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ON

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THE ALLEGED DANGERS

OF

STARCH-CONTAINING FOODS

DURING THE PERIOD OF INFANCY.

BY

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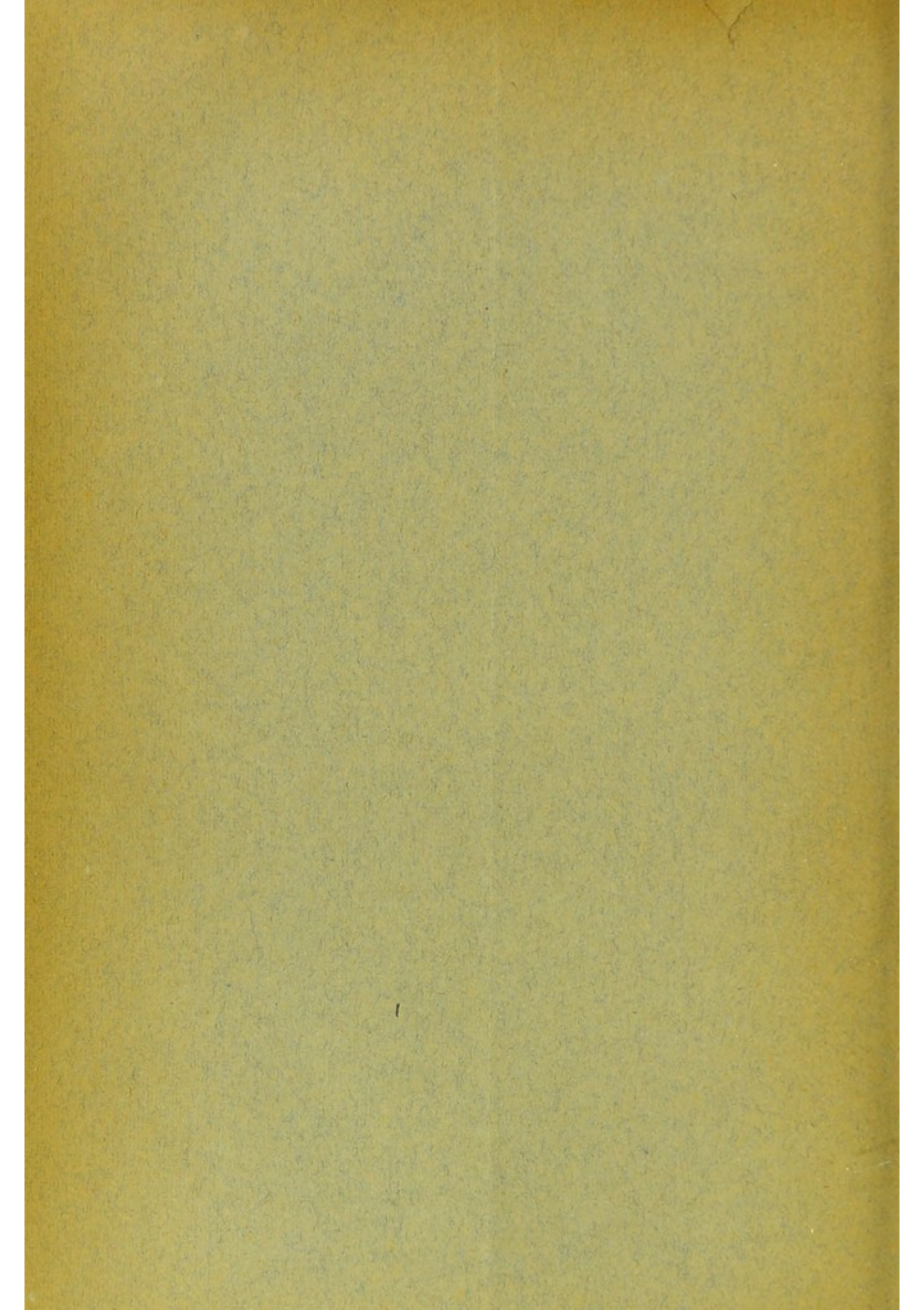
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ON THE ALLEGED DANGERS OF STARCH-CONTAINING FOODS DURING THE PERIOD OF INFANCY.

