a little, and subsequently more and more fatty matter within them, and to enlarge so as to entirely fill the terminal vesicles. To this is added, before the end of pregnancy, a new formation of fat-containing cells in them, by which the older cells are forced into the lactiferous ducts, which they gradually fill. Thus it happens that, though a true secretion is not at that time set up, still in the latter half of pregnancy a few drops of fluid may be expressed from the gland, which, as shown by its yellow colour, is not milk; but nevertheless contains a certain number of fat globules from the more or less disintegrated fatty cells, exactly resembling the subsequent milk globules, and also contains such cells either with or without a tunic—the so-called colostrum corpuscles. On the commencement of lactation after parturition, the cell-formation in the gland-vesicles proceeds with excessive energy, in consequence of which the secretion collected in the lactiferous ducts and gland-vesicles is evacuated, as the colostrum or immature milk; the true milk taking its place.”

Thus we find that, immediately after parturition, the nipple is, as compared with the virgin condition, projecting, turgid, sensitive, and with its lactiferous ducts filled with colostrum. The child, as a rule, is applied to the nipple at an interval of from six to twelve hours after birth. It grasps the nipple and part of the areola in its mouth, and there results, during the act of sucking, compression of the nipple by the child's gums, friction with its tongue and suction by the anterior part of its mouth; the last resembling the operation of cupping; and, besides extracting the fluid contents of the ducts, acting also on the vessels of the nipples, producing engorgement. As soon as the secretion of milk has taken place the breast and nipple become distended, heated, and increased in sensibility; and, though now the

milk will be more easily withdrawn by the child, the nipple is at the same time in a less protected condition. These results will, of course, be all exaggerated if the nipple is retracted ; as then more forcible suction will be requisite to draw out the nipple ; whilst, in some instances, this difficulty may be insuperable.

This brings us to consider the affections to which the nipples, from the foregoing considerations, will be liable. Probably the first suction of a strong child on an average nipple removes all its sebaceous matter, opens up the orifices of the lactiferous ducts, by withdrawing the plugs of hardened colostrum which may have obstructed them, thins the epidermis by solution, and produces to some extent at least extravasation of blood under the cuticle. Of course the extent of these results will also materially depend on the length of time the child remains at the nipple. When the child relaxes its hold of the nipple after the milk has appeared, were we then to examine the organ we would find it covered with milk mixed with the acid saliva from the child's mouth, and with but little, if any, of the natural unctuous matter on it. In this condition let the nipple be exposed to the cold air and the result will be a drying of the part, which will then become hard and irritable, with probably some exudation from the parts in which the epidermis has been partially *eroded*. Repeated sucking will exaggerate this, by removing the scabs ; and we have then *excoriated* nipples. From this results partial destruction of the cutis, causing *ulceration* of the nipple. *Fissure* is an elongated ulceration, generally deeper than the simple excoriation. It forms at the bottom of the furrows and takes their direction ; sometimes, and then most painful, it occupies the grooves separating the base of the nipple from the rest of the skin. *Cracks* are an exaggeration of fissures ; they differ from the latter by the cracked, swollen, and extremely sensitive condition of the surrounding skin. The reason that these conditions most frequently affect the apex of the nipple, is explained by M. Deluze to be the reception of the nipple in the gutter formed by the tongue and soft palate of the child ; the efforts of suction thus telling on the tip of the nipple, which is then unsup-

ported, and the epidermis of which gives way. Fissures and cracks may also be produced mechanically by violent tractions on the nipple during sucking. It will readily be imagined that so vascular an organ as the nipple will readily bleed during sucking, should it be in any of the conditions previously noticed, and thus an explanation will be found for what would otherwise probably excite alarm:—viz., blood in the vomit or stool of the infant. Of the pain generally attending these fissures and cracks, M. Cazeaux remarks as follows:—"When we remember the painful sensations resulting from the cracks that sometimes form on the median line of the lower lip in winter, we may imagine the effect of those on the nipple, torn as they are at each renewed attempt at sucking. The suffering is sometimes so intolerable that these unfortunates are observed to bite their clothes or coverings to avoid crying out; whilst others writhe, or are even affected with convulsive movements." Nor need these affections end here; for besides the almost complete separation of the nipple, which may sometimes be connected to the breast by its lactiferous tubes only, we have a whole train of mammary symptoms. And so much does the nipple, when diseased, influence the breast proper, that Dr. Churchill "believes this to be one of the most frequent causes of abscess;" this result arising sometimes from the passage of the inflammation from the nipple along the lymphatics; at other times from obstruction of one or more of the orifices of the lacteal ducts; or again from the continuation of the inflammation to the tissue of the areola, and thence to the breasts. The situation and character, therefore, of the mammary abscess will depend on the condition of the nipple which produces it.