I do not think I am wrong in asserting that the belief in the dangers of starch foods during infancy is widespread, and generally accepted in our profession. It appears to me that it may be advantageous to inquire into the grounds on which this belief rests; whether these grounds are sufficient and trustworthy; or whether, in fact, this belief rests on mere "authority," independently of personal conviction founded on appropriate reasoning and experience.

Sir George Cornewall Lewis, in his admirable essay on 'The Influence of Authority in Matters of Opinion,' defines the "principle of authority" as the principle of adopting the belief of others, on a matter of opinion, without reference to the particular grounds on which that belief may rest. The belief in the dangers of starch feeding is widespread, I allow; but the mere prevalence of an opinion does not always prove its soundness;

"Non gravissimum est testimonium multitudinis"—*Cicero*.

Does the general acceptance of this starch dogma by the profession rest on "personal conviction founded upon appropriate reasoning and experience," or has it obtained currency as an abuse of the "principle of authority," as above defined?

In order to get a decided expression of opinion on this point from the Fellows present, I will state somewhat dogmatically the opinion I have come to adopt after many years' work in a children's hospital; it is this: viz., that the dangers of starch-containing foods are very greatly exaggerated. I may even go further, and say that I have never myself met with cases, in which I could distinctly and directly trace disorder to starch foods alone.

Let me, however, lead up to the position I now hold; and at once state that in saying that starch food is not so injurious, *per se*, as is usually represented, my object is not to advocate artificial feeding in preference to nursing, but to draw greater attention to what I consider, far more than starch foods, as the real causes of the marasmus and mortality among young children, especially

that in a very large percentage of cases the lowered health status of the mothers is obviously the reason why artificial feeding of their children has to be adopted. It does not require any long experience to enable one to predicate that if the mothers are weakly, their offspring likewise will be weakly. It follows, therefore, that the reason why so many children are fed on artificial food is, that they do not thrive on the breast milk of their mothers, or that they do not thrive on that alone, either because it is insufficient in quality or quantity, or because the children are too weakly properly to assimilate it. Among the higher classes, late hours and the various exactions of social life, money anxieties and luxurious living take the place of the physical hardships and semi-starvation which obtain among the lower classes, and not less surely but in a different way react alike on the constitution of the pregnant mother and on the foetus in uterus. After birth, however, the child of the rich, even if not suckled, has every attention and care which money can procure, while the poor child continues to experience the deprivations inseparable from its surroundings.

Thus, in estimating the causes and treatment of marasmus and other kindred diseases in infancy, it appears to me that *too much stress is laid on artificial feeding, and especially on the injurious effects of starch-containing foods*, and that too little stress is laid on the *congenital debilities* under which vast numbers of children labour. It is on these points that I specially wish the opinions of Fellows of the Society. The extent to which the starch theory is emphasised in our text-books, and by our leading authorities, may be gauged, in some measure, by the efforts made by the purveyors of infant foods to outdo each other in the completeness with which all starch particles are broken up into less dangerous and more digestible compounds, showing, as it does, how largely this doctrine has permeated even non-professional circles.

By none more dogmatically than by me, has this doctrine been promulgated in years past. But latterly a more independent and wider view of the subject—its proximate as well as its predisposing causes—has induced me, first to doubt the truth of the starch dogma, and now to reject it all together. I stand forward to-night an avowed sceptic of the doctrine that starch food, *per se*, is injurious to the infant organism. Let me be quite clear. I do not question the immense value of good maternal nursing, nor underrate the dangers and disadvantages of artificial feeding, as

commonly carried out, nor that infants are unable to digest starch. I simply state my belief that starch foods are not actively injurious, and for the following (among other) reasons:—

That many and many a child is now alive and well to testify against such a doctrine.

That in years gone by, before malted foods came into vogue, hundreds of children did well on milk, thickened with a little of one or other of the starch-containing cereals.