Let us consider now the treatment of the more common affections of the nipples. And here we are met by no paucity of so-called remedies; for I question if any disease has so many specifics, each individual practitioner having his favourite ointment or lotion as a cure of tender nipples. Nor are we at the present date much further advanced in this matter than were the contemporaries of the American, Meigs. Writing about thirty years ago, he says:—

“There can be no surer proof of the difficulty of curing any disorder than that drawn from the vast variety of remedies for it. It is well known that the remedy for intermittent fever is the Peruvian bark, or its preparations—everybody is agreed on that point: so also mercury is a proper remedy for lues, which few persons doubt. But, as to sore nipples, the whole world seems to have been ransacked for *cures*, and in a thousand lying-in rooms we shall find a thousand different *cures*, which, after all, are not capable of curing the malady. For my own part, I do not believe in the cucumber ointment so praised by Velpeau, nor the unguentum populeum, nor the lead water, nor the castor oil, nor the borax and brandy of Sir Astley, nor the infusion of green tea, nor the slippery elm bark. I make it a point to examine the sore nipple for myself.” So far so good; but, having examined the nipples, we find that his treatment afterwards, though begun on good general principles, consists mainly in *another* ointment, which, as he puts it, “causes the cure to be soon effected;” and that the essential ingredients of *his* ointment are deer’s suet and scraped pippins, for the preparation of which he is careful to give minute instructions.

Perhaps the most satisfactory account of tender nipples and their treatment will be found in Dr. Fordyce Barker’s work on puerperal diseases. After enumerating the varieties of sore nipples, he insists that the nature of each particular case be ascertained before a course of treatment is determined upon. His treatment may be summed up thus:—In the early stage, when the nipple is simply sensitive and tender, nothing is more likely to prevent ulceration than the formula recommended by Prof. Wilson of Glasgow:—Plumbi Nit. gr. x—xx; glycerin. ℥i. M. In the early stage of erosion use comp. tinct. of benzoin, 3 or 4 coats, with nipple-shields if possible. If ulceration, stop nursing from that nipple, empty the breasts by gentle rubbing only, paint over ulcerated surfaces with nitrate of silver gr. x to ℥i. water, and dust with dry powder. To cure fissure or crack, pencil with nitrate of silver, and then cover with collodion; if uncomplicated they will be easily healed. Should there be inflammation of the nipples, which is sometimes the cause and

sometimes the consequence of excoriation, first use a soft bread-and-milk poultice and then lead and opium lotion. After the inflammation is so much subdued that nursing can be borne, apply a lotion of the glycerine of tannic acid.

Dr. Tilbury Fox says:—First, great cleanliness and care to remove all the milk after each time the child comes from the breast, and if the nipples are tender and excoriated use the following:—Liq. plumb., prepared calamine, glycerine, and lard, with lead nipple-shields to exclude the air and protect the parts.

Mr. Birkett's treatment may be summed up in "frequent ablutions with warm water, avoiding irritating lotions and ointments, and using glycerine, almond oil, and dry powders."

M. Cazeaux writes:—"Unfortunately the curative means hitherto employed leave much to be desired. They are, however, numerous, and I know of no disease against which so many ointments, solutions, &c., have been recommended; but here, as is always the case in therapeutics, abundance means dearth; there is much less searching when an infallible remedy is at hand." And then he proceeds to enumerate the means adopted by different writers. For example:—Trousseau advises, for excoriations or fissures, to try, first, lotions of warm water, followed by a weak solution of nitrate of silver; if not sufficient, solution of sulphate of copper or zinc; and finally, if persistent, white precipitate (precipitated calomel) ointment. M. Dubois tried without advantage oil of cocoa, nitrate of silver, collodion, and creosote. The first acts, like other fats, by protecting from the air; the collodion became detached; creosote was painful, and the smell repugnant to the child.

Cazeaux believes that cauterisation may give rise to phlegmonous inflammation of the breast; and that, if nursing be resumed too soon, the ulcers are torn up again. Mr. Startin, a London physician, extols glycerine; it absorbs moisture from the air. The following are his formulæ for excoriations and fissures:—Gum tragacanth pure, \mathfrak{z} ij to \mathfrak{z} iv; lime-water, \mathfrak{z} iv; rose-water, \mathfrak{z} ij; purified glycerine, \mathfrak{z} j. M. A soft jelly. To be used as an ointment or embrocation.

Against fissure of the nipple: \mathcal{R} Sodæ biborat. \mathfrak{zss} to \mathfrak{zj} ; purified glycerine, \mathfrak{zss} ; distilled rose-water, \mathfrak{zviiss} . M. S. Use as a lotion. And then, as if one remedy were as good as another, and giving no indication of what particular remedy is *his* favourite, M. Cazeaux adds "all these measures may be greatly assisted by the use of artificial nipples."

Schroeder advises spirits of wine, or, if very tender, weak solution of tannin; and if the nipple is small, the use of the breast-pump, before putting the child to the breast. If deep chaps, and the child cannot be weaned, he advises to cauterise the base, and dress with a few threads of charpie soaked in solution of tannin, one to thirty or fifty.

Prof. Leishman thinks there is nothing better in excoriation than strong infusion of tea. Should this fail he would try some of the endless variety of similar medicaments, avoiding such as may be prejudicial to the child, as lead. If obstinate, the following, he thinks, is admirable:—Acid tannic, gr. ij ; glycerine, \mathfrak{zss} ; ung. cetacei, ad \mathfrak{zj} . M. Should there be fissure, the above should be introduced into it by means of scraped lint. A nipple-shield he also advises to protect from the dress; and the artificial nipple if much pain in sucking. In some obstinate cases, he says, the child must be weaned.

Dr. Churchill would use a weak solution of nitrate of silver applied after each time of sucking. Mr. Druitt recommends gr. v tannin in \mathfrak{zj} water. Dr. Johnson uses the following:—Borax, chalk, spirits of wine, and water; alternating this with ointment made of white wax, almond oil, honey, and balsam of Peru. Sir James Simpson, in cases of fissure, drew the edges together, and sealed with solution of gun-cotton; succeeding so that sucking did not open them. Others have been less successful with this plan.

M. Legroux advises gold-beater's skin, fastened at its circumference by elastic collodion, and pierced at the extremity of the nipple.

And if it were worth our while we might search the works of every other writer on the subject of the nipples; and we would find him, probably, condemning the remedies of others and lauding some fancied specific of his own. And perhaps,

in one sense, this is not an undesirable state of matters ; for, with general principles always in view, that remedy in which the practitioner has most faith is likely to have the best chance ; in this case, as in others, "the best administered being the best."

My own plan, when the nipples have unfortunately become tender, is to carefully wash off the milk, after the child quits the breast, with tepid water ; then to wash the nipple with weak spirit lotion and glycerine to prevent drying ; or, if the excoriation should be more advanced, some astringent is added, as tannin or a weak solution of nitrate of silver. To protect the nipples from friction against the dress, *if the part be not inflamed*, I order a properly constructed nipple-shield, and occasionally apply a mild ointment, as oxide of zinc, to protect the skin from the repeated application of the watery solutions. If the nipple be retracted, or in any way difficult for the infant to seize, I advise that it be gently drawn out by the breast-pump, of which the best is the green ball breast-exhauster ; and, should all these measures fail to relieve the irritation, an artificial glass nipple with india-rubber teat must be *at once* applied. Of this latter apparatus I would add that it is of the utmost importance to secure one of a proper shape ; as, if too narrow, constriction of the nipple takes place, causing occlusion of the lactiferous ducts ; and, if too long, so much of a vacuum is produced between the extremity of the nipple and the mouth of the child that it is generally impossible for the child to draw the milk into the teat. The teat also ought not to be long, as it then only serves to tickle the fauces of the child. It is thus an important matter, in ordering one of Maw's glass nipple-shields, to secure a proper fit for the particular case ; as it is advisable that the child's temper should not be tried in vain attempts to extract the milk. Besides this the teat ought to be carefully cleansed from the composition which covers and impregnates it, as the smell and taste of this material may disgust the child so much that it may refuse to make another attempt. This unsavoury material may be removed by soaking the teat in whisky and then washing it. Before applying the child to this artificial nipple the latter ought