That there are no experimental investigations to warrant such an assertion.

That, as is well known, animals, when fed on starch, do not get rickets and the diseases usually attributed to starch-feeding; *they die of inanition.*

That the starch taken in with the food passes out with the *faeces unaltered*. If it could be shown that the starch were broken up into other and deleterious compounds, there would be something definite to go upon; but, as a matter of fact, the starch passes out of the body unaltered.

One of the most deplorable matters in this connection is the growing use of artificial foods. If prepared so that the starch is all or nearly all reduced, there is an idea abroad that such foods may be safely ordered and given; this idea is not alone confined to members of our own profession, but prevails largely among the public. As a result, much less cogent reasons now suffice than formerly to warrant the substitution of artificial food, either in part or entirely, for the breast milk. Unfortunately, the privation of mother's milk is seldom the only privation which results from the practice of artificial feeding. Among the poorer classes—and it is essentially among these classes that the worst effects are seen—deprivation of mother's milk means deprivation of a mother's care, of the thousand and one little attentions which are as essential as suckling to a delicate infant. Quite irrespective of the diet itself, artificial food requires immense care in its modes of preparation; I find that the troubles which are sometimes attributed to the kind of food as often as not depend on its faulty preparation and administration. Not in this particular only are the mothers often wanting in knowledge and experience; in poor homes where life is a perpetual scramble—a veritable struggle for existence—there can be very little of that home-teaching which is

such an important element in successful house-management in better stations of life; the girls grow up, marry, and become mothers without having been taught or learnt any of the duties which pertain to motherhood. Among the better classes there is less mortality among the young children, for all the conditions of life are better. Nevertheless, there are many weakly, athreptic children even among the richer classes, for the congenital debilities of which I have spoken obtain also among these classes; after birth, however, the children being much better cared for, gradually overcome this debility, and finally grow up notwithstanding.

The advantages of suckling do not rest entirely with the infant. Besides the popular tradition that a woman does not generally conceive while suckling—a tradition I hold to be well founded—it is clearly advantageous to the mammary glands that their functions should be allowed to go on in a normal manner; lactation should come to an end after parturition as gradually as it develops into activity during pregnancy. Rapid child-bearing is very debilitating; this is especially the case among poor, overworked and underfed women, and, in my opinion, is one of the most potent of the debilitating influences with which we have to deal in this connection.

In a certain proportion of the cases, I find that mothers have adopted artificial feeding because they are not strong enough to nurse. I should like to raise this question, and to learn the opinion of Fellows of the Society upon it. I have met with a few undoubted cases where such an argument has appeared to be justified; but the cases are certainly uncommon, and it may be safely asserted, I think, that the causes are preventible.

In my analysis I stated that in 35 per cent. of the cases the mothers were acting under medical advice in not suckling their children. Even if those cases be excluded in which there was some physical reason (absence, retraction, or ulceration of nipple, mammary abscess) to necessitate such a course, still the proportion of cases is large in which mothers desist from suckling with the consent of their medical advisers; I am inclined to think that the habit of not suckling is largely on the increase, that slighter causes suffice to justify it now than formerly, and that this in some measure depends on the belief that if artificial food, free from starch, is given, little harm results from the practice. Before sanctioning artificial feeding in any given case, I would recommend

a careful consideration of all the circumstances, and have pointed out the advantages of suckling to the mother, as well as the dangers of artificial feeding to the child. If the profession would steadily discountenance artificial feeding, and as steadily urge breast-feeding, much good would, I am sure, result to mother and child alike.

Among reasons given and accepted as sufficient for not nursing are the following: tuberculosis or syphilis in the mother. For myself, I may say that I have never met with a case in which a mother has given any constitutional disease to her own offspring through suckling it. As regards tuberculosis, a very transmissible disease in some families, it would be difficult to prove that it was conveyed by suckling the infant; surely tendencies to a disease are much more likely to be derived from the far more intimate relation between mother and *fœtus in utero* than from breast-feeding. As regards syphilis, Colles' law is not known to have any exception.

Not so many years ago, before these artificial foods had been invented, wet nurses were in great request. Such an arrangement was admirable, when the supply of milk was sufficient for the child and the nursling, and when both were allowed to partake of it; but it was disastrous to the child when the child had to give way to the nursling, as was only too often the case. But other evils and misfortunes than this tended to bring wet nursing largely into disuse, viz., the danger of conveying disease either from the foster-mother to the child or *vice versâ*. I am inclined to think that it was this occasional conveyance of disease to or from a suckling infant, which is responsible for the widespread belief to which I have just alluded that certain dyscrasiæ, or *constitutional conditions, may be conveyed by a nursing mother to her child through the breast milk*. My own experience, however, does not furnish me with a single example in point. The mother who bears a child will impress upon it any constitutional peculiarity she herself possesses; it appears to me quite impossible that her milk can subsequently convey any further constitutional infection. Thus, I think, that to desist from nursing because the mother may be tubercular is certainly a mistake as far as the child is concerned; as I have said, and for reasons already alluded to, the normal discharge of the maternal duties during a normal period is equally advantageous to the mother.

I cannot doubt that much harm has resulted from the almost

exclusive attention which has been fastened on this factor in infantile dyspepsia. It seems, not infrequently, as if the last word had been said, the last effort made, when a milk diet or malted food has been ordered. The question is no mere quibble. So long as we teach, and act on the supposition, that artificial food is injurious chiefly on account of the presence of starch, so long will the far more important factors in marasmus continue to exist and to increase.

I now approach the end of my thesis. The Fellows of the Society will see, from what has preceded, how I have been gradually led to change my views, and have come to regard *infantile athrepsia*, not as the result of artificial feeding—*least of all as the result of starch food*—but as a congenital debility, a condition largely due to the untoward surroundings and mode of life of the parents.

Such being the facts, what can be done? I can do no more than hint at the remedies. They must be partly curative and largely preventive. I will not enter on the very large subject of foods and of diets for such children; clearly, there can be no hard and fast line, *for there is a strong personal element* in each individual case. Briefly, I should say, urge a mother to suckle, entirely if she can, and if not, in part, especially when the child is weakly and while the child is young; if other than breast-milk *must* be used, be careful to have it fresh and good and adequately diluted; if a child thrive on diluted or pure milk so much the better; let well alone; but if a solid food must be added, insist on some simple food, in moderate quantity, carefully prepared and administered, rather than upon some highly-elaborated and largely-advertised nostrum, with the exact nature of which you are unacquainted. Let it be remembered that *fresh foods* are far better than *prepared foods*, and that the processes of pancreatising and of malting tend rather to destroy this freshness.

As regards preventive measures, seeing that I attribute far more influence to congenital debility and to the home surroundings of these children than to starch foods, it will be obvious that I should seek to lessen the amount of this infantile marasmus by lessening the causes which lead to it. For so long as adverse conditions of living persist, so long will be born marasmic and wasted infants. For such children, the conversion of the few

grains of unaltered starch into dextrose, which each individual child daily consumes, will continue to prove a delusion, and be utterly inadequate to affect the question one way or another. Our sanitary inspectors would pronounce absolutely against the wholesomeness of milk produced by cows fed in such places as are occupied in every large town by crowds of child-bearing women, and would condemn, as unfit for the rearing of cattle intended for human food, places which yet serve almost unchallenged, as habitations—I will not say homes—for suckling mothers. Can it be wondered at that so many of the children die of marasmus and kindred disease?

Has not the time come for a reconsideration of this starch dogma, and for a protest by the whole profession against the continuation of a system of local government which permits human beings to be bred and born, to live and die, in surroundings long since declared unfit for animals on which we feed?

1. The first part of the paper is devoted to a general
discussion of the problem. It is shown that the
problem is of great importance in the theory of
the differential equations of the second order.
The second part of the paper is devoted to a
detailed study of the problem. It is shown that
the problem is of great importance in the theory
of the differential equations of the second order.
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