to be filled with some of the mother's milk ; or, if this is not practicable, with sweetened milk and water. Some children take so kindly to this artificial nipple that it is difficult, after being long accustomed to it, to persuade them to use the mother's nipple again. But, should only one nipple be affected, this will not readily happen, *especially if the artificial teat be small enough.* Of artificial nipples there is a great variety, but to me the one described above and sold by Maw seems to most efficiently protect the nipple ; though the shield and teat in one piece, made of india-rubber or other soft material, as softened ivory, will make suction easier for a weakly child, if it can be borne by the mother. There is, however, with its use considerable compression of the nipple by the child's gums. A good artificial nipple has yet to be devised. If the nipple-shield can be borne, and the child can be coaxed to use it, there will be little difficulty in curing the nipples on general principles. In the event of excoriation of the nipple continuing after this attempt with the artificial nipple, and ulceration setting in, there remains no course but to take the child at once from that breast till the part is sufficiently restored to permit of its reapplication. And here the careful use of a good breast-exhauster is important. For, should the breast become engorged whilst the nipple is tender, there is every prospect of abscess of the breast taking place. In my experience, no matter how tender the nipple may be, a careful regulation of the compression of the ball by the hand, with occasional relaxation of the nipple to prevent occlusion of the lactiferous tubes, will always result in the almost painless removal of the milk ; though, should the breast be hard and yet no milk come, gentle friction at the periphery of the breast may be required to expel the milk from the gland proper into the lactiferous reservoirs under the areola, whence the breast-exhauster will readily withdraw it. It will now be a comparatively easy matter to heal the nipple, since the first step in treating a disease is to remove the cause ; the impracticability of doing this rendering the treatment of the nipple so unsatisfactory. If there be ulceration, careful washing and drying of the nipple, and the application of the solid nitrate

of silver *to the part affected only*, will generally suffice. This treatment by a "tough caustic point" is, when combined with the use of the nipple-shield, a certain cure of the fissures which occur around the base of the nipple. If the part be inflamed, sedative applications or poultices will of course be the first indication. Should the affection of the nipple arise from the aphthous condition in which we sometimes find the child's mouth, the application of borax and glycerine, or chlorate of potash dissolved in glycerine, is the proper treatment for the nipple as for the mouth. I think it wise to avoid, in the selection of remedies for the nipple, any medicine which may injure the child, if sufficient care be not taken in its removal before the next application of the child to the nipple. Perhaps it may suffice to point out, regarding some recent investigations which have been made as to the quality of the milk as a factor in the production of sore nipples, that, where one nipple only is affected, this condition of the milk can have only a very limited effect as an exciting cause.

It is pleasing to pass from the too often disappointing treatment of tender nipples to consider the possibility of having the nipples perform their natural functions without the usual morbid results. In the lower ranks, from which a Maternity Hospital generally derives its patients, tender nipples are rare, since the habits of this class of society, and the more or less exposure of the nipples, in their case, to the tonic effects of atmospheric influence, will give less sensitive, because more natural, nipples. I have made inquiry at our hospital here, and I find that, out of every twenty women confined in it during the last two years, not more than one has suffered from sore nipples. This, it will readily be acknowledged, is a result much more favourable than we have in private practice. It has been customary to order, as a prophylactic, weak spirit and water, or other mild astringent, but I have seen no evil result from the application of stronger astringents. As an astringent, however, especially if strong, is likely to cause a hardening only, and not a toughening of the nipple, we may have this organ cracking as soon as the outer film of hardened cuticle is removed, on the first appli-

cation of the child to the breast. To obviate this I am in the habit of ordering the admixture of glycerine with the astringent, and the occasional application of some fatty substance, as lard. The selection of the particular astringent is, of course, of importance; but the thoroughness with which it is applied is more so. The solution I generally order is made up thus:—A large teaspoonful of dry tea is put into a two-ounce vial, one ounce of brandy and a quarter of an ounce of glycerine (Price's) are added; and, after a few days, with occasional shaking, the solution is ready for use. For two or three months previous to parturition the nipples should be thoroughly washed every night with cold water and glycerine soap, dried, and the above solution carefully brushed over the nipple, but especially around the base and into the apex. This is left on all night, and, in the morning, the lard is rubbed well in. I have frequently used glycerine of tannic acid, but have come to regard it as not sufficiently powerful. Mr. Birkett, of Guy's Hospital, remarks:—"We believe that very slight advantage is gained by the application of medicated lotions to the nipple as prophylactics against the irritation caused by sucking, and all nostrums, applied under the impression of hardening the nipple, should be scrupulously rejected." With this sweeping statement I cannot agree; nor do I fear that the application may be too severe, or that the excessive tanning of the parts may cause morbid contraction of the orifices of the lactiferous ducts; for I have seen incontinence of milk in cases where such prophylactic treatment had been carried on for months before parturition. During this treatment the dress ought to be loose; and, if the nipples are at all retracted, they ought to be drawn out occasionally by suction or with the fingers and thumb. A circular piece of some unirritating material, with a hole in the centre, might be used in severe cases.

When the child is born, and before I leave the house, I examine the nipples and breasts. If the latter are flaccid I would prefer not to put the child early to the nipple; and, when the milk has appeared, I advise the application of the child at intervals of not less than two hours, and to both

nipples at each application, giving careful instructions against letting the nipple remain in the child's mouth after it has emptied the breast, and especially against allowing it to sleep at the breast. The nipple is to be moistened with water or saliva before applying the child to it; and, when the infant quits the breast, the nipple should be washed with a mild astringent and antiseptic solution with glycerine. The mixture I prefer is as follows:—A teaspoonful each of whisky, tincture of arnica and Price's glycerine in a wine-glassful of cold water. The nipple, as soon as the infant leaves the breast, is washed with this and partially dried, and a nipple-shield at once applied to protect the nipple from friction against the dress. One of the best nipple-shields is Wansbrough's; but, after using it for some time as it is sold, I had to discard it, on account of its keeping the nipple, in some cases, too moist, and softening the cuticle; certainly a great objection to its use. To prevent this, however, it is only necessary to pierce it *over the whole of its extent* with a large needle from within outwards; and, should the nipple be scalded from insufficient piercing the rectifying of this error will suffice of itself to remove the inconvenience. I have little experience of other nipple-shields, though they may be made from a great variety of materials, and some of them might prove more convenient than Wansbrough's, to which another objection is that, though it should fit the nipple when first applied, the heat of the breast afterwards softens it; it then becomes corrugated and flattened, and thus affords little protection to the nipple. These objections could not apply to vulcanite nipple shields, one of which, for trial, I have had prepared for me and pierced by Mr. Joseph Hilliard. Though used, I believe, in America, I do not find that they are known to any extent in this country. In using nipple-shields it is advisable to have them suspended round the neck by a ribbon; and care should be taken that they are frequently washed with soap and water; and if ointments are being used with them, a strong tooth-brush will be found serviceable to cleanse out the holes. Believing as I do in the importance of protecting the nipples in any prophylactic treatment, I advise, where the expense of good

nipple-shields is a consideration, the use of a small circular piece of gutta-percha tissue, also pierced. But I suspect that, in such cases, unless care be taken to keep the gutta-percha, and the part over which it is applied, clean, pustules may form which might lead to inflammation in the deeper portion of the breast. But this need not happen; and patients have often informed me that the simple gutta-percha tissue thus applied is a considerable relief, especially when the nipples are tender. To supply the natural unctuous matter of which sucking deprives the nipple, I order the occasional application of some simple ointment, as fresh oxide of zinc; glycerine soap and tepid water easily removing it before the child goes to the nipple.

The foregoing measures, if carefully carried out, I find, as a rule, sufficient to prevent tender nipples in cases where, from the sensitive temperament of the patient, such would probably have resulted; and that this is the case, is, I think, borne out by the fact that, when the nurse leaves, and the prophylactic treatment of the nipples is more or less neglected, instead of being gradually left off, I have noticed in many cases that tender nipples begin, and this after an interval of four or more weeks of immunity from sore nipples.

To those who have been disappointed in the results of their treatment of sore nipples, and who have not put the prophylactic treatment to the test, I would strongly recommend a fair trial of the plan which I have briefly sketched.

NOTE.—While this paper was passing through the press, the following case occurred in my practice; and it illustrates the importance of examining the mouth of the infant in cases in which, notwithstanding the adoption of the above prophylactic measures, the nipples are becoming tender.—A lady, having suffered, for three months after her first confinement, from sore nipples, came under my care during her second pregnancy. Acting under my instructions, the prophylactic treatment of the nipples was begun about the end of the sixth month, and continued after the birth of the child. On the fourth day of her confinement she com-

plained that each application of the child to the right nipple was causing pain. No change in this nipple could be detected ; but on examining the infant's mouth, I found that the child was *tongue-tied*, the surface of the tongue having a tender, raw appearance, evidently from the increased manipulation of the nipple which its condition had entailed. The fold was at once divided, and at my next visit the pain had almost completely subsided ; the lady expressing her astonishment at the satisfactory result. I then learnt that her first child had also been tongue-tied, but that this had not been discovered till the child was about five weeks old.